



A COMPARATIVE ANALYSIS OF ADOLESCENT PREGNANCY  
CONTRIBUTING FACTORS IN RURAL AND URBAN ZAMBIA: A CASE STUDY OF  
THE EASTERN AND SOUTHERN PROVINCES

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## Abstract

A COMPARATIVE ANALYSIS OF ADOLESCENT PREGNANCY CONTRIBUTING  
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AND SOUTHERN PROVINCES

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Adolescent pregnancy remains a pressing public health and developmental challenge in Zambia, with 29% of adolescent girls under the age of 18 becoming mothers. Significant rural-urban disparities persist, with prevalence rates of 37% in rural areas compared to 17% in urban settings. Adolescent pregnancy contributes to a host of negative outcomes, including maternal mortality, school dropout, sexually transmitted infections (STIs), and child marriage. Despite ongoing sexual and reproductive health (SRH) interventions, reductions in adolescent pregnancy rates remain limited, suggesting underlying structural and contextual factors that require further exploration. However, existing literature often fails to provide comparative insights across geographic settings, leaving a critical gap in understanding how location-specific dynamics shape adolescent pregnancy risks.

A comparative mixed-methods cross-sectional design was employed, guided by Bronfenbrenner's Socio-Ecological Model (SEM). Quantitative data were collected through structured questionnaires from 400 adolescents aged 18-19 and young women aged 20-24 across selected districts in the Eastern and Southern provinces. Qualitative data were gathered through 12 focus group discussions (FGDs) and 20 key informant interviews (KIIs) involving parents, healthcare providers, teachers, and community leaders. The study examined multilevel determinants; individual, interpersonal, community, and policy using descriptive statistics and binary logistic regression for quantitative data, and thematic content analysis for qualitative data.

The findings revealed significantly higher adolescent pregnancy rates in rural areas, largely driven by early sexual debut, poverty, child marriage, limited contraceptive access, and sociocultural practices such as initiation ceremonies. In urban settings, contributing factors included peer pressure, constrained parental oversight, and gaps in youth-friendly service availability. Key predictors across both contexts included age at first sex, education level, and contraceptive use, with marital status and SRH service utilization showing stronger associations in rural areas.

The study underscores the contextual complexity of adolescent pregnancy and highlights the need for geographically tailored interventions. It contributes evidence to inform integrated strategies that expand adolescent-responsive SRH services and economic opportunities. Strengthening community engagement, especially with parents and traditional leaders, alongside better enforcement of child protection and SRH policies is essential to reducing adolescent pregnancy and improving adolescent well-being in Zambia. Further research should examine long-term impacts and intervention effectiveness.

## Declaration

I hereby declare that the doctoral dissertation entitled “A Comparative Analysis of Adolescent Pregnancy Contributing Factors in Rural and Urban Zambia: A Case Study of the Eastern and Southern Provinces” is my original work and has not been submitted for any other degree or professional qualification. I confirm that all work presented in this dissertation is entirely my own, except for sections derived from a jointly authored publication, for which the respective contributions of both me and the co-authors are clearly outlined.

Furthermore, I affirm that proper acknowledgment has been given throughout this thesis to the work of others. This research is submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy (PhD) in Public Health, adhering to the ethical standards and guidelines established by UNICAF University and ERES Converge in Zambia.

## AI Acknowledgment

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## Dedication

To my beloved late parents, Wilbert and Winnie Mwanyisa, whose unwavering love, guidance, and sacrifices have shaped the person I am today, and to my cherished siblings, Bessie, Tsitsi, Miriam, Stephen, and Andrew, who have gone before me. Your memories continue to inspire and strengthen me every day. This work is a testament to your enduring legacy and the profound impact on my life. I hold your spirits close to my heart and dedicate this doctoral dissertation to you with the deepest love and gratitude.



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## List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
AP	Adolescent Pregnancy
ASRH	Adolescent Sexual and Reproductive Health
ASRHR	Adolescent Sexual and Reproductive Health Rights
CAPI	Computer-Aided Interviewing
CDT	Cognitive Dissonance Theory
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
COREQ	Consolidated Criteria in Reporting Qualitative Research
CRC	Convention on the Rights of the Child
CSE	Comprehensive Sexuality Education
CSO	Central Statistical Office
CSPro	Census and Survey Processing System
EAs	Enumeration Areas
FGD	Focus Group Discussion
FGDs	Focus Group Discussions
FGM	Regarding Female Genital Mutilation
GBV	Gender-Based Violence
HBM	Health Belief Model
HIV	Human Immune Virus
ICPD	International Conference on Population and Development
ICPD PoA	International Conference on Population and Development Programme of Action
ICTs	Information Communication Technologies
IEC	Information, Education, and Communication
IRB	Ethics Research Board
KIIs	Key Informants Interviews
LMICs	Low- and Middle-Income Countries
NYP	National Youth Policy
PHC	Population and Housing Census
SADC	Southern Africa Development Community
SCT	Social Cognitive Theory

SDGs	Sustainable Development Goals
SEM	Social-Ecological Model
SES	Socio-economic Status
SGBV	Sexual Gender Based Violence
SPSS	Statistical Package for Social Sciences
SRH	Sexual and Reproductive Health
SRHR	Sexual and Reproductive Health and Rights
SSA	Sub-Saharan African
STI	Sexually Transmitted Infections
UN	United Nations
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations International Children's Emergency Fund
UREC	University Research Ethics Committee
VIF	Variance Inflation Factor
WHO	World Health Organization
WHO	World Health Organization
YPSRHR	Sexual and Reproductive Health and Rights of Young People
ZSA	Zambia Statistics Agency

## **CHAPTER 1: INTRODUCTION**

### **1.0 Introduction**

Adolescents represent a critical stage of human development, navigating the complex transition from childhood to adulthood. Defined by the World Health Organization (WHO, 2018) as individuals aged 10 to 19, this period is marked by significant physical, emotional, and social changes that shape future trajectories in health, education, and socioeconomic well-being. Adolescent pregnancy, also defined by WHO (2018), as pregnancy occurring in girls aged 10 to 19, remains one of the most pressing public health and developmental challenges globally. The implications of adolescent pregnancy extend far beyond the individual, exerting a profound impact on families, communities, and national development efforts.

The complexity and multifaceted nature of adolescent pregnancy make it a priority issue requiring urgent attention. Globally, adolescent pregnancy rates are disproportionately higher in low- and middle-income countries (LMICs), particularly in regions such as Sub-Saharan Africa. Adolescent pregnancy is especially prevalent in Zambia, as in many LMICs, where cultural, economic, and systemic factors exacerbate the challenges associated with early childbearing. According to WHO estimates, there were 21 million pregnancies annually among adolescent girls aged 15-19 in 2019. Of these, 50% were unplanned, leading to approximately 12 million births. These figures are more than mere statistics; they represent millions of young girls whose potential is compromised by early motherhood. The alarming statistics underscore the urgency of addressing adolescent pregnancy as a multifaceted issue influenced by a range of factors.

Given the scale and complexity of adolescent pregnancy in Zambia, this study holds important implications for public health policy and programming. By uncovering the rural-urban disparities and identifying key social, economic, and cultural drivers, the research aims to generate evidence that can inform targeted, equity-focused interventions. These insights are

intended to support the development and refinement of ASRH policies, inform strategic planning at national and sub-national levels, and guide the implementation of multisectoral responses that align with Zambia's development priorities and international commitments (Chandra-Mouli et al., 2019; Neal, Channon, & Matthews, 2020).

Adolescent pregnancy is a critical public health and development issue recognized in global health frameworks such as the International Conference on Population and Development (ICPD) Programme of Action and the SDGs, due to its significant impact on individuals and societies. These frameworks emphasize the importance of individual rights and choices in promoting gender equality, reducing poverty, and supporting sustainable development, particularly through the sexual and reproductive health and rights (SRHR) of young people (Chandra-Mouli et al., 2019; Starrs et al., 2018). Despite global commitments, the unmet SRHR needs of adolescents remain a significant concern, contributing to high rates of unintended adolescent pregnancies (WHO, 2018; UNFPA, 2019).

Adolescent pregnancy poses significant health risks, including higher rates of maternal mortality, morbidity, preterm birth, and low birth weight among infants (Chandra-Mouli et al., 2019; Neal, Channon & Matthews, 2020). These health risks are closely linked to broader socio-economic consequences. Educational disruption limited economic opportunities, and increased vulnerability to poverty are common outcomes for adolescent mothers, particularly in settings where systemic barriers persist (Yakubu & Salisu, 2018; Kassa., Arowojolu., Odukogbe & Yalew, 2018). These challenges are often shaped by intersecting factors such as gender inequality, limited access to contraceptives, and socio-cultural norms that condone early marriage or stigmatize adolescent sexuality (UNICEF, 2022; Mbizvo et al., 2023; Kaphagawani & Kalipeni, 2017). Despite the availability of contraceptives, access and uptake remain low, leaving an estimated 23 million adolescent girls aged 15–19 in LMICs without the



contraception they need (WHO, 2018; Subedi et al., 2018). Addressing these structural drivers is essential to improving adolescent SRHR and breaking cycles of poverty and inequality.

The rate of adolescent pregnancy in Africa is significantly high. A systematic review by Kassa., Arowojolu., Odukogbe & Yalew (2019), reported an adolescent pregnancy prevalence of 19.3% in sub-Saharan Africa and an overall rate of 18.8% across the continent. In addition, sub-Saharan Africa ranks among the regions with the highest adolescent birth rates at 106 per 1,000 individuals (Kamer, 2021; Maharaj, 2022). In Zambia, adolescent pregnancy is particularly concerning, with a prevalence rate of 29%. The rate has risen from 28.5% in 2014 to 29.2% in 2018 (CSO, 2018). During this period, at least 37% of adolescent girls in rural settings gave birth by age 18. In certain rural areas of the Eastern and Southern Provinces, adolescent pregnancy rates reach as high as 42% and 43%, respectively. The average age of first sexual intercourse is 16.6 years. Adolescents in rural areas typically marry at an average age of 18.3 years, while those in urban areas tend to marry later, with an average age of 20.2 years. Adolescent pregnancies play a significant role in Zambia's high total fertility rate of 4.7 children per woman, contributing to approximately 20% of the overall rate (CSO, 2018).

The Constitution of Zambia (Amendment Act No. 2 of 2016) defines children as individuals aged 18 years or younger. Yet, many adolescent girls face early transitions into adulthood, often marked by menarche, a culturally significant milestone in some communities, where it is celebrated through initiation rites that may signal readiness for marriage. These rites, along with prevailing social norms, can contribute to early sexual activity and limited agency, increasing the risk of unintended pregnancies (Kaphagawani & Kalipeni, 2017; Ayele et al., 2018).

Rural and urban settings present distinct dynamics that shape adolescent pregnancy outcomes. While urban areas may offer greater access to education and services, adolescents still face vulnerabilities related to poverty, peer influence, and limited parental supervision (Foster & Johnson, 2020). In rural areas, early marriage, traditional norms, and limited access to SRH services increase the risk of early childbearing (WHO, 2022). These disparities underscore the importance of context-specific interventions.

Evidence has shown that education remains a key protective factor. Girls who remain in school are less likely to become pregnant, as education equips them with knowledge and expands their life choices (Neal, Channon & Chandra-Mouli, 2020; UNFPA, 2022). Similarly, interventions that challenge harmful gender norms and promote empowerment have shown positive outcomes (Chandra-Mouli et al., 2019).

Zambia's persistently elevated adolescent pregnancy rates, along with rural-urban disparities, underscore the need to examine the root causes. This study is grounded in Bronfenbrenner's (1979) ecological systems theory, which offers a framework for understanding the multi-layered influences on adolescent pregnancy, from individual behaviour and peer influence on community norms and policy environments (Neal, Channon & Chandra-Mouli, 2020). Applying this framework to the Zambian context, this study explores the distinct rural and urban influences shaping adolescent pregnancy, with the aim of informing tailored, evidence-based interventions that empower girls, their families, and communities. Sustainable progress also depends on the consistent enforcement of laws and implementation of policies that uphold the rights and health of adolescents.

Global and regional strategies have increasingly emphasized the importance of investing in adolescent health as a cornerstone of development. The African Union's Campaign

to End Child Marriage and the East and Southern Africa Ministerial Commitment on CSE (ESA Commitment) both highlight the urgency of addressing early pregnancies and child marriage through multisectoral collaboration. Similarly, Zambia's own commitments under the Maputo Plan of Action and the revised National Health Strategic Plan underscore adolescent health as a key priority. However, translating these commitments into effective action remains a challenge due to limited data disaggregation, under-resourced implementation structures, and insufficient engagement of adolescents in policy design and service delivery (AU, 2019; UNESCO, 2021). This study aligns with and seeks to complement these efforts by generating context-specific evidence that can inform national and regional strategies to improve adolescent sexual and reproductive health (ASRH) outcomes.

Through the integration of relevant research findings and theoretical frameworks, this introduction establishes a solid foundation for the investigation of adolescent pregnancy in diverse settings-rural and urban. By identifying these factors, this study aims to inform public health policy decisions and programming through evidence-based data and targeted interventions that address rural-urban disparities in adolescent pregnancy. In addition, the study may contribute to the growing body of knowledge by exploring adolescent pregnancy through an urban-rural comparative lens. The findings will not only illuminate the distinct challenges faced by adolescent girls in rural and urban contexts but also offer practical recommendations for advancing SRHR for adolescents in Zambia and beyond.

Addressing adolescent pregnancy is therefore essential not only for protecting the rights and health of adolescents, but also for advancing gender equality, human capital development, and the achievement of national and global development goals.

## 1.2 Problem Statement

The problem is that adolescent pregnancy remains a critical public health and developmental challenge in Zambia, disproportionately affecting rural and urban populations in distinct ways. Despite sustained national and global commitments to reduce adolescent fertility and promote ASRH, Zambia continues to report persistently high rates of adolescent pregnancy (CSO, 2014, 2018; Munakampe, Michelo & Zulu, 2021). This troubling trend undermines the country's progress toward national development goals and global commitments, including the Sustainable Development Goals (SDGs), particularly SDG 3 on health, SDG 4 on education, and SDG 5 on gender equality. Considering these realities, there is an urgent need for evidence-informed, context-specific interventions to address the underlying factors driving adolescent pregnancy, especially the stark disparities between rural and urban contexts.

The Zambia Demographic and Health Survey (ZDHS), reveals that the national adolescent pregnancy rate increased marginally from 28% in 2014 to 29.2% in 2018 (CSO, 2014; 2018). While this change may seem modest, it indicates a worrying stagnation in progress despite numerous interventions. Notably, adolescent girls in rural areas are significantly more likely to become pregnant than their urban peers. Studies suggest that rural adolescents are up to twice as likely to experience pregnancy, primarily due to limited access to youth-friendly health services, comprehensive sexuality education (CSE), modern contraceptives, and the persistence of sociocultural norms that endorse early marriage and traditional initiation rites (Kassa, Arowojolu, Odukogbe, and Yalew, 2018). In contrast, urban adolescents, while having better geographic access to services, contend with other vulnerabilities such as poverty, peer pressure, exposure to risky behaviours, and weakened family structures (Foster and Johnson, 2020; WHO, 2018). These differing risk profiles call for differentiated interventions grounded in a nuanced understanding of context-specific drivers.

Adolescent pregnancy is a major contributor to Zambia's maternal morbidity and mortality burden. Although Zambia's maternal mortality ratio declined from 398 per 100,000 live births in 2014 to 278 in 2018, adolescents still account for approximately 20% of maternal deaths (CSO, 2018). This high proportion is attributed to the physiological immaturity of adolescent girls, which increases the risk of complications such as obstructed labour, eclampsia, and postpartum haemorrhage (WHO, 2018; Gurung, Chalise, Rajbanshi, and Aryal, 2020). Even among those who survive childbirth, many face long-term consequences such as obstetric fistula, which often leads to lifelong stigma, physical pain, and social exclusion (Mahbooba and Salih, 2021). These health risks reinforce gender and social inequalities, particularly in rural areas where access to emergency obstetric care remains limited.

The consequences of adolescent pregnancy extend to the next generation. Children born to adolescent mothers are more likely to have low birth weight, suffer from perinatal mortality, and experience delayed cognitive and physical development (WHO, 2020; Wado and Mumah, 2019; Mohr, Carbajal, and Sharma, 2019). These outcomes increase the burden on families and the already strained health system. Moreover, adolescent girls face heightened vulnerability to HIV and other sexually transmitted infections (STIs), driven by early sexual debut, unequal power dynamics in relationships, lack of contraception, and increased exposure to gender-based violence (Govender, Naidoo, Taylor, and Naidoo, 2022). The interlinkages between adolescent pregnancy and poor SRH outcomes underscore the need for comprehensive and rights-based interventions that address both preventive and responsive aspects of care.

A significant proportion of adolescent pregnancies in Zambia are unintended. A recent study by the African Population and Health Research Center (APHRC, 2022) reported that 77% of adolescent pregnancies in Kenya were unintended, and while similar nationally representative data for Zambia is limited, comparable trends are evident. These unintended pregnancies are often the result of poverty, gender inequality, lack of education, and limited

access to youth-friendly SRHR services. Restrictive abortion laws and pervasive stigma surrounding adolescent sexuality further exacerbate the issue, forcing many girls into unsafe abortion practices that pose serious risks to their health and lives (Biddlecom, Sully, and Murro, 2020).

Education is one of the sectors most directly affected by adolescent pregnancy. Pregnant adolescents often face expulsion or drop out due to stigma, lack of support, or rigid school policies. This disrupts their education and significantly diminishes their economic opportunities, leading to a cycle of poverty, dependency, and marginalization (Ahinkorah, Budu, Seidu, Adu, Osei, and Yaya, 2020). Although Zambia has adopted a Re-entry Policy to allow pregnant girls to return to school post-delivery, the implementation of this policy remains inconsistent, particularly in rural areas. In urban settings, discrimination and social stigma in schools and communities remain formidable barriers. The intersectionality of poverty, limited education, and adolescent pregnancy creates a self-reinforcing cycle that continues to undermine Zambia's progress in gender equality and economic empowerment.

To address adolescent pregnancy, Zambia has adopted several policies and programmes, including the Adolescent Health Strategy, Re-entry Policy, and the roll-out of youth-friendly health services. These initiatives are commendable and demonstrate political will. However, the implementation of these policies remains fragmented and often fails to account for the specific needs of rural and urban adolescents. In many instances, interventions lack the contextual nuance required for success, and there is minimal involvement of adolescents in the design and evaluation of the programmes intended to serve them. This gap limits the impact and sustainability of such efforts.

Moreover, research and programming have not adequately addressed the intersectional and geographic dimensions of adolescent pregnancy. Many existing studies treat adolescent girls as a homogenous group, neglecting the important differences between rural and urban

environments. There is a paucity of comparative analyses that explore how sociocultural, economic, and systemic factors interact to influence adolescent reproductive behaviours across settings. Additionally, most interventions have not embraced adolescent-centred or gender-transformative approaches, nor have they sufficiently engaged families, communities, and traditional leaders who wield influence over adolescent behaviours.

The COVID-19 pandemic further exposed and intensified existing vulnerabilities among adolescents. Lockdowns, prolonged school closures, and economic disruption contributed to increased rates of adolescent pregnancies and child marriages (Plesons, Kavanagh, and Owens, 2021). The pandemic demonstrated the fragility of support systems for adolescents and highlighted the need for resilient, inclusive, and context-sensitive strategies that can withstand future crises.

This study seeks to address these critical gaps by conducting a rural-urban comparative analysis of the drivers of adolescent pregnancy in Zambia, focusing on the Eastern and Southern Provinces. While some studies suggest that rural areas bear the brunt of adolescent pregnancy, others report rising rates in urban settings (Izugbara, 2018; Uwizeye, Poudel, Petrova, and Otsuka, 2020). A deeper understanding of these dynamics is necessary to inform targeted, effective interventions. Grounded in Bronfenbrenner's Social-Ecological Model, this study examines the multi-level factors-individual, interpersonal, community, and societal, that influence adolescent pregnancy in diverse geographic settings.

By generating locally grounded and context-specific evidence, this research aims to inform policy and programmatic interventions that are responsive to the distinct needs of rural and urban adolescents. The findings will contribute to strengthening the implementation of Zambia's Adolescent Health Strategy, aligning interventions with the SDGs, and supporting more inclusive, sustainable development outcomes. Ultimately, addressing adolescent pregnancy through differentiated, gender-responsive, and adolescent-centred approaches will

be vital to unlocking the full potential of Zambia's young people and strengthening the country's human capital base.

### **1.3 Study Purpose, Aims, and Objectives**

The purpose of this comparative mixed-methods study was to investigate the factors contributing to adolescent pregnancy in rural and urban areas of Zambia's Eastern and Southern provinces, with the overarching goal of generating context-specific evidence to inform policies and programs that address the persistently high rates of adolescent pregnancy. Grounded in Bronfenbrenner's ecological systems theory, the study was designed to answer key research questions concerning the multi-level and geographically distinct drivers of adolescent pregnancy, including demographic, social, cultural, and structural factors (Bronfenbrenner, 1979; Neal, Channon, & Chandra-Mouli, 2020).

Adolescent pregnancy remains a significant public health and development concern in Zambia, with notable disparities between rural and urban settings. National data indicate a prevalence rate of 37% among rural adolescent girls compared to 17% in urban areas (Central Statistical Office (CSO), 2018). These disparities are shaped by a complex interplay of poverty, education, gender norms, access to SRH services, early marriage, and cultural practices, which vary significantly across contexts (Kassa, Arowojolu, Odukogbe & Yalew, 2018; Mbizvo et al., 2023). Despite the existence of adolescent SRH interventions, reductions in adolescent pregnancy have been limited, partly due to a lack of disaggregated evidence that captures the nuanced realities faced by adolescents in diverse settings (Chandra-Mouli et al., 2019; UNFPA, 2022).

To address this gap, the study adopted a comparative research design utilizing both quantitative and qualitative methods. The quantitative component of the study analysed statistical relationships between adolescent pregnancy and factors such as education level, age



at first sexual intercourse, marital status, contraceptive use, access to SRH services, and experiences with harmful practices (Yakubu & Salisu, 2018; Subedi et al., 2018). This phase involved a survey of adolescents and young women aged 18–24 who had experienced pregnancy during adolescence.

Complementing this, the qualitative component drew on FGDs and KIIs with adolescents, parents, healthcare providers, and community leaders to explore lived experiences, perceptions, and socio-cultural norms influencing adolescent pregnancy (Foster & Johnson, 2020; Kaphagawani & Kalipeni, 2017). This mixed-methods approach enabled a comprehensive understanding of how rural and urban contexts shape both vulnerabilities and protective factors around adolescent pregnancy.

The study is expected to contribute to the development of evidence-informed and context-specific public health policies and interventions that address the diverse needs of adolescents. By uncovering the barriers and enablers to effective programming, the research also aims to guide implementation of integrated strategies aligned with Zambia’s national commitments and global frameworks, such as SDGs and the ESA Commitment (AU, 2019; UNESCO, 2021).

#### **1.4 Research Aims and Objectives**

The overarching aim was to investigate the factors contributing to the high prevalence of adolescent pregnancy across rural and urban settings in Zambia’s Eastern and Southern provinces, and to provide evidence that can inform the design of tailored, context-responsive interventions.

The specific objectives were to:

1. Identify factors influencing adolescent pregnancy in Eastern and Southern provinces of Zambia.
2. Compare these factors between selected rural and urban districts in Zambia's Southern and Eastern provinces.
3. Assess the barriers and enablers to adolescent pregnancy prevention interventions across the rural-urban divide.
4. Examine the health, social, and economic impacts of adolescent pregnancy across the rural-urban divide.
5. Identify effective practices and interventions for preventing unintended adolescent pregnancies.

## **1.5 Nature and significance of the study**

While various definitions of research gaps exist, this study adopts the definition by Hempel, Gore, and Belsher (2019), who describe a research gap as an area with missing information, either due to insufficient research, outdated information, or lack of prior investigation. This section outlines the significance, methods, and analysis of the research and concludes with the research questions.

### **1.5.1 Significance of the Study**

This study investigated the factors contributing to adolescent pregnancy across rural and urban contexts in Zambia's Eastern and Southern provinces. Employing a mixed-methods design, it integrated quantitative data drawn from structured household surveys with qualitative insights gathered through FGDs and KIIs. While a detailed description of methodology is presented in Chapter 3, this approach is briefly outlined here to illustrate the significance of the

study design. The mixed-methods approach followed a pragmatic research paradigm, enabling the triangulation of statistical trends with contextual and experiential data. The study was framed within Bronfenbrenner's SEM, which provided a robust structure for exploring the multilevel determinants of adolescent pregnancy across individual, interpersonal, community, and structural domains. This framework is widely recognized in public health research for its ability to capture complex interactions between personal behaviours and environmental influences (McLeroy et al., 1988; Bronfenbrenner, 1994).

The significance of this research lies in its response to a clearly defined knowledge gap in the literature on adolescent pregnancy in sub-Saharan Africa. Most existing studies tend to examine adolescent pregnancy in either rural or urban settings, often failing to investigate the differences, overlaps, and interactions across these geographies (Sánchez-Páez & Ortega, 2021). Such a fragmented approach limits the development of holistic, context-sensitive interventions. By conducting a comparative analysis across rural and urban contexts, this study contributes to a more nuanced understanding of the spatial and social dynamics that shape adolescent reproductive health outcomes in Zambia.

The study also offers new empirical insights into how geography, socio-economic status, social norms, and service availability intersect to influence adolescent pregnancy. In rural areas, limited access to health services, early marriage, and restricted educational opportunities emerged as dominant factors. In contrast, urban adolescents often face challenges such as inadequate youth-friendly services, peer pressure, and stigma in health-seeking behaviour. These findings are supported by prior research indicating that early sexual debut, poor access to SRH services, gender inequality, and school dropout are key drivers of adolescent pregnancy across the region (Kassa., Arowojolu., Odukogbe & Yalew 2018; CSO, 2018).

By revealing these context-specific drivers and protective factors, the study strengthens the evidence base for developing targeted and equitable interventions. For instance, rural areas may benefit from investments in healthcare infrastructure, culturally responsive CSE, and support for school retention among adolescent girls. Urban programs, on the other hand, may require stronger peer outreach, anti-stigma campaigns, and tailored youth services. The study's findings have direct relevance for advancing Zambia's progress toward the SDGs, particularly SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), and SDG 5 (Gender Equality).

This research contributes to interdisciplinary scholarship by drawing on theoretical and empirical insights from public health, sociology, education, and development studies. The mixed-methods approach reinforces the value of integrating quantitative and qualitative data to explore complex social issues, such as adolescent pregnancy. Methodologically, this combination allows for the validation of numerical findings through experiential narratives, resulting in a deeper and more comprehensive understanding of the issue (Creswell & Plano Clark, 2017). The study also enriches theoretical frameworks by illustrating how social-ecological systems interact with place-based and cultural variables, contributing to a broader discourse on adolescent health and rights in low-resource settings.

From a practical standpoint, the study's findings have wide-reaching implications for multiple stakeholders. For policymakers, the evidence can support the design of national and sub-national strategies that promote adolescent health equity and resource allocation that is responsive to local realities. Health workers and educators can use the insights to enhance service delivery models and communication strategies tailored to adolescent needs. Community leaders and parents may find the findings valuable in identifying opportunities to strengthen family and community-based protective factors (Ahinkorah, et al., 2021).

The study also highlights the long-term public health and socio-economic consequences of adolescent pregnancy. Adolescent mothers face increased risks of obstetric complications, maternal mortality, and poor neonatal outcomes. In addition to health consequences, adolescent pregnancy can lead to educational disruption, economic dependency, and reduced labour market participation. These factors, in turn, contribute to cycles of intergenerational poverty and vulnerability (UNFPA, 2022; WHO 2023). The evidence presented reinforces the need to treat adolescent pregnancy as a priority public health and development issue. It also supports global and national calls for investment in adolescent girls as a pathway to achieving a demographic dividend and broader national development goals (WHO, 2023).

Additionally, the study identifies service delivery gaps, including lack of adolescent-friendly health services, poor service quality, and provider biases. Addressing these challenges is critical for ensuring that adolescents can access timely, confidential, and respectful SRH services. These insights are particularly relevant for healthcare managers and SRH program implementers seeking to improve the responsiveness and inclusiveness of health systems. They also align with WHO and UNFPA recommendations on the integration of adolescent-responsive service standards in primary healthcare systems (WHO, 2022).

Academically, this study contributes to the advancement of methodological and conceptual approaches in adolescent health research. Its use of a comparative, cross-regional lens offers a valuable model for future studies aiming to explore spatial variation in SRHR outcomes. Furthermore, its emphasis on integrating lived experiences with epidemiological data enhances the legitimacy and relevance of research findings to both scholarly and non-scholarly audiences (Creswell & Plano Clark (2018). It also helps shift the discourse from one that focuses solely on individual behaviour change to one that situates adolescent reproductive outcomes within broader systems of inequality and marginalization.

The significance of this study rests in its contribution to bridging a persistent research gap, its interdisciplinary and mixed-methods design, and its practical utility for informing policy and programmatic action. It provides timely, rigorous, and context-specific evidence on the rural-urban dynamics of adolescent pregnancy in Zambia. The findings can inform differentiated strategies that are culturally appropriate, locally relevant, and sustainable. This research is not only academically valuable but also highly relevant to professionals working in public health, education, gender, and youth sectors. By offering new insights and actionable recommendations, the study supports efforts to reduce adolescent pregnancy and improve the overall health and wellbeing of adolescent girls. It lays a foundation for future research, policy innovation, and stakeholder engagement in advancing adolescent SRHR.

By identifying specific drivers of adolescent pregnancy across geographic contexts, the study supports the development of targeted interventions, such as improved access to SRH services, promotion of gender equity, and strengthened community-based programs. It also offers insight into how demographic, economic, and socio-cultural factors intersect to influence adolescent reproductive health, thereby informing more nuanced and effective public health strategies.

## **1.6 Research Questions and Hypotheses**

The research questions formulated for this study were designed to guide a comprehensive investigation of the factors associated with adolescent pregnancy, with a particular emphasis on understanding the differences between rural and urban settings. According to Creswell and Creswell (2018), well-crafted research questions are central to guiding inquiry, particularly in studies seeking to understand complex, context-specific phenomena. The formulation of these questions was closely aligned with the study's pragmatic

philosophical foundation and mixed-methods design, ensuring relevance and coherence across the research problem, purpose, and methodology.

To address the research objectives, both quantitative and qualitative methods were employed. This mixed-methods approach enabled the collection of complementary data that enriched the analysis. Brink, Van der Walt, and Van Rensburg (2018) emphasize that a study design should follow a logical sequence of stages to systematically collect and interpret data, highlighting the importance of thoughtful research question development within this process.

The research questions were intended to investigate key drivers, barriers, and risk factors associated with adolescent pregnancy across rural and urban settings. Quantitative methods were used to statistically examine relationships among variables such as demographic characteristics, age at sexual debut, access to SRH services, contraceptive use, and exposure to harmful practices. Concurrently, qualitative methods explored the lived experiences, socio-cultural norms, and contextual dynamics influencing adolescent reproductive behaviours. Together, these methods provided a robust, nuanced understanding of the issue and yielded actionable insights to inform context-sensitive interventions.

### **1.6.1 Research Questions (RQ)**

This study employed Bronfenbrenner's Social-Ecological Model (SEM) as a guiding framework to investigate the multi-level factors influencing adolescent pregnancy. The research questions reflect this layered approach, addressing individual, interpersonal, community, and societal determinants across rural and urban settings in Zambia.

The study was guided by the following research questions:

1. RQ1 What are the key factors influencing adolescent pregnancy in the Eastern and Southern provinces of Zambia?

2. RQ2 Are there differences and similarities in factors that influence adolescent pregnancy between selected rural and urban districts in Eastern and Southern provinces of Zambia?
3. RQ3 What are the barriers and enablers for interventions aimed at preventing adolescent pregnancy across the rural-urban divide?
4. RQ4 What are the health, social, and economic impacts of adolescent pregnancy in these settings?
5. RQ5 What are the best practices and effective interventions available for preventing unintended adolescent pregnancies in Zambia?

### **1.6.2 Research Hypotheses**

- H<sub>1A</sub>:** There is an association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for the respondents' age.
- H<sub>1B</sub>:** There is an association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for respondents' marital status.
- H<sub>1C</sub>:** There is an association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for respondents' level of education.
- H<sub>2</sub>:** There is an association between early sexual debut and adolescent pregnancy across the rural-urban divide in Zambia.
- H<sub>3</sub>:** There is an association between ASRH services availability and adolescent pregnancy across the rural-urban divide in Zambia.
- H<sub>4</sub>:** There is an association between ASRH services uptake and adolescent pregnancy across the rural-urban divide in Zambia.



- H<sub>5</sub>:** There is an association between contraceptives uptake and adolescent pregnancy across the rural-urban divide in Zambia.
- H<sub>6</sub>:** There is an association between the role of Community healthcare worker and adolescent pregnancy across the rural-urban divide in Zambia.
- H<sub>7</sub>:** There is an association between awareness of harmful practices and adolescent pregnancy across the rural-urban divide in Zambia.
- H<sub>8</sub>:** There is an association between the experience of harmful practices and adolescent pregnancy across the rural-urban divide in Zambia.

## CHAPTER 2: LITERATURE REVIEW

### 2.0 Introduction

The purpose of this comparative mixed-methods study was to investigate the factors contributing to adolescent pregnancy in rural and urban areas of Zambia's Eastern and Southern provinces, with the overarching goal of generating context-specific evidence to inform policies and programs addressing persistently high adolescent pregnancy rates. Grounded in Bronfenbrenner's Socio-ecological systems theory (1979), the study examined how demographic, socio-cultural, economic, and structural influences intersect to shape adolescent reproductive behaviours and outcomes (Neal, Channon, & Chandra-Mouli, 2020).

This literature review critically engages with existing research and theoretical perspectives on adolescent pregnancy, with particular attention to studies from Sub-Saharan Africa and Zambia. The review is thematically organized to reflect the study's conceptual and theoretical foundations. It begins with an overview of the theoretical frameworks guiding the research: Bronfenbrenner's SEM, the Health Belief Model (HBM), and a detailed analysis of the SEM, which serves as the primary framework anchoring the study. These frameworks provide a multi-level lens for understanding how individual, interpersonal, community, and policy-level factors contribute to adolescent pregnancy.

Following the theoretical overview, the review presents the conceptual framework, which is also anchored in the SEM. This framework informs the study's key variables, including demographic characteristics, SRH behaviours, socio-cultural norms, economic conditions, and policy-level influences. These dimensions provide a coherent structure for examining the determinants of adolescent pregnancy and for assessing differences between rural and urban contexts.

This literature review critically examines existing research on adolescent sexual behaviour and its influence on pregnancy, thereby contributing to the broader discourse on adolescent health as both a public health and development issue. The review draws on peer-reviewed journal articles, conference papers, theses, and reports published primarily from 2018 onward except for dated theories. Studies were sourced from databases including ProQuest, Medline, EMBASE, CINAHL, Academic Search Complete, and African Journals Online. Cross-sectional, cohort, and case studies that reported on the prevalence and determinants of adolescent pregnancy in Zambia were prioritised, alongside selected theoretical frameworks relevant to the study. Key search terms included: adolescent pregnancy prevalence, fertility and determinants, CSE, family and community influence, socio-economic status, religion, cultural norms, education levels, sexual debut, contraceptive access, youth-friendly services, early marriage, peer pressure, unplanned pregnancies, and socio-ecological models. The review pays particular attention to literature focused on sub-Saharan Africa, especially Zambia.

By integrating these frameworks and engaging critically with both historical and contemporary sources, this chapter sets the stage for a nuanced understanding of adolescent pregnancy in Zambia and justifies the analytical lens applied in this study. The literature reviewed in this chapter is organized thematically, guided by the study's conceptual frameworks and selected variables, ensuring a cohesive structure for critical analysis.

## **2.1 Theoretical Framework**

In general terms, a theoretical framework is considered as the basis for reviewing current theories to recast, develop, or confirm existing theories (Akanle & Shittu, 2020). The traditional definitions of theory typically describe it as a systematic collection of statements that explain a general behaviour or structure, believed to be valid across a wide range of specific examples.

Alternatively, theory can be regarded as a statement of empirically established connections between observed or estimated phenomena. Sunderland (1976:9) considers a theory to be “an ordered set of assertions about a generic behaviour or structure assumed to hold true throughout a significantly broad range of specific instances,” while Whacker (1998:361-385) further defines theory as “a statement of relationships between units observed or approximated between units in the empirical world.”

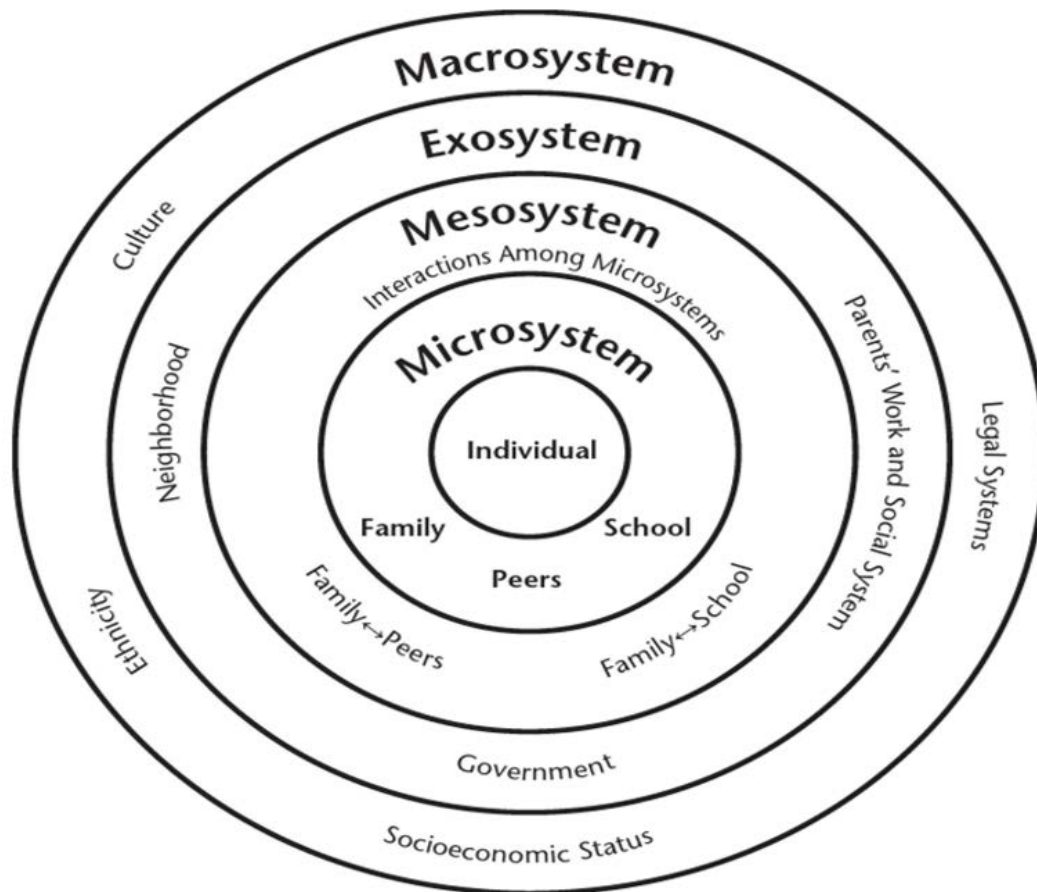
Based on the above, it can be deduced that theories allow research to be divided into manageable parts for investigation and analysis. In addition, models are important in the mixed methods approach of this research, which is open to both qualitative and quantitative approaches (Creswell & Plano, 2018). This applies specifically to data gathering, coding, and analysis. The SEM model chosen for this research is consistent with the logic of abstracting from the whole theory to investigate and explain the problem of adolescent pregnancy in Zambia across the rural-urban divide more adequately. It further stands to reason those models, such as the SEM, are of immense value to the extent that by focusing on part or thereof of the overall theory, they make the research problem more amenable to investigation, analysis, and explanation, being part of the greater whole informed by the theory.

Ravitch and Carl (2021), note that while issues of validity and reliability affect the quality of social research, it is the absence of a coherent theoretical or conceptual framework that often leads to rejection during peer review processes in academic publishing. This of course rides on the failure by the author/researcher to justify and align the research effort to the theory and separate it from the vision suggested by a conceptual framework. It is such pitfalls that this study will endeavour to circumvent at all costs, everything being equal, in addressing the pertinent issues relating to both the research problem of adolescent pregnancy in Zambia and how the mixed methods approach is relevant and feasible.

Extrapolating from the above, the essential elements and building blocks of a good scientific theory should be supported by systematic and structured logical framework(s); should be based on assumptions, assertions, or suppositions supported by facts; should be amenable to generalizations, within specified parameters; should be empirically grounded and evidence based; should explain relationships between two or more variables; and transcend both time and space in terms of explanatory rigor and where possible be significantly predict behaviour (Lederman & Lederman, 2015). A theoretical framework generally denotes ordered and structured investigation to guide the research endeavours/efforts, following Sunderland (1976), Whacker (1983), and Vinz (2015), including situating the investigation in a clearly defined context and domain or field. The theoretical framework further informs the literature review section and permeates all chapters/sections of the research endeavour.

### **2.1.1 Theoretical Foundations**

There are several theories and models that are consistent with and embrace major tenets in the discourse guiding the investigation of “A Comparative Analysis of Adolescent Pregnancy Contributing Factors in Rural and Urban Zambia: A Case Study of the Eastern and Southern Provinces”. The theories are drawn from the social science and public health disciplines. The primary theoretical framework guiding this research is the SEM formulated by Bronfenbrenner from 1973 to 1979, which was subsequently adapted in conjunction with the HBM which was developed by social psychologists Skinner, Tiro, and Champion in 2015. The key reason for choosing these models is that they both belong to the Behavioural Theory frameworks, with a focus on health and development.

**Figure 2.1:***The Ecological Systems Theory***Source: Bronfenbrenner (1977)****2.2. The Ecological Systems Theory**

Bronfenbrenner's (1977) ecology theory posits that individuals engage with several settings throughout their lifespan, including family, peers, schools, communities, and institutions. The study on adolescent pregnancy operationalized these factors at four levels of influence: individual (microsystem), interpersonal (mesosystem), environmental (ecosystem), and policy level (macro-system). Bronfenbrenner's model provides explanations of how social settings impact human development and the provision of health care. This model directs

research on the factors that contribute to adolescent pregnancies in both rural and urban regions. The literature analysis demonstrates that Bronfenbrenner's (1979) SEM is utilized in various ecological and health behavioural models to provide a foundation and direction for examining "A Comparative Analysis of Adolescent Pregnancy Contributing Factors in Rural and Urban Zambia: A Case Study of the Eastern and Southern Provinces. What factors account for the disparities in adolescent pregnancy rates between rural areas (37%) and urban areas (17%) across the environmental and ecological divide?

### **2.2.1. The Micro System (Individual Level of Influence)**

At the centre of Bronfenbrenner's SEM lies the individual, the adolescent, whose behaviours, attitudes, and perceptions are influenced by psychological, social, and environmental factors (Bronfenbrenner, 1994). This microsystem level is critical, as changes at the individual level often cascade into broader systemic impacts. When integrated with the HBM (Skinner, Champion & Tiro, 2015), the SEM provides a comprehensive framework for understanding adolescent pregnancy, combining layered social influences with individual-level beliefs, motivations, and risk perceptions.

The nomenclature of the microsystem reflects a focused preoccupation with variables such as an adolescent's knowledge, self-efficacy, attitudes, behaviours, and level of education. The SEM excels in unpacking these personal characteristics, which are often more nuanced than those addressed at meso- or macro-systemic levels. As Durkheim (1938) observed, individuals are not merely biological beings, *homo sapiens* but is also but complex social entities, *homo duplex*, with desires, reasoning, and adaptive behaviours that interact with the broader context.

### **2.2.2 The Mesosystem (Family Level of Influence)**

At the mesosystem level of Bronfenbrenner's SEM, the adolescent is embedded within interconnected social relationships, particularly within the family. This level focuses on the interactions between various microsystems such as the family, school, and peer group and how these interrelationships shape adolescent development and decision-making (Bronfenbrenner, 1994). The family, especially parents, older siblings, and close relatives, plays a pivotal role in shaping adolescents' SRH attitudes, knowledge, and behaviours.

Economic status within the family unit is a significant determinant of adolescent vulnerability to early pregnancy. Research consistently shows that adolescents from low-income households are at greater risk of engaging in risky sexual behaviours due to financial hardship, limited parental guidance, and inadequate access to SRH information and services (Kilanowski, 2017; Menon et al., 2018). In contrast, adolescents from wealthier families are more likely to benefit from quality education, parental involvement, and supportive environments that enable informed decision-making.

Evidence from Zambia and other parts of sub-Saharan Africa highlights a strong correlation between household poverty and elevated adolescent pregnancy rates (Wado, Sully & Mumah, 2019; Menon, Kusanthan, Mwaba, Juanola & Kok, 2018; Blåfjelldal, Morland, Mintaka, Sandøy, Zulu, 2020; Munakampe, Fwemba, Zulu & Michelo, 2021). These findings illustrate that economic disadvantage not only limits material resources but also affects relational dynamics such as parental supervision and communication within the household.

Conversely, families with greater socio-economic stability often serve as protective environments, fostering adolescents' confidence, autonomy, and access to information and services. Thus, the mesosystem reinforces the significance of family and household contexts in adolescent SRH outcomes and highlights the need for targeted, household-level



interventions to complement school- and community-based efforts to prevent adolescent pregnancy.

### **2.2.3 The Ecosystem- Community Level of Influence**

At the ecosystem level of Bronfenbrenner's SEM, broader community-based structures such as wealth distribution, religious institutions, schools, peer networks, health systems, and media platforms significantly shape adolescent SRH outcomes. These community-level variables indirectly influence adolescents by shaping the environments in which they live, learn, and seek care. One of the most critical factors at this level is the limited availability of SRH information and services, which constrains adolescents' ability to access contraception, counselling, and accurate sexual health education.

Lack of access is compounded by misinformation, misconceptions, and prevailing myths about contraception, which hinder its acceptance and use (Kassa, Arowojolu, Odukogbe & Yalew, 2018; Yakubu & Salisu, 2018). While social media and digital platforms have become common sources of SRH information for adolescents, they can also disseminate misleading or inappropriate content, potentially encouraging risky sexual behaviours.

Geographic disparities further complicate SRH access and outcomes. The urban-rural divide in adolescent pregnancy prevalence is shaped by historical inequalities and deep-rooted socio-cultural norms that continue to influence community attitudes and institutional effectiveness (Menon et al., 2018). These influences are particularly pronounced in rural communities, where infrastructure is limited, and restrictive norms remain pervasive.

Beyond access, community-held norms around gender, sexuality, and reproductive roles significantly influence adolescent behaviour. Several studies conducted in Zambia underscore how environmental norms contribute to early marriage, pressure to bear children, and resistance to contraceptive use among unmarried girls (Svanemyr, 2019; Jere, 2018;

Menon et al., 2018). Similar conclusions have been drawn in broader African contexts, where adolescent pregnancy has been consistently linked to cultural expectations and patriarchal practices (Ayele, Gebregzabher, Hailu & Assefa, 2018).

Thus, the ecosystem reveals how institutions, collective values, and community resources, whether protective or restrictive create enabling or limiting environments for adolescent reproductive decision-making.

#### **2.2.4 The Macrosystem – Policy Level of Influence**

At the macrosystem level, Bronfenbrenner's SEM situates adolescents within broader societal structures, including legal, political, educational, and socio-economic frameworks. These macro-level forces operate through regulatory and normative systems that shape adolescents' access to and perceptions of SRH services. In Zambia, national policy frameworks have built-in influences, including legal restrictions that regulate early marriages and adolescent access to contraception.

For example, while the distribution of condoms in schools is not permitted in Zambia, certain legal mandates that allow adolescents access to SRH services often face opposition at the family or community level, particularly within the mesosystem where cultural and religious beliefs may supersede legal mandates (Yakubu & Salisu, 2018; Gunawardena, Fantaye & Yaya, 2019). This tension between policy and personal values highlights a recurring barrier to implementation.

One of the key risks at this level is the potential infringement of adolescent rights due to prescriptive or contradictory legal frameworks. For instance, while the legal age of sexual consent in Zambia is 16 years, adolescents under this age are not legally permitted to access SRH services, including contraception, without parental consent (CSO, 2018). This legal paradox contributes to unmet needs for contraception, especially in low- and middle-income

countries (Ahinkorah, Kang, Perry, Brooks & Hayen, 2021; Sserwanja, Musaba, Mutisya & Mukunya, 2022), thereby undermining policy intentions.

Policy-level risk factors may be embedded in laws governing health, education, and socio-economic sectors, as well as in prevailing societal norms. These may inadvertently restrict adolescents' access to essential SRH information and services, impeding their ability to exercise autonomy and enjoy full reproductive rights (Kassa, Arowojolu, Odukogbe & Yalew, 2018; Maharaj, 2022). Moreover, although many countries including Zambia legally prohibit child marriage under the age of 18, enforcement remains weak. A lack of clear penalties for violations reduces the deterrent effect and weakens the protective function of the law.

The SEM thus provides a robust framework for examining how policy-level structures interact with individual, interpersonal, and community dynamics. Researchers such as Rizvi, Williams & Sparks (2020), have used SEM to explore risky sexual behaviours among Cambodian women, while Garney et al. (2020) applied the model in reviewing adolescent pregnancy prevention programmes. Wirifai (2019), critiques earlier studies for disproportionately blaming adolescent girls while neglecting systemic drivers of pregnancy and argues that integrating feminist theory with SEM could improve its analytical depth.

To enhance the utility of SEM, this study integrates it with the HBM, allowing for an intersectional analysis of how policies influence individual beliefs and health behaviours. Both frameworks provide critical insights into the structural and psychological dimensions of adolescent pregnancy.

### **2.3 The Health Belief Model (HBM)**

The Health Belief Model (HBM) is one of the most enduring and widely applied theoretical frameworks in public health, particularly useful for understanding individual-level decision-making in the context of health behaviour. Initially developed in the 1950s by social

psychologists working in the U.S. Public Health Service and later refined by Champion and Skinner (2008), as well as Skinner, Tiro, and Champion (2015), the model aims to explain and predict health-related behaviours based on individual perceptions and attitudes. It is particularly relevant in preventive health contexts such as vaccination, screening, and SRH behaviours, where action is typically voluntary and shaped by personal risk appraisal.

The HBM complements broader ecological models, such as Bronfenbrenner's SEM, which focuses on multi-level, external influences on health behaviour (individual, interpersonal, community, and policy). While the SEM is essential for understanding structural and environmental determinants of adolescent pregnancy (e.g., poverty, early marriage, education access), the HBM enriches this analysis by illuminating how adolescents internally perceive and interpret risks, benefits, and barriers, thus influencing their health choices. Together, these frameworks offer a robust, holistic lens through which to examine and address adolescent pregnancy in Zambia and other sub-Saharan African contexts.

In relation to adolescent pregnancy, the HBM is particularly useful for exploring why adolescents engage in either protective behaviours (e.g., delaying sexual debut, using contraception) or risk behaviours (e.g., unprotected sex, early sexual initiation). The model's relevance is reinforced by evidence from this study and others showing that individual cognitive factors are as critical as structural ones in shaping SRH outcomes.

Skinner et al. (2015) identified six core constructs of the HBM that influence behavioural decisions: perceived susceptibility, perceived severity, perceived threat (a combination of the first two), perceived benefits, perceived barriers, and cues to action, including self-efficacy (Bandura, 2005). Each of these dimensions provides an analytical lens for understanding adolescent sexual behaviour and designing effective interventions.

#### a) Perceived Susceptibility

This refers to an adolescent's belief about their personal risk of experiencing a negative outcome, such as unintended pregnancy or STIs. Adolescents who underestimate their vulnerability may engage in unprotected sex or delay contraceptive use. In this study, some adolescents, especially those in rural areas, demonstrated low risk perception due to limited SRH knowledge, reinforcing the need for early, age-appropriate CSE that raises awareness of biological and social risks.

#### b) Perceived Severity

Perceived severity relates to how serious an adolescent considers the consequences of pregnancy or STIs to be. For some participants, early pregnancy was normalized or viewed as a natural transition to adulthood, especially in communities where early marriage is prevalent. However, when adolescents are educated about the health risks (e.g., maternal mortality, obstetric complications), social stigma, and educational/economic setbacks associated with early pregnancy, their perception of severity tends to increase. Public health messaging should therefore frame adolescent pregnancy not only as a personal challenge but as a public health and development issue with long-term consequences.

#### c) Perceived Threat

Perceived threat is a combination of perceived susceptibility and severity. It reflects the adolescent's overall sense of risk and urgency. This is crucial in shaping behaviour: if perceived threat is low, motivation for preventive action is likely to be weak. For example, an adolescent who believes pregnancy is unlikely despite being sexually active, or who does not perceive it as a serious concern, is unlikely to adopt contraceptive measures. This aligns with Gestalt psychology, which suggests that individuals act based on holistic perceptions of situations rather than isolated risks. Hence, interventions must aim to simultaneously enhance awareness of both risk and consequences.

#### d) Perceived Benefits

This construct refers to the perceived advantages of adopting a preventive health behaviour. Adolescents may recognize benefits such as continuing their education, avoiding stigma, reducing financial burden, and maintaining physical and emotional well-being. In urban areas, participants cited career aspirations and fear of parental disappointment as motivating factors for avoiding pregnancy. Interventions should highlight these benefits in ways that are culturally resonant and youth-friendly, using peer-led approaches, media campaigns, and success stories to reinforce the positive outcomes of delayed pregnancy.

#### e) Perceived Barriers

Perceived barriers are the obstacles real or imagined that hinder adolescents from taking health action. These may include lack of access to contraception, fear of judgment from providers or parents, misinformation, religious opposition, and harmful gender norms. In this study, such barriers were particularly pronounced in rural areas, where health system limitations, social taboos, and cultural resistance restricted adolescents' access to services. Importantly, these barriers intersect with SEM domains, suggesting that effective adolescent pregnancy prevention must address both cognitive and structural barriers from improving provider attitudes and facility privacy to challenging restrictive norms.

### **2.3.1 Cues to Action and Self-Efficacy**

Cues to action are triggers, such as health messages, peer conversations, or media campaigns that prompt individuals to adopt health-promoting behaviours. Self-efficacy, a concept introduced by Bandura (2005), refers to one's confidence in their ability to act. An adolescent with high self-efficacy is more likely to resist peer pressure and use contraception effectively, especially if reinforced by supportive environments at home and school.

Together, these constructs emphasize the importance of perception, particularly self-perception in shaping adolescent behaviour. The HBM suggests that even with similar

biological predispositions, adolescents will make different behavioural choices based on their beliefs, attitudes, family background, social context, and access to resources. These choices are further shaped by where adolescents live, urban or rural settings, each with unique SRH challenges and opportunities.

**Table 2.1: Elements of SEM and HBM**

SEM	HBM
<ul style="list-style-type: none"> <li>• Level or unit of influence on conduct</li> </ul> <p>The key actors/variables in this model encompass age, sex, gender issues, employment status, residence, religion, early marriage, poverty, education level, peer pressure, coercive sexual relations, CSE, and the availability of SRH services, including contraceptive use.</p>	<ul style="list-style-type: none"> <li>• Beliefs/perceptions affecting behaviour</li> </ul> <p>In this model, key factors/variables pertaining to age, sex, gender, race, religion, education, knowledge, and socio-economic status have been identified.</p>
<ul style="list-style-type: none"> <li>• The microsystem (sub-theme 1)</li> </ul> <p>The individual is at the epicentre at this level where key research variables and factors include his/her knowledge, his or her attitudes &amp; behaviours, and demeanours as well as personal predispositions in general.</p>	<ul style="list-style-type: none"> <li>• Perceived susceptibility</li> </ul> <p>There is a belief or likelihood of contracting a given condition (where key variables here are also related to all four concepts below):</p>
<ul style="list-style-type: none"> <li>• The mesosystem (sub-theme 2)</li> </ul> <p>Family/interpersonal level where influence is also a function of friends and social networks.</p>	<ul style="list-style-type: none"> <li>• Perceived severity</li> </ul> <p>The individual considers the illness or condition to be serious in magnitude with both unpleasant and serious social consequences/outcomes, holding constant the key variables indicated above. Perceived threat susceptibility and severity are together necessary but are not sufficient conditions to constitute a threat, as the absence of one cancel the possibility of the perceived threat from occurring.</p>
<ul style="list-style-type: none"> <li>• Ecosystem (sub-theme 3)</li> </ul> <p>The community /society to which the individual belongs exercises considerable influence on the individual's behaviours particularly through organizations and institutions.</p>	<ul style="list-style-type: none"> <li>• Perceived benefits</li> </ul> <p>These are positive assumptions about the likelihood of a recommended course of action's potential or efficacy to reduce threats of illness or a condition occurring.</p>
<ul style="list-style-type: none"> <li>• The macrosystem (sub-theme 4)</li> </ul> <p>This is the wider policy/enabling environment where behavioural outcomes are subject to state, national and local government policy, and legal frameworks</p>	<ul style="list-style-type: none"> <li>• Perceived barriers</li> </ul> <p>This concept speaks to the disadvantages and advantages of pursuing a recommended course of action or discarding it entirely</p>

*Adapted from Bronfenbrenner (1994) and Skinner, Tiro & Champion (2008)*



Furthermore, there are perceived barriers, which are characterized as potential hindrances to performing an action, encompassing adverse outcomes arising from an activity. Such barriers may restrain an adolescent from acting if one believes that sex is a pleasurable act as reported by peers or as reported in the mass/social media. These barriers may be influenced or encountered by individuals, families, and communities, as envisaged in Bronfenbrenner's (1994) SEM. The main elements of the SEM and HBM are summarised in Table 2.1 above.

## **2.4 Discussion and evaluation of theoretical frameworks**

Behavioural theories and conceptual frameworks are based on assumptions of human nature and subsequent behaviour. McGregor's (1960) theories X and Y are very instructive in pinpointing the risk of making assumptions as human behaviour is complex and may not fit into purported neat boxes. Skinner and Champion (2008), criticize the HBM for its lack of clarity in explaining how socioeconomic variables, such as educational level, directly impact behaviour by modifying perception in a specific manner. This was regarded as a significant deficiency of the HBM albeit acknowledging that that beliefs regarding health issues have an impact on behaviours.

However, Abraham & Sheeran (2008), have criticized the model for its lack of precision in defining the combinations and relationships between variables. This ambiguity has resulted in different interpretations of how the HBM can be applied effectively within the preventive health behaviours context. The study emphasizes the SEM and the HBM as the primary theoretical frameworks relevant to the current research. However, there may be other theories or conceptual frameworks that could also be useful. Given the wide divide between individuals, families, communities, and societies, it becomes difficult to fathom the validity, reliability, and assumptions of behavioural theories and, indeed, social science theories.

It should be granted that theories, by their nature, come up against the complexities ingrained in human nature in attempting to examine human behaviour. However, this cognition does not detract from the fact that each theory/model contributes to our understanding of human behaviour from a multi-lens point of view. The division of theories into distinct categories such as behavioural, developmental, or cognitive only enable theorists to arrange complex phenomena into manageable chunks as prescribed by the researcher's overarching objectives and interests in a particular field/industry of study. The debate on objectivity and subjectivity in conducting research belies many limitations occasioned by attempts to study human beings in their natural environment. The implications are evident in both SEM and HBM. This study will be anchored on the SEM as the interplay between the individual (microsystem), family (mesosystem), community (ecosystem) policy, and services delivery (macrosystem) levels influence the phenomenon (adolescent pregnancy) under study.

## **2.5 Field Description**

This section presents a structured literature review on adolescent pregnancy, forming the conceptual foundation of the dissertation and underscoring its significance. A comprehensive review approach is used, investigating, evaluating, and synthesizing existing literature to develop new insights and theoretical frameworks. A well-organized literature review is essential to frame the research problem, clarify key concepts, and align with the study's rationale, research questions, and analytical framework (Andrews, 2007; Randolph, 2009).

The review supports the study's purpose, objectives, and research questions, while also addressing methodological considerations such as validity, reliability, and scope. The structure adopted is systematic and aligns with the dissertation's focus: Adolescent pregnancy in Zambia: An urban-rural comparative study.

The chapter begins with an introductory overview in each section, defining key terms and providing background relevant to the study's mixed-methods approach and data sources (Sunderland, 1976; Labovitz & Hegdorn, 1971; Whacker, 1998; Andrews, 2007). Central to the review is Bronfenbrenner's (1979) SEM, presented as the primary theoretical framework. Additional theories, including the HBM (Skinner & Champion, 2008), are integrated where applicable to deepen the analysis of adolescent pregnancy within the socio-ecological context.

The literature review is structured around these core frameworks and related sub-topics, offering both historical and current perspectives and guiding the multi-level analysis of adolescent pregnancy in Zambia.

## **2.6. Application and Analysis of the SEM**

This section presents a concise synthesis of the individual, interpersonal, community, and institutional factors influencing adolescent pregnancy, integrating key elements from Bronfenbrenner's SEM. It builds on individual-level analyses to highlight the interconnectedness of family, peer, community, and policy-level dynamics in influencing adolescent pregnancy in Zambia (Bronfenbrenner, 1979; Rimer, 2008).

### **2.6.1 The Microsystem (Individual level)**

At the individual level of Bronfenbrenner's SEM, adolescents' reproductive decisions are shaped by a confluence of personal factors including knowledge, education, economic status, psychological beliefs, and media exposure. These elements directly influence sexual behaviour, risk perception, and access to or use of SRH services, and are therefore central to understanding adolescent pregnancy.

A consistent body of evidence links lack of accurate SRH information to early sexual debut, unprotected sex, multiple sexual partnerships, and engagement in transactional sex, all of which heighten the risk of adolescent pregnancy and STIs (Kuyinu, Omokanye, Ogunlade, Odugbemi, and Mafe, 2017; Ahinkorah, Kang, Perry, Brooks, and Hayen, 2021). These behaviours, in turn, contribute to poor health outcomes, reinforcing the importance of public health education in promoting early intervention and preventive care.

One of the most significant protective factors is comprehensive sexuality education (CSE), which has been shown to positively shape adolescents' knowledge, attitudes, and behaviours regarding contraception and pregnancy prevention (Awusabo-Asare, Stillman, Keogh, Sidze, and Monzón, 2017; Ahinkorah, Kang, Perry, Brooks, and Hayen, 2021). The World Health Organization (WHO, 2018) and numerous studies affirm that CSE plays a critical role in delaying sexual initiation, increasing contraceptive use, and reducing unplanned pregnancies among adolescents. Conversely, limited or poor-quality education is strongly associated with increased vulnerability to early pregnancy and school dropout, underscoring the intersection between education and public health outcomes (Naghizadeh and Mirghafourv, 2022; Birhanu, Kebede, Kahsay, and Belachew, 2019).

For instance, Kassa, Arowojolu, Odukogbe, and Yalew (2018) found that adolescent girls with secondary-level education were significantly more likely to delay sexual debut compared to those with little or no formal education. This finding is mirrored in broader regional data, where countries like Niger, Mali, and Chad with low female literacy rates, report some of the highest adolescent fertility rates globally (Maharaj, 2022). These patterns highlight the protective effect of education and its implications for long-term health, agency, and socio-economic mobility. Thus, improving educational attainment, particularly for girls, is a key public health strategy for preventing early pregnancies and associated risks.

Poverty is another critical driver at the individual level, often interacting with low educational attainment to magnify health vulnerabilities. Adolescents from impoverished households are more likely to engage in transactional sex as a means of survival, are less likely to afford or access contraceptives, and often lack the agency to negotiate safe sex (Hendricks, 2017; McCleary-Sills, Douglas, and Rwehumbiza, 2017). This economic deprivation perpetuates a cycle of unintended pregnancies, unsafe abortions, and limited future opportunities. The intersectionality of poverty and education thus represents a significant public health challenge, requiring integrated responses that combine sexual health interventions with social protection, livelihood support, and school retention initiatives (Poudel, Upadhaya, Bhandari, Ghimire, and Shrestha, 2018).

Media exposure represents a double-edged sword. On one hand, age-appropriate and culturally relevant media campaigns can enhance adolescents' SRH awareness and promote health-seeking behaviour. On the other hand, unregulated or inappropriate content can reinforce risky sexual practices, especially in the absence of critical media literacy (Fatema and Lariscy, 2020; Wado, Sully, and Mumah, 2019). Malunga et.al, 2023) demonstrate how well-designed media campaigns in Zambia have improved knowledge and attitudes around contraception and HIV prevention. Similarly, targeted campaigns in South Africa have been shown to promote safe sex practices among urban adolescents, highlighting the public health potential of mass media when used effectively.

From a psychological perspective, Festinger's (1957) Cognitive Dissonance Theory offers insight into the contradictions between knowledge and behaviour. Adolescents may engage in unprotected sex despite understanding the risks of pregnancy or STIs, rationalizing such behaviours due to prevailing social norms or fatalistic beliefs about early childbearing (Kelly, 2020). This dissonance reflects the complex interplay between cognitive processes and

environmental influences, underscoring the need for interventions that address not only knowledge deficits but also the values and motivations behind risk behaviours.

Taken together, the microsystem level demonstrates how adolescent reproductive health outcomes are shaped by multi-dimensional personal experiences. Importantly, these factors ranging from health literacy and psychological beliefs to material deprivation are not isolated but operate within a broader socio-cultural and structural context. The integration of the SEM and the HBM provides a robust analytical lens: while SEM situates the individual within layered environmental systems, HBM highlights the internal belief structures that drive health behaviours, such as perceived susceptibility, perceived barriers, and self-efficacy.

This integrated approach is particularly relevant in Zambia, where adolescents face diverse challenges influenced by rural-urban disparities, social norms, and systemic inequities. A public health response informed by this dual-framework perspective allows for more targeted, equity-oriented interventions that address both personal and structural determinants of adolescent pregnancy. It also reinforces the need for cross-sectoral collaboration in adolescent health programming, linking education, health, social protection, and communication efforts to create an enabling environment in which adolescents can make informed, empowered choices about their sexual and reproductive lives.

### **2.6.2 The Mesosystem (Interpersonal Level of Influence)**

The mesosystem in Bronfenbrenner's SEM represents the network of interpersonal relationships that adolescents engage with regularly, most notably within the family and peer environments. These relationships play a pivotal role in shaping adolescents' values, health behaviours, and access to SRH information. The quality of support and communication within these interpersonal spaces is foundational to preventing adolescent pregnancy and promoting positive SRH outcomes.

Family structure and socio-economic status are among the most critical determinants at this level. Adolescents from low-income households, particularly in rural and resource-constrained settings, face compounded vulnerabilities due to limited access to SRH information, economic insecurity, and weakened parental oversight (Menon, Hall, and Simmons, 2018; Munakampe, Michelo, and Zulu, 2021). These vulnerabilities are often exacerbated in non-nuclear family arrangements such as single-parent households, grandparent-headed homes, or adolescent-headed families, where caregiving resources may be stretched and SRH communication deprioritized (Odimegwu, Somefun, and Chisumpa, 2018). In these contexts, adolescents are more likely to make uninformed or unsafe reproductive choices, contributing to elevated rates of early pregnancy, school dropout, and related health risks.

Parental education also significantly influences adolescent SRH decision-making. Parents with lower levels of formal education may lack the knowledge, skills, or confidence to engage in open, accurate discussions about sexuality, contraception, and reproductive rights (Hardly, 2018; Childs, Oyediran, and Akwara, 2015; Odimegwu and Ugwu, 2022). In many cases, poor parental communication results in adolescents receiving fragmented or incorrect information from peers or unreliable media sources, increasing their susceptibility to unintended pregnancies and sexually transmitted infections. Public health interventions that build the capacity of caregivers to engage in age-appropriate, culturally sensitive SRH dialogue are therefore essential to strengthening adolescent reproductive health at the interpersonal level.

Cultural and religious norms embedded within the family environment further shape adolescents' SRH knowledge, attitudes, and behaviours. In many communities, particularly in sub-Saharan Africa, conservative belief systems discourage open conversation about sexuality

and reinforce restrictive gender roles that limit girls' autonomy over their bodies (Odimegwu and Ugwu, 2022). These social scripts may instil fear or shame around sexual health, leaving adolescents to navigate SRH matters in secrecy or with minimal guidance. While some religious or cultural values may promote protective behaviours such as delaying sexual initiation or discouraging premarital sex, others may inadvertently increase risk by stigmatizing contraceptive use or discouraging access to health services.

These interpersonal dynamics are not merely social constructs but critical determinants of health equity. Families serve as the first line of information dissemination, value formation, and emotional support. Weak or dysfunctional interpersonal systems are often correlated with poorer SRH outcomes among adolescents, including higher rates of early and repeat pregnancies, unsafe abortions, and untreated STIs. Strengthening the family and interpersonal environment through parental education, community-based dialogue, and culturally appropriate family-life education can therefore reduce health disparities and foster more resilient adolescent health systems.

Furthermore, public health initiatives must take into account the rural-urban divide in family-based support systems. Rural households may be more influenced by traditional authority structures and local norms, while urban households might contend with rapid social change, parental absenteeism due to economic migration, and increased peer influence. Tailoring interventions to reflect these contextual nuances is critical for maximizing public health impact.

The mesosystem level highlights how adolescent SRH behaviours and pregnancy outcomes are mediated through a network of interpersonal relationships and familial influences. These relationships form the immediate environment through which public health interventions are either reinforced or undermined. Addressing adolescent pregnancy in Zambia, therefore, requires not only individual-focused strategies but also deliberate efforts to engage



families as partners in health promotion, empowering caregivers to provide accurate information, emotional support, and safe spaces for open dialogue on SRH.

#### **2.6.2.1 Peer Influence and Social Networks**

Beyond the family, peer groups and adolescent social networks constitute a critical component of the mesosystem that significantly influences SRH behaviours. Adolescents are at a developmental stage where peer acceptance, belonging, and identity formation are paramount, making them highly susceptible to the attitudes, behaviours, and perceived norms of their social circles. As such, peer dynamics can either serve as protective or risk-enhancing factors in the context of adolescent pregnancy.

Drawing on Bandura's Social Learning Theory, it is evident that adolescents often internalize behaviours observed within their peer groups through mechanisms such as observational learning, imitation, modelling, and reinforcement (Bandura, 1986). In supportive peer environments, young people may adopt healthy SRH behaviours such as delaying sexual initiation, using contraceptives, and seeking information from credible sources. Conversely, in risk-laden peer contexts, adolescents may be encouraged or pressured to engage in early sexual debut, unprotected sex, substance use, and transactional relationships (Yakubu and Salisu, 2018; Marume and Maradzika, 2018; Mushwana and Monareng, 2015). These influences are particularly pronounced where SRH education is absent or where cultural taboos limit adult guidance, making peer networks the default source of information and validation.

A key feature of peer influence lies in adolescents' desire for social approval and inclusion, which often results in conformity and risk-taking behaviours. Social dynamics such as groupthink, diffusion of responsibility, and normalization of risky behaviour can diminish personal risk perception and agency. In such contexts, adolescents may engage in sexual

behaviours they might otherwise avoid, rationalizing their actions as normative or socially rewarded. This phenomenon is of particular concern in settings where peer groups operate in information vacuums, or where harmful gender norms and sexual myths are widespread.

Peer influence presents both a challenge and an opportunity. On the one hand, negative peer pressure contributes to a range of adverse SRH outcomes such as unintended pregnancy, unsafe abortion, and STIs, by perpetuating misinformation and normalizing risky behaviours. On the other hand, peer-led interventions and youth networks have proven effective in promoting safer behaviours, increasing contraceptive uptake, and fostering health-seeking practices. For example, school-based health clubs, youth mentorship programmes, and peer education models have demonstrated success in creating supportive micro-environments that reinforce healthy norms and reduce stigma around SRH services.

Peer dynamics also have implications for equity in health access. Adolescents with limited social support or those excluded from positive peer networks such as out-of-school youth or adolescents living with disabilities may lack critical sources of SRH information and emotional encouragement, deepening their vulnerability. Public health strategies must therefore prioritize inclusive, youth-friendly platforms that empower diverse peer groups to become agents of change within their communities.

In the Zambian context, where formal sexuality education remains inconsistently implemented and family communication around SRH is often limited, peer networks frequently fill the informational and emotional void. As such, strengthening protective peer environments is essential. This includes training peer educators, integrating SRH content into youth-led initiatives, and promoting safe spaces online and offline where adolescents can access accurate information and support

The family and peer subsystems within the mesosystem create a powerful relational environment in which adolescents form sexual values, behaviours, and aspirations. Strengthening protective factors such as parent-child connectedness, open communication, and positive peer norms is therefore essential to reducing adolescent pregnancy risk and promoting healthier reproductive trajectories. Public health efforts that engage both families and peer networks are more likely to achieve sustainable outcomes by reinforcing consistent, health-promoting messages across adolescents' immediate social environment.

### **2.6.3 The Ecosystem -Community Institutions**

At the ecosystem level of the SEM, community institutions including schools, health centres, religious organizations, and media outlets, serve as critical intermediaries between individuals and broader societal systems. These institutions play a decisive role in shaping adolescents' access to SRH information, services, and support, thereby influencing public health outcomes such as adolescent pregnancy, maternal morbidity, and the spread of sexually transmitted infections.

In well-resourced communities, strong institutional frameworks are associated with improved SRH outcomes among adolescents. Schools that deliver CSE, health centres that offer youth-friendly services, and community organizations that engage in evidence-based programming all contribute to reduced rates of adolescent pregnancy and related health risks (Somefun and Odimegwu, 2018; Nabaggala, Sserwanja, Akugizibwe, Kawuki, and Musaba, 2021). These institutions function not only as service providers but also as trusted sources of information, advocacy, and social support cornerstones of public health promotion.

By contrast, underserved communities, particularly in rural or poorly organized urban areas, often lack adequate infrastructure, trained personnel, and coordinated interventions. In such settings, adolescents face increased vulnerability due to weak institutional capacity and

limited access to essential SRH services. The absence of adolescent-responsive health facilities, gaps in information delivery, and persistent stigma around sexuality contribute to elevated rates of early and unintended pregnancies (Govender, Naidoo, Taylor, and Naidoo, 2022). Public health systems in these contexts often struggle to deliver timely and equitable care, especially where policies are not supported by adequate investment or community engagement.

Among community institutions, schools are particularly influential in shaping adolescent SRH trajectories. Where CSE is effectively implemented, it has been shown to enhance adolescents' knowledge, critical thinking, and decision-making regarding sexual behaviour and contraceptive use. CSE also provides a structured platform for early intervention and prevention, aligning closely with public health goals of reducing adolescent pregnancy, HIV transmission, and unsafe abortions. However, the implementation of CSE remains uneven, with rural schools often disadvantaged due to shortages of trained teachers, limited instructional materials, and lack of community support (Odimegwu and Ugwu, 2022). These disparities reinforce existing health inequities and underscore the need for targeted investment in educational systems as a core component of adolescent health strategies.

Religious institutions and media platforms also exert significant influence on adolescent SRH behaviours. In contexts where religious leaders support adolescent health initiatives and promote accurate SRH messaging, community acceptance and engagement increase. Conversely, where religious or cultural beliefs oppose open discussion of sexuality, adolescents may be denied critical information or discouraged from accessing services. Similarly, the media when used effectively can disseminate age-appropriate, culturally relevant health messages at scale. However, unregulated or sensationalized content may also misinform or glamorize risky behaviour, reinforcing the importance of media literacy and content oversight as public health priorities.

Given a public health systems perspective, strengthening community institutions is essential for achieving universal health coverage and the SDGs, particularly those related to health (SDG 3), education (SDG 4), and gender equality (SDG 5). Effective community institutions serve as gateways to care, sources of prevention, and agents of social change. Their capacity to respond to adolescent needs, challenge harmful norms, and foster protective environments is directly linked to improved SRH outcomes and reduced health disparities.

The ecosystem level illustrates how community-based infrastructure and institutional capacity determine the reach and effectiveness of public health interventions targeting adolescent pregnancy. As this section sets the stage for a deeper discussion of education and socialisation, it reinforces the imperative of equitable resource allocation, local capacity building, and inclusive policy implementation to ensure that all adolescents regardless of geography or socio-economic status can access the services and support they need to thrive.

### **2.6.3.1 Education, Socialization, and Structural Barriers**

Educational attainment is one of the most consistently documented protective factors in ASRH. Adolescents who attain at least a secondary level of education are more likely to possess accurate SRH knowledge, delay sexual initiation, and engage in protective behaviours, including consistent contraceptive use and informed health-seeking (Odimgwu and Ugwu, 2022). Education enhances critical thinking and empowers adolescents, especially girls, to question harmful norms, resist peer pressure, and make autonomous decisions regarding their reproductive health. These outcomes are closely aligned with public health goals, as they contribute to the reduction of adolescent pregnancy, unsafe abortions, maternal morbidity, and the intergenerational transmission of poverty.

However, limited educational opportunities often rooted in poverty, early marriage, child labour, and gender-based discrimination create significant structural barriers to positive

SRH outcomes. In such contexts, girls are more likely to drop out of school, marry early, or engage in transactional sex, thereby increasing their vulnerability to early and unintended pregnancies. These challenges are particularly acute in rural areas where infrastructure deficits, long travel distances, and cultural resistance to girls' education further constrain access to quality schooling. The resulting low levels of SRH literacy hinder adolescents' ability to navigate risk, negotiate relationships, or access services an urgent concern for public health systems aiming to promote universal access to reproductive care.

Socialization processes, including the transmission of values, norms, and expectations from families, schools, and communities, play a foundational role in shaping adolescent behaviour. In communities with strong social cohesion and shared norms around health and well-being, adolescents are more likely to receive consistent guidance that supports positive SRH choices. However, where support structures are weakened due to migration, poverty, or social fragmentation there is often a breakdown in intergenerational value transfer, leading to confusion, misinformation, and risk-taking. This phenomenon, known as social disorganization, reduces a community's capacity to collectively reinforce protective behaviours or counter harmful practices such as early marriage and sexual exploitation.

The effects of emerging social forces, including rapid urbanization, migration, and widespread digitalization, have further complicated adolescent socialization. While digital platforms offer new opportunities for information-sharing and SRH education, unequal access to technology and digital literacy gaps particularly between urban and rural areas have created new forms of exclusion. Many rural adolescents remain disconnected from online SRH resources, while others are exposed to misinformation or inappropriate content in the absence of protective gatekeeping or digital education. These disparities reinforce existing inequities in

knowledge and access, thereby compounding public health challenges and undermining efforts to ensure equitable adolescent health outcomes.

These structural barriers and social influences are not peripheral they are central determinants of adolescent SRH. Addressing them requires a multi-sectoral approach that strengthens education systems, invests in community-based structures, and promotes digital inclusion. Interventions must also tackle the underlying social determinants of health, such as poverty, gender inequality, and discrimination, which shape both access to services and individual decision-making capacity.

The ecosystem level highlights the critical need to strengthen institutional frameworks, transform community norms, and address structural inequities to foster enabling environments for adolescents. By doing so, communities can empower young people with the knowledge, resources, and agency required to make informed and autonomous reproductive choices advancing both public health goals and broader development outcomes.

## **2.7 Rural-Urban Comparisons and Implications**

Adolescents in rural areas face a distinct set of compounded risks related to poverty, cultural expectations, and limited access to health, education, and social services. These structural challenges are often reinforced by entrenched gender norms, early marriage practices, and long-standing barriers to comprehensive sexuality education and adolescent-responsive healthcare. In such contexts, adolescent girls are particularly vulnerable to early and unintended pregnancies, often with limited agency to make informed reproductive choices. Geographic isolation further restricts access to contraceptives, skilled health personnel, and referral systems amplifying health risks and undermining public health objectives.

In contrast, adolescents in urban settings may benefit from comparatively better access to information, education, and health services. However, urban environments also present their own set of challenges. Anonymity, peer pressure, exposure to unregulated media content, and fragmented family structures may lead to increased risk-taking behaviours despite the availability of services. Urban poverty, youth unemployment, and overcrowded informal settlements can also replicate or exacerbate conditions of deprivation seen in rural areas, blurring simplistic rural–urban dichotomies. These trends underscore the importance of understanding context over geography in addressing adolescent pregnancy risks.

Comparative studies across different settings confirm that stable family environments, access to quality education, and strong institutional support are consistently associated with lower rates of adolescent pregnancy, regardless of location (Somefun and Odimegwu, 2018; Maharaj, 2022). However, the degree to which these protective factors are present or accessible varies significantly between rural and urban areas, and even among provinces and districts. For example, certain urban districts may have greater health system coverage but lower school retention rates due to economic stress, while rural districts may exhibit strong community cohesion but lack trained health personnel or youth-friendly services.

A significant constraint in designing effective interventions is the lack of disaggregated, localized data that captures these spatial, cultural, and socio-economic nuances. Many national-level statistics mask intra-country disparities, leading to one-size-fits-all policies that may not adequately respond to the lived realities of adolescents in different contexts. The urban–rural divide thus reinforces the need for context-specific, multi-level interventions that are sensitive to the structural and cultural determinants unique to each setting.

These disparities have direct implications for resource allocation, programme design, and service delivery. Interventions must go beyond geographical targeting to incorporate place-based approaches that recognize the diversity within rural and urban populations. This includes



tailoring health communication, expanding school-based outreach, decentralizing youth-friendly services, and engaging local leaders to ensure community ownership and relevance.

Addressing adolescent pregnancy in Zambia requires a nuanced understanding of rural-urban dynamics. By grounding interventions in local realities and leveraging context-specific assets whether community cohesion in rural areas or service infrastructure in urban settings stakeholders can design more equitable, impactful strategies that respond to the full spectrum of adolescent needs across the country.

## **2.8. Comparative Analyses/Studies**

Several household-level studies have linked financial hardship and material deprivation to stressors that increase the likelihood of risky sexual behaviours among adolescents (McLeod, 2018). For adolescent girls, poverty can foster dependency, where financial and material needs are exchanged for sexual favours, often with adults outside the family. These poverty-driven risks cut across both rural and urban settings.

Cross-comparative studies in South Africa show that older youth (18-24 years) are more likely than younger adolescents to report multiple sexual partners and a higher risk of STIs. This may be attributed to greater awareness and willingness to disclose such behaviours, whereas adolescents under 18 tend to underreport due to fear of parental or familial disapproval (Odimengwu & Ugwu, 2020). Similar patterns were observed in Zimbabwe, where young adults over 20 exhibited more risky sexual behaviours compared to adolescents who tended to conceal their activities from household members (Marume & Maradzika, 2018).

These age-related differences also intersect with education. Education is believed to empower young people with knowledge and negotiation skills to make safer sexual choices (Odimengwu & Ugwu, 2020). However, frequent family relocations, especially in urban areas, can disrupt social networks and increase adolescents' exposure to risky behaviours due to

weakened support systems. Girls are more likely than boys to form relationships outside the family setting, a trend supported by studies in South Africa (Gibbs, 2017; Nabaggala et al., 2021).

In a study across 12 sub-Saharan African countries, Somefun and Odimegwu (2018) found that stable family structures and supportive environments delayed sexual initiation among girls aged 15-19, contributing to reduced adolescent pregnancy rates. Early sexual debut (before age 14) is associated with increased risks of unintended pregnancy, STIs, and HIV (Govender et al., 2022; Maharaj, 2022).

Protective family and community environments that enforce behavioural norms and are accepted by adolescents have been linked to reduced sexual activity and safer practices. Yet, findings on the influence of family structure are mixed; some cross-cultural studies report positive associations, while others show no correlation, highlighting the complexity of these relationships.

Given this, the current research on adolescent pregnancy in Zambia considers the urban–rural divide, recognizing that generalizations across the country's ten provinces must be approached cautiously. The study applies the SEM across the micro, meso, eco, and macro levels to explore how place of residence influences adolescent pregnancy, acknowledging the challenge of identifying statistically significant relationships in social science research.

### **2.8.1 Limitations**

The literature review primarily focuses on the impact of family influence on the sexual behaviours/relationships of young girls. However, the cited cross-sectional studies do not provide sufficient evidence to establish causality, generalizability, or address validation and reliability issues. Overall, these limitations, while constituting a major drawback in investigating and understanding adolescents' risky sexual practices, to the extent that these may

lead to early and unintended pregnancy; none the less, do not detract in any shape or form, from the cognition that the theories or models are of significant heuristic, epistemological, ontological and practical value at the mesosystem's level of influence-compliance dimension, as indeed at other levels envisaged in Bronfenbrenner's socioecological model.

## **2.9. The Ecosystem (Community Level of Influence)**

While the mesosystem analysis focused on moral and normative influences within families, this section shifts to community-level (ecological) factors within the SEM, emphasizing utilitarian and calculated dimensions of SRH behaviours (see Table 2.1). This approach aligns with Odimengwu and Ugwu (2022), who found that individual, family, and community factors significantly influence adolescent pregnancy rates, a finding echoed by Darroch et al. (2018), UNICEF (2016), and Olika et al. (2019).

Secondary socialization during adolescence increasingly occurs through schools and communities, which shape cultural norms and personality development at the ecological and mesosystem levels (Kaphagawani & Kalipeni, 2018). Bronfenbrenner's (1994) emphasis on multilevel interactions between individuals and their environments is particularly relevant in comparing adolescent pregnancy rates between rural and urban settings in Zambia's Eastern and Southern Provinces.

This analysis is grounded in communication theories and health behaviour models, particularly those advanced by Viswanath and Finnegan (1996), and Claydon, Zullig, and Step (2021), who highlight the mass media's pervasive role in shaping SRH norms at both individual and community levels. Given the geographic and spatial differences across rural and urban communities, communication emerges as a key factor influencing SRH behaviours.

Odimengwu and Ugwu (2022) underscore communication's power at community and societal levels due to its moral and utilitarian influence. While the microsystem focuses on how

adolescents process SRH information individually, and the mesosystem on familial influences, the community level examines the broader media and communication environment's impact, whether supportive or detrimental on adolescent SRH in rural and urban Zambia.

This research draws on the SEM, the HBM, and other behavioural and communication frameworks to explore adolescent sexual behaviours that lead to pregnancy. By focusing on Eastern and Southern Provinces, the study aims to generate practical recommendations to help prevent adolescent pregnancy in these regions.

### **2.9.1 The Community Concept**

Communities, often defined along rural–urban lines, are complex entities encompassing spatial, social, and functional dimensions. They symbolize collective identity and shared interests, while also supporting families' basic needs (Krause & Montenegro, 2017). A core attribute of communities is their potential to mobilize for social, economic, or political change.

Applying Etzioni's (1961) typology to the community level within the SEM, social relationships are primarily shaped by moral and utilitarian values. These foster normative-calculative compliance among adolescents regarding SRH behaviours, especially around perceived risks and benefits of early or unintended pregnancies. Cues that influence adolescents' decisions to engage in risky sexual behaviours are often tied to the community's moral authority and expectations (Bandura, 2020).

From an ecological systems perspective, community culture reflects deeply rooted values, norms, and behavioural patterns shared, either consciously or unconsciously by its members (Odimegwu & Mkwanaenzi, 2018; Svanemyr, 2019). Rural and urban communities, as social units, play a critical role in shaping SRH behaviours through media exposure and socialization processes at the ecosystem level.

The media influences knowledge, attitudes, and behaviours not only through information dissemination but also via a dynamic, reciprocal process where audiences actively interpret messages based on cultural and social contexts. Rather than passive recipients, adolescents engage with content based on lived experiences, shaping the media's effectiveness in addressing sensitive SRH topics. Therefore, media strategies must align with audience needs to foster meaningful behavioural and attitudinal change.

### 2.10. Media Effects (The Knowledge Gap Perspective)

The authors Finnegan and Viswanath (2008), have brought attention to three fundamental concepts: the knowledge gap, agenda setting, and framing. These concepts have substantial and far-reaching implications on the social-ecological model (SEM), which in turn influences the SRH of both individuals and populations.

**Table 2.3: *Knowledge Gaps: Definitions, Applications and Concepts***

Concept	Definition	Application
Knowledge Gap	Variations in the acquired knowledge of groups or communities with diverse socio-economic statuses are observed across distinct spatial and temporal contexts.	Potential negative SRH outcomes to close SES gaps for marginalized groups in the long term
Knowledge	Factual, useful, and consumable information	Disseminated for informed decision-making and provides cues to act on goal-directed health behaviours
Information Flow	The extent to which information is readily available at the disposal of consumers in communities	Empowers communities to obtain SRH information and services through various communication channels

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Mobilization/ Advocacy	Organized activity to direct community efforts and focus on addressing SRH challenges	Media publicity on health issues occurs at multiple levels from the Government level, organized groups, etc. to disseminate knowledge and pertinent information to influence health behaviours – particularly risk communication.
Socioeconomic Status	Population units or subunits differentiated by education, income wealth, or occupation	Need to target information flows and availability of SRH services particularly for marginalized groups and communities

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**Source:** Viswanath and Finnegan, (1996)

Moreover, different communities, comprising groupings of people and families sharing a common place of residence and having common beliefs and moral values, be they interest communities, advocacy communities, geographical communities, ethnic, racial, religious, or socioeconomic groups, conceivably exercise multifaceted levels of influence and health behavioural interventions across the SEM systems.

### **2.10.1 Media Effects - A Rural /Urban Perspective**

Table 2.3 outlines key concepts and definitions to minimize redundancy in the discussion that follows. A common assumption is that rural adolescent girls face greater SRH knowledge gaps than their urban counterparts. As such, effective risk communication on ASRH is crucial at both individual and community levels.

However, evidence on media effects presents divergent views. Alabi and Oni (2017), and Odimegwu and Mkwanaenzi (2018), argue that larger, more complex communities may experience greater knowledge gaps. In contrast, Chung, Kim, and Lee (2018) suggest that smaller communities are more prone to such disparities. These contradictions caution against overgeneralization and highlight the need for context-specific analyses when comparing rural and urban SRH behaviours.

Despite these differences, such nuances do not undermine this study's value. Instead, they strengthen its potential to generate meaningful insights into knowledge dissemination and behavioural influences across Zambia's rural and urban settings. Embracing this complexity allows for a more comprehensive understanding of SRH dynamics, which can inform targeted interventions and policies.

At the community level, this study applies the ecological systems framework to examine media influence on SRH behaviours. Media research increasingly focuses not only on attitudes and behaviours but also on cognitive impacts and agenda-setting roles within social systems. Media effects, therefore, extend to how communities frame and respond to SRH messages and interventions.

From a community perspective, adolescents often model behaviour based on environmental cues, including media portrayals. Odimegwu and Mkwananzi (2018) note that media characters, especially those in soap operas or other visual formats, can serve as role models, influencing adolescents' SRH behaviours, including exposure to risky content. Media may reinforce cognitive predispositions toward behaviours that increase the likelihood of adolescent pregnancy.

Furthermore, Odimegwu (2020), highlights that media campaigns disproportionately benefit adolescents from higher socio-economic status groups, predominantly urban, while rural, and lower SES populations remain underserved. This unequal distribution of SRH information contributes to a widening rural-urban divide in knowledge and behaviour, presenting a key challenge for policymakers operating at the SEM's macro level. These disparities also reflect broader inequalities, including poverty and limited access to safe health practices, particularly among adolescent girls.

### **2.10.2 Community Determinants**

Extensive research has demonstrated that community-level factors such as poverty, education, contraceptive availability, media exposure, residential mobility, and ethnic diversity, significantly influence adolescents' risky sexual behaviours (Wood & Henricks, 2017; Maharaj, 2022; Odimengwu & Ugwe, 2022). The social, cultural, and physical contexts of rural and urban settings play a critical role in shaping adolescent SRH outcomes.

Studies in South Africa show that urban youth are generally more informed about SRH services and the risks of STIs and unplanned pregnancies, primarily due to media campaigns, especially on HIV and AIDS. In contrast, rural adolescents often lack such awareness (Ogwu & Odimengwu, 2022). Cultural norms also vary between settings, affecting young people's sexual behaviours. Adolescents from ethnically homogeneous or media-deprived communities are more likely to engage in relationships with multiple partners.

Community poverty, rural residence, and high mobility are linked to increased risky sexual behaviours. In Zambia, lack of home support also correlates with such behaviours (Yang et al., 2019). Limited access to health services, food, and shelter in impoverished communities further heightens adolescents' vulnerability to unplanned pregnancies (Odimengwu & Ugwe et al., 2022).

Mass media and community outreach can improve SRH awareness. In South Africa, community-level factors account for 4–10% of the variance in adolescent pregnancy rates, while individual and family-level influences account for 24–86%, highlighting the multi-level nature of behavioural determinants (Odimengwu & Ugwe et al., 2022). These patterns are shaped by ethnic diversity, residential instability, and media influence.

Further research in sub-Saharan Africa confirms that socio-demographic factors such as place of residence, wealth, gender, religion, and media exposure, are closely associated with early sexual debut (Somefun & Odimengwu, 2018; Maharaj, 2022; Ahinkorah et al., 2021).



Adolescents aged 10–14 are particularly influenced by sociocultural norms, religion, school environments, and media messaging. Ethical challenges in data collection such as the need for anonymity and parental consent, often limit access to reliable data on adolescent SRH.

Regionally, sexual initiation varies: 89% of boys in East Africa delay sexual debut, compared to 99% in West Africa, underscoring the influence of socio-cultural and economic contexts. Urban adolescents generally benefit from greater access to CSE and health services, while rural youth face traditional constraints and limited resources (Somefun & Odimengwu, 2018). These findings underscore the need for context-specific, multi-level interventions that reflect the complex interplay of gender, education, culture, and geography.

In Zambia, this complexity limits the generalizability of findings drawn from two provinces. Variability in family structures, educational attainment, household wealth, media exposure, and rural-urban residence must be carefully considered when interpreting the influence of community determinants on adolescent pregnancy prevalence.

### **2. 10.3. Limitations**

This review explored community-level factors influencing adolescent sexual behaviours and their potential contribution to high adolescent pregnancy rates in selected provinces of Zambia. While the literature offers useful insights, findings are not definitive due to the interactive and multidimensional nature of ecological influences, which may either reinforce or moderate ASRH behaviours. Isolating specific community-level impacts remains challenging.

A key limitation is the difficulty of generalizing findings across diverse communities. Variations in cultural norms, socioeconomic status, and healthcare access mean that communities are neither entirely homogeneous nor fully distinct. For example, rural areas may

face limited healthcare and entrenched traditions, while urban areas may grapple with peer influence and economic disparities, complicating rural-urban comparisons.

The review relies predominantly on secondary data, which may be limited in scope, methodological rigor, or contextual relevance to Zambia. Some studies may be outdated or drawn from different cultural or geographic contexts, reducing their applicability. Furthermore, secondary sources may not reflect recent shifts in ASRH behaviours or emerging interventions.

Community influences are also dynamic, shaped by evolving cultural and religious norms that can affect adolescent pregnancy rates. The lack of real-time data limits the ability to track such changes effectively. Another constraint is the absence of longitudinal studies. While cross-sectional research provides valuable snapshots, it lacks the temporal depth to capture behavioural changes over time or establish causality. Longitudinal data would offer stronger insights into the evolving impact of community-level factors on adolescent pregnancies.

## **2.11 The Macrosystem (Policy Level of Influence)**

The macrosystem encompasses the broad legal, policy, and institutional frameworks that shape ASRH outcomes through regulatory mechanisms and normative influence. At this level, international, regional, and national policy commitments intersect to determine the structural environment in which adolescents' access or are denied comprehensive SRH services and information. These macro-level policies have far-reaching implications for adolescent pregnancy outcomes, particularly in Zambia's Eastern and Southern Provinces, where disparities in service delivery and legal protections persist (Odimegwu and Ugwu, 2022; Darroch, Woog, Bankole, and Ashford, 2018; UNICEF, 2016).

Review of such policies at the macrosystem level underscores their critical role as determinants of the availability, accessibility, acceptability, and quality (AAAQ) of sexual and reproductive health services for adolescents. Laws that mandate the provision of youth-friendly services, protect minors from early and forced marriage, enforce minimum age of sexual consent, and support school re-entry for adolescent mothers can serve as powerful instruments to promote health equity, prevent early pregnancy, and improve adolescent well-being. These frameworks not only define adolescents' rights but also shape how health systems allocate resources, train providers, and monitor outcomes.

However, the impact of policy frameworks is often weakened by gaps in implementation, lack of accountability, and limited alignment with community norms. Even where progressive laws exist, weak enforcement mechanisms and societal resistance can undermine their effectiveness. For example, while Zambia's Re-entry Policy and National Adolescent Health Strategy represent significant milestones, their uptake varies significantly by region due to inadequate dissemination, limited local ownership, and insufficient integration with frontline service delivery.

Case studies from South Africa reveal the nuanced relationship between policy environments and adolescent behaviour. While legal reforms have improved access to SRH services, persistent social stigma and provider bias continue to deter adolescents especially girls from seeking care (Odimegwu and Ugwu, 2022). This underscores the reality that laws alone cannot change behaviours unless supported by social transformation and systems strengthening. Similarly, Somefun and Domingue (2018) highlight how macro-level policy stability, when combined with supportive family and community systems, fosters resilience and healthier SRH choices among adolescents.

In the regional context, legal reforms such as Zimbabwe's Marriages Act (2022) offer instructive examples of policy efforts aimed at curbing early marriage and protecting

adolescent rights. While such reforms are necessary to establish a normative framework for adolescent health, their transformative potential depends on effective enforcement, adequate resourcing, and community engagement. Without buy-in from traditional leaders, faith-based actors, and families, these policies risk remaining symbolic rather than substantive, doing little to shift entrenched practices or improve service uptake.

Importantly, the alignment of macro-level policies with public health priorities is essential for sustained impact. This includes harmonizing laws across sectors (health, education, justice, and social protection), ensuring consistency in age-related legal definitions, and removing contradictory statutes that create ambiguity around adolescent autonomy and consent. A coherent legal and policy environment enables health systems to operate more effectively, supports the training and accountability of SRH service providers, and creates a rights-based foundation for adolescent-responsive programming.

Moreover, the recognition of adolescents as rights-bearing individuals must be central to policy design and implementation. Policies must move beyond protectionist approaches and embrace youth agency, participation, and empowerment. Integrating adolescent voices into policymaking processes ensures that interventions are not only legally enabling but also socially responsive and culturally relevant, a cornerstone of equitable public health systems.

The macrosystem level highlights how the legal and policy architecture of a country can either facilitate or constrain adolescent health outcomes. For Zambia to make meaningful progress in reducing adolescent pregnancy and improving SRH outcomes, macro-level interventions must be holistically integrated with strategies at the micro, meso, and exo levels. This requires political will, institutional capacity, and cross-sectoral collaboration, grounded in a public health approach that prioritizes adolescent well-being, dignity, and rights.

### **2.11.1 Concept of Policy Frameworks**

At the policy level, an effective strategy for influencing ASRH behaviours is facilitation the provision of improved or additional resources, services, and enabling environments that promote and reinforce healthy behaviours (Wood and Hendricks, 2017). Facilitative policy frameworks are particularly impactful when they proactively remove barriers to care, address harmful sociocultural norms, and ensure equitable access to youth-friendly health services. Within the context of the SEM, such policies operate at the macrosystem level, shaping not only service provision but also the social and structural conditions that influence adolescent behaviour.

Policymakers and stakeholders play a critical role in identifying and addressing systemic barriers including stigma, provider bias, legal restrictions, and punitive cultural practices that hinder positive behavioural change. Policies that focus on capacity building, rights protection, and comprehensive sexuality education can create sustainable environments for adolescent empowerment and improved SRH outcomes.

Empirical evidence supports the value of multi-dimensional, facilitative approaches. Case studies demonstrate that integrating HIV prevention education with the free distribution of condoms among high-risk groups results in significant improvements in health outcomes. Similarly, Novella and Ripani (2017) showed that providing sex workers with vocational resources, business training, and tools for craft making and marketing reduced their vulnerability to HIV by promoting safer and more stable livelihoods. These examples illustrate the potential of context-specific, resource-oriented interventions to reduce health risks and promote behavioural change an approach that is directly applicable to adolescent pregnancy prevention when tailored to local realities.

At a broader level, policy frameworks derive their authority and legitimacy from national constitutions, which set the legal and normative standards for all subordinate laws and regulations. As Svanemyr et. al. (2017) note, any law or policy inconsistent with constitutional provisions particularly those related to human rights and gender equality is inherently invalid. Policies that conflict with constitutional mandates on gender equality, bodily autonomy, or the right to health are inherently vulnerable to legal challenge and risk being deemed invalid. Therefore, aligning adolescent SRH policies with constitutional principles such as non-discrimination, autonomy, and the best interest of the child is not just legally prudent but essential for policy coherence, public trust, and effective implementation. Such alignment also strengthens accountability mechanisms and supports equitable public health outcomes by ensuring that adolescents' rights are upheld across all levels of the legal and healthcare system.

It goes without saying that constitutional alignment strengthens the legitimacy of SRH policies, facilitates intersectoral collaboration, and reinforces accountability mechanisms. It also ensures that marginalized groups, including adolescents, are protected under the law and have legal recourse in the face of rights violations or service denial. Furthermore, when constitutional mandates are translated into comprehensive national strategies, such as adolescent health policies, school re-entry guidelines, or child marriage legislation, they provide a robust foundation for integrated action across the health, education, and justice sectors.

Effective policy frameworks function as macro-level levers within the socio-ecological system shaping institutional environments, guiding service delivery, and influencing the attitudes and behaviours of individuals and communities. For Zambia and other countries striving to reduce adolescent pregnancy and improve SRH outcomes, policies must be rights-based, context-responsive, and operationally linked to constitutional guarantees. When guided

by frameworks such as the SEM and informed by successful case studies, such policies can generate transformative public health outcomes for adolescents.

### **2.11.2 Marriage Laws/Frameworks and Adolescent Pregnancy**

The critical role of the UN in shaping adolescent SRH policies and behaviours globally is well established. UN member states are obligated under international law to enact and enforce legislation that prohibits and criminalizes child marriage. Through agencies such as UNFPA and UNICEF, the UN supports governments and stakeholders in developing strategies to eliminate child marriage and protect adolescents (UNFPA, 2019; 2020; 2020b; 2022).

In Zambia, the UN system is actively engaged in addressing child marriage and violence against adolescent girls through national frameworks like Vision 2030, the Poloc, and the National HIV and AIDS Strategic Framework (2017–2021). These efforts emphasize prevention, protection, and service provision, while also targeting harmful social norms that fuel early marriage and adolescent pregnancy.

This study specifically highlights UNFPA's work in rural and peri-urban areas, where it plays a key role in closing information gaps around SRH services and rights. Such initiatives aim to align with national policies and strengthen institutional capacities across sectors—education, child protection, HIV and AIDS, and food security to address adolescent vulnerability and reduce risky sexual practices.

CEDAW Article 12 obliges state parties to eliminate discrimination in healthcare, reinforcing the legal foundation for adolescent SRH rights. The UN, through its country offices, also supports legal and policy reforms at the macro level. Frameworks such as the UN Continental Framework on SRH (2006), Africa Health Strategy (2016–2030), Maputo Plan of Action (2016–2030), and the Maputo Protocol (2005) further support efforts to end early marriage and protect adolescent girls.

A relevant example is Zimbabwe's Marriages Act (2022), enacted in line with UN recommendations to combat child marriage. Effective implementation of such policies requires strong support at the family (mesosystem) and community (ecosystem) levels. Timely detection and response to adolescent abuse through child protection networks, including Child and Victim-Friendly systems, are essential to ensuring justice and safeguarding adolescent girls.

### **2.11.3 Analysis of the ASRHR Legal Environment**

A review across 23 countries in East and Southern Africa revealed inconsistencies in laws and policies governing adolescents' SRHR. Key issues include the legal age of sexual consent, marriage, and access to medical treatment. Urgent legislative reform is needed to align national laws with international standards and adapt them to country-specific contexts (UNFPA, 2020). For instance, while the SADC Parliamentary Forum endorsed a model law on ending child marriage (SADC Parliament, 2017), countries like South Africa and Kenya still criminalize consensual sexual activity among adolescents, contrary to international human rights treaties.

This section compares Zimbabwe and Zambia, both UN and SADC member states with shared colonial legacies and socio-cultural dynamics (Fatema & Lariscy, 2020). Under CEDAW Article 16(2), state parties must abolish child marriage by legislating a minimum legal age for marriage (UNFPA, 2020). Zimbabwe offers a compelling example of how international protocols can be domesticated to reduce adolescent pregnancy, particularly through media advocacy, ICT access, and addressing socio-economic disparities (Viswanath & Finnegan, 1996).

Zimbabwe's 2013 Constitution, reinforced by the Marriages Act (2022), criminalizes child marriage by setting the legal marriage age at 18 and prohibits assistance in marrying off



minors. In contrast, Zambia allows marriage at 21 or 18 with parental consent and sets the age of sexual consent at 16. For individuals aged 15 or below, any sexual activity constitutes statutory rape. Zimbabwe's Constitution further mandates state institutions to implement affirmative measures to protect adolescents from harmful cultural practices, exploitation, and abuse (Section 20), and prohibits marriage without full, voluntary consent (Section 26). However, enforcement challenges persist across jurisdictions, including Zambia, despite alignment with UN treaties.

While constitutional protections exist, their effectiveness may be limited by adolescents' perceptions of risk, as well as family and community influences. Nonetheless, Zimbabwe's policy reforms and Zambia's higher legal marriage age may, in theory, contribute to delaying sexual debut and reducing adolescent pregnancy rates.

#### **2.11.4. Implementation Challenges of Law Marriages**

Marriage laws are often difficult to enforce due to the complex interplay of cultural norms, religious beliefs, and traditional practices. In Zimbabwe, Sections 8 and 9 of the Marriages Act (2022) designate magistrates as marriage officers in urban areas, while chiefs oversee customary marriages in rural communities. Traditional leaders, as outlined in the Constitution of Zimbabwe (2013), are responsible for upholding cultural and customary practices, which may conflict with legal provisions on minimum marriage age.

Similarly, Zambia operates a dual system of statutory and customary marriages, where traditional leaders also have authority to sanction unions. These leaders are more likely to prioritize cultural norms over statutory requirements, making enforcement of age-related marriage laws inconsistent. This may hinder efforts to reduce early marriages and associated adolescent sexual risks. In rural areas, some religious groups under traditional jurisdictions continue to practice polygamy and arrange early marriages for young girls. The Marriages Act

also permits religious and other individuals to act as marriage officers, but implementation remains challenging due to divergent SRH beliefs and competing interests. Achieving policy coherence in such contexts is complex.

At the macro level, international and regional instruments such as the Maputo Protocol (2005), Maputo Plan of Action (2016–2030), Continental Framework (2006), Africa Health Strategy (2016–2030), SADC Strategies (2015; 2016–2030), and Zambia Vision 2030 guide policy efforts. These frameworks provide a foundation for understanding and addressing the structural drivers of adolescent pregnancy in Eastern and Southern Zambia.

#### **2.11.5 Policy Implementation Challenges**

While Zambia has made commendable strides in establishing macro-level SRH policies, including laws on the minimum age of marriage, the Re-Entry Policy for adolescent mothers, and child protection frameworks persistent implementation gaps undermine their effectiveness. These gaps are particularly critical in the context of adolescent pregnancy, which constitutes a major public health challenge with far-reaching consequences for girls' health, education, and socioeconomic prospects.

A key barrier to effective implementation lies in the limited awareness and understanding of legal provisions among duty-bearers, including traditional and religious leaders, local administrators, and frontline service providers. Many are either unaware of the full implications of laws prohibiting child marriage or lack the capacity to enforce them effectively. This disconnect between national policy and community-level practice constrains public health efforts to reduce early and unintended pregnancies. For example, if traditional leaders are not sensitized to their obligations under new marriage legislation, harmful customary practices persist, thereby perpetuating cycles of early marriage and adolescent childbearing (Cislaghi et al., 2020).

The lack of harmonized enforcement mechanisms further exacerbates the problem. Often, violations of statutory marriage laws such as marrying off girls below the legal age are handled informally through customary fines or mediated settlements, rather than through formal legal processes. In rural areas, these informal systems prevail due to weak institutional presence, low reporting rates, and entrenched socio-economic dependencies. This weakens adolescents' protection from practices that pose serious health risks, including STIs, HIV, and life-threatening maternal complications such as obstructed labour or obstetric fistula conditions that remain disproportionately high among adolescent mothers in low-resource settings.

Given a public health lens, these implementation challenges not only undermine legal safeguards but also obstruct the realization of key health outcomes. For instance, delayed or inconsistent enforcement of child marriage laws perpetuates early pregnancies, which are associated with higher maternal mortality rates, preterm births, low birthweight, and mental health challenges. Moreover, adolescent mothers are less likely to access skilled antenatal care or postnatal services, contributing to poor maternal and neonatal outcomes. These outcomes directly threaten progress toward national health goals and global commitments such as SDG 3 (Good Health and Well-being) and SDG 5 (Gender Equality).

The intersection of legal, cultural, and health systems calls for coordinated, multisectoral action. Ministries of Health, Education, Justice, and Gender must work collaboratively not in silos to promote awareness, build capacity, and ensure accountability at all levels. Strengthening legal literacy among communities, training traditional leaders as advocates for adolescent rights, and equipping health and justice personnel with tools to implement laws fairly and consistently are critical steps.

Moreover, UN agencies and NGOs have a vital role to play in bridging the policy-practice gap through targeted advocacy, social and behaviour change communication (SBCC), community dialogue platforms, and capacity-building interventions. Ensuring that adolescent

pregnancy is framed not only as a socio-cultural or educational issue but as a preventable public health concern requiring upstream policy interventions is essential for galvanizing political will and resource allocation.

Improving the implementation of SRH and child protection policies is indispensable for safeguarding adolescent health and well-being. It demands sustained investment in systems strengthening, intersectoral collaboration, and culturally responsive governance mechanisms that align formal legislation with local realities.

## **2.12 Mobile Technology as an Intervention Strategy**

The growing integration of information and communication technologies (ICTs) into public health strategies has opened new avenues for addressing ASRH challenges. Many UN member states have adopted mobile health (mHealth) and digital interventions to tackle high rates of adolescent pregnancy, HIV, and GBV. In line with regional trends, Zambia is well positioned to expand the use of mobile technologies through coordinated partnerships among the Ministry of Health, UN agencies, and development partners to scale up adolescent-friendly SRH services and information delivery.

As part of a comprehensive public health approach, mobile technologies can help bridge gaps in service access particularly among marginalized, out-of-school, or rural adolescents who may face stigma or logistical barriers to traditional health services. Collaborative initiatives such as interactive SMS platforms, mobile apps, and tele-counselling services have proven effective in increasing health literacy, encouraging safer behaviours, and connecting young people to SRH resources in a confidential and non-judgmental manner. These interventions align with the preventive and promotive pillars of public health, offering timely information and early linkage to care.

In Zambia, UN-supported programmes have increasingly focused on promoting youth access to integrated SRH, HIV, and GBV services. To maximize impact, digital interventions must also incorporate complementary components, including educational, economic, and psychosocial support. Addressing the structural drivers of adolescent pregnancy such as poverty, school dropout, and limited empowerment enhances the sustainability and effectiveness of mobile-based solutions. For instance, integrating SRH messaging with vocational training resources or school retention programmes can strengthen the long-term health and well-being of adolescent girls.

The appeal of mobile technology is particularly strong among adolescents, who are often early adopters of digital tools and active users of social media. This makes ICT a powerful vehicle for behaviour change communication, peer education, and referral to health services. However, despite its potential, certain policy and ethical concerns persist notably around adolescents' access to SRH services and information without parental consent. These regulatory restrictions may limit the reach of mHealth interventions, particularly for unmarried adolescents who seek confidential care.

Addressing these challenges requires a dual-track public health response: first, investing in adolescent-responsive digital platforms that provide accurate, age-appropriate, and rights-based information; and second, advocating for policy reform that balances the need for adolescent autonomy with appropriate safeguards. Evidence from other SADC countries suggests that when ICT interventions are supported by enabling legal environments, they significantly improve adolescent health outcomes, including reductions in early pregnancies and STI rates.

Mobile technology presents a vital and scalable intervention strategy for improving adolescent SRH in Zambia. By embedding these tools within a broader framework of public

health, rights, and equity, stakeholders can ensure that digital innovations are not only effective but also inclusive, ethical, and responsive to the diverse needs of Zambia's adolescents.

### **2.11 Analysis of Macro-Level Influence in Sub-Saharan Africa**

Macro-level influences are foundational to shaping ASRH outcomes, as they determine the legal, policy, economic, and institutional environment in which adolescents live. In sub-Saharan Africa (SSA), these macro-level determinants significantly influence adolescent behaviours and access to services and play a critical role in the region's continued struggle with high rates of adolescent pregnancy, HIV, and STIs.

In South Africa, Odimegwu and Ugwu (2022) identified a strong association between adolescent risky sexual behaviours such as unprotected sex, multiple sexual partnerships and structural conditions related to social disorganization, including poverty, poor housing, and fragmented community systems. Despite progressive national frameworks like the National Youth Policy (2015–2019) and the National Strategic Plan for HIV, STIs, and TB (2020), implementation gaps persist. These gaps underscore the limitations of policies that do not adequately account for youth agency, cultural relevance, and community-level dynamics. These challenges highlight the importance of moving beyond policy formulation to focus on systems-level accountability, cross-sector coordination, and equity in service delivery.

Globally, only 40% of adolescents report using contraception, while 41.1% engage in sexual activity with multiple partners, increasing the risk of unintended pregnancies and STIs (Darroch, Woog, Bankole, and Ashford, 2018; UNICEF, 2016; Oliko, Alemayehu, and Yimer, 2019). In SSA, where more than 19 million adolescents reside, approximately 50% of new STI cases are reported among young people (Bale and Kanngethe, 2020; Monson and Hebert, 2019). These concerning trends are driven by early sexual debut, intergenerational sex, poverty,

gender inequality, and limited access to comprehensive sexuality education (CSE) and adolescent-responsive SRH services.

These statistics highlight the public health gap between legal and policy commitments and their effective implementation. The persistent gaps in adolescent contraception coverage, HIV prevention, and access to youth-friendly services are symptomatic of broader health systems weaknesses including insufficient financing, limited workforce capacity, and inadequate adolescent engagement in program design.

Urban slums across SSA present particularly acute public health risks for adolescents due to high population density, poverty, poor infrastructure, and weak governance systems (Wado, Sully, and Mumah, 2020; Dadzie, Amoateng, and Ovosi, 2020). Although several governments have initiated adolescent-focused programmes, their impact has been undermined by structural inequities, peer influence, and inconsistent access to health and education services (Odimegwu and Ugwu, 2022). The challenge is not only the existence of policies but their translation into community-level action, adapted to diverse urban and rural contexts.

Addressing these multi-dimensional challenges requires a coordinated, multi-level response informed by the SEM and rooted in public health principles of prevention, equity, and systems integration. Macro-level efforts must be harmonized with strategies at the individual, family, and community levels, ensuring that interventions are not only technically sound but also socially and culturally responsive. Priorities should include expanding access to CSE, investing in adolescent-responsive health systems, and reducing legal and policy barriers, especially for marginalized girls in rural and peri-urban areas.

Continental and regional frameworks such as the African Union's Agenda 2063 and the SADC SRHR Strategy (2019–2030) provide valuable guiding principles for governments to implement rights-based, integrated, and context-specific responses. These frameworks

emphasize the need for inclusive policy development, evidence-informed programming, and targeted investment in adolescent health and well-being as a foundation for sustainable development.

In Zambia, adolescent pregnancy is shaped by intersecting determinants across SEM levels, including individual risk factors, familial dynamics, community influences, and macro-level policy environments. Effective public health interventions must be multi-sectoral, gender-transformative, and geographically targeted, accounting for rural–urban disparities and socio-cultural variations in access, attitudes, and norms. This approach is essential not only for improving SRH outcomes but also for advancing Zambia’s national development goals and meeting global public health commitments, such as the SDGs (3, 4, and 5).

### **2.12.1 Access to SRH Services**

This review examines the accessibility and utilization of SRH services among young people, drawing on key theoretical frameworks such as the HBM, the Theory of Reasoned Action, the Theory of Planned Behaviour (Montano & Kasprzyk, 2008), and Social Cognitive Theory (Bandura, 1997). These models help explain the availability, effectiveness, and uptake of SRH services, alongside the influence of global conventions and treaties shaping access to adolescent SRH information. Adopting a multilevel perspective, the review applies the SEM to explore how individual, interpersonal, community, and societal factors interact to influence SRH outcomes.

### **2.12.2 The SEM and Access to ASRH Services**

The SEM provides a comprehensive lens through which to examine adolescent health-seeking behaviours, particularly concerning access to ASRH services. As a multi-layered framework, the SEM illustrates how individual choices are embedded within broader social



systems, encompassing the individual, interpersonal (family), community, and societal levels. Each level exerts unique and interrelated influences on adolescents' ability to access and utilize SRH services, and these influences often evolve as adolescents transition through different stages of development (Kilanowski, 2017).

At the individual level, limited knowledge and awareness of available services, low health literacy, and fear of stigma often hinder adolescents, especially girls from seeking care. Many adolescents lack accurate information about SRH, including contraception and the prevention of sexually transmitted infections, which limits their ability to make informed decisions. Furthermore, misconceptions, fear of judgment, and lack of self-efficacy contribute to underutilization of existing services.

The interpersonal level, particularly the family environment, plays a crucial role in shaping adolescent health behaviour. Supportive parental communication and guidance can facilitate access to SRH services, whereas restrictive or judgmental family attitudes often serve as a barrier. In many settings, discussions around sexuality are considered taboo, leaving adolescents to rely on peers or the internet sources that may provide incomplete or inaccurate information.

At the community level, prevailing cultural norms, religious beliefs, and peer influence significantly shape adolescents' perceptions of and access to SRH services. In communities where adolescent sexuality is highly stigmatized or moralized, young people may avoid seeking care due to fear of being labelled or ostracized. Additionally, the availability and accessibility of youth-friendly services such as location, operating hours, and provider attitudes can either enable or impede utilization.

Finally, at the societal or policy level, structural factors such as national laws, education policies, and health system regulations have a profound impact on ASRH access. Restrictive policies, such as age of consent laws or parental consent requirements, often act as legal

barriers, especially for unmarried adolescents. Conversely, progressive legal and policy frameworks that protect adolescent rights and promote youth-friendly health systems can enhance access to care and improve SRH outcomes.

By emphasizing the interaction between these multiple levels of influence, the SEM supports the development of holistic, context-sensitive interventions. It recognizes that improving adolescent access to ASRH services requires more than individual education or service provision it demands systemic change across social norms, family practices, community structures, and policy environments. In this way, the SEM provides a valuable foundation for designing and implementing multi-level strategies that promote equitable and effective access to ASRH services for all adolescents.

### **2.12.3 The Health Belief Model (HBM) and Access to ASRH Services**

The HBM provides a valuable individual-level lens for understanding adolescents' access to ASRH services. Rooted in cognitive-behavioural theory, the HBM posits that personal health behaviours are shaped by specific belief constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Skinner and Champion, 2008). In the context of ASRH, these constructs influence how adolescents assess their risk of unintended pregnancy, HIV, or STIs, and whether they are motivated to seek preventive care or adopt protective behaviours.

Adolescent girls, in particular, often face compounded vulnerabilities such as early and unintended pregnancy, school dropout, maternal morbidity and mortality, and heightened risk of HIV/STIs yet their decision-making may be hindered by low perceived susceptibility, misinformation, or fear of stigma. According to Starcher and Rosenstock (1997), health-seeking behaviour is ultimately driven by the perceived threat of a health condition and the individual's belief in their capacity to take action and achieve a favourable outcome.

While the HBM offers a useful framework for understanding how individual beliefs shape ASRH behaviours, it has notable limitations particularly when applied within broader socio-ecological contexts. The model primarily addresses individual cognition and does not adequately capture the influence of structural, cultural, or environmental factors that often constrain adolescent choices. For instance, the HBM does not fully consider how collective norms, gender dynamics, or institutional barriers common in both rural and urban settings impact adolescents' ability to access and utilize SRH services.

This limitation is especially pertinent in the Zambian context, where adolescents' reproductive choices are shaped not only by personal beliefs but also by sociocultural expectations, economic constraints, and variations in service availability between rural and urban areas. Therefore, while the HBM contributes to understanding individual-level motivations and deterrents, it must be complemented by broader frameworks such as the SEM to fully capture the multi-level and contextual realities that influence adolescent SRH outcomes.

This study adopts an integrated perspective, recognizing the value of the HBM in analysing individual behaviour, while simultaneously drawing on the SEM to explore how socio-ecological determinants including community norms, policy environments, and service infrastructure intersect to affect adolescent pregnancy in Zambia. By doing so, it contributes to a more holistic understanding of the complex and layered factors influencing access to ASRH services across diverse communities.

#### **2.12.4 Social Cognitive Theories and Access to ASRH Services**

At the policy level, Social Cognitive Theory (SCT) underscores the role of facilitation in shaping ASRH behaviours. According to Bandura (1998), facilitation involves the creation of supportive environments, access to resources, and the establishment of services that enable

individuals, particularly adolescents, to adopt and maintain health-promoting behaviours. In this context, policies that reduce structural barriers and enhance access to quality information and services are instrumental in influencing positive ASRH outcomes.

SCT highlights the dynamic interaction between personal factors, behavioural patterns, and environmental influences. It suggests that adolescents are more likely to adopt safe SRH behaviours when they observe positive role models, receive appropriate guidance, and are supported by enabling environments. This theoretical perspective places responsibility on policymakers, service providers, and other stakeholders to actively identify and dismantle barriers, whether structural, cultural, or informational that hinder adolescents from accessing SRH services.

Importantly, SCT draws attention to the environmental and contextual disparities that influence access and use of SRH services. Adolescents living in rural or underserved areas often face limited availability of youth-friendly health services, lower levels of health literacy, and prevailing sociocultural norms that discourage open discussion of sexuality and contraception. These inequities underscore the need for targeted policy interventions that are responsive to geographic, gender, and socioeconomic differences.

Furthermore, many United Nations member states, including Zambia, have ratified international and regional agreements that reinforce the right of adolescents to access comprehensive SRH information and services. Instruments such as the ICPD Programme of Action, the Convention on the Rights of the Child (CRC), and the Maputo Plan of Action provide a normative framework for national policies aimed at promoting ASRH. These commitments obligate governments to implement policies and programmes that are not only rights-based and evidence-informed but also grounded in behavioural theories like SCT that recognize the multifaceted determinants of adolescent health behaviour.

By applying the principles of SCT at the policy level, stakeholders can foster more inclusive, responsive, and impactful ASRH programming ensuring that adolescents, regardless of where they live, are supported to make informed choices about their SRH.

#### **2.12.5 Global and International Standards on SRH**

Adolescent sexual and reproductive health (ASRH) is widely recognized as a fundamental public health and human rights issue, affirmed through several binding and non-binding international frameworks. The 1979 Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and the Convention on the Rights of the Child (CRC) collectively articulate the rights of adolescents to access health services, education, and protection from practices such as early marriage and gender-based violence. These treaties obligate member states to ensure that adolescents can realize their full health potential free from coercion, discrimination, and violence (UN General Assembly, 1979; UN, 1989).

This commitment was further advanced by the 1994 International Conference on Population and Development (ICPD) Programme of Action (PoA), which marked a pivotal moment in global public health by emphasizing the state's responsibility to ensure equitable access to comprehensive, culturally sensitive, and youth-friendly SRH services. The PoA framed ASRH not only as a health imperative but also as central to youth empowerment, gender equality, and sustainable development (UNFPA, 1995). It advocated for integrated services, age-appropriate information, and active youth participation in policy development.

However, the original ICPD framework did not comprehensively address the unique SRH needs of adolescents, particularly those outside of marriage, revealing a gap in global health priorities at the time. A comprehensive review by Chandra-Mouli, Lane, and Wong (2019) acknowledged that while substantial progress has been made since 1994, including the institutionalization of adolescent health units in national ministries, barriers such as stigma,

restrictive laws, and health system weaknesses continue to hinder full implementation of adolescent-responsive SRH programs globally.

To bridge these gaps, agencies such as UNFPA, WHO, and UNESCO have played a catalytic role in supporting governments to institutionalize adolescent SRH into national health strategies and global development frameworks. These efforts include advocacy for comprehensive sexuality education (CSE), expansion of youth-friendly health services, and the development of community-based outreach to ensure equitable access to care, particularly for marginalized adolescents. The ICPD PoA also called for a multi-stakeholder approach, engaging civil society, youth-led organizations, and development partners to dismantle barriers related to socio-cultural norms, political resistance, and underfunding (UNFPA, 2019).

The growing alignment between global SRH goals and the SDGs reinforces the strategic importance of ASRH in achieving SDG 3 (Good Health and Well-being) and SDG 5 (Gender Equality). Ensuring access to SRH services contributes to delayed pregnancy, reduced maternal mortality, increased school completion, and enhanced agency among girls and young women (WHO, 2018; UN Women, 2021). Specifically, SDG Indicator 3.7.2, which tracks the adolescent birth rate per 1,000 women aged 15–19, reflects global consensus on the need to monitor and reduce early pregnancy as a core public health and development objective (UN Statistical Division, 2018).

Despite these normative advancements, implementation gaps persist, particularly in sub-Saharan Africa where health systems remain under-resourced, and adolescent-specific services are often inconsistent or inaccessible. In Zambia, for example, adolescents continue to face significant barriers to SRH services, including lack of youth-friendly facilities, parental consent requirements, provider stigma, and weak CSE delivery in schools (Nkole, Munalula, and Zulu, 2019). WHO guidelines now provide technical support for countries to scale up

youth-focused health interventions, emphasizing privacy, confidentiality, non-judgmental care, and service integration as cornerstones of adolescent health (WHO, 2018).

The UN 2030 Agenda for Sustainable Development places strong emphasis on youth participation in decision-making, calling on governments to engage adolescents as active stakeholders in the design and evaluation of policies that affect their health and well-being (UN, 2015). This vision was reaffirmed at ICPD@25, where global leaders acknowledged the progress made while also recognizing that most adolescent girls and young women in low- and middle-income countries still lack access to SRH services (UNFPA, 2020). This lack of access increases adolescents' vulnerability to unintended pregnancies, unsafe abortions, HIV, and other STIs threats that undermine broader public health outcomes and human capital development.

Global and international standards offer a strong legal and moral foundation for advancing ASRH. However, their impact depends on effective translation into national laws, policies, and programmes that are responsive to adolescents' diverse realities. Viewed through a public health lens, this requires investment in systems strengthening, health workforce training, community mobilization, and cross-sectoral accountability, all informed by rights-based, evidence-driven approaches. Bridging the gap between global commitments and local implementation is not only a matter of health justice but a prerequisite for sustainable development.

#### **2.12.6 Barriers to Accessing ASRH Services**

Despite global commitments to ASRHR, significant barriers hinder access to youth-friendly services, particularly in sub-Saharan Africa. These services should include contraceptives, antenatal and postnatal care, HIV/STI prevention, menstrual hygiene, GBV support, and life skills counselling (WHO, 2018; Shrestha & Werdehal, 2020). Yet,

adolescents, especially girls in rural areas often face limited access due to geographic, cultural, socioeconomic, and systemic constraints (Nkole, Munalula & Zulu, 2019).

Key obstacles include health workers' negative attitudes, inadequate training, legal requirements for parental consent, and lack of confidentiality (Ninsiima, Chiumia & Njejjjo, 2021; WHO, 2017). Adolescents in rural settings are less likely to receive information on contraception and face greater stigma around SRH services (Yarger, Decker & Gerdt, 2019). Cultural and religious norms further limit contraceptive use, especially where condom use is frowned upon. Adolescents also fear judgment from parents and community members, leading to delays or avoidance in seeking care (Miller, Roberts & Smith, 2018; Hubel & Mohammed, 2020).

Theoretical frameworks such as the HBM (Champion & Skinner, 2008), the Theory of Planned Behaviour (Montano & Kasprzyk, 2008), and Social Cognitive Theory (Bandura, 1998) emphasize the importance of knowledge, perception of risk, personal agency, and environmental support in shaping health behaviours. However, environmental constraints, such as facility shortages, long travel distances, and cost limit service uptake in rural Zambia, where health systems often fall short of WHO standards (Sundstrom et al., 2019).

Legal restrictions further exacerbate access issues. In Zambia, adolescents under 16 require parental consent to access SRH services, deterring many from seeking care. Research shows older adolescents (18-19) are more likely to access contraception than younger peers, who face compounded legal and social barriers (Sserwanja et al., 2022). Privacy concerns also deter adolescents from seeking services, particularly when providers are known community members (Nkole et al., 2021). The COVID-19 pandemic further disrupted access, highlighting the fragility of healthcare systems and the heightened vulnerability of rural youth.

To address these challenges, policy reforms should allow adolescents confidential access to services without parental consent. Investing in youth-friendly facilities, improving



health worker training, and expanding school-based and community-led programs can improve SRH outcomes. Solutions such as mobile clinics, telemedicine, and ICT-based interventions are particularly valuable in bridging rural-urban gaps.

Ultimately, addressing adolescent pregnancy in Zambia requires macro-level strategies that integrate ASRHR into national policy, reduce legal and systemic barriers, and promote inclusive, community-based approaches. Lessons from similar contexts underscore the importance of locally tailored interventions that respond to the unique needs of adolescents in both rural and urban areas while prioritizing education, equity, and empowerment. These insights will provide a foundation for understanding the prerequisites and implementation strategies required to address adolescent pregnancy effectively.

### **2.13 The Need for Political Commitment – The Case of Nepal**

An analysis of adolescent SRH in Nepal highlights both enabling factors and persistent barriers that mirror global trends. Legal and strategic government-led frameworks are essential to support UN-driven ASRHR interventions. The Nepalese government has demonstrated strong political will through policies such as the National Reproductive Health Strategy, the Adolescent Health and Development Strategy (2002), and Implementation Guidelines for ASRH (2007). By 2015, Nepal had scaled up its pilot ASRH interventions to 1,113 adolescent-friendly health facilities (Shrestha & Waerdehal, 2020).

However, infrastructure alone is insufficient. Effective ASRH service delivery also depends on “software” components such as trained personnel, accurate information flow, community mobilization, and addressing socio-cultural barriers. Key obstacles include stigma, negative attitudes from healthcare providers, and inadequate youth-focused communication campaigns (Shrestha & Wærdahl, 2019; Tiwari, Upadhaya, & Angdembe, 2022).

Wado and Bangha (2020), emphasize capacity-building to address knowledge and attitudinal gaps among providers. While behavioural models highlight the importance of beliefs, attitudes, and intention in shaping SRH service uptake (Champion & Skinner, 2008; Montano & Kasprzyk, 2008), real-world application is complicated by demographic and environmental factors beyond the individual's control.

These constructs suggest that adolescents who perceive SRH services as beneficial are more likely to use them, while negative perceptions may deter access. Yet, attitudes and intentions are difficult to measure and apply uniformly across Bronfenbrenner's SEM levels, especially when considering variations by location, family background, and socio-economic context.

Lessons from Nepal underscore that there is no one-size-fits-all solution. Strategies must be tailored to provincial, community, and household realities, especially across rural-urban divides. Evaluating ASRH programs remains challenging, particularly when assessing soft indicators such as perception and behaviour. Nonetheless, proxy indicators like age of marriage, sexual debut, education levels, and HIV prevalence can help measure progress. Despite Nepal's policy advancements, low ASRH service uptake remains a global concern (Acharya & Rijal, 2021; Shrestha & Wærdahl, 2019), reinforcing the need for sustained political will and context-specific, youth-centred approaches.

## **2.14 Conceptual Framework**

Adolescent pregnancy is influenced by a dynamic and interrelated set of factors that operate across multiple levels of the socio-ecological system. Grounded in Bronfenbrenner's SEM, this study adopts a conceptual framework that captures the complexity of influences shaping adolescents' SRH outcomes. The framework acknowledges that no single factor acts

in isolation; rather, individual behaviours are embedded within broader social, familial, community, and societal environments that collectively shape risk and protective factors.

As illustrated in Figure 2.2, the framework incorporates selected variables including demographic characteristics within four interlinked domains: individual, (microsystem), family (mesosystem), community (ecosystem), and societal (macrosystem) contexts. These levels reflect the nested structure of Bronfenbrenner's SEM, emphasizing how proximal and distal influences interact to affect adolescent decision-making and behaviour regarding sexuality and reproduction.

At the individual level, the framework considers adolescents' knowledge, attitudes, and access to SRH information and services. The family level reflects parental communication, supervision, and socio-economic conditions that either protect or expose adolescents to early pregnancy. The community level encompasses cultural norms, schooling environments, and the availability of youth-friendly health services, while the societal level includes broader structural factors such as policies, gender norms, and socio-economic inequalities.

By integrating these multi-level dimensions, the conceptual framework facilitates a holistic analysis of how various determinants converge to influence adolescent pregnancy. This systems-based approach not only enhances the explanatory power of the study but also supports the formulation of context-specific, multi-sectoral interventions aimed at addressing the root causes of adolescent pregnancy in both rural and urban settings. Ultimately, the framework serves as both an analytical guide and a policy-relevant tool for generating actionable insights to inform adolescent health programming in Zambia.

#### **2.14.1 Demographic Factors**

Demographic factors significantly influence adolescent pregnancy rates. Understanding these variables is critical for designing effective interventions. This section explores the

relationship between adolescent pregnancy and three key demographic factors: age, marital status, and educational attainment which are critical factors influencing adolescents' sexual and reproductive behaviours.

### **2.14.2 Age and Adolescent Pregnancy**

Age is a pivotal demographic factor influencing the likelihood of adolescent pregnancy. Younger adolescents particularly those in the early adolescent stage (10–14 years)—are at heightened risk due to early sexual debut, limited access to contraceptives, and insufficient knowledge of SRH (Asmamaw, Kebede, and Tadesse, 2021). At this stage, cognitive and emotional development is still evolving, limiting adolescents' capacity to make informed decisions about relationships and reproductive choices. These vulnerabilities are often exacerbated by societal taboos around discussing sexuality, which hinder access to accurate and timely SRH education.

Empirical studies consistently show that the risk of adolescent pregnancy declines as age increases. Older adolescents (17–19 years) tend to have greater autonomy, improved access to reproductive health information, and higher contraceptive use compared to their younger counterparts (Ahinkorah, Kang, Perry, Brooks, and Hayen, 2021; Terefe, 2022). However, despite this trend, the 15–19 age group remains a primary concern globally, as it still accounts for a substantial proportion of adolescent pregnancies. Worku, Tadesse, and Gebreselassie (2021) emphasize the health and social repercussions of pregnancy within this age group, including elevated risks of maternal complications, school dropout, and long-term socio-economic disadvantage.

A critical factor linking age and adolescent pregnancy is early sexual initiation. Adolescents who begin sexual activity at a younger age are exposed to an extended period of pregnancy risk, often in the absence of protective measures such as contraception or supportive

adult guidance (Turi, Alemayehu, and Bekele, 2020). Prolonged exposure to risk, coupled with limited decision-making power, contributes significantly to early and unintended pregnancies.

In sub-Saharan Africa, adolescent pregnancy rates are among the highest globally, largely due to cultural norms that promote early marriage and normalize adolescent motherhood (Terefe, 2022). These norms often pressure girls into sexual relationships or marriage before they are emotionally or physically prepared, further increasing the likelihood of early childbearing. In Zambia, adolescents aged 15–19 constitute a significant share of all pregnancies, a trend attributed to a combination of factors including entrenched socio-cultural practices, peer influence, poverty, and limited access to comprehensive sexuality education (Phiri, Banda, and Kamwendo, 2023).

Addressing the age-related dimensions of adolescent pregnancy requires targeted, age-appropriate interventions. Younger adolescents, in particular, need protective policies and programmes that delay sexual debut, promote bodily autonomy, and provide access to accurate SRH information in safe and supportive environments. Malunga, Nyambe, Kapumba, Zulu, and Mbewe (2023) advocate for context-specific SRH interventions tailored to the varying developmental stages within adolescence. These should include comprehensive sexuality education, improved access to adolescent-responsive health services, and community engagement strategies aimed at reshaping harmful norms.

In sum, age is not only a biological marker but also a reflection of varying levels of exposure, vulnerability, and agency within the adolescent period. A nuanced understanding of how age intersects with other social determinants is essential to crafting effective interventions that reduce adolescent pregnancy and promote the well-being of Zambia's youth.

### **2.14.3 Level of Education and Adolescent Pregnancy**

Education is a powerful determinant of adolescent pregnancy. Higher levels of education significantly reduce the likelihood of pregnancy by delaying marriage and

childbearing, increasing contraceptive use, and improving decision-making regarding reproductive health (Asmamaw, Gebru, & Tadesse, 2023; Akanbi, Adetunji, & Olaleye, 2021). Globally, research consistently shows that girls with higher educational attainment are less likely to experience adolescent pregnancies (Fox, Smith, & Johnson, 2019; Zhang & Chen, 2020).

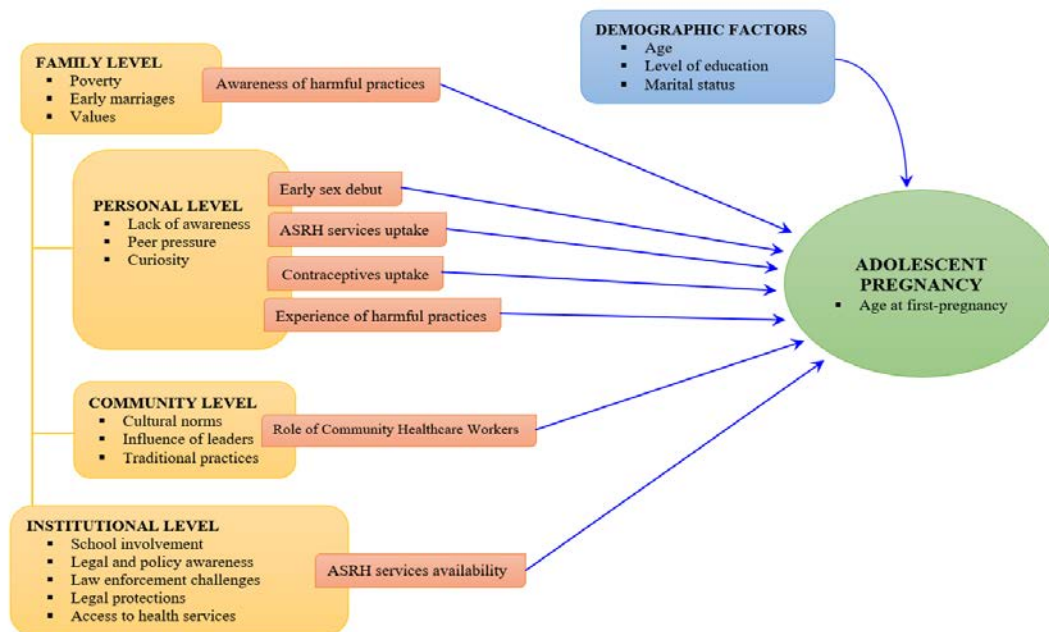
In sub-Saharan Africa, secondary or higher education strongly correlates with lower adolescent pregnancy rates (Melesse, Mutua, & Stuart, 2021). Education empowers adolescents with knowledge, confidence, and critical thinking skills, enabling them to make informed decisions about SRH (Ahinkorah, Seidu, Budu, & Sambah, 2021; UNESCO, 2018). CSE in schools is particularly effective in equipping adolescents with knowledge about contraception, STIs, and the consequences of early pregnancy (UNFPA, 2020; Darroch et al., 2016).

In Zambia, education plays a pivotal role in reducing adolescent pregnancies. Girls with secondary or higher education levels experience significantly lower pregnancy rates compared to those with limited or no education (ZDHS, 2018). Efforts to improve educational opportunities for girls and promote CSE in schools are essential for reducing adolescent pregnancy rates and empowering adolescents to make informed decisions about their reproductive health (Mbele & Jassey, 2024). It is evident that education fosters aspirations for economic independence and broader opportunities, which deter early parenthood (Nkhoma, Banda, & Chirwa, 2020). Studies have also shown that adolescents who receive CSE are more likely to effectively manage their reproductive health, including using contraceptives and delaying parenthood (Malunga et al., 2023). Policies prioritizing girls' education, such as scholarships and safe school initiatives, are essential for addressing adolescent pregnancies (Zulu, Banda, & Phiri, 2022).

Education also provides access to health services, counselling, and peer support, further reducing pregnancy rates (Ahinkorah, Seidu, Budu, & Sambah, 2021; UNESCO, 2018). However, socio-economic and cultural factors can limit educational access and undermine its protective benefits. For example, financial constraints, cultural expectations, and the prioritization of marriage over education in some communities exacerbate adolescent pregnancy risks (Maharaj, 2022). Tackling these barriers is crucial to realizing the full potential of education in reducing adolescent pregnancies.

In 2024, the African Union (AU) declared the "Year of Education," emphasizing the theme: "Educate an African fit for the 21st Century: Building resilient education systems for increased access to inclusive, lifelong, quality, and relevant learning in Africa." This initiative underscores the AU's commitment to enhancing educational systems across the continent, with a particular focus on girls' education (AU, 2024).

Figure 2.2: Conceptual Framework



Source: Generated from literature review

#### 2.14.4 Marital Status and Adolescent Pregnancy

Marital status is a significant demographic determinant of adolescent pregnancy, particularly in contexts where early marriage is both culturally sanctioned and socially reinforced. Globally, adolescents who are married face a markedly higher risk of early pregnancy, largely due to societal and familial expectations to demonstrate fertility soon after marriage (Akanbi, Adetunji, and Olaleye, 2021). These pressures often limit young girls' autonomy over reproductive choices, increasing their exposure to early childbearing and its associated health and socio-economic consequences.

In sub-Saharan Africa, early marriage remains a dominant driver of adolescent pregnancy. Empirical evidence from Ethiopia and Kenya shows that married adolescents are significantly more likely to become pregnant compared to their unmarried counterparts, underscoring the entrenched links between marital status and adolescent fertility in the region (Turi, Alemayehu, and Bekele, 2020; Mutea, Mwangi, and Kimani, 2022). In such settings,



marriage not only legitimizes childbearing but often restricts girls' access to education and health information, further compounding their vulnerability.

In the Zambian context, early marriage is strongly influenced by poverty, gender inequality, and persistent cultural norms that valorise early unions. Families often view marrying off daughters as a strategy to alleviate financial pressures or secure dowry payments, particularly in economically marginalized communities (Zambia Demographic and Health Survey (ZDHS), 2018; Mbele and Jassey, 2024). Consequently, adolescent girls are frequently denied the opportunity to complete their education or make informed decisions about their SRH.

Addressing the link between marital status and adolescent pregnancy requires multifaceted interventions that target the root causes of child marriage. Key strategies include enforcing legal frameworks that prohibit marriage under the age of 18, expanding access to SRH education, and promoting community awareness campaigns that challenge harmful traditional practices (Shumba, Ndlovu, and Moyo, 2024). Moreover, targeted social protection initiatives such as conditional cash transfers and school bursaries can mitigate the economic drivers of early marriage.

Legal and policy reforms that strengthen the protection of adolescent rights are also essential. These should be accompanied by efforts to ensure effective implementation and community-level engagement to shift social norms. As Sserwanja, Nabaggala, Akugizibwe, and Kawuki (2023) argue, safeguarding adolescents from early unions is not only a matter of public health but also a human rights imperative that requires sustained political will and multi-sectoral collaboration.

### **2.15 Personal Level Factors**

Personal-level factors encompass the behaviours, experiences, and individual characteristics that directly impact adolescents' reproductive health outcomes. These factors significantly influence adolescents' risk of pregnancy and their ability to access and utilize SRH services. Key determinants of adolescent pregnancy include early sexual debut, limited access to ASRH services, and low contraceptive uptake (Mbele & Jassey, 2024). Early sexual activity exposes adolescents to increased risks of unintended pregnancies STIs, including HIV, particularly when compounded by a lack of knowledge about contraceptives or limited access to youth-friendly services.

Research by Mbizvo, Chirwa, and Nyirenda (2023), highlights the pivotal role of comprehensive ASRH services, such as the availability and proper use of contraceptives, in mitigating adolescent pregnancy rates. Adolescents who have access to accurate information, contraceptives, and counselling are better equipped to make informed decisions about their reproductive health. However, many adolescents, particularly in rural areas, face barriers to accessing these services due to stigma, societal norms, and inadequate healthcare infrastructure.

Personal-level factors are also influenced by adolescents' exposure to harmful practices, such as gender-based violence, early marriage, and cultural rites of passage, which can normalize early sexual activity and reduce agency over their reproductive decisions. Additionally, a lack of CSE often leaves adolescents with insufficient knowledge about their bodies, reproductive health, and the consequences of risky sexual behaviours. This gap in knowledge perpetuates myths and misconceptions, further hindering their ability to make safe choices.

Self-efficacy and peer influence also play a critical role in shaping adolescents' sexual behaviours. Adolescents with higher self-efficacy are more likely to negotiate safe sex practices

and seek SRH services. Conversely, negative peer pressure can encourage risky behaviours, such as unprotected sex or multiple sexual partnerships, increasing the likelihood of adolescent pregnancies.

Another critical factor is mental health, as stress, depression, and low self-esteem may lead some adolescents to engage in risky sexual behaviours as a coping mechanism. Addressing these psychological dimensions is essential to improving their overall well-being and reducing the incidence of unintended pregnancies.

### **2.15.1 Early Sexual Debut and Adolescent Pregnancy**

Early sexual debut defined as the initiation of sexual activity during the early or middle adolescent years is a critical determinant of adolescent pregnancy and a major concern in public health and development discourse. It significantly increases the risk of unintended pregnancy, STIs, including HIV, and other adverse reproductive health outcomes among adolescents. This vulnerability stems from multiple intersecting factors, including physiological immaturity, emotional underdevelopment, and limited access to accurate SRH information and services (Sezgin & Punamäki, 2020; Melesse, Mutua, & Stuart, 2021).

Adolescents who initiate sexual activity at a young age are often unprepared to navigate the complexities of sexual relationships. They frequently lack the knowledge and skills necessary to practice safe sex, including understanding contraceptive options, negotiating condom use, and seeking SRH services. Early sexual debut has been closely associated with peer pressure, sexual coercion, gender power imbalances, exposure to sexually explicit content in digital and mass media, and underlying socio-economic vulnerabilities such as poverty, orphanhood, and family dysfunction (Wado, Sully, & Mumah, 2019; Kushal, Patel, & Singh, 2022).

Evidence from global and regional studies consistently highlights that sexual initiation before the age of 15 is linked to a higher incidence of risky sexual behaviours, including inconsistent or non-use of contraception, multiple sexual partners, and low rates of health-seeking behaviour (Ahinkorah et al., 2021). These behaviours significantly elevate the likelihood of adolescent pregnancy and increase the burden of STIs and other reproductive health complications. The data underscore that early sexual debut compromises adolescent health trajectories, disrupts educational pathways, and contributes to a cycle of intergenerational poverty and social exclusion.

In the sub-Saharan African context, early sexual debut is exacerbated by socio-cultural norms that sometimes condone early marriage or sexual initiation, limited parental guidance, and inadequate implementation of age-appropriate sexuality education in schools. Zambia, in particular, exhibits worrying trends, with national data indicating that a significant proportion of adolescents engage in sexual activity before the age of 18, often without sufficient preparation or protection (ZDHS, 2018). The consequences of such early sexual activity are profound: adolescents are more likely to become pregnant, drop out of school, and experience lifelong socio-economic disadvantage (Sserwanja et al., 2023).

Furthermore, research shows that early sexual debut is more common among adolescents from low-income households, those living in rural areas, and those with low educational attainment highlighting the structural determinants at play (Turi, Smith, & Lee, 2020). These adolescents are less likely to access or consistently use contraceptives due to financial barriers, stigma, lack of youth-friendly services, and misinformation about reproductive health. In addition, gender norms often place the burden of contraception and pregnancy prevention on girls, while simultaneously limiting their agency and decision-making power in sexual relationships.

Addressing early sexual debut as a public health issue requires a multi-pronged approach. CSE programs, both in and out of school are crucial for equipping adolescents with accurate information about sexual health, human development, gender equality, and respectful relationships. Evidence shows that well-designed, age-appropriate CSE can delay sexual initiation, promote safer sexual behaviours, and reduce rates of adolescent pregnancy (Melesse, Mutua, & Emina, 2021; Svanemyr, Sundby, & Tellefsen, 2022). Life skills education, which includes modules on decision-making, assertiveness, and communication, further enhances adolescents' capacity to navigate peer pressure and develop healthy attitudes towards sexuality.

Public health interventions must also address structural enablers of early sexual debut, including poverty, school dropout, and lack of parental support. Economic empowerment programs targeting adolescent girls, such as scholarships, conditional cash transfers, and vocational training, have demonstrated effectiveness in reducing early sexual activity by increasing girls' agency and long-term aspirations. At the community level, engaging parents, caregivers, and traditional leaders in open dialogues about adolescent SRH can challenge harmful norms and foster supportive environments for delayed sexual initiation.

Early sexual debut is both a symptom and a driver of broader public health and developmental challenges. It contributes directly to high rates of adolescent pregnancy and poor reproductive health outcomes and must be addressed through culturally sensitive, evidence-based, and multisectoral strategies. Delaying sexual debut through education, empowerment, and community engagement is critical to improving adolescent health, advancing gender equality, and achieving sustainable development outcomes in Zambia and similar settings.

### **2.15.2 Uptake of ASRH Services and Adolescent Pregnancy**

The utilization of ASRH services, including access to information, contraceptives, and counselling, is a critical factor influencing adolescent pregnancy. Adolescents who actively engage with ASRH services are more likely to receive essential knowledge about contraception, pregnancy prevention, and sexually transmitted infections, thereby improving reproductive health outcomes (Mbizvo, Chirwa & Nyirenda, 2023). However, barriers such as stigma, concerns about confidentiality, and perceived judgment from healthcare providers often deter adolescents, particularly those in conservative or rural communities from seeking these services (Turi, Brown, & White, 2020).

The limited availability of youth-friendly healthcare facilities and cultural barriers further hinder access to ASRH services, reducing their uptake among adolescents (Svanemyr, 2020). Insufficient ASRH information and service utilization are significant contributors to adolescent pregnancy, underscoring the importance of interventions that improve access to and use of these services. Research highlights that increased uptake of ASRH services, such as contraceptives, is a vital strategy for preventing early pregnancies.

Stigma, discrimination, and misinformation about ASRH services further deter adolescents from seeking care, compounding disparities in access and utilization. Many adolescents, particularly unmarried girls, fear judgment from healthcare providers or community members, discouraging them from accessing the care they need. Additionally, societal norms in conservative communities often view discussions about SRH as taboo, further isolating adolescents from essential services (Turi, Brown, & White, 2020).

Factors influencing the uptake of ASRH services and adolescent pregnancies are interrelated and can be analysed at personal, interpersonal, community, and societal levels, consistent with Bronfenbrenner's SEM. These barriers increase adolescents' vulnerability to

SRH risks, including unsafe sex, sexual coercion, and early pregnancy, while simultaneously limiting their access to SRH information and services (Svanemyr, Sundby, & Tellefsen, 2022).

### **2.15.3 Contraceptive Uptake and Adolescent Pregnancy**

The utilization of ASRH services, including access to information, contraceptives, and counselling, plays a critical role in influencing adolescent pregnancy rates. Adolescents who actively engage with ASRH services are more likely to gain essential knowledge about contraception, pregnancy prevention, and STIs, thereby improving their overall reproductive health outcomes (Mbizvo et al., 2023). These services provide young people with the tools and resources needed to make informed decisions about their sexual health, reducing their vulnerability to unintended pregnancies and STIs.

However, significant barriers hinder adolescents' access to and uptake of ASRH services, especially contraceptives. Stigma, concerns about confidentiality, and the fear of being judged by healthcare providers often deter adolescents, particularly those in conservative or rural communities, from seeking the services they need (Turi, Alemayehu, & Bekele, 2020; Wado, Sully & Mumah, 2019)). This reluctance is further compounded by cultural norms that stigmatize adolescent sexuality, as well as by inadequate training for healthcare providers on how to deliver youth-friendly services that prioritize privacy and nonjudgmental care.

The limited availability of youth-friendly healthcare facilities, particularly in rural and underserved areas, further restricts adolescents' access to ASRH services (Svanemyr, 2020). Many adolescents lack access to a variety of contraceptive methods, leaving them with fewer options to effectively prevent pregnancy. Cultural and religious barriers also discourage contraceptive use, with misinformation and myths surrounding contraception being widespread in some communities. These challenges contribute to low contraceptive uptake, which is a significant driver of adolescent pregnancy.

Insufficient access to ASRH information and services is closely linked to higher rates of adolescent pregnancy, emphasizing the need for targeted interventions to improve access and utilization. Research underscores that increasing the uptake of contraceptives and ASRH services is a critical strategy for preventing early pregnancies. Interventions such as CSE, community outreach programs, and the integration of SRH services into schools can significantly improve adolescents' access to these resources.

Factors influencing the uptake of ASRH services and the prevalence of adolescent pregnancy are interrelated and can be analysed across multiple levels of influence, consistent with Bronfenbrenner's SEM. At the personal level, factors such as knowledge, self-efficacy, and individual perceptions about contraceptive use play a crucial role. Interpersonal factors, including peer influence, parental support, and communication, further shape adolescents' willingness to seek SRH services. At the community level, cultural norms, social stigma, and the availability of youth-friendly services significantly impact service utilization (Melesse., Mutua, & Stuart, 2021). Finally, societal-level factors, such as national policies, legal frameworks, and economic disparities, determine the overall accessibility and affordability of ASRH services.

These barriers not only increase adolescents' vulnerability to SRH risks, such as unsafe sex, sexual coercion, and early pregnancy, but also limit their access to vital information and services that could improve their health outcomes (Svanemyr, Sundby, & Tellefsen, 2022). Addressing these challenges requires a comprehensive and coordinated approach that includes policy reforms, investments in youth-friendly healthcare infrastructure, and culturally sensitive interventions that address the unique needs of adolescents in diverse contexts.



#### **2.15.4 Experience of Harmful Practices and Adolescent Pregnancy**

Harmful practices, such as gender-based violence, child marriage, and coerced sex, significantly increase adolescents' vulnerability to pregnancy. According to Melesse., Mutua, & Stuart (2021), adolescents, particularly girls, who experience harmful practices face heightened risks of early marriage, sexual exploitation, and unintended pregnancies. These risks are perpetuated by entrenched gender inequalities, poverty, and cultural norms that undermine adolescents' autonomy and agency (Wado., Sully & Mumah, 2019). Addressing these practices requires comprehensive interventions to challenge discriminatory norms, promote gender equality, and provide support and protection for vulnerable adolescents (Kushal., Patel, & Singh 2022).

A lack of accurate information about SRH and the influence of peer pressure further exacerbate adolescents' risks. Peer norms often drive risky sexual behaviours, including early initiation of sexual activity (Melesse., Mutua, & Stuart, 2021). Curiosity about sex, while a normal part of adolescent development, can lead to unsafe sexual experimentation and unintended pregnancies when not paired with appropriate knowledge and guidance (Terefe, 2022). Harmful cultural practices, including child marriage, initiation ceremonies, and rites of passage, significantly contribute to adolescent pregnancies. Girls exposed to such practices often face early pregnancies, maternal health complications, and restricted educational opportunities, perpetuating cycles of poverty and inequality (Daka, Mwelwa., Chibamba., Mkandawire., & Phiri, 2020).

Female genital mutilation (FGM), prevalent in parts of Africa and the Middle East, is linked to adverse reproductive health outcomes, including childbirth complications and increased risks of obstetric fistulae and infant mortality (WHO, 2018; UNFPA, 2019). Schroeder, Johnson, and Patel (2022) found a strong correlation between early marriage and

adolescent pregnancy in sub-Saharan Africa. Similarly, UNICEF (2019), reported that regions with high rates of FGM also exhibit elevated levels of adolescent pregnancy.

In Zambia, child marriages and initiation ceremonies are deeply rooted in cultural traditions. The country has one of the highest child marriage rates globally, with 42% of women aged 20-24 married before 18, despite laws prohibiting the practice (Malunga et al., 2023). These laws, including the Marriage Act and the Penal Code, often fail to protect adolescents in rural areas where customary laws prevail. Among adolescents aged 15–19, 16.5% of girls are married compared to only 1% of boys (Malunga et al., 2023).

Initiation ceremonies, marking the transition to adulthood, are common in certain Zambian and Malawian communities. These rituals, often performed between ages 10 and 16, typically involve seclusion and teachings on sexuality, frequently tied to marriage (Daka., Mwelwa., Chibamba., Mkandawire., & Phiri, 2020). For instance, in the *Chinamwali* ceremony in Zambia, traditional counsellors educate girls on womanhood and sexuality, reinforcing expectations of early marriage and childbearing. Similarly, in Malawi, girls are instructed on sexual practices, often excluding condom use, increasing the likelihood of early pregnancies and STIs (Perianes & Ndaferankhande, 2020). These practices serve to reinforce gender roles and sexual identity but often perpetuate societal pressures for early marriage. Research in Mozambique by Biruk (2020) highlights the role of initiation rituals in encouraging procreative sexual behaviours, with noncompliance resulting in societal disapproval.

Daka, Mwelwa, Chibamba, Mkandawire & Phiri (2020), found that initiation ceremonies like *Chinamwali* negatively affect girls' education, increasing rates of school dropouts, early marriages, and adolescent pregnancies. These practices, particularly in rural Zambia, educate girls on sexuality and marriage, often at the expense of their educational and economic potential. Fumpa-Makano (2019), further emphasizes the heightened risks of early pregnancies, sexually transmitted infections, and HIV among girls subjected to such practices.

## 2.16 Family Level Factors

Family dynamics are a critical determinant of adolescent pregnancy, encompassing a wide range of socio-cultural, economic, and relational influences within the social environment. The family serves as a primary source of guidance and support for adolescents, and the quality of family relationships significantly shapes their SRH behaviours. According to Mbizvo, Chirwa, and Nyirenda (2023), parental attitudes, communication, and involvement play a pivotal role in influencing adolescents' decisions related to ASRH. Open and supportive family discussions about SRH topics, including contraception and safe sexual practices, have been shown to delay early sexual debut and reduce risky behaviours among adolescents.

Conversely, families characterized by poor communication, lack of awareness, or stigmatization of SRH discussions can leave adolescents ill-equipped to make informed decisions about their reproductive health. Cultural and societal norms within families may further reinforce traditional gender roles and expectations, contributing to practices such as early marriage and gender-based violence, which heighten adolescents' vulnerability to early pregnancies (Svanemyr, 2020). These harmful practices, often perpetuated within family structures, limit the autonomy of adolescent girls and expose them to risks associated with early sexual activity and lack of access to ASRH services.

Economic constraints within families also play a significant role. Adolescents from low-income households may be at higher risk of engaging in transactional sex or early marriages as a means of economic survival. These practices not only increase the likelihood of adolescent pregnancy but also perpetuate cycles of poverty and gender inequality (Worku., Tadesse & Gebreselassie, 2021). Families in such situations may prioritize immediate financial relief over long-term investments in education and health, further restricting opportunities for adolescents, particularly girls, to make autonomous decisions about their reproductive health.

Moreover, family-level factors are closely linked to adolescents' awareness and access to SRH resources. Parental knowledge and attitudes toward ASRH services, including contraception and CSE, directly influence whether adolescents feel empowered to seek out and use these resources (UNESCO, 2018; Worku., Tadesse & Gebreselassie, 2021; UNFPA, 2020). Families that lack adequate knowledge or hold misconceptions about SRH may inadvertently discourage adolescents from utilizing essential services.

The role of extended family members, particularly in rural settings, is another important consideration. In many communities, extended family networks exert significant influence over adolescents' choices, either reinforcing traditional norms or providing additional layers of support and guidance. Interventions aimed at addressing adolescent pregnancy should consider these dynamics, engaging both immediate and extended family members to foster a supportive environment for adolescents.

### **2.16.1 Family Values and Communication**

Family values and communication dynamics play a pivotal role in shaping adolescents' attitudes, beliefs, and behaviours related to sexuality, relationships, and reproductive health. As one of the most immediate environments in which adolescents are socialized, the family functions as a critical determinant of SRH outcomes, including the risk of early and unintended pregnancy. Empirical evidence consistently demonstrates that strong, supportive, and communicative family environments are associated with delayed sexual debut, increased contraceptive use, and reduced incidence of adolescent pregnancy (Shumba, Ndlovu, & Moyo, 2024; Mbele & Jassey, 2024; Worku, Tadesse, & Gebreselassie, 2021).

Open and non-judgmental parent–child communication about SRH issues fosters trust, encourages knowledge-seeking, and empowers adolescents to make informed and responsible choices. When adolescents feel safe discussing topics such as menstruation, contraception,

relationships, and sexuality with their caregivers, they are more likely to access relevant information, adopt protective behaviours, and seek services when needed (Asmamaw, Kebede, & Tadesse, 2023). Conversely, when communication is authoritarian, stigmatizing, or absent, adolescents often turn to peers or unreliable media sources, increasing their vulnerability to misinformation, risky sexual activity, and unintended pregnancy.

In many African settings, including Zambia, cultural taboos and discomfort around discussing sexuality persist, limiting the ability of parents and caregivers to guide their children through adolescence. This communication gap is particularly pronounced in rural areas, where traditional norms often prohibit open discussions about reproductive health, especially between fathers and daughters. These norms contribute to an environment of silence, shame, and secrecy around sexuality, perpetuating ignorance and heightening adolescents' susceptibility to early pregnancy.

Promoting open family dialogue is fundamental to public health efforts aimed at empowering adolescents and reinforcing their capacity to make informed choices. Programs that incorporate parental education and community engagement can shift entrenched norms, increase parental confidence in addressing SRH topics, and promote more open and effective family interactions. Such interventions should be culturally sensitive and community-driven, acknowledging the role of extended family members especially grandmothers, aunts, and older siblings who often serve as informal educators on reproductive matters.

Evidence-based interventions such as parenting workshops, school-community partnerships, and mass media campaigns have shown promise in improving parent child SRH communication. These initiatives provide parents with age-appropriate tools, correct information, and strategies for initiating and sustaining dialogue with their children. Community-based platforms, including faith-based organizations and local health committees,

can also play a critical role in normalizing SRH conversations and reinforcing positive family values.

Moreover, family values extend beyond communication to include attitudes toward gender roles, education, marriage, and childbearing. Families that prioritize girls' education, promote gender equality, and discourage early marriage create protective environments that reduce the risk of adolescent pregnancy. On the other hand, households experiencing economic hardship may see early marriage or transactional relationships as coping strategies, particularly in rural settings where opportunities are limited. Addressing these structural drivers requires an integrated public health response that includes economic strengthening for vulnerable families, access to social protection, and community-level advocacy.

To mitigate the negative impacts of harmful family-level factors, targeted, multi-level interventions are needed. These should aim to:

- Build parental capacity to communicate effectively and sensitively with adolescents about SRH.
- Challenge and transform cultural norms that silence conversations around sexuality.
- Provide families with access to accurate information and resources.
- Strengthen the economic resilience of households through income-generating activities or conditional cash transfers; and
- Foster a community environment that supports and reinforces positive parenting practices.

Family values and communication are foundational pillars in the prevention of adolescent pregnancy. As such, they must be central to public health strategies aimed at improving adolescent SRH. A whole-family approach one that combines education, empowerment, and structural support can enhance protective factors at home and contribute significantly to better health and development outcomes for adolescents.

### **2.16.2 Awareness of Harmful Practices and Adolescent Pregnancy**

Family awareness of harmful practices, such as early marriage, gender-based violence, and limited educational opportunities, alongside reproductive health knowledge, plays a pivotal role in shaping adolescents' reproductive behaviour. In many communities, deeply entrenched cultural norms and traditions often perpetuate harmful practices like child marriage, which frequently results in adolescent pregnancy (Melesse, Mutua, & Stuart, 2021). These practices not only limit the autonomy of adolescent girls but also increase their vulnerability to early sexual activity and its associated health risks.

Family members' attitudes toward critical topics such as contraception, sexuality, and gender roles significantly influence adolescents' perceptions and behaviours related to sexual activity and contraceptive use. Negative or stigmatized views on contraceptives within families may deter adolescents from seeking and using these services, thereby increasing the risk of unintended pregnancies. Conversely, supportive family attitudes toward CSE and contraceptive use can empower adolescents to make informed and responsible decisions about their sexual health (Wado, Sully, & Mumah, 2019).

Cultural norms often dictate the level of openness within families when discussing reproductive health matters, with many households avoiding these conversations due to perceived sensitivities or taboos. Researchers have emphasized the importance of addressing such cultural beliefs and fostering open dialogue within families to challenge harmful practices. Promoting communication about reproductive health can help equip adolescents with accurate information, reduce stigma, and empower them to take control of their reproductive choices (Svanemyr, 2020; Sserwanja et al., 2023; Sezgin & Punamäki, 2020).

In addition to addressing harmful cultural norms, family awareness must also extend to recognizing the importance of educational opportunities for adolescents. Education is a key protective factor against early pregnancy, as it delays sexual debut, increases knowledge about

reproductive health, and provides adolescents with the skills and confidence to navigate social pressures. Families that prioritize education over traditional practices, such as early marriage, enable adolescents to pursue opportunities that reduce their vulnerability to adolescent pregnancy (Melesse., Mutua & Stuart, 2021; Wado., Sully & Mumah, 2019).

Interventions aimed at reducing adolescent pregnancies should prioritize increasing family awareness of harmful practices and promoting supportive environments. Initiatives that engage families in community dialogues, provide education on reproductive health, and challenge traditional norms can create transformative changes. By addressing these underlying factors, families can play an active role in shaping positive reproductive health outcomes for adolescents and breaking the cycle of harmful practices that perpetuate adolescent pregnancies.

### **2.16.3 Socio-Economic Status and Adolescent Pregnancy**

Economic challenges within families often perpetuate harmful practices, such as early marriage and transactional relationships, particularly in resource-poor settings. Financial hardships can pressure families to view these practices as survival strategies, undermining adolescents' autonomy and increasing their exposure to early pregnancies. Interventions that provide economic support or promote alternative income-generating activities for families can help reduce reliance on these harmful coping mechanisms and create pathways for better opportunities for adolescents (Worku., Tadesse & Gebreselassie, 2021).

Low socio-economic status and poverty are significant contributors to adolescent pregnancy, as they limit access to education, healthcare, and economic opportunities. Adolescents, especially girls from resource-constrained households, often face pressure to leave school and contribute to household income. This pressure frequently leads to early school dropout, increasing their likelihood of engaging in risky sexual behaviours, such as unprotected sex or relationships with older partners who offer financial support (Mbizvo, Chirwa, &



Nyirenda, 2023). Poverty not only affects educational attainment but also intersects with other health-related challenges, including food insecurity, inadequate housing, and limited access to SRH services. These factors compound adolescents' vulnerabilities and exacerbate the challenges they face in managing their reproductive health (Worku, Tadesse, & Gebreselassie, 2021).

In rural areas, where poverty is more pervasive and cultural norms are deeply entrenched, child marriage is often normalized to alleviate financial burdens. Poverty is widely regarded as a root cause of early and forced marriages, which disrupt adolescents' education, limit their decision-making autonomy, and increase their susceptibility to early pregnancy and childbirth. These practices perpetuate a cycle of poverty and gender inequality, as young mothers are often unable to return to school or access economic opportunities, further marginalizing them and their children (Phiri, Banda, & Kamwendo, 2023).

The intersection of economic hardship and cultural norms creates a particularly challenging environment for adolescents, as families in poverty-stricken areas may prioritize immediate financial relief over long-term investments in education and health. In such contexts, girls may be seen as economic assets, and their early marriage or involvement in transactional relationships is viewed to reduce the economic strain on households. This dynamic further entrenches gender disparities and restricts adolescents' access to opportunities that could improve their socio-economic mobility (Svanemyr., Sundby & Tellefsen, 2020).

To address the socio-economic drivers of adolescent pregnancy, holistic approaches are needed. Programs that focus on poverty alleviation, such as conditional cash transfers, microfinance initiatives, and skills training for families and adolescents, can help reduce economic pressures that drive early marriage and risky behaviours. Additionally, integrating financial literacy and entrepreneurship training into educational curricula can empower adolescents, particularly girls, to pursue economic independence and delay marriage and

pregnancy. Community-based initiatives that challenge cultural norms surrounding early marriage and advocate for gender equality are also essential to creating an environment where adolescents can thrive (Worku., Tadesse & Gebreselassie, 2021).

Addressing the socio-economic factors contributing to adolescent pregnancy requires coordinated efforts across multiple sectors, including education, health, and social protection. By tackling the root causes of poverty and its intersection with harmful practices, these interventions can break the cycle of disadvantage and empower adolescents to achieve their full potential.

#### **2.16.4 Community-Level Factors**

Community-level factors significantly influence adolescents' access to and utilization of SRH services. The role of CHWs is particularly critical in shaping these outcomes. CHWs serve as frontline providers of ASRH services, offering counselling, disseminating information, and raising awareness about reproductive health issues (Asmamaw, Kebede, & Tadesse, 2023). Their proximity to the community allows them to establish trust, address cultural sensitivities, and provide tailored support to adolescents, enhancing their understanding and use of SRH services. This engagement plays a vital role in reducing adolescent pregnancy rates by bridging gaps in healthcare access (Muthengi., Austrian & Abuya, 2019).

In many underserved areas, CHWs act as a vital link between healthcare systems and adolescents who might otherwise face barriers such as long distances to health facilities, stigma, or a lack of youth-friendly services (Turi, Alemayehu, & Bekele, 2020). By providing accessible, culturally appropriate care and facilitating referrals to more specialized services, CHWs help mitigate structural and social barriers that hinder adolescents' access to SRH resources. Moreover, their ability to conduct home visits and community outreach enables them

to engage with families and address misconceptions about contraception and adolescent SRH, further empowering young people to make informed decisions (Svanemyr et al., 2020).

Community norms and social dynamics also play a significant role in shaping adolescent reproductive health outcomes. In some settings, conservative cultural values and gender norms may discourage open discussions about SRH, perpetuating stigma and misinformation. This can deter adolescents from seeking SRH services or accessing contraceptives, thereby increasing their vulnerability to unintended pregnancies (Worku, Tadesse, & Gebreselassie, 2021). On the other hand, communities with progressive attitudes toward gender equality and adolescent health are more likely to support initiatives that promote SRH education and services, leading to better outcomes for young people (Melesse., Mutua, & Stuart 2021).

The role of community-based organizations (CBOs) and peer networks is another crucial factor. CBOs often implement programs aimed at raising awareness about ASRH issues, providing life skills education, and advocating for policies that prioritize adolescent health (Wado, Sully, & Mumah, 2019). Peer educators, as part of these community initiatives, can be particularly effective in engaging adolescents, as they provide relatable role models and foster a sense of trust. These networks create safe spaces for adolescents to discuss SRH topics, seek guidance, and access resources without fear of judgment (Sserwanja et al., 2023).

However, community-level interventions are not without challenges. Limited funding, inadequate training for CHWs, and resistance from conservative community leaders can hinder the effectiveness of ASRH programs (Sundby & Tellefsen, 2022). Addressing these barriers requires strengthening the capacity of CHWs and CBOs through comprehensive training, adequate resources, and supportive policies. Engaging community leaders and influencers in

advocacy efforts can also help shift cultural norms and create an enabling environment for adolescent health interventions (Sezgin & Punamäki, 2020).

Community-level factors, including the role of CHWs, CBOs, and peer networks, are pivotal in improving adolescents' access to SRH services and reducing adolescent pregnancy rates. By fostering supportive community environments, addressing cultural barriers, and empowering adolescents with knowledge and resources, these factors contribute significantly to better reproductive health outcomes. Strengthening these community-based approaches is essential for addressing the unique challenges faced by adolescents, particularly in underserved and marginalized areas.

#### **2.16.5 Role of Community Healthcare Workers (CHWs)**

CHWs, including volunteers, nurses, and midwives, serve as a critical link between adolescents and the broader healthcare system. They bridge gaps in healthcare access by delivering reproductive health information and services directly to communities, particularly in rural and underserved areas. Their accessibility and familiarity within the community allow them to build trust and address barriers that adolescents might face when accessing formal healthcare services, such as stigma, lack of privacy, or transportation challenges (Akanbi, Smith, & Adewale, 2021).

CHWs play a vital role in providing adolescents with information on contraception, pregnancy prevention, and STIs. They often conduct community outreach programs, school-based education sessions, and household visits to engage adolescents and their families. This proactive engagement not only enhances awareness about ASRH services but also empowers adolescents to make informed decisions about their reproductive health. Research has shown that when CHWs actively engage with communities, there is an increase in contraceptive

uptake and a corresponding reduction in unintended adolescent pregnancies (Mutea, Smith, & Doe, 2022).

An essential aspect of their effectiveness lies in their ability to provide youth-friendly services. Adolescents require a nonjudgmental and supportive environment to seek guidance and care for their reproductive health concerns. CHWs who are trained to address sensitive topics with cultural competence can better navigate discussions around contraception, early sexual activity, and harmful practices like early marriage. This cultural sensitivity is particularly important in communities where traditional norms and values may conflict with modern reproductive health practices (Worku, Gebreselassie, & Tesfaye, 2021).

In addition to their role in direct service delivery, CHWs often act as advocates for adolescents within the healthcare system. They facilitate referrals to clinics and specialized services, ensuring that adolescents receive the care they need. They also play a crucial role in disseminating information about available resources, such as youth-friendly health centres or mobile clinics, which can further enhance adolescents' access to SRH services. By acting as intermediaries between adolescents and formal healthcare providers, CHWs help to alleviate barriers such as fear of judgment or lack of familiarity with healthcare systems (Svanemyr, Sundby & Tellefsen, 2020; Turi, Alemayehu & Bekele, 2020).

Furthermore, CHWs contribute to addressing socio-cultural barriers that hinder adolescents' access to SRH services. They often work closely with families and community leaders to challenge harmful norms and practices, such as early marriage and gender-based violence, that increase the risk of adolescent pregnancy. By fostering dialogue and promoting community-wide awareness, CHWs help create an environment that supports adolescent reproductive health and well-being (Mutea, Smith, & Doe, 2022).

However, the effectiveness of CHWs depends on several key factors. Comprehensive training is crucial to equip them with the skills and knowledge needed to deliver accurate and

relevant ASRH information ((Svanemyr., Sundby & Tellefsen, 2020). Training programs should emphasize cultural competence, communication skills, and strategies for engaging with adolescents. Additionally, providing CHWs with adequate resources, such as contraceptives, educational materials, and transportation support, is vital to ensure they can perform their roles effectively.

Ongoing supervision and support for CHWs are equally important. Regular monitoring and evaluation of their activities can help identify gaps and areas for improvement, ensuring that their services remain responsive to the needs of adolescents. Integrating CHWs into broader public health initiatives, such as national adolescent health strategies, can also enhance their impact and sustainability (Asmamaw., Kebede & Tadesse, 2023).

Community health workers are indispensable in addressing adolescent pregnancy by improving access to ASRH services, fostering trust, and addressing cultural and systemic barriers. Strengthening their training, resources, and integration into public health systems can amplify their effectiveness and contribute to significant reductions in adolescent pregnancy rates. Their role as trusted intermediaries highlights the importance of community-driven approaches in promoting adolescent reproductive health.

#### **2.16. 6 Availability of ASRH Services and Adolescent Pregnancy**

The availability of ASRH services, including youth-friendly clinics, CSE, and access to contraceptives, plays a pivotal role in influencing adolescent pregnancy rates. Communities with well-equipped healthcare facilities and robust ASRH services are better positioned to meet the diverse needs of adolescents by providing essential information, counselling, and contraceptive options to prevent unintended pregnancies (Mbizvo, Chimbwanda & Ndlovu, 2023). These services not only address immediate reproductive health needs but also contribute

to empowering adolescents with knowledge and skills to make informed decisions about their sexual health.

However, significant disparities persist, particularly in remote and underserved areas where healthcare infrastructure is inadequate, and cultural insensitivity often impedes access. In many cases, healthcare facilities lack the physical spaces, trained personnel, and resources needed to deliver youth-friendly services tailored to the unique needs of adolescents (Austrian et al., 2019). This gap disproportionately affects rural adolescents, who are already at a disadvantage due to logistical challenges such as long distances to clinics and transportation costs.

Despite some progress in addressing these challenges, significant gaps remain. For example, while sub-Saharan Africa saw a reduction in adolescent fertility rates from 126 to 103 births per 1,000 live births between 2015 and 2020 (UN Economic and Social Affairs, 2019), adolescents still face higher unmet contraceptive needs (43%) compared to adult women (24%) (Sully & Murro, 2020). This unmet need for contraception significantly increases the risk of unintended pregnancies, with cascading effects on adolescents' health, education, and socio-economic well-being.

Barriers to ASRH service uptake often stem from limited knowledge, stigma, and restrictive societal norms that discourage adolescents from seeking care. In many LMICs, adolescents frequently rely on peers or social media for guidance due to insufficient access to accurate SRH information (Mbizvo, Chirwa, & Nyirenda, 2023). This reliance on unverified sources can perpetuate myths and misconceptions, further hindering their ability to make informed decisions.

Addressing these barriers requires multi-faceted interventions. Investments in healthcare infrastructure, particularly in rural areas, can ensure that facilities are equipped to deliver youth-friendly services (Sezgin & Punamäki, 2020). Training healthcare providers to adopt nonjudgmental and adolescent-centred approaches can help reduce stigma and encourage greater service uptake. Community-based programs that engage parents, teachers, and local leaders can also help dismantle harmful norms and create an enabling environment for adolescents to access ASRH services without fear of judgment.

Additionally, integrating CSE into school curricula and community outreach programs is essential for addressing knowledge gaps. CSE equips adolescents with accurate information about reproductive health, contraception, and the risks of early pregnancy, empowering them to make informed decisions (Mbizvo, Nirenda & Chirwa, 2023). Mobile health (mHealth) interventions, such as apps and SMS-based platforms, can also play a critical role in reaching adolescents with tailored SRH information and facilitating anonymous consultations, particularly in areas where physical access to clinics is challenging (UNESCO, 2018).

The availability of ASRH services is a critical determinant of adolescent pregnancy rates. While progress has been made, significant gaps persist, particularly in underserved and rural communities. Addressing these disparities requires investments in infrastructure, capacity building for healthcare providers, community engagement, and innovative solutions to deliver accessible and stigma-free ASRH services. These efforts are essential for reducing adolescent pregnancies and improving the overall well-being of young people.

#### **2.16.7 Cultural Norms and Traditional Practices**

Cultural norms and traditional practices exert profound and often underacknowledged influence over adolescents' sexual behaviours, reproductive decision-making, and access to SRH services. These sociocultural factors are not peripheral they are core social determinants



of health that shape health behaviours, access to services, and ultimately, health outcomes. In the context of adolescent pregnancy, understanding and addressing these deeply embedded cultural systems is essential for developing equitable, responsive, and effective interventions.

Societal attitudes toward gender roles, sexuality, and marital expectations shape how adolescents particularly girls experience their reproductive rights and autonomy. In many sub-Saharan African contexts, including Zambia, sexuality remains a taboo topic, especially when it involves unmarried girls. Discussions around contraception, bodily autonomy, or menstruation are often silenced in both families and schools, leading to widespread misinformation, internalized shame, and reluctance to seek health services (Austrian, Kangwana, Maluccio, & Abuya, 2019). This social silence normalizes ignorance and disempowers adolescents at a time when they most need accurate information and safe spaces to learn and express themselves.

Harmful traditional practices such as early marriage and female genital mutilation (FGM) further exacerbate adolescent vulnerability. These practices are often framed as rites of passage or mechanisms to preserve family honour and regulate female sexuality, yet they significantly undermine adolescent health and rights. Early marriage is strongly associated with early childbearing, school dropout, gender-based violence, and poor maternal health outcomes. Adolescent girls married early are more likely to experience unplanned pregnancies, and less likely to access SRH services or negotiate contraceptive use due to power imbalances and lack of autonomy (Sezgin & Punamäki, 2020). FGM, where practiced, increases the risk of obstetric complications and psychological trauma, contributing to both immediate and long-term reproductive health problems.

The role of cultural gatekeepers such as traditional chiefs, religious leaders, and traditional healers is especially pronounced in rural and peri-urban areas where health systems may be less accessible or trusted. These figures often serve as key opinion leaders whose beliefs

can either reinforce harmful norms or be mobilized to drive social change. For example, some religious leaders may preach against contraception, framing it as immoral or inappropriate for unmarried youth, thereby deterring adolescents from seeking services. Others may support and legitimize SRH education when effectively engaged in community dialogues (Kushal, Patel, & Singh, 2022).

Adolescent pregnancy is thus not merely the outcome of individual choices, but the product of complex social ecosystems shaped by cultural, familial, and institutional forces. When adolescents are socialized into environments that glorify early motherhood, stigmatize contraception, or discourage open discussion of sexual health, they are denied the information and agency necessary to make informed reproductive choices. These norms operate in tandem with poverty, limited education, and gender inequality to produce a high-risk environment for early and unintended pregnancy.

Public health interventions that aim to reduce adolescent pregnancy must therefore directly confront the cultural and traditional underpinnings of adolescent sexual behaviour. Evidence suggests that culturally sensitive, community-driven strategies such as intergenerational dialogues, peer education, alternative rites of passage, and religious leader engagement can shift harmful norms while maintaining community trust. Programs like Tostan in West Africa and SASA! in East Africa have successfully leveraged community participation to transform gender norms and reduce child marriage and gender-based violence, providing a model for broader public health initiatives (Turi, Alemayehu, & Bekele, 2020).

Furthermore, integrating SRH education into school curricula, strengthening youth-friendly services at primary health care levels, and embedding gender equality principles into legal and policy frameworks are essential components of a multisectoral response. Public health programming must also address the social determinants that sustain these norms, including poverty, lack of educational access, and weak health infrastructure.

Importantly, community engagement must be approached with cultural humility and a commitment to local ownership. Interventions should build on existing community strengths and be co-designed with adolescents, families, and traditional leaders to ensure sustainability. Monitoring and evaluation systems should also capture changes in norms and attitudes, not just service uptake, to measure progress toward long-term social change.

Cultural norms and traditional practices are central—not peripheral—to the adolescent pregnancy challenge in Zambia and across the region. Addressing them is both a public health necessity and a social justice imperative. Effective programming must dismantle harmful norms while promoting those that support adolescent agency, health, and well-being. Only through this culturally attuned, rights-based, and participatory approach can we create environments where all adolescents are empowered to make informed decisions about their sexual and reproductive lives, free from coercion, stigma, or harm.

### **2.17.1 Institutional Factors and Access to ASRH Services**

Institutional factors encompass a broad spectrum of socio-political, legal, and systemic determinants that shape the environments in which adolescents live, learn, and make decisions about their SRH. These factors include the availability, accessibility, and quality of adolescent-friendly health services; the responsiveness of education systems; the implementation of legal and policy frameworks; and the effectiveness of law enforcement and social protection mechanisms. Through a public health lens, these institutional structures form the backbone of equitable SRH service delivery and represent critical levers for preventing adolescent pregnancy.

Inadequate institutional support often manifests in limited access to youth-friendly health services, weak enforcement of child protection laws, under-resourced schools, and

fragmented policies that fail to respond to adolescents' unique needs. When such systems are dysfunctional or underperforming, adolescents especially girls are left without the knowledge, services, and protection they need to prevent early and unintended pregnancy. Moreover, institutional shortcomings often intersect with broader structural barriers such as poverty, gender inequality, and cultural norms, compounding adolescents' vulnerability.

Effective institutions play a pivotal role in either mitigating or perpetuating the risks associated with early pregnancy. Schools that offer CSE, health facilities that deliver confidential and respectful SRH care, and legal systems that uphold adolescents' rights can collectively foster a protective environment. Conversely, institutional neglect, stigma, and weak accountability create conditions where adolescent pregnancy becomes not just likely, but expected.

Therefore, examining institutional factors is essential to understanding the root causes of adolescent pregnancy and identifying points of intervention. Strengthening these systems through policy coherence, service integration, youth participation, and intersectoral coordination offers a transformative pathway to reducing adolescent pregnancy and promoting broader health, education, and development outcomes.

### **2.17.2 Access to ASRH Services and Adolescent Pregnancy**

Access to youth-friendly health services, including contraceptive counselling, STI testing, and treatment, is essential for preventing unintended pregnancies and promoting adolescents' overall health and well-being. Research indicates that adolescents with access to comprehensive SRH services are more likely to use contraception consistently, obtain timely healthcare, and avoid high-risk behaviours (Sezgin & Punamäki, 2020). These services provide adolescents with critical information, education, and resources to make informed decisions about their reproductive health. However, significant barriers such as stigma, discrimination,

and concerns about confidentiality often deter adolescents, particularly those from marginalized or underserved communities from seeking care (Mbizvo, Chimbwanda, & Ndlovu, 2023).

Barriers to accessing ASRH services operate across multiple levels of the socio-ecological framework. At the personal level, stigma surrounding sexual activity and contraceptive use among adolescents fosters fear of judgment from peers, family, or healthcare providers. At the interpersonal level, socio-cultural norms, such as parental or partner disapproval, further discourage adolescents from accessing SRH services (Chandra-Mouli & Akwara, 2020). At the community level, a lack of youth-friendly facilities or trained providers who understand the unique needs of adolescents often undermines the quality and accessibility of services (Svanemyr, Sundby, & Tellefsen, 2022).

Structural and systemic barriers further exacerbate these challenges. Adolescents in rural or underserved areas frequently face long distances to healthcare facilities, high transportation costs, and limited availability of contraceptive supplies. Even where services are available, they may not be tailored to the specific needs of adolescents, such as ensuring privacy and confidentiality. These gaps in service provision leave many adolescents unable to access the care they need, increasing their vulnerability to unintended pregnancies, STIs, and other negative reproductive health outcomes (Sully, Biddlecombe, Darroch, & Riley, 2020; Turi., Alemayehu & Bekele, 2020).

Despite some progress in improving ASRH outcomes, significant disparities remain. In sub-Saharan Africa, adolescent fertility rates declined from 126 births per 1,000 live births in 2015 to 103 per 1,000 live births in 2020 (UN Economic and Social Affairs, 2019). However, adolescents still face a greater unmet need for contraceptives (43%) compared to women of reproductive age (24%) (Sully., Biddlecombe., Darroch & Riley, 2020). These disparities

highlight the urgent need for targeted interventions to address inequities in access to SRH services, particularly among rural and marginalized adolescents.

Improving the accessibility, affordability, and youth-friendliness of health services is critical for addressing these barriers. Expanding access to CSE can help dispel myths and misconceptions about SRH, empower adolescents to make informed decisions, and increase demand for ASRH services. Integrating CSE into school curricula and community outreach programs has been shown to enhance adolescents' knowledge and reduce stigma surrounding SRH (Svanemyr., Sundby & Tellefsen, 2022; UNESCO, 2018).

Health system strengthening is another key strategy for improving access to ASRH services. Training healthcare providers to deliver adolescent-centred, nonjudgmental care can build trust and encourage service utilization. Establishing youth-friendly clinics equipped with private consultation spaces, culturally appropriate materials, and flexible hours can address barriers related to stigma and confidentiality (Mbizvo, Nyirenda & Chirwa, 2023).

Innovative approaches, such as mobile health (mHealth) solutions, can also expand access to ASRH services in remote areas. Mobile applications, SMS platforms, and telemedicine services provide adolescents with access to information, counselling, and referrals without the need for physical visits to healthcare facilities (Svanemyr., Sundby & Tellefsen, 2022). These solutions are particularly valuable in low-resource settings, where healthcare infrastructure may be limited.

Access to ASRH services is a critical determinant of adolescent reproductive health outcomes. While progress has been made in reducing adolescent fertility rates, significant barriers persist, particularly in underserved and marginalized communities. Addressing these barriers requires a multi-faceted approach that includes improving health system capacity, integrating CSE into education systems, and leveraging innovative technologies. By

prioritizing adolescent-friendly interventions, policymakers and practitioners can reduce adolescent pregnancies, enhance SRH outcomes, and promote the overall well-being of young people.

### **2.17.3 School Involvement and Adolescent Pregnancy**

Schools play a critical role in shaping adolescents' SRH outcomes by serving as vital institutional settings where young people spend significant portions of their time. Schools provide a platform for delivering CSE, reproductive health services, and emotional and social support systems. Research demonstrates that adolescents actively engaged in school and exposed to well-designed sexuality education programs are more likely to delay their sexual debut, use contraceptives effectively, and make informed reproductive health decisions (Kushal, Patel, & Singh, 2022).

CSE equips adolescents with essential knowledge and skills to navigate the complexities of SRH. CSE programs delivered in schools often include information about contraception, pregnancy prevention, STIs, and healthy relationships. Adolescents who receive CSE are not only more likely to delay sexual activity but are also more likely to adopt protective behaviours, such as consistent contraceptive use (Shumba, Ndlovu, & Moyo, 2024). Furthermore, CSE fosters critical thinking and decision-making skills, enabling young people to challenge harmful norms and misconceptions about sexuality.

Schools offer a structured and supportive environment where adolescents can access peer support, counselling, and life skills training. Peer interactions in schools can promote positive attitudes toward contraception and gender equality, which are critical for reducing the risk of adolescent pregnancy (Malunga et al., 2023). Additionally, schools can serve as safe spaces for adolescents to discuss sensitive topics related to SRH without fear of judgment or stigma, particularly when confidentiality is ensured.

Despite the potential of schools to positively impact adolescent SRH outcomes, several barriers hinder the effective implementation of school-based programs. Many schools, particularly in LMICs, lack the resources and trained personnel to deliver CSE. Inadequate teacher training and resistance from conservative communities often limit the scope and quality of CSE programs. For instance, societal stigma surrounding adolescent sexuality frequently leads to the omission of critical topics such as contraception and sexual rights from school curricula (Malunga et al., 2023).

Limited access to health services within school settings also poses a significant challenge. While some schools may have on-site health facilities, these are often under-resourced and unable to provide adolescent-friendly services. Adolescents in rural areas face even greater challenges, as schools in these settings may be geographically isolated and lack essential healthcare resources (Turi, Alemayehu, & Bekele, 2020).

To address these barriers, targeted interventions are required to strengthen the role of schools in promoting adolescent reproductive health. Investments in teacher training and curriculum development are essential to ensure that sexuality education is comprehensive, accurate, and culturally sensitive. Training programs should equip educators with the skills and confidence to address sensitive topics and foster open, nonjudgmental discussions with students.

Schools can also establish partnerships with healthcare providers to deliver on-site SRH services or referral systems, ensuring that adolescents have access to counselling, contraceptives, and STI testing and treatment. Integrating SRH services within school settings can reduce barriers related to distance and stigma, particularly for adolescents in rural and underserved areas (Shumba, Ndlovu, & Moyo, 2024).



Community engagement is another critical strategy. Collaborating with parents, religious leaders, and local organizations can help reduce resistance to sexuality education and create a supportive environment for adolescents. Engaging parents in sexuality education programs can also foster open communication within families, further enhancing adolescents' ability to make informed decisions.

Policy reforms are necessary to institutionalize CSE and ensure its integration into national education systems. Governments should prioritize funding for school-based SRH programs and monitor their implementation to ensure quality and consistency. Additionally, policies should address gender disparities in education by promoting equal access to schooling for girls, as education is a key protective factor against adolescent pregnancy (UNESCO, 2018).

Schools are uniquely positioned to influence adolescent reproductive health outcomes through the provision of CSE, supportive environments, and access to health services. However, addressing barriers such as inadequate resources, societal stigma, and limited healthcare access is crucial for maximizing their impact. By strengthening school-based interventions and fostering collaboration between schools, communities, and healthcare providers, stakeholders can create a more inclusive and effective approach to reducing adolescent pregnancies and promoting overall well-being.

#### **2.17.4 Legal and Policy Awareness and Adolescent Pregnancy**

Adolescents' awareness of their rights, legal protections, and policies concerning SRH plays a critical role in empowering them to make informed decisions and access appropriate care. Adolescents who are well-informed about their legal rights and protections are more likely to utilize health services, advocate for their needs, and resist harmful practices such as early marriage and sexual exploitation (Phiri, Banda, & Kamwendo, 2023). This awareness

fosters a sense of agency, enabling adolescents to challenge socio-cultural norms that may perpetuate risky behaviours or restrict access to SRH services.

Despite the importance of legal and policy awareness, significant gaps persist, particularly among marginalized populations, including those in rural areas, adolescents with disabilities, and those from low-income households. These gaps can hinder adolescents from asserting their rights, navigating the healthcare system, and challenging harmful practices that contribute to poor SRH outcomes (Ahinkorah, Seidu, Budu, & Osei, 2021). Additionally, many adolescents remain unaware of protective laws or policies that guarantee their right to access SRH services, such as family planning, STI treatment, or CSE.

The inconsistent enforcement of laws related to child marriage, statutory rape, and access to contraception further exacerbates adolescents' vulnerabilities. In rural or underserved areas, where resources and monitoring mechanisms are often limited, adolescents face heightened risks of early pregnancies, forced marriages, and gender-based violence (Terefe, 2022). For instance, while legislation may exist to protect adolescents from child marriage or ensure access to contraception, weak enforcement mechanisms allow these issues to persist, leaving young people without recourse.

Addressing these challenges requires targeted interventions aimed at raising adolescents' awareness of their rights and fostering community-level support for legal protections. Educational campaigns and programs that engage parents, teachers, and local leaders can help disseminate information about adolescents' SRH rights and the available legal safeguards. Schools and community-based organizations are well-positioned to educate adolescents about laws related to age of consent, child marriage, and access to contraception, providing them with the tools to advocate for themselves and others (Phiri., Banda & Kamwendo, 2023).

Furthermore, strengthening the capacity of legal and law enforcement institutions is crucial for ensuring the consistent implementation of SRH-related policies and protections. Collaboration between healthcare providers, legal advocates, and community leaders can enhance adolescents' access to SRH services while promoting accountability among institutions tasked with enforcing laws (Terefe, M. (2022)). For instance, mobile legal aid clinics and youth-friendly legal advisory services can bridge the gap for adolescents in remote areas, ensuring they receive timely and accurate information about their rights.

Digital platforms also hold significant potential for raising awareness about SRH rights and policies. Mobile applications, social media campaigns, and text-based information services can disseminate legal and health-related content to adolescents in a manner that is accessible, confidential, and engaging. These tools can complement traditional methods of outreach, particularly for reaching adolescents who are out of school or living in areas with limited resources.

Raising adolescents' awareness of their SRH rights and legal protections is a vital step toward promoting informed decision-making and improving access to essential services. Addressing gaps in awareness, strengthening enforcement mechanisms, and leveraging innovative platforms for information dissemination can collectively empower adolescents, reduce vulnerabilities, and improve SRH outcomes across diverse contexts.

## **2.18 Hypothesis Development**

The development of the hypotheses for this study is informed by a thorough review of existing literature and is anchored in a conceptual framework that integrates Bronfenbrenner's SEM and other relevant theories. This framework emphasizes the interplay between individual, interpersonal, community, and institutional factors in influencing adolescent pregnancy outcomes. The hypotheses focus on identifying and examining key determinants of adolescent

pregnancy in Zambia, with a comparative lens on rural and urban contexts. These hypotheses aim to test specific relationships, providing a nuanced understanding of how demographic, personal, family, community, and institutional-level factors contribute to adolescent pregnancy.

### **2.18.1 Research Hypothesis**

Research hypothesis explores the association/relationship between demographic factors and adolescent pregnancy across the rural-urban divide in Zambia. Demographic variables such as age, education level, and marital status have been widely studied in relation to adolescent pregnancy. Research has shown that younger adolescents are at greater risk of early pregnancy due to limited reproductive health knowledge and constrained access to contraceptives (Melesse, Mutua, & Stuart, 2021). Furthermore, education level significantly influences adolescent pregnancy, with higher levels of education associated with delayed sexual debut and reduced fertility rates (Ahinkorah, Seidu, Budu, & Osei, 2021). The first set of hypotheses explores the association between demographic factors and adolescent pregnancy across rural and urban settings.

#### **2.18.1.1 Hypothesis H<sub>1A</sub>- Age**

Age is a critical demographic factor influencing the likelihood of adolescent pregnancy. Younger adolescents are particularly vulnerable due to biological, psychological, and social factors. Previous studies have consistently shown that younger girls are at greater risk of early pregnancy (Asmamaw., Kebede., & Tadesse, 2021; Ahinkorah et al., 2021; Terefe, 2022). This research aims to control for age as a variable to better understand how other demographic factors, such as education level and marital status, correlate with adolescent pregnancy in both rural and urban contexts.

**H1A:** posits that there is a significant association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for respondents' age.

This hypothesis suggests that age, as an independent demographic characteristic, may significantly influence the likelihood of adolescent pregnancy, irrespective of geographical location (rural or urban).

Existing literature supports the hypothesis by highlighting that younger adolescents are more susceptible to early pregnancies due to limited access to SRH education, peer pressure, and a lack of agency in decision-making about sexual activity and contraception (Turi, Brown, & White, 2020; Malunga et al., 2020). Socio-economic disparities between rural and urban areas may further exacerbate these vulnerabilities, with rural adolescents facing additional barriers, such as limited healthcare access and higher poverty rates (Worku, Tadesse, & Gebreselassie, 2021; Phiri et al., 2023).

#### **2.18.1.2 Hypothesis H<sub>1B</sub> - Marital Status**

Marital status is a critical demographic factor influencing adolescent pregnancy. In many cultural contexts, including Zambia, marriage often legitimizes and accelerates childbearing among adolescents (Akanbi, Adetunji, & Olaleye, 2021). Early marriage is more prevalent in rural areas, where cultural norms and economic pressures differ significantly from urban settings. This hypothesis examines the association between adolescent pregnancy and marital status while controlling for this variable to assess its impact in rural and urban contexts.

**Hypothesis H1B:** posits that there is a significant association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for respondents' marital status.

The hypothesis seeks to investigate how being married or unmarried influences the likelihood of adolescent pregnancy, considering the unique socio-cultural and economic dynamics in Zambia. Existing research highlights that marital status is a significant determinant of adolescent pregnancy. Early marriage or cohabitation is often associated with higher incidences of adolescent pregnancy, as young brides frequently face societal and familial pressure to bear children shortly after marriage (Ahinkorah, 2021; Turi et al., 2020). In rural areas, traditional customs and social norms that promote early marriage further exacerbate the prevalence of adolescent pregnancy (Shumba et al., 2024).

In contrast, urban settings may provide adolescents with greater access to education and economic opportunities, which can delay both marriage and childbearing. However, urbanization and migration to cities may introduce new risks, including peer pressure, substance abuse, and engagement in risky sexual behaviours, which could increase the likelihood of adolescent pregnancy (Mutea et al., 2022; Mbele & Jassey, 2024).

This hypothesis aims to elucidate the nuanced relationship between marital status and adolescent pregnancy across rural and urban contexts in Zambia. It considers the interplay of socio-cultural norms, economic factors, and access to reproductive health services, providing a comprehensive understanding of the impact of marital status on adolescent pregnancy.

#### **2.18.1.3 Hypothesis H<sub>1C</sub>- Education Level.**

Education significantly influences adolescent reproductive behaviours by equipping young individuals with knowledge, skills, and opportunities to make informed choices about their SRH. Adolescents with higher educational attainment are more likely to delay childbearing and exhibit lower rates of adolescent pregnancy, as education fosters awareness of contraception, family planning, and the risks of early pregnancy (Asmamaw et al., 2023; Akanbi, Adetunji, & Olaleye, 2021; Zhang & Chang, 2020).

Furthermore, education enhances critical thinking, self-efficacy, and aspirations for personal development, which collectively reduce adolescents' susceptibility to early marriage and risky sexual behaviours. For example, studies indicate that adolescent girls with secondary or higher education are less likely to experience early pregnancies compared to their peers with limited schooling (Fox et al., 2019).

However, access to education is unevenly distributed, particularly across rural and urban areas. In rural regions, structural barriers such as poverty, inadequate infrastructure, long travel distances to schools, and entrenched cultural norms, such as prioritizing marriage over education for girls contribute to higher rates of school dropout and adolescent pregnancy (Melesse, Mutua, & Stuart, 2021). These barriers not only reduce adolescents' access to formal education but also limit their exposure to CSE, which is often integrated into school curricula in urban areas. Conversely, urban adolescents generally benefit from better-resourced schools, access to CSE, and exposure to broader societal influences that delay childbearing and encourage career aspirations (Fox., Ndlovu & Banda, 2019; Wado, Sully, & Mumah, 2019).

**Hypothesis H1C:** posits a significant association between adolescent pregnancy and demographic factors across the rural-urban divide, controlling for respondents' level of education.

This hypothesis examines the impact of educational attainment on adolescent pregnancy rates in Zambia, considering the unique challenges and opportunities in rural and urban settings. The hypothesis also considers socio-economic disparities, cultural norms, and educational opportunities that shape adolescents' reproductive behaviours and vulnerability to pregnancy.

### **2.18.2 Hypothesis (H<sub>2</sub>) -Early Sexual Debut**

Early sexual debut is a significant predictor of adolescent pregnancy, associated with a higher likelihood of hazardous sexual behaviours and inconsistent contraceptive use. By age 19, approximately 70% of adolescents report having engaged in sexual intercourse, with around 16% initiating sexual activity by age 15 in the United States (Clark et al., 2020; Kushal, Patel, & Singh, 2022). Initiating sexual activity earlier than the normative developmental timeline correlates with increased rates of adolescent pregnancies and STIs due to inadequate knowledge and poor risk perception regarding unprotected sexual practices (Turi, Brown, & White, 2020).

Research indicates that early sexual initiation and adolescent pregnancy result from a complex interplay of educational, socio-economic, and cultural factors that vary significantly between rural and urban areas. In sub-Saharan Africa, these challenges are particularly acute due to the prevalence of poverty, gender inequality, and cultural practices such as child marriage, which often force girls into early sexual activity and childbearing before they are physically or emotionally ready (Melesse, Mutua, & Stuart, 2021; Turi et al., 2020). Limited access to CSE and SRH services further exacerbates these risks, leaving many adolescents ill-equipped to make informed decisions about their sexual health.

The SEM underscores how individual behaviours, including early sexual initiation, are influenced by broader social, cultural, and economic contexts. Addressing these multilayered factors is critical to reducing adolescent pregnancies and improving outcomes (Worku, Tadesse, & Gebreselassie, 2021). In Zambia, early sexual debut remains a significant concern, particularly in rural areas where socio-cultural norms and economic pressures are more pronounced. According to the Zambia Demographic and Health Survey (ZDHS, 2018), a substantial proportion of adolescents engage in sexual activity at an early age, with rural adolescents disproportionately affected (CSO, Ministry of Health Zambia, & ICF, 2019).



Based on this evidence, the study hypothesizes a significant relationship between early sexual debut and adolescent pregnancy, mediated by socio-economic and cultural factors.

**H<sub>2</sub>:** There is a significant association between early sex debut and adolescent pregnancy across the rural-urban divide in Zambia.

This hypothesis recognizes that early sexual debut is a crucial factor influencing adolescent pregnancy and seeks to explore how this relationship varies between rural and urban settings in Zambia. By examining this association, the study aims to provide insights into the specific dynamics and challenges faced by adolescents in different contexts within the country.

### **2.18.3 Research Hypothesis (H<sub>3</sub>)- Availability of ASRH Services**

Hypothesis H<sub>3</sub> explores the association between availability of ASRH services and adolescent pregnancy across the rural-urban divide in Zambia. This hypothesis examines how the accessibility and quality of ASRH services influence adolescent pregnancy rates, considering disparities in service provision and utilization between rural and urban areas.

ASRH services encompass healthcare interventions designed to promote adolescent well-being, including access to contraception, CSE, and reproductive health counselling (UNFPA, 2019). The availability and accessibility of these services are critical determinants of adolescent reproductive outcomes, as they shape adolescents' ability to obtain information, contraceptives, and preventive care (Melesse., Mutua & Stuart, 2021; WHO, 2018).

In rural Zambia, geographic isolation, inadequate healthcare infrastructure, and cultural norms that stigmatize adolescent sexuality often create barriers to accessing ASRH services (Mbizvo., Chimbwanda & Ndlovu, 2023; UNFPA, 2019). Conversely, urban adolescents may benefit from greater access to ASRH services through youth-friendly clinics, school-based health programs, and community outreach initiatives.

**H<sub>3</sub>:** There is a significant association between availability of ASRH services and adolescent pregnancy across the rural-urban divide in Zambia.

This hypothesis explores the relationship between the availability of ASRH services and adolescent pregnancy across rural and urban contexts, with a focus on the differential access and utilization of services. The findings will provide valuable insights into the role of healthcare infrastructure and service delivery in shaping adolescent reproductive outcomes and guide strategies to enhance ASRH service availability in Zambia.

#### **2.18.4 Hypothesis (H<sub>4</sub>) -Uptake of ASRH Services**

Hypothesis H<sub>4</sub> explores the association between the uptake of ASRH services and adolescent pregnancy across the rural-urban divide in Zambia. This hypothesis investigates how the utilization of ASRH services influences the prevalence of adolescent pregnancies, considering disparities in service uptake between rural and urban areas.

ASRH services uptake refers to adolescents' use of reproductive health services, including accessing contraceptives, seeking counselling, and participating in sexual health education programs. Barriers to service utilization vary across rural and urban contexts and may include issues such as transportation challenges, stigma, confidentiality concerns, and cultural norms (Melesse., Mutu & Stuart, 2021; UNFPA, 2019; Chandra-Mouli & Akwara, 2020).

In rural Zambia, adolescents often face significant challenges in accessing and utilizing ASRH services due to limited healthcare infrastructure, long distances to health centres, and cultural barriers that discourage seeking reproductive health services. In contrast, urban adolescents may have greater access to ASRH services, enhanced by closer proximity to facilities, increased anonymity, and exposure to CSE (Mbizvo., Chimbwanda & Ndlovu, 2023). UNFPA Zambia, 2019).

**H4:** There is a significant association between uptake of ASRH services and adolescent pregnancy across the rural-urban divide in Zambia.

This hypothesis aims to explore the relationship between ASRH services utilization and adolescent pregnancy in rural and urban settings in Zambia. By examining how adolescents' engagement with reproductive health services affects their reproductive outcomes, the hypothesis seeks to identify gaps in service uptake and inform strategies to enhance the availability and utilization of ASRH services for young people in both rural and urban areas.

#### **2.18.5 Hypothesis H5: Contraceptive Uptake**

Hypothesis H5 explores the association between contraceptive uptake and adolescent pregnancy across the rural-urban divide in Zambia. This hypothesis seeks to examine how the utilization of contraceptives impacts the prevalence of adolescent pregnancies, considering the disparities in contraceptive uptake between rural and urban areas.

Contraceptive uptake refers to the adoption and use of contraceptive methods by sexually active adolescents to prevent unintended pregnancies. In Zambia, contraceptive options include condoms, oral contraceptives, injectables, and long-acting reversible contraceptives (LARCs). Despite the availability of these methods, contraceptive use among adolescents remains low due to factors such as limited availability, lack of awareness, cultural beliefs, and social stigma (CSO, Ministry of Health, & ICF International, 2014).

Adolescents in rural areas often face additional barriers, including long distances to healthcare facilities, limited access to contraceptive methods, and cultural norms discouraging contraceptive use among unmarried individuals (Wado., Sully & Mumah, 2019; Ahinkorah et al., 2021). In contrast, urban adolescents generally benefit from better access to contraceptives through family planning clinics, pharmacies, outreach programs, and greater exposure to

contraceptive information via schools and media campaigns (Svanemyr., Sundby & Tellefsen, 2022; Bellizzi., Humanes & Vicente, 2021).

**H5:** There is a significant association between contraceptive uptake and adolescent pregnancy across the rural-urban divide in Zambia.

This hypothesis aims to explore the relationship between contraceptive uptake and adolescent pregnancy in both rural and urban settings. By investigating the extent to which adolescents use contraceptives to prevent pregnancies and the subsequent impact on adolescent pregnancy rates, the study seeks to identify factors influencing contraceptive uptake. The findings will provide valuable insights to inform interventions aimed at improving the availability and utilization of contraceptives among adolescents.

#### **2.18.6 Research Hypothesis (H<sub>6</sub>) -Role of Community Health Workers**

Hypothesis 6 explores the association between the role of CHWs and adolescent pregnancy across the rural-urban divide in Zambia. This hypothesis examines the impact of CHWs' involvement in providing SRH services on adolescent pregnancy rates.

CHWs play a vital role in delivering healthcare services, particularly in underserved and rural areas where formal healthcare facilities are often limited. Their responsibilities include SRH education, counselling, and the provision of contraceptives, making them critical agents in promoting adolescent reproductive health (Olaniran., Madaj., Bar-Zev., & van den Broek, 2019). In Zambia, CHWs are frequently the first point of contact for healthcare, especially in remote villages with limited access to formal health facilities (Malapela, Mboweni, & Risenga, 2024). Their involvement in SRH promotion can significantly contribute to reducing adolescent pregnancies through several mechanisms.

Community Health Workers (CHWs) play a pivotal role in promoting adolescent SRH by conducting outreach activities, home visits, and educational sessions to provide accurate information on SRH, family planning, and contraceptive methods, while emphasizing the importance of delaying sexual debut (Mulubwa et al., 2024). They improve contraceptive accessibility by distributing methods like condoms and pills directly within communities, thus reducing barriers such as geographic distance, transportation challenges, and stigma associated with healthcare facilities (Malapela, Mboweni, & Risenga, 2024). Additionally, CHWs counsel adolescents on contraceptive use, addressing concerns and assisting in selecting suitable methods tailored to individual needs. By building trust and providing a safe, supportive environment, CHWs empower adolescents to seek help and make informed reproductive health decisions (Olaniran, Madaj, Bar-Zev, & van den Broek, 2019).

**H6:** There is a significant association between the role of community healthcare workers and adolescent pregnancy across the rural-urban divide in Zambia.

This hypothesis investigates the extent to which CHWs influence SRH education, contraceptive availability, and support for adolescents in rural and urban contexts. By exploring how CHWs contribute to adolescent pregnancy prevention, this study seeks to identify strategies for strengthening their role in SRH promotion and service delivery to reduce adolescent pregnancy rates.

#### **2.18.7 Research Hypothesis (H7)-Awareness of Harmful Practices**

Hypothesis H7 explores the association between awareness of harmful practices and adolescent pregnancy across the rural-urban divide in Zambia. This hypothesis seeks to examine the relationship between adolescents' knowledge or awareness of harmful practices and their likelihood of experiencing early or unintended pregnancies (Nyangweso, 2022; Schroeder et al., 2022).

In Zambia, harmful practices such as child marriage, initiation rituals, and gender-based violence are particularly prevalent in rural areas where traditional beliefs and customs exert significant influence (Daka, 2020). Adolescents who are aware of these harmful practices may be better equipped to identify and avoid situations that jeopardize their SRH (Daka et al., 2023; Daka, Mwelwa, Chibamba, Mkandawire, & Phiri, 2020). For instance, understanding the risks associated with child marriage may encourage adolescents to resist early marriage, delay sexual debut, and reduce their risk of early pregnancy. Conversely, limited awareness or misconceptions about harmful practices often leave adolescents vulnerable to exploitation, abuse, and unintended pregnancies (Daka, Mwelwa, Chibamba, Mkandawire, & Phiri, 2020).

**H7:** There is a significant association between awareness of harmful practices and adolescent pregnancy across the rural-urban divide in Zambia.

This hypothesis aims to investigate how awareness of harmful practices influences adolescent SRH outcomes in rural and urban settings. By assessing adolescents' understanding of harmful practices and its association with pregnancy outcomes, this research underscores the importance of education and awareness-raising initiatives in promoting SRH and protecting adolescents' rights.

Empowering adolescents with accurate information on harmful practices, critical skills, and supportive networks is essential for preventing early pregnancies and fostering the health and well-being of Zambia's young population.

#### **2.18.8 Research Hypothesis (H<sub>8</sub>) – Experience of Harmful Practices**

Hypothesis H8 explores the association between the experience of harmful practices and adolescent pregnancy across the rural-urban divide in Zambia. This hypothesis examines how adolescents' exposure to harmful practices influences their likelihood of experiencing early or unintended pregnancies.

Harmful practices refer to behaviours, traditions, and customs that compromise individuals' health, well-being, and rights, particularly among vulnerable populations like adolescents. In Zambia, such practices may include child marriage, initiation rites, forced sex, female genital mutilation, and other forms of gender-based violence.

The prevalence of harmful practices often intersects with socio-cultural norms, gender inequalities, and socio-economic factors, exacerbating adolescents' vulnerabilities to early pregnancies. In rural areas, where traditional beliefs and customs are more pervasive, harmful practices are often more common, creating additional barriers for adolescents to access SRH information, services, and support (Biruk, 2020; Perianes & Ndaferankhande, 2020).

**H8:** There is a significant association between the experience of harmful practices and adolescent pregnancy across the rural-urban divide in Zambia.

This hypothesis aims to investigate how harmful practices contribute to adolescent pregnancy rates in rural and urban settings in Zambia. By analysing the relationship between adolescents' experiences of harmful practices and pregnancy outcomes, the study seeks to illuminate the complex interplay of socio-cultural factors, gender dynamics, and reproductive health risks.

Understanding this relationship is critical for designing targeted interventions and policies to address harmful practices and prevent early pregnancies. Strategies should include strengthening CSE, empowering adolescents with knowledge of their rights, and engaging community leaders to challenge harmful norms and promote gender equality. By addressing these root causes, Zambia can create a safer, more supportive environment where adolescents can make informed decisions and thrive.

## **2.19 Chapter Summary**

Chapter Two situated this study within selected theoretical frameworks to guide a structured and context-specific investigation. These frameworks informed the literature review

and permeated the entire research process, offering a lens through which adolescent sexual behaviours can be examined. The leading framework anchoring the study is Bronfenbrenner's SEM, which enables a multilevel analysis of behavioural influences, from individual to societal. To complement this, the HBM is incorporated to explain how attitudes and belief systems influence health-seeking behaviour, while Social Cognitive Theory (SCT) and the Theory of Reasoned Action are also considered for their relevance to behavioural decision-making in adolescents.

The review acknowledges the inherent complexity and limitations of applying behavioural theories in diverse human and social contexts. While no single theory can fully capture the nuances of human behaviour, each offers valuable insights, consistent with the Gestalt principle that the whole is greater than the sum of its parts. Dividing theories into categories, as shown in Table 2.1, provides researchers with a manageable structure to analyse complex behavioural dynamics in adolescent SRH.

The SEM, particularly at the interpersonal level, underscores how power relations such as parental authority, shape adolescent compliance with SRH norms (Hardly, 2018; Childs et al., 2015). However, a notable limitation across the reviewed literature is the lack of clarity on adolescents' cognitive agency and the difficulty in establishing causality or generalizability across SEM levels. Despite this, the models remain valuable tools in framing the investigation, particularly for analysing community and policy-level influences.

At the community level, while several studies explored the impact of SRH-related factors on adolescent pregnancy in Zambia, findings remain inconclusive. Additionally, the review highlighted the macro-level rural-urban divide, noting that community homogeneity, residential mobility, and socio-economic instability are critical factors requiring deeper exploration in this study.



The review also examined theories in relation to adolescents' access to SRH services, highlighting the influence of global conventions and treaties, alongside national policies. These intersect with all SEM levels, particularly the macro-policy context, to shape availability, accessibility, and utilization of ASRH services.

This chapter concludes by introducing the conceptual framework adopted in this study. Building on the reviewed theories, the framework integrates selected demographic and behavioural variables across the SEM's individual, family, community, and societal levels (see Figure 2.2). It recognizes that adolescent pregnancy results from a dynamic interaction of multiple influences, rather than isolated factors. By framing these variables within an ecological context, the conceptual framework enables a comprehensive understanding of the determinants of adolescent pregnancy and supports the development of targeted, multi-level interventions responsive to Zambia's rural-urban realities.

## CHAPTER 3: RESEARCH METHODS

### 3.0 Introduction

Adolescent pregnancy remains a significant public health and development challenge in Zambia, particularly due to its far-reaching implications on the health, education, and socio-economic well-being of young girls. It contributes to high maternal and child morbidity and mortality, increased school dropout rates, early and often forced marriages, and entrenched cycles of poverty. According to the 2018 Zambia Demographic and Health Survey, 29% of adolescent girls aged 15-19 have begun childbearing. Strikingly, rural areas bear a disproportionate burden of adolescent pregnancies, with a prevalence of 37%, compared to 17% in urban areas (CSO, 2018). These disparities highlight the need to explore the contextual and structural dynamics influencing adolescent pregnancy in different geographic settings.

This study was conceived in response to the urgent need to generate robust, context-specific evidence on the determinants of adolescent pregnancy in Zambia. It sought to address key gaps in the literature and policy by investigating the distinct and overlapping factors that contribute to the high prevalence of adolescent pregnancy in both rural and urban settings, with a focus on understanding the underlying drivers of the rural-urban disparity. By situating the study in Eastern and Southern Provinces, the two regions with the highest teenage pregnancy and unique socio-cultural, economic, and infrastructural characteristics. The research provides a comparative lens through which these variations can be better understood.

The overarching goal of the study is to inform policies and programs aimed at reducing adolescent pregnancy by providing evidence-based insights into its root causes. To achieve this, the study adopted a comparative mixed-methods research design, which allowed for the integration of quantitative and qualitative data to comprehensively examine the phenomenon. This approach not only facilitated triangulation of data but also enabled a nuanced exploration of the multiple, intersecting factors influencing adolescent pregnancy across different settings.

The study is grounded in Bronfenbrenner's Ecological Systems Theory (1979), which posits that individual behaviour is shaped by interactions across various environmental systems ranging from the individual (microsystem), immediate family and peer network (mesosystem) to broader societal norms (ecosystem), policies, and structural conditions (macrosystem). This theoretical framework provided a suitable lens for analysing the multi-level determinants of adolescent pregnancy, particularly how these determinants vary or converge across rural and urban contexts. By anchoring the study in this framework, it was possible to systematically identify and interpret the contextual influences that shape ASRH behaviours and outcomes.

The methodology adopted in this study is closely aligned with the research problem and questions. The mixed-methods comparative design enabled a robust analysis of adolescent pregnancy by drawing on the strengths of both quantitative and qualitative approaches. The integration of these two approaches was particularly valuable given the complexity of adolescent pregnancy, which is influenced by a confluence of individual, interpersonal, community, and systemic factors. The mixed-methods design not only enhanced the validity and reliability of findings through triangulation but also allowed for cross-validation and enrichment of quantitative results with qualitative insights. For example, statistical trends identified in the survey were further explored and interpreted through narratives and explanations provided by qualitative participants, thus offering a more comprehensive and contextually grounded interpretation of the findings.

This chapter outlines the research methodology in detail, beginning with the rationale for the chosen study design. It proceeds to describe the characteristics of the study population, sampling procedures, data collection instruments, and the operational definitions of key variables. It also presents the procedures for data collection and analysis, as well as the ethical considerations observed throughout the research process. By providing this detailed

methodological account, the chapter aims to demonstrate the scientific rigour, transparency, and contextual appropriateness of the study design and implementation.

Ethical considerations were central to the study design and implementation, given the sensitive nature of the subject matter and the vulnerability of the target population. The research protocol received ethical approval from relevant institutional and national review boards. Careful attention was paid to the ethical management of interviews and discussions, particularly those involving sensitive topics such as early sexual activity, pregnancy, and gender-based violence.

Ultimately, the methodology was designed to ensure that the study's findings are valid, contextually relevant, and actionable. By adopting a comparative mixed-methods approach grounded in a robust theoretical framework and guided by rigorous ethical standards, the study provides a sound basis for understanding and addressing adolescent pregnancy in Zambia. The insights generated from this research are expected to contribute meaningfully to policy development, program design, and future research on ASRH in sub-Saharan Africa and similar settings.

### **3.1 The Research Philosophy of the Study**

This study is grounded in the pragmatist philosophical paradigm, which emphasizes the use of multiple perspectives and methodologies to address research questions effectively (Johnson, Onwuegbuzie, & Turner, 2007). Pragmatism supports methodological pluralism, allowing the researcher to draw on both positivist and interpretivist traditions depending on the nature of the inquiry. This aligns with the study's mixed-methods design, which seeks to explore not only the statistical prevalence of adolescent pregnancy but also the contextual factors that drive it across rural and urban Zambia.

The positivist paradigm is rooted in the belief that reality is objective and measurable. It typically employs quantitative methods to examine the "what" of a phenomenon using observable, verifiable data to establish cause-and-effect relationships. Positivist research is valued for its scientific rigor, objectivity, and replicability, as it minimizes researcher bias through a detached, impersonal stance (Krauss, 2005). According to Choy (2014), quantitative approaches offer advantages such as efficiency, reliability, and cost-effectiveness, particularly in large-scale data collection. However, they may fall short in capturing human experiences, perceptions, and social meanings, elements critical to understanding complex social issues like adolescent pregnancy.

In contrast, the interpretivist paradigm holds that reality is socially constructed and best understood through the meanings that individuals assign to their experiences (Walsham, 1995). It employs qualitative methods such as interviews, FGDs to explore both the "what" and the "why" behind social phenomena. Interpretivist research excels in generating rich, in-depth insights into beliefs, values, and behaviours (Choy, 2014). However, it can be limited by subjectivity, reduced generalizability, and the need for skilled data collectors and analysts. Moreover, qualitative inquiry is often more time-consuming and resource-intensive than quantitative approaches.

By integrating both paradigms, the pragmatist approach adopted in this study allows for a comprehensive exploration of adolescent pregnancy. Quantitative data provides measurable trends and rural–urban comparisons, while qualitative insights capture the lived realities of adolescents and contextual factors influencing early pregnancy. This philosophical stance ensures that the study is not confined to a single epistemological position but instead uses the strengths of each to address the research questions holistically.

### **3.2 Research Approach and Design**

This study investigates the factors influencing adolescent pregnancy in rural and urban areas of Zambia's Eastern and Southern Provinces. Employing a comparative research design, the study adopts a mixed-methods approach, integrating both quantitative and qualitative research methods. The study employed a concurrent mixed-methods design, whereby quantitative and qualitative data were collected and analysed simultaneously. This approach enabled triangulation of findings, allowing for a more comprehensive understanding of the factors contributing to adolescent pregnancy in both rural and urban settings.

The rationale for using a concurrent design was to strengthen the validity of the results by comparing and corroborating data from different sources in real time. This design has now been clearly stated and explained in the revised methodology section of the thesis to ensure clarity on the structure of data collection and analysis. The use of mixed methods reflects a growing trend in addressing complex phenomena, with scholars recognizing this as a distinct third approach to research, referred to as multi-strategy, multi-methods, or mixed methodology (Creswell & Plano, 2018).

### **3.3 Comparative Research Design**

This study employed a comparative research design to explore differences and similarities in adolescent pregnancy rates and associated factors between rural and urban contexts in Zambia. Comparative research systematically analyses two or more cases to identify causal relationships, contextual variations, and underlying mechanisms (Iranifard & Latifnejad, 2022). In this study, the rural–urban divide served as a key analytical lens to understand how socio-economic, cultural, and health-related factors shape adolescent pregnancy outcomes across geographic settings.

A comparative research design was adopted to systematically examine rural-urban disparities in adolescent pregnancy, as existing literature indicates notable variations between the two settings. While some studies have focused exclusively on either rural or urban contexts, few have directly compared both. Among those that have, findings are inconsistent, some report higher adolescent pregnancy rates in rural areas due to socio-cultural and economic vulnerabilities, while others highlight increasing rates in urban areas, often linked to peer influence, exposure to media, and limited parental supervision.

This variation underscores the need for a comparative approach to better understand the contextual factors influencing adolescent pregnancy in different settings. The design thus enables a nuanced analysis of how structural, cultural, and individual-level factors operate across geographic contexts, ultimately informing more targeted interventions.

The strength of comparative design lies in its ability to build on theoretical concepts while isolating context-specific drivers (Bloemraad, 2013). Despite being time- and resource-intensive, this approach was selected for its capacity to generate robust, policy-relevant evidence aligned with the study's objectives.

Comparative designs are versatile, supporting cross-national, cross-cultural, and cross-system inquiries (Azarian, 2011; Esser & Vliegenthart, 2017). In this case, the design facilitated a nuanced examination of patterns in adolescent pregnancy, enabling the identification of both shared and unique factors across rural and urban settings.

The approach also enhances the practical value of findings by highlighting actionable, context-specific interventions. For example, urban areas may benefit from scaling up youth-friendly SRH services, while rural communities may require culturally sensitive, community-based programs to address traditional norms and improve access to education and healthcare.

Moreover, comparative studies contribute to theoretical advancement by testing hypotheses across diverse contexts, thus strengthening generalizability (Esser & Vliegenthart,

2017). This study's design enabled a multi-perspective analysis of structural and individual-level determinants of adolescent pregnancy. As Penning (2006) notes, the longitudinal potential of comparative research also offers a foundation for future studies to track the impact of targeted interventions over time.

In sum, the comparative research design provided a rigorous and context-sensitive framework for investigating adolescent pregnancy, supporting both academic inquiry and evidence-based policy development.

### **3.4 Mixed Research Approaches**

This study employed a comparative mixed-methods approach, an increasingly valuable methodological strategy in public health and social science research, particularly for examining multifaceted and context-sensitive issues such as adolescent pregnancy. By integrating both quantitative and qualitative methodologies, this approach harnessed the strengths of each method while mitigating their respective limitations, thereby enabling a more comprehensive and nuanced understanding of the phenomena under investigation (Creswell & Plano Clark, 2018; Fetters, 2020).

Rooted in the pragmatist philosophical paradigm, the study recognized the importance of flexibility, contextuality, and methodological pluralism in addressing complex research questions. Pragmatism emphasizes the utility of research for problem-solving and advocates the use of multiple forms of data to best answer research questions (Johnson & Christensen, 2019; Almeida, 2018). This orientation was particularly suitable for a public health problem such as adolescent pregnancy, which is shaped by a confluence of individual, interpersonal, socio-cultural, and structural factors that cannot be fully captured by a single methodological lens.



Adolescent pregnancy is not a monolithic phenomenon—it reflects the interplay of diverse influences that vary by geography, gender norms, household dynamics, service accessibility, and socioeconomic status. A purely quantitative approach, while effective in measuring prevalence and identifying statistical associations, would fall short in unpacking the lived experiences, motivations, and constraints faced by adolescents. Likewise, an exclusively qualitative design might provide rich narratives but would lack the generalizability required to inform broader public health policies.

Mixed methods provided a powerful tool for triangulation cross-validating findings from different sources to enhance reliability and deepen interpretation. It also facilitated complementarity, whereby qualitative data contextualized and explained patterns observed in the quantitative results. This allowed the study not only to quantify the magnitude of adolescent pregnancy and its predictors, but also to explore the underlying “why” and “how” behind adolescent reproductive behaviours and decision-making.

The comparative design was especially valuable in examining and contrasting adolescent pregnancy drivers across Zambia’s rural and urban settings in the Eastern and Southern Provinces. This design illuminated key disparities in SRH access, cultural norms, family dynamics, and service delivery mechanisms, providing place-based insights for tailored intervention.

Quantitative data was designed to identify significant socio-demographic, behavioural, and health-related predictors of adolescent pregnancy. This component quantified prevalence, risk factors, and service utilization patterns, producing statistically robust data that could inform scalable interventions.

Qualitative data provided context-rich insights into perceptions of sexuality, social norms, barriers to SRH services, gender dynamics, and the psychosocial impacts of early

pregnancy. This helped uncover deeper, often invisible, dimensions of adolescent reproductive experiences.

Unlike convergent parallel designs that collect both forms of data simultaneously, this study employed a comparative mixed-methods strategy with emphasis on contrasting rural and urban dynamics. This enabled a more targeted exploration of how ecological determinants ranging from household poverty and school retention to early marriage and service coverage manifest differently across settings. Mixed-methods research is particularly well-suited for ASRH because it allows for multi-layered analysis of individual behaviours and systemic determinants.

Community engagement through participatory qualitative methods that reflect local realities and power dynamics. Equity-focused inquiry, uncovering disparities that may be masked by aggregate statistics. Evidence translation, facilitating the design of context-responsive, culturally appropriate, and adolescent-centred health programmes. As Creswell (2018) notes, the synergy of quantitative and qualitative evidence enhances the explanatory power of research an essential requirement for complex health issues such as adolescent pregnancy that sit at the intersection of health, education, gender, and social development.

The comparative mixed-methods approach adopted in this study provided a rigorous and holistic investigation into adolescent pregnancy in Zambia. It enabled both statistical precision and contextual depth, contributing to a deeper understanding of rural-urban disparities and informing more targeted, equitable, and culturally sensitive ASRH policies and programmes. The approach aligns with the principles of integrated public health research and strengthens the bridge between evidence generation and meaningful action.

### 3.4.1 Quantitative Research

This study employed quantitative methods to examine the relationships between key variables influencing adolescent pregnancy. These variables included age at sexual debut, education level, marital status, access to and utilization of SRH services, contraceptive use, exposure to harmful practices, and the involvement of CHWs. Data were collected using structured, pretested, and validated questionnaires administered to a representative sample of adolescents (aged 18–19) and young women (aged 20–24) in selected rural and urban districts.

The primary objective of the quantitative component was to identify statistically significant patterns, relationships, and differences across rural and urban settings. This approach facilitated the determination of how specific demographic and behavioural factors are associated with adolescent pregnancy.

Quantitative research, as outlined by Creswell and Plano (2018), involves the systematic investigation of phenomena by gathering quantifiable data and applying statistical, mathematical, or computational techniques. This method is particularly effective for testing hypotheses and examining the relationships between variables. It allows for the measurement of variables and the analysis of data to identify patterns, relationships, or trends. In this study, statistical software was utilized to analyse the data, enabling the identification of correlations between independent variables (e.g., age, education, access to services) and the dependent variable (adolescent pregnancy).

The use of quantitative methods offers several advantages, including the ability to generalize findings from a sample to a larger population, the capacity for replication, and the potential for establishing causality under certain conditions (Babbie, 2010). By employing a non-experimental, descriptive, and correlational survey design, this study was able to quantify relationships between variables and describe the phenomenon of adolescent pregnancy. Descriptive designs are particularly effective in capturing up-to-date data on current trends and

behaviours (Coughlan, Cronin, & Ryan, 2007). This approach allowed the researcher to document the prevalence and distribution of adolescent pregnancy and to assess how various socio-demographic and service-related factors influence its occurrence.

The quantitative research approach provided a framework for understanding the determinants of adolescent pregnancy. It enabled the study to measure and compare key variables across rural and urban contexts, offering insights that are both statistically valid and policy relevant.

### **3.4.2 Qualitative Research**

Qualitative methods were used to complement the quantitative component of the study by capturing in-depth insights into the lived experiences of adolescents, their families, and key community stakeholders. Data were collected through FGDs and KIIs with a diverse group of participants, including adolescent girls, parents, healthcare providers, teachers, and community leaders. Participants were selected using purposive sampling based on specific inclusion and exclusion criteria stated earlier, to ensure relevance to the study objectives and representation across different stakeholder groups. This approach enabled a deeper understanding of the socio-cultural norms, attitudes, and contextual factors influencing adolescent pregnancy, particularly in relation to rural-urban disparities.

Qualitative research is designed to explore how individuals interpret and make sense of their experiences, especially within specific social or cultural contexts. Unlike quantitative methods, which rely on numerical data to test hypotheses, qualitative methods emphasize open-ended inquiry, context, and meaning making (Creswell & Plano, 2018). The strength of this approach lies in its ability to provide rich, detailed narratives that reveal the complexities behind observable trends, thereby uncovering the “why” and “how” behind adolescent pregnancy outcomes.

This study applied inductive reasoning, moving from participants' specific accounts to broader patterns and themes. Thematic analysis was used to identify recurring issues and perceptions across FGDs and KIIs. This method enabled the researcher to explore participants' perspectives on topics such as early sexual debut, contraceptive decision-making, community beliefs, the role of social norms, and experiences with SRH services.

As noted by Coughlan, Cronin, and Ryan (2007), qualitative research offers valuable insights that may be inaccessible through structured surveys. It allows researchers to investigate sensitive or stigmatized issues, such as adolescent sexuality and pregnancy, in ways that are responsive and adaptive to participants' comfort and cultural context.

While qualitative research is often critiqued for its limited generalizability, it provides depth and contextual relevance that strengthens the interpretation of quantitative findings. Moreover, the inclusion of diverse voices, especially those of adolescents and community gatekeepers ensures that the study's conclusions are grounded in lived realities rather than abstract theory alone.

In summary, the qualitative component enriched the study by illuminating the social, cultural, and interpersonal dynamics that shape adolescent pregnancy. Together with the quantitative findings, these insights offer a holistic, evidence-based foundation for designing context-sensitive interventions and informing SRH policy and programming in both rural and urban settings.

### **3.4.3 Triangulation**

According to Hussein (2009) and Wilson (2014), the use of two or more data collection methodologies is known as triangulation. Olsen (2004, p.4) defined triangulation as the "mixing of data or methods so that diverse viewpoints or standpoints cast light upon a topic." As demonstrated above, qualitative and quantitative research approaches and designs

are neither mutually exclusive nor inclusive. Hence, there is a need to further evaluate these approaches using multiple lenses through an integrated perspective to harness the methodological rigor couched in the precepts of complementarity, convergence, completeness, and dissonance, following Schoonenboom & Johnson 2017; Dawadi, Shrestha & Giri, 2021). Triangulation's effectiveness depends mainly on the reasons, the stage at which triangulation occurs in the research process, and how it will enhance the study. This study utilizes methodological, data, and analysis triangulation (Yeasmin and Rahman, 2012).

Methodological triangulation is the practice of employing multiple approaches to investigate the same phenomenon. This can be done either during the research design phase or the data gathering phase. Social science research has extensively employed this form of triangulation. According to Schoonenboom & Johnson 2017, methodological triangulation involves the utilization of both quantitative and qualitative data gathering methods and analysis. Dawadi, Shrestha & Giri, 2021, proposes that methodological triangulation can be categorized into two types: between-methods triangulation and within-methods triangulation. This study utilizes the between method of triangulation, which involves the simultaneous use of quantitative and qualitative methodologies to examine the same phenomenon. This approach is commonly employed to establish convergent validity.

On the other hand, the within-method triangulation involves the use of multiple procedures at separate times to confirm the reliability of the results. The utilization of methodological triangulation in this study promotes the comprehension of adolescent pregnancy in both rural and urban settings. It ensures comprehensive results, reduces the limitations of a single methodology, and improves the trustworthiness of the findings. Data triangulation, also known as data source triangulation, is the utilization of several data sources within a single study to ensure the accuracy and reliability of the findings (Naidu-Valentine, 2024). This form of triangulation is motivated by the notion that the reliability of data is

contingent upon the temporal aspect of data collection, the individuals engaged in data gathering, and the context in which the data was obtained.

Analysis triangulation is the practice of employing multiple data analysis methodologies to ensure the accuracy and reliability of the findings. It can also be interpreted as many data analysis procedures as possible that are used to validate and ensure the completeness of a study's quantitative and qualitative research approaches. In this study, triangulation is used to achieve complementarity and convergence in the research findings, considering the strengths and weaknesses of each method (Wilson, 2014). It is important to highlight the limitations of triangulation. Yeasmin and Rahman (2012) observed that if research is not clearly articulated theoretically or conceptually, triangulation will not produce the desired outcome (s) and may not always be a necessary strategy for all research types, given that some questions can be adequately addressed through a single research method; hence it should not be used to legitimize a preferred method. For this study, the limitation is mitigated through a well-articulated conceptual framework.

In this study, the researcher can potentially derive benefits from the synergistic effects of using both quantitative and qualitative research methodologies. Existing research has shown that the triangulation method is highly effective in capturing a greater level of information, reducing prejudice, and improving one's comprehension and knowledge of the topic being studied. Triangulation improves scientific understanding and the application of research findings through both quantitative and qualitative methodologies.

### **3.5 Population and Sample of the Research Study**

This section summarises the criteria and techniques employed to choose the regions and individuals that were incorporated into the study. It also outlines the methodology for calculating the appropriate sample size and choosing the sample from a population. Zambia's

Eastern and Southern Provinces were selected as study sites due to their elevated prevalence of adolescent pregnancy, namely 42.5% and 43%, respectively. According to CSO figures from 2018 and 2019, women aged 25-49 had a median age of 17.8 years at first marriage in the Eastern Province and 18.7 years in the Southern Province.

The study focused on adult females aged 18 years and above who had resided in the selected areas for at least six months. The inclusion of women aged 18 to 24 was a deliberate methodological and ethical decision. While adolescent pregnancy is typically defined as occurring between ages 10 and 19, this study targeted young women aged 18-24 to retrospectively capture their experiences of pregnancy during adolescence.

In the Zambian legal context, individuals under 18 are considered minors and are subject to stringent ethical protections, including requirements for parental or guardian consent. Including minors would have necessitated additional ethical clearances and potentially limited participants' autonomy and openness. By focusing on those aged 18 and above, the study ensured full ethical compliance, particularly the ability to obtain informed consent directly from participants, while enabling the collection of rich, personal narratives.

Adolescents aged 18-19 provided valuable insights into recent experiences of adolescent pregnancy, straddling the transition from adolescence to early adulthood. Their perspectives captured the immediate drivers and challenges of adolescent pregnancy while allowing for reflection on emerging adult responsibilities.

Including young women aged 20-24 enriched the study by offering retrospective accounts of adolescent pregnancy and its longer-term implications. This group was able to reflect more deeply on how early motherhood affected their education, employment, and social wellbeing, providing a broader understanding of the life-course consequences of adolescent pregnancy in both rural and urban settings.



Together, the 18-24 age group represents a critical and often underexplored developmental window. This focus enabled the generation of ethically sound, contextually relevant, and policy-informing evidence to support both the prevention of adolescent pregnancy and the empowerment of young women.

This research study included sampling processes in both rural and urban districts of the Eastern and Southern provinces. Chipata and Livingstone as the only urban districts in the selected provinces, were purposefully selected in the Eastern and Southern provinces, respectively. The sample comprises rural districts of Petauke in the Eastern province and Sinazongwe in the Southern Province. The population in the selected provinces for the study, as determined by the 2022 Population and Housing Census (PHC) used as the sampling frame, is 2,454,788 for the Eastern Province and 2,381,728 for the Southern Province. Eastern and Southern provinces are predominantly rural, with 83.2% and 74.3 % of the population classified as rural (Zambia Statistics Agency (ZSA), 2022). Chipata has a total population of 327,059, while Petauke has a total population of 259,385. The population of females in Chipata and Petauke is 167,416 and 132,115, respectively. For Southern province, Livingstone has a total population of 177,393, of which 93,009 are female, while Sinazongwe has a population of 159,055, of which 80,804 are female (ZSA, 2022).

To participate in the study, the following inclusion and exclusion criteria, was used.

- a) Adolescents 18-19 years and young women aged 20-24 years
- b) Those capable of making decisions and willing to participate in the study
- c) Those who understood English and/or local languages (Tonga, Chewa)
- d) Those who resided in any of the selected districts for more than six months.

**Exclusion criteria:**

- a) Adolescents below 18 years as they are considered minors in Zambia

- b) Adolescents and young women who were currently pregnant
- c) Adolescents and young women with mental illness/disabilities were also excluded from participation in the study.
- d) Adolescents and young women who resided in the area for less than six months

KIs from the two provinces included Provincial Administrators, District Administrators, health workers, and teachers working in the study areas.

### **3.5.1 Sampling Methodology**

Sampling is the process of selecting a subset of individuals from a larger population for study purposes, enabling researchers to make inferences about the entire population. In this study, investigating all adolescents 18-19 and young women 20 to 24 years across the two provinces was not feasible due to logistical and financial constraints. As such, a subset of the population was sampled to facilitate the researcher's understanding of factors associated with the high rates of adolescent pregnancy in both rural and urban settings. According to Burns and Grove (2005), a sample should represent the population as accurately as possible to ensure validity and reliability. Creswell (2018) defines a population as a group of individuals sharing common characteristics relevant to the research objective.

The representativeness of the sample was ensured by employing a stratified random sampling technique, which allowed for proportional representation of different subgroups within the population. Stratified random sampling is particularly effective in studies with heterogeneous populations, as it ensures that each stratum is adequately represented. The study population was first stratified by province (Eastern and Southern) and then by urban and rural districts within each province. From each of these four strata (Chipata, Petauke, Livingstone, Sinazongwe), an equal number of participants was recruited, giving a total sample size. The rationale for equal allocation was primarily analytical and comparative.

The objective of the study was not to estimate provincial prevalence rates of adolescent pregnancy per se, but rather to compare the contributing factors between urban and rural districts across two distinct provinces. To enable statistically valid comparisons, equal representation from each stratum was considered since an unequal distribution based on population size might have introduced statistical imbalance that would compromise the reliability of comparative analyses.

Furthermore, the choice of equal distribution across provinces and districts was premised on the fact that equal numbers from each setting allows for statistical symmetry, enhancing the interpretability of logistic regression and bivariate tests without requiring complex weighting adjustments. Therefore, all the provinces regardless of size differences were given equal opportunity to contribute data and voice to the research findings, particularly as both regions face significant but potentially different socio-cultural dynamics around adolescent pregnancy. Finally, to estimate population characteristics using the sample, the study accounted for anticipated non-responses when calculating the sample size. This proactive approach helped to mitigate the impact of incomplete or missing data, which is a common challenge in field research. The sample size was determined using established statistical methods, ensuring an adequate level of precision and power for the study's findings.

Thus, Cochran's (1977) formula for sample size calculation was considered, allowing researchers to determine the appropriate sample size based on the population size, expected prevalence, and desired level of confidence. In contrast, a non-probability sampling method was utilized for the qualitative component, with participant selection guided by predefined criteria. This sampling methodology not only enhanced the representativeness of the sample but also ensured that the findings could be generalized to the broader population of adolescents (18-19 years) and young women (20-24 years) in Zambia's Eastern and Southern provinces.

### 3.5.1.2 Sample Size Determination

The quantitative method used a sample size calculated using Cochran's (1977) formula commonly applied in public health and social science research when estimating proportions in cross-sectional studies.

$$n = (Z^2 \times p(1-p)) / e^2$$

Where: n is the sample size, z is the z-value (1.96 for 95% confidence level), p is the estimated proportion of the population with the attribute of interest (0.5 used for maximum variability), and e is the margin of error (0.05). Substituting the values in the equation, the sample size for the current study was as follows:

$$n = 0.9604 / 0.0025$$

$$n = 384.16 \sim 385 \text{ respondents}$$

Consequently, the minimum required sample size was 385 respondents. However, to account for potential non-response, recording errors, and invalid or incomplete questionnaires, the sample was increased by approximately 4%, resulting in a final target of 400 participants. This oversampling strategy is consistent with standard practice to preserve statistical power and ensure representativeness in empirical social science research. Moreover, this sample size allows for subgroup analysis by province and urban-rural categories, enabling a comparative evaluation of adolescent pregnancy determinants in Eastern and Southern Provinces, each with their own urban and rural strata.

The equal distribution of 100 participants per district (Chipata, Petauke, Livingstone, Sinazongwe) ensured geographic representativeness and fulfilled the assumptions of stratified random sampling. It is worth noting that the assumption of 50% prevalence ( $p = 0.5$ ) in the formula was purposefully conservative. In statistical planning, this assumption is widely used in the absence of reliable recent prevalence data at the district level because it yields the

maximum required sample size, thus ensuring a more robust estimation regardless of the true underlying proportion. The sample for the quantitative research was distributed according to province, district, and ward, as shown in Table 3.1 below:

**Table 3.1.**

*Sampling Allocation by Province*

No.	Provinces	# of Districts	# of participants	# of EA's
1	Eastern	2	200	4
2	Southern	2	200	4
	<b>Total</b>	<b>4</b>	<b>400</b>	<b>8</b>

### 3.5.1.3 Sample Selection

Sampling was conducted in sequential stages. The initial phase was the identification and choice of specific districts within the provinces. The urban districts were deliberately chosen, whilst the rural districts were selected at random using a basic random selection method from the list of districts in their respective provinces. A simple random selection method was employed to guarantee that all districts had an equal and non-zero probability of being included. In the second stage, wards in the various districts were selected using a method called simple random sampling.

The process's third step was centred around the selection of Enumeration Areas (EAs). To ensure representativeness, a random selection process was used to choose two enumeration areas from each ward. This was necessary because it was not feasible to include all enumeration areas in the sample. The initial location within the EAs was chosen through systematic sampling. The initial points were chosen at random from the households mentioned. If the first beginning site proved unsuitable or unattainable, an alternative one was chosen. Once the

beginning point was established, a systematic approach was used to choose every other household for the purpose of conducting 100 interviews per district. In the fourth stage, responses were chosen based on the eligibility criteria.

**Table 3.2.**

*Final Selected Sampling Frame*

#	Province	District	Constituency	Ward	EA code
1	Eastern	Chipata	Chipata Central	Dilika	03051012067
2	Eastern	Chipata	Chipata Central	Dilika	03051012068
3	Eastern	Petauke	Petauke	Chilimanayama	03132011001
4	Eastern	Petauke	Petauke	Chilimanayama	03132011002
5	Southern	Livingstone	Livingstone	Namatama	09081152006
6	Southern	Livingstone	Livingstone	Namatama	09081152007
7	Southern	Sinazongwe	Sinazongwe	Sinenge	09141151004
8	Southern	Sinazongwe	Sinazongwe	Sinenge	09141151005

Source: Zambia Census 2022

A non-probability sampling methodology which is commonly used in qualitative research due to its flexibility and focus on depth of information, was employed to collect qualitative data. For this study, convenience sampling was utilized to select adolescent girls who were readily available during the investigation. Although convenience sampling is associated with a higher risk of bias compared to probability sampling, the findings obtained from both probability and non-probability sampling methods were cross validated to enhance reliability. Female participants aged 18 and above who met the inclusion criteria, including members of the local community, were invited to participate in separate FGDs. These sessions provided a safe and supportive environment where participants could share their perspectives openly and without fear of judgment.

The FGDs were facilitated by a researcher serving as a moderator, with the assistance of a note-taker. Each group consisted of 8-12 participants who shared similar social and cultural backgrounds (Liamputtong, 2013). A total of 12 FGDs were conducted, including adolescent girls, parents, and other community members, allowing for diverse perspectives on socio-cultural issues related to adolescent pregnancy. The FGDs encouraged self-reflection and dialogue, fostering a comprehensive understanding of the participants' lived experiences and concerns.

In addition to FGDs, 20 KIIs were conducted with a range of stakeholders, including nurses, teachers, community leaders, and headmen. These interviews provided in-depth insights into community-level factors influencing adolescent pregnancy, such as access to healthcare, education, and socio-cultural norms. The qualitative sample size was determined based on the principle of saturation, whereby data collection continued until no new information or themes emerged during analysis.

Participants were recruited through community leaders, local schools, and healthcare facilities, ensuring a diverse and representative sample. This approach allowed for a holistic exploration of the factors contributing to adolescent pregnancy while capturing the unique dynamics of rural and urban settings. By combining FGDs and KIIs, the study ensured a rich and nuanced understanding of the socio-cultural and institutional contexts affecting adolescent reproductive health.

### **3.6 Materials/Instrumentation of Research Tools**

To achieve a comprehensive understanding of the factors contributing to adolescent pregnancy in Zambia, this study employed a combination of quantitative and qualitative research tools. This mixed-methods approach enabled the triangulation of data and provided

both breadth and depth in exploring the research problem. An interpreter was used where necessary to overcome the language barrier.

### **3.6.1 Quantitative Data Collection Tools**

Quantitative data were collected using a structured questionnaire specifically designed to capture information on demographic characteristics, SRH knowledge and behaviours, and the socio-economic and cultural factors associated with adolescent pregnancy. The primary aim of the quantitative component was to generate descriptive data that would offer a statistical overview of the phenomenon under investigation. As noted by Burns and Grove (2005), descriptive surveys are effective tools for obtaining respondents' perspectives on specific topics and generating quantitative insights into prevailing trends and behaviours.

To ensure consistency and enhance data quality, the questionnaires were administered face-to-face by the researcher and trained field assistants. This approach was particularly important given the complexity of the subject matter and the relatively low literacy levels among many adolescent girls and young women, especially those residing in rural areas where self-administered questionnaires would have been inappropriate and potentially unreliable.

The standardized questionnaire (see Appendix 1) consisted of several sections, including: (i) respondent identification, (ii) demographic characteristics, (iii) sexual behaviour, (iv) contraceptive use, and (v) knowledge of adolescent pregnancy and SRH. Initially developed in English, the instrument was translated into the local languages of the study areas *Tonga, Chewa, and Nyanja*, to ensure linguistic appropriateness and to facilitate comprehension by participants from diverse linguistic backgrounds.

To further enhance the efficiency and accuracy of the data collection process, Computer-Assisted Personal Interviewing (CAPI) was utilized. The questionnaire was digitized and administered using tablets, with the data entry interface developed using the



Census and Survey Processing System (CSPro 7.7.2). This method allowed for real-time data capture at the point of collection, reducing the risk of transcription errors and enabling immediate validation checks. CAPI also supported the prompt identification and correction of inconsistencies or errors encountered during fieldwork.

### **3.6.2 Qualitative Data Collection Tools**

Qualitative data were collected using open-ended interview guides designed for both KIIs and FGDs. These instruments enabled the exploration of contextual, experiential, and socio-cultural dimensions of adolescent pregnancy that are not easily captured through quantitative methods. The FGD and KII guides were specifically tailored to align with the study's objectives and were pre-tested to ensure relevance and clarity (see Appendices 2 and 3).

The key informants included teachers, healthcare professionals, and community or institutional administrators who were selected based on their roles and insights into adolescent reproductive health issues. The FGD participants comprised adolescent girls and young women (aged 18–24 years), as well as parents conducted separately for men and women to allow for open and culturally sensitive dialogue. These groups were purposively sampled to capture diverse perspectives and experiences related to the drivers and consequences of adolescent pregnancy in both rural and urban settings.

Prior to the main data collection phase, the qualitative instruments were piloted in non-sampled communities to test their effectiveness. The pre-testing process allowed for the identification and incorporation of missing key questions, the rephrasing of ambiguous items, and the overall refinement of the tools. As noted by Creswell and Creswell (2018), the purpose of pretesting qualitative instruments is to assess the clarity, relevance, and comprehensiveness

of the questions, minimize potential bias, and ensure the feasibility and appropriateness of data collection procedures in the study context.

Ethical approval for the study, including the data collection tools, was obtained from the Excellence in Research Ethics and Science (ERES) Converge Ethical Review Board in Zambia and the UNICAF Research Ethics Committee, ensuring compliance with international ethical standards for research involving human subjects.

The qualitative component of the study was guided by a set of clearly defined research objectives, each of which required a specific methodological approach, whether descriptive, explanatory, or exploratory. To ensure methodological coherence and transparency, the study employed tailored qualitative techniques aligned with each objective and research question. A synthesis of these methodological choices, including the research questions, objectives, data sources, tools, and analytical strategies is presented in Methodology. This table provides a clear mapping of how each objective was addressed, reinforcing the rigor and alignment between the study's conceptual framework and its qualitative design.

**Revised Table 3.3.*****Summary of Methodological Approaches***

<b>Research Objective</b>	<b>Data type</b>	<b>Data collection tool</b>	<b>Analytical method</b>
Identify factors influencing adolescent pregnancy in Eastern and Southern provinces of Zambia.	Quantitative	Structured Questionnaire (CAPI-enabled)	Descriptive statistics (Frequencies, percentages)
Compare these factors between selected rural and urban districts in Zambia's Southern and Eastern provinces.	Quantitative	Structured Questionnaire	Chi-square, Mann-Whitney U test, Binary Logistics regression
Assess the barriers and enablers to adolescent pregnancy prevention interventions across the rural-urban divide	Qualitative	Key Informant Interview (KIIs), Focus Group Discussion (FGDs)	Thematic Analysis using Atlas.ti 8.0
Examine the health, social, and economic impacts of adolescent pregnancy across the rural-urban divide	Qualitative	Key Informant Interview (KIIs), Focus Group Discussion (FGDs)	Thematic Analysis using Atlas.ti 8.0
Identify effective practices and interventions for preventing unintended adolescent pregnancies	Mixed (Quantitative and Qualitative)	All tools (Structured quantitative questionnaire, FGDs and KIIs)	Triangulation of findings across data sources

Table 3.3 shows a clear and concise roadmap that links the research objectives to the corresponding data sources, instruments, and analytical procedures, ensuring transparency, methodological rigor, and coherence throughout the study. Furthermore, the inclusion of both quantitative and qualitative data underpins the complementarity principle of the mixed-methods approach. Quantitative data enabled the measurement and testing of relationships among variables such as age, education, early sexual debut, while qualitative data added

contextual richness, helping to explain why and how these variables may influence adolescent pregnancy patterns. The integration of findings through triangulation further enhanced the credibility and depth of insights drawn from the data.

### **3.7 Operational Definition of Variables**

Operationalization is a critical step in research methodology as it ensures clarity, consistency, and precision in the measurement of variables, thereby facilitating rigorous data collection and analysis. According to Bhandari (2023), operationalization involves translating abstract concepts into measurable observations, allowing for empirical assessment and replicability. In this study, adolescent pregnancy is identified as the dependent variable, while the independent variables include age, education level, knowledge of contraceptives, access to service providers, and socio-cultural norms. These variables were carefully selected to align with the study objectives and address the research questions.

#### **3.7.1 Dependent Variable - Adolescent Pregnancy**

The study evaluated the dependent variable, adolescent pregnancy, by inquiring about participants' current and previous pregnancy experiences. The questions posed were as follows: "Are you currently pregnant? Have you experienced a pregnancy that resulted in a miscarriage, abortion, or stillbirth? What was your age at the time of your first childbirth?" (NPC & ICF, 2014). Three response alternatives were provided for the formal question: 1 for yes, 2 for no, and 3 for unsure. As for the latter two questions, there were two response choices: 1 for yes and 2 for no. In response to the preceding question, participants reported their age at the time of their first birth or pregnancy. Adolescent pregnancy, the dependent variable, is defined based on the age at first pregnancy and is operationalized as a binary outcome indicating whether a

pregnancy occurred during adolescence. A value of 0 indicates the absence of pregnancy during adolescence, while a value of 1 represents the occurrence of pregnancy within this period.

### **3.7.2 Selection Variable - Place of Residence**

Given the comparative nature of the study, which aimed to analyse the dynamics of adolescent pregnancy across rural and urban areas, the place of residence was operationalized as a dichotomous variable, categorized as urban (coded as 1) and rural (coded as 2). Low-density population with large tracts of vegetation characterizes a rural area. People in rural areas are often known to each other and bound by established norms and practices. On the other hand, urban areas are largely densely populated with commercial or industrial areas, including extensive infrastructure. Thus, the selection variable, place of residence, distinguishes research participants based on their place of residence, with “urban” denoting individuals residing in urban areas and “rural” representing those in rural settings.

### **3.7.3 Categorical Variables - Age**

The respondents' age was operationalized as an independent variable, measured on a continuous scale ranging from 18 to 24 years. The participants were asked the following questions: In what month and year were they born? (MM/YYYY). Moreover, instructions were included in the questionnaire to collect the age of the last birthday.

### **3.7.4 Level of Education**

The respondents' highest level of education was operationalized as a covariate, categorizing participants based on their self-reported educational attainment. This data was collected through two questions: “Have you ever attended school?” with response options coded as 1 = Yes and 2 = No. This was followed by a second question, which assessed the level

of education as indicated, “What is the highest level of education you have completed?” with three response options: 1- Primary, 2 - Secondary, and 3 -Higher (CSO, 2018)’’.

**Table 3.4.**

*Operational Definition of Variables*

<b>Variable</b>	<b>Types of variables</b>	<b>Level of measurement</b>	<b>Categorization and operational definition</b>
Adolescent Pregnancy	Dependent	Binary	0, 1
Place of residence	Selection	Nominal	Urban, Rural
Age	Independent	Continuous	All respondents provided their age (years) in continuous form: 18, 19, 20, 21, 22, 23, and 24.
Level of education	Covariate	Ordinal	Primary, secondary, higher
Marital status	Covariate	Ordinal	Never married, Cohabiting, married, Separated, Divorced, Widowed
Early sex debut	Independent	Binary	0, 1
ASRH services availability	Independent	Binary	Yes, No
ASRH services uptake	Independent	Binary	Yes, No
Contraceptives uptake	Independent	Binary	Yes, No
Role of CHW	Independent	Binary	Yes, No
Awareness of harmful practices	Independent	Binary	Yes, No
Experience of Harmful practices	Independent	Binary	Yes, No

The category “Primary” indicates completion of primary education or lower, “Secondary” signifies the completion of secondary education, and “Higher” encompasses individuals pursuing or having completed higher education, such as college or university.

### **3.7.5 Marital Status**

The above variable was operationalized as a covariate and captured participants' self-reported marital relationships. Research participants were asked, "What is your marital status?" and the response categories include "Never married" for individuals who have never entered marriage, "Cohabiting" for those living with a partner without formal marriage, and "Married" for those in formal marital unions. Additionally, "Separated," "Divorced," and "Widowed" denote specific marital statuses reflecting legal or relationship changes.

### **3.7.6 Independent Variable: Early Sexual Debut**

The independent variable, early sex debut, was operationalized as a binary outcome signifying the presence or absence of early sexual activity. The question was in two parts: Have you ever had sex before? The responses were: 1 Yes and 2 No. The follow-up question was: If yes, at what age did you have your first sex? The ages at which the respondents had their first sexual experience were recorded in continuous form. The early sex debut variable was recoded based on the age at first debut, with a value of 0 denoting no engagement in early sexual activity. In contrast, a value of 1 signifies engagement in sexual activity at a young age, typically before a predefined threshold, such as 16 years, deemed the legal age of consenting to sex.

### **3.7.7 ASRH Services Availability**

The availability of ASRH services was operationalized as a self-reported independent variable in the study. Precisely, the question was asked as follows: Is there a place around where young people like you can access ASRH services like relationships, sex, contraceptive use, STI infections, and HIV? The responses were dichotomized as "Yes" if ASRH services are accessible within the community and "No" if such services are unavailable.

### **3.7.8 ASRH Services Uptake**

The utilization of ASRH services was defined as an independent variable in this research. Based on the question: Do young people your age visit health facilities for SRH services? The independent variable, ASRH services uptake, reflects participants' use of ASRH services. A response of "Yes" indicates utilization, while "No" denotes non-utilization.

### **3.7.9 Contraceptive Uptake**

The uptake of contraceptives was operationalized as another self-reported independent variable. The research participants were asked: "Are you or your partner taking any actions or using methods to prevent or delay pregnancy? The response choices (yes = 1; no = 2) distinguish between participants who use contraceptives ("yes") and those who do not ("no").

### **3.7.10 Role of Community Health Workers**

The independent variable, representing the role of community health workers, assesses their involvement in delivering ASRH information and services. Participants were asked the following questions: "In the past 12 months, has a community health worker visited you?", "Did the community health worker discuss family planning with you?", and "If visited, did the community health worker explain contraceptive side effects?" Responses to these questions were recorded as either "Yes" or "No."

### **3.7.11 Awareness of Harmful Practices**

Awareness of harmful practices, an independent variable, categorizes participants based on their self-reported knowledge of harmful practices related to adolescent health and well-being. "Yes" indicates an awareness of such practices, while "No" signifies a lack of awareness.



### **3.7.12 Experience of Harmful Practices**

The independent variable, the experience of harmful practices, distinguishes between participants who have experienced harmful practices related to adolescent health and well-being (“Yes”) and those who have not (“No”).

### **3.8 Study Procedures and Ethical Assurances**

The section discusses how the researcher upheld and applied ethical norms and principles in this research endeavour. The first step was to obtain ethical approval from the relevant authorities before implementation of the study. Banks (2013) posits that any research involving human and animal subjects should be approved by an Ethical Review Committee, whose terminology might be country specific. Before data collection, this study on adolescent pregnancy received approval from UREC and Zambia Ethics and Research Board (ERES). (See Appendix 6) Institutions, ethics boards, and or committees have established principles to control and manage the conduct of research studies.

The norms and principles guided this research study in protecting the rights and interests of participants. Burns and Groove (2001) posit that researchers should prioritize and safeguard the participants' rights when a research study involves human beings as subjects. In addition, permission was sought from gatekeepers in Eastern and Southern Provinces to enter selected districts/ research sites in the province. This section details the study procedures and ethical measures implemented in the comparative research on adolescent pregnancy in Zambia. The first step began with acknowledging the approval granted by the University Research Ethics Committee (UREC) and outlines the steps undertaken to uphold confidentiality, mitigate risks to participants, and adhere to ethical standards throughout the research process.

### 3.8.1 Obtaining Consent

The formal process of obtaining permission from potential participants in research is known as "informed consent." Armiger (1997) defines informed consent as a process where individuals willingly and knowingly participate in a research study, with full understanding of its purpose, procedures, risks, and benefits before giving consent. In this study, the informed consent process was designed to ensure that participants were fully aware of their rights and responsibilities. Verbal consent documented in CAPI, was obtained through an interactive communication process that addressed participants' doubts and questions while providing additional clarifications when needed. This approach ensured that participants could make informed and voluntary decisions about their participation.

Participants were given detailed information about the study's purpose, objectives, potential risks, and anticipated benefits. This included specifics about the participant selection process, study duration, and contact information for the researcher in case of further inquiries. The researcher emphasized that the study's benefits were not financial but primarily informational, with the potential to contribute to community efforts to prevent unintended adolescent pregnancies. These pregnancies often have adverse effects on the developmental and socio-economic potential of young girls.

Participants were also informed of their right to withdraw from the study at any point without any repercussions or explanations. A disclaimer was included in the consent process to ensure that no force, coercion, or undue influence was applied. This approach upheld ethical principles and respected participants' autonomy. According to Clarke (1991), obtaining consent in this manner reinforces participant autonomy and ensures ethical integrity in research.

The researcher developed scripts that were read out to participants to obtain verbal consent, as data collection was conducted using Computer-Assisted Personal Interviews (CAPI). To protect participants' anonymity, no personal details were recorded. All participants engaged in the study with full knowledge of its risks and benefits, reflecting a robust ethical framework that safeguarded their autonomy and privacy.

The study only included participants aged 18 years and above, and therefore, parental or guardian consent was not required. This decision was informed by ethical guidelines to minimize potential risks or harm to adolescents. The WHO (2018) highlights the challenges of obtaining parental or guardian consent in studies involving adolescents, particularly when the research touches on sensitive topics like sexuality. Excluding individuals below the age of 18 allowed the study to focus on those legally capable of providing consent, ensuring ethical compliance and reducing complications associated with guardianship permissions.

The informed consent process in this study prioritized transparency, participant autonomy, and ethical integrity. By addressing potential risks, ensuring voluntary participation, and protecting anonymity, the study adhered to established ethical standards in research involving human subjects.

### **3.8.2 Respect for Anonymity and Confidentiality**

Confidentiality, as defined by Burns and Grove (1999), refers to the researcher's responsibility to protect the private information disclosed by participants during the study. Confidentiality and anonymity are closely linked to the respect for the dignity, rights, and privacy of participants. This research study ensured the confidentiality of participants' identities by refraining from collecting personally identifiable information, such as names or specific demographic details. This approach effectively prevented any possibility of identification or unintentional disclosure.

Participants were not pressured at any stage of the study to share information they were uncomfortable disclosing. To reinforce this commitment, a confidentiality disclosure statement was included in the content of the consent form, explicitly outlining the researcher's obligation to maintain confidentiality. The researcher strictly adhered to this obligation, as emphasized by Wiles, Crow, Heath, and Charles (2008), who highlight the importance of protecting participants' private data to uphold ethical research practices.

The raw data collected during the study was securely stored in the tablets and not shared with anyone beyond those explicitly authorized in the research protocol. This precaution was taken to ensure compliance with established ethical standards and to safeguard the rights of participants. By prioritizing data security and privacy, the study demonstrated a robust commitment to maintaining participant trust and upholding the principles of ethical research.

### **3.8.3 Beneficence**

The beneficence ethical principle relates to being of benefit and doing no harm. According to Beauchamp & Childress (2001), beneficence behoves researchers to conduct effective and significant research to serve better and improve the welfare of the participants. Burns & Grove (2005) suggested that beneficence should include freedom from harm and exploitation and weighing the risk-benefit ratio. This research endeavour made efforts to do good to the participants and community during data collection. The researcher respected human dignity or non-maleficence, which refers to the minimization of potential risks of participation. Burns and Grove (2005) contend that the risks and harm to participants could be physiological, emotional, or socioeconomic. The researcher was also mindful of the sensitivities around adolescent sexual behaviour and tried to balance the risks with proportionate benefits from the study when participants answered questions related to sexual behaviour.

### **3.8.4 Respecting People's Rights and Dignity**

The study observed the rights and dignity of participants. As stated by Burns and Grove (2001), individuals possess an inherent entitlement to self-determination, which must be honoured. The notion of upholding the rights and dignity of individuals is enshrined in the Human Rights Charter, which acknowledges the dignity and inviolable rights of all human beings. This study will prioritize the principles of respect for individuals' rights and dignity by ensuring that informed permission is obtained, participation is voluntary, confidentiality is maintained, and harm is avoided.

The researcher upheld the participants' right to self-determination, allowing them to willingly and independently to participate in the study. It was further clarified that exercising their choice to withdraw from the study would have no impact on either themselves or the community. Furthermore, the researcher actively welcomed volunteers from a wide range of age groups (18 years and older), cultural backgrounds, relationships, and other relevant aspects.

### **3.8.5 Justice Principle**

The principle of justice in research ethics refers to the fair and equitable treatment of all participants and the just distribution of both the burdens and benefits of research. It is rooted in the ethical obligation to uphold human dignity, foster trust, and ensure that no group is unduly burdened or excluded from the potential benefits of research (Beauchamp & Childress, 2019). In this study, justice was upheld by clearly explaining the study's purpose and objectives to participants, and by ensuring voluntary participation, anonymity, and confidentiality throughout the research process. All participants were treated with fairness and respect, regardless of their background or views throughout recruitment, data collection, and reporting.

Efforts to protect the right to fair treatment included accommodating participants' cultural norms, values, and beliefs regarding adolescent pregnancy, and allowing space for clarification and elaboration during interviews and discussions. In doing so, participants were not viewed merely as data sources or beneficiaries but as autonomous individuals whose perspectives were integral to the study.

### **3.9 Validity and Reliability of Study Tools**

Validity refers to the extent to which a research instrument accurately measures what it is intended to measure, and whether the findings genuinely reflect the phenomena being studied. A research tool is considered valid if it captures the underlying concepts accurately and consistently across different contexts (Creswell & Creswell, 2018). In this study, validity was ensured through careful design of the data collection instruments, alignment with the research objectives, and pretesting to identify and correct any ambiguities or measurement issues.

Reliability, on the other hand, relates to the consistency and dependability of the measurement process. It reflects the degree to which the same results can be obtained under consistent conditions. To enhance reliability, most of the questionnaire items were close-ended and administered in a standardized manner. Even when translated into local languages (*Tonga, Chewa, and Nyanja*), the phrasing was carefully maintained to preserve the original meaning and ensure uniform interpretation across participants.

Preliminary testing of the instruments was conducted in areas outside the main study sites to detect potential deficiencies in the wording, sequencing, or clarity of questions. This process strengthened both the validity and reliability of the tools by ensuring that they were appropriate, comprehensible, and consistent across diverse participant groups.

### **3.10 Data Collection and Analysis**

The data collection and analysis processes in this study were designed to comprehensively address the research objectives and ensure a rigorous understanding of the factors contributing to adolescent pregnancy. A systematic approach was employed to gather both primary and secondary data, enabling a thorough exploration of key variables and themes. Data were collected using structured methodologies that aligned with ethical research principles, ensuring the reliability and validity of findings (Creswell & Creswell, 2018).

Data analysis involved the use of statistical tools to interpret quantitative findings and thematic analysis for qualitative data. Quantitative analysis focused on testing hypotheses and exploring relationships/association between variables, while qualitative analysis identified recurring themes and patterns that provided context to the numerical data. The combination of these methods ensured a holistic understanding of the research problem.

#### **3.10.1 Analysis of Quantitative Data**

Quantitative data analysis involves the systematic examination of numerical data to identify patterns, relationships, and draw informed inferences. In this study, quantitative methods were applied using SPSS Version 22, which tool assessed the relationships between dependent and independent variables, facilitate comparative analyses, and support the derivation of evidence-based conclusions (Yauch & Seudel, 2003). The study commenced with a univariate analysis, during which frequencies and counts were generated for both dependent and independent variables. This was followed by a bivariate analysis, which included conducting independent statistical tests such as the Mann-Whitney U test and the Chi-square test. Subsequently, binary logistic regression analysis was employed to explore the relationships between the independent and dependent variables.

Kabiru, Abdullahi & Usman (2016) refers to binary logistic regression as a statistical technique used to examine the relationship between binary outcome variables and one or more independent variables. Binary logistic regression is an essential method for analysing factors influencing adolescent pregnancy in rural and urban settings. Binary logistic regression relies on a set of assumptions that are essential for maintaining the accuracy and reliability of the model's results. One assumption is that the outcome variable must be binary, usually represented by the numbers 0 or 1, indicating the lack or presence of the event being studied, such as adolescent pregnancy in this study.

The assumptions for this investigation encompassed linearity, independence of errors, and the lack of multicollinearity among the variables utilized as the unit of analysis. It was thus presumed that a linear relationship existed between the logarithm of the odds of the outcome variable and the independent variables. Additionally, it was expected that the errors or residuals from the model were independent. In addition, binary logistic regression assumes that there should be low multicollinearity, indicating that the independent variables should not be substantially associated with each other. Correlation matrices and Variance Inflation Factor (VIF) values are commonly utilized to assess multicollinearity. VIF values exceeding 10 indicate potential issues with multicollinearity. Binary logistic regression calculates the likelihood of the event of interest occurring based on a given set of predictor factors. The binary model assumes that there are hidden variables that are linearly connected to a set of known predictors and an error term.

$$y_i^* = x_i' \beta + u_i$$

Where  $y_i^*$  is the dichotomous variable,  $x_i'$  is a vector of explanatory variables,  $\beta$  is a vector of coefficients, and  $u_i$  is a random disturbance term which may follow either a normal or logistic distribution. The observed dependent variable is determined by whether  $y_i^*$  exceeds a threshold value:



$$y_i^* = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases}$$

Consequently, the logistic regression equation is represented mathematically as follows:

$$\text{Logit}(P) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \mu_t$$

Where:  $\text{Logit}(P)$  represents the natural logarithm of the odds ratio for the occurrence of the event,  $\beta_0$  is the intercept term,  $\beta_1, \beta_2, \dots, \beta_n$  are the coefficients linked with independent variables  $X_1, X_2, \dots, X_n$  and  $X_1, X_2, \dots, X_n$  representing the independent variables. Thus, the model specification for the Binary logistics regression model employed in the study is as follows:

$$\begin{aligned} \text{Logit}(ADP) = & \beta_0 + \beta_1 AGE + \beta_2 LOE + \beta_3 MS + \beta_4 ESD + \beta_5 ASA + \beta_6 ASU + \beta_7 CU + \\ & \beta_8 RCHW + \beta_9 AHP + \beta_{10} EHP + \mu_t \end{aligned}$$

Where:  $\text{Logit}(ADP)$  represents the logarithm of the odds of Adolescent pregnancy occurring,  $\beta_0$  is the intercept term,  $\beta_1, \beta_2, \dots, \beta_{10}$  are the coefficients linked with independent variables. *AGE* represents the respondent's age in years, *LOE* signifies the level of education, *MS* denotes the marital status, *ESD* represents the Early sex debut, *ASA* is the ASRH services availability, *ASU* denotes ARSH services uptake, *CU* represents the Contraceptives uptake, *RCHW* epitomizes roles of the community health workers, *AHP* symbolizes an awareness of harmful practices, and *EHP* represents the Experience of harmful practices.

Understanding the relationship between independent factors and the chance of an event occurring requires an interpretation of binary logistic regression coefficients. The coefficient ( $\beta$ ) derived from the logistic regression model indicates the logarithmic change in the probability (logit) of the event happening when there is a one-unit change in the corresponding independent variable, while other variables remain constant. The coefficients are raised to the power of the exponential function to calculate odds ratios (OR), which offer a more easily understandable estimate of the magnitude of the effect. A positive coefficient signifies that

when the independent variable increases, there is a corresponding rise in the log chances of the event happening.

Furthermore, a negative coefficient indicates that when the independent variable increases, there is a corresponding drop in the log chances of the event happening. An odds ratio exceeding 1 signifies that the likelihood of the event happening is larger for the corresponding level of the independent variable compared to the reference category. A value less than 1 for the odds ratio indicates that the likelihood of the event happening is lower for the specific level of the independent variable compared to the reference category.

Hypothesis testing is conducted to assess the statistical significance of coefficients within the logistic regression model. The null hypothesis asserts that each coefficient equals zero, indicating that the corresponding independent variable has no effect on the outcome variable. The significance level, denoted by  $\alpha$ , serves as the threshold for determining whether the null hypothesis should be rejected. In this study, a commonly applied significance level of  $\alpha = 0.05$  was used, meaning the null hypothesis is rejected if the p-value associated with a coefficient is less than 0.05.

Assessing the goodness-of-fit of a logistic regression model is crucial for determining its suitability in explaining the variability of the outcome variable. Common methods for evaluating a model's goodness-of-fit include the Hosmer-Lemeshow test, the deviance statistic, and pseudo-R-squared measures. The Hosmer-Lemeshow test assesses the concordance between observed and predicted results by dividing the data into categories according to predicted probabilities. It evaluates if the observed occurrence rates align with the anticipated occurrence rates in each group. A p-value that is not statistically significant, suggests that data fits well with the null hypothesis. Contrary to conventional R-squared values in linear regression, pseudo-R-squared quantifies the specific amount of variance that is accounted for by the logistic regression model. Widely used pseudo-R-squared measures include Cox and

Snell R-squared, Nagelkerke R-squared, and McFadden's R-squared. Higher values of these measures indicate a better fit of the model.

Furthermore, the expectation-prediction (classification) table effectively demonstrates the predictive efficacy of the binary logistics regression model. This is a collection of four 2×2 tables that display the accurate and inaccurate classifications made by a user-defined prediction rule, as well as the computations of predicted values. Accurate classifications are achieved when the predicted probability is either less than or equal to the cut-off value and the observed value of  $y$  is 0, or when the predicted probability is greater than the cut-off value and the observed value of  $y$  is 1. The classification shows the proportion of correctly predicted observations for  $y=1$ , which is known as sensitivity, and the proportion of correctly predicted observations for  $y=0$ , which is referred to as specificity. The increase in the number of accurate predictions derived from the classification table serves as a metric for the model's predictive capacity. The gain metrics are presented both as absolute percentage gains and as a percentage of the wrong classifications in the constant probability model.

Although the quantitative research approach used in the study was thorough and rigorous, it was considered insufficient for investigating a complex issue like adolescent pregnancy, which necessitates an examination of individuals' introspective thoughts, perceptions, and attitudes. As a result, the researcher also used qualitative methodologies to strengthen the study's conclusions.

### **3.10.2 Qualitative Data Analysis**

Qualitative data collection was conducted using KIIs and FGDs. The interview guides were reviewed, and the content was systematically organized into thematic categories to address the research questions. The data were transcribed, encoded, and classified into overarching themes and sub-themes. Coding entails the process of identifying and categorizing

significant words and phrases that are crucial to understanding adolescent pregnancy. The process of categorizing and organizing transcripts into themes helped the researcher gain a comprehensive grasp of the different viewpoints and experiences of the participants about adolescent pregnancy. This approach ensured that no single aspect was given excessive importance and that the study objectives were effectively addressed. Data analysis was conducted using the computer-assisted software, Atlas.ti. version 8.0. Triangulation was performed to ensure thoroughness and verify the results. Hence, the data's credibility and transferability were ensured to effectively inform policy and programmatic activities targeting the issue of adolescent pregnancy in Zambia and other locations.

### **3.11 Chapter Summary**

This chapter examined the methodology employed to investigate the factors contributing to adolescent pregnancy in Zambia's Eastern and Southern provinces. It began by emphasizing the significance of understanding adolescent pregnancy, particularly its implications for the health and well-being of adolescents and young women, and its broader impact on public health and development. The chapter outlined the rationale for adopting a comparative research design to explore disparities between rural and urban settings, providing a clear justification for its selection while discussing alternative approaches that were deemed unsuitable.

Key components of the research methodology were detailed, including the target population, the framework for sample selection, and the sample size, ensuring these elements were appropriate for a comprehensive comparative analysis. The chapter also described the materials and instruments used for data collection, offering a critical evaluation of their

reliability, validity, and pilot testing procedures. This section underscored the importance of robust data collection tools in ensuring the credibility of the findings.

Ethical considerations were thoroughly addressed, with a focus on informed consent, confidentiality, and adherence to ethical research protocols. The data collection and analysis methods were presented, highlighting the systematic and rigorous approaches taken to ensure transparency, accuracy, and reliability throughout the research process. The strengths and limitations of the methodology were briefly discussed, providing context for interpreting the study's results.

This chapter provides a detailed and structured account of the research methodology, establishing a solid foundation for the subsequent presentation and analysis of findings. It ensures that the research process aligns with best practices, thereby enhancing the validity and reliability of the study's outcomes.

## CHAPTER 4: FINDINGS

### 4.0 Introduction

Adolescent pregnancy poses significant challenges to public health and socio-economic development globally, with Zambia being no exception. The high prevalence of adolescent pregnancies in the country underscores the urgent need for a comprehensive exploration of the contributing factors and their associated outcomes. This chapter presents the findings of the study, examining the drivers of adolescent pregnancies in rural and urban areas and analysing the disparities between these contexts. The objective of the study is to generate evidence-based insights that inform the design of policies and programs to reduce adolescent pregnancy rates in Zambia.

This chapter addresses the research questions and hypotheses in alignment with the mixed-methods approach. The study's dual methodology integrates quantitative and qualitative analyses to provide both statistical rigor and a deeper understanding of lived experiences. The quantitative phase primarily focuses on survey data to determine the prevalence of adolescent pregnancies and explore statistically significant associations with socio-economic, cultural, and educational factors. This approach offers a data-driven perspective on the prevalence and determinants of adolescent pregnancy.

Complementing the quantitative analysis, the qualitative component examines data obtained through FGDs and KIIs with key informants. This phase delves into the lived experiences, perceptions, and socio-cultural dynamics surrounding adolescent pregnancies, particularly in rural and urban contexts. By amplifying the voices of adolescents and community members directly affected, the qualitative findings provide context, nuance, and a human dimension to the quantitative results.

The chapter is structured to systematically address the research questions, beginning with an evaluation of the trustworthiness of the data, including its credibility and transferability. This ensures the reliability and contextual relevance of the findings to Zambia's socio-cultural landscape. The chapter proceeds with a detailed presentation of the quantitative findings, including frequency distribution tables and binary logistic regression analyses, highlighting key factors such as prevalence rates, healthcare disparities, and educational gaps. It then transitions into qualitative findings, offering thematic analyses that unpack socio-cultural influences, gender dynamics, and the psychosocial dimensions of adolescent pregnancies.

A central theme of this chapter is the integration of quantitative and qualitative data through data triangulation. The statistical findings are enriched by qualitative narratives, creating a multidimensional perspective on adolescent pregnancy. This integrated approach underscores the value of combining methodologies to inform targeted interventions and policies that address the complex interplay of factors influencing adolescent pregnancy.

Recognizing the role of education, this chapter also explores the impact of educational attainment, access to CSE, and school-based support programs on reducing adolescent pregnancy rates. It examines the psychosocial well-being of pregnant adolescents, peer dynamics, and the significance of social support systems in mitigating the challenges associated with adolescent pregnancies. Additionally, the chapter investigates healthcare access disparities between rural and urban areas, emphasizing the critical role of accessible, youth-friendly SRH services in preventing early pregnancies.

Discrepancies between quantitative and qualitative findings are carefully addressed, highlighting areas where divergent insights emerge and underscoring the need for nuanced interpretations. These differences further illuminate the multifaceted nature of adolescent

pregnancy, offering deeper insights into the socio-economic, cultural, and institutional dynamics that shape reproductive behaviours among adolescents.

The chapter concludes by establishing the significance of these findings in informing targeted interventions, policies, and programs aimed at addressing adolescent pregnancy as a critical public health challenge in Zambia. By integrating quantitative and qualitative perspectives, this chapter offers a holistic understanding of adolescent pregnancy, laying the groundwork for evidence-based, multi-sectoral strategies to reduce its prevalence and mitigate its adverse consequences.

#### **4.1 Trustworthiness of Data**

Ensuring the trustworthiness of both quantitative and qualitative data is essential for maintaining the rigor and reliability of this research. According to Pilot and Beck (2014), trustworthiness in a study pertains to confidence in the data, its interpretation, and the processes used to assess the study's quality. Establishing and maintaining trustworthiness involves verifying the accuracy, transparency, and integrity of data collection, processing, and analysis (Kyngäs, Kääriäinen, & Elo, 2020). This process underscores the need for meticulous planning and execution to ensure that the research findings are relevant, valid, and reliable.

The study adhered to Lincoln and Guba's (1994) framework for ensuring trustworthiness, which emphasizes four core principles: credibility, transferability, dependability, and confirmability. These principles collectively address the rigor and validity of the research process, ensuring that the findings accurately represent the participants' experiences and are applicable across similar contexts. This section outlines the measures taken to establish and sustain the trustworthiness of the data, focusing on credibility as a foundational element.



#### **4.1.1 Credibility**

Credibility refers to the accuracy and authenticity of the data and is a cornerstone of trustworthiness in research. It is achieved through robust engagement with participants, rigorous data collection protocols, and transparent analysis processes (Stahl & King, 2020). The reliability of the findings in this study hinges on the thoroughness with which data was collected and analysed, as well as the level of involvement and trust established with the study's participants.

To ensure credibility, the study underwent a rigorous approval process. Before data collection commenced, the University Research Ethics Committee (UREC) reviewed and approved all protocols, tools, and methodologies. The approval process ensured that ethical considerations, such as participants' rights, confidentiality, and informed consent, were adequately addressed. Additionally, the data collection instruments were pretested to ensure their reliability and cultural appropriateness. This step allowed the researcher to refine the tools and address any ambiguities, ensuring the instruments were effective in eliciting accurate and relevant data.

The researcher also sought formal authorization from local gatekeepers in both rural and urban study areas before initiating data collection. These gatekeepers included community leaders, school administrators, and healthcare facility managers, who provided access to participants and contextual insights into the study settings. This engagement not only facilitated data collection but also fostered trust and cooperation among participants, enhancing the credibility of the findings.

Participants included adolescents aged 18-19 years and young women 20-24 years who met the inclusion criteria. Additionally, key informants, such as teachers, healthcare professionals, and community leaders, contributed valuable insights. These informants, who

were knowledgeable about the socio-cultural and institutional dynamics of the study areas, added depth and context to the data, further enhancing its credibility.

## **4.2 Quantitative Data**

The utilization of quantitative evidence and data is of paramount importance in the realm of academic research and analysis. Scholars can derive meaningful insights and draw reliable conclusions from their investigations by employing rigorous methodologies and statistical techniques (Kyngäs et al., 2020). A meticulously designed and standardized questionnaire was employed to gather empirical evidence in the quantitative facet of this investigation.

The data collection process utilized computer-aided interviewing (CAPI) methodology and employed tablets to enhance quality control measures and streamline the data collection procedure for improved manageability. The Census and Survey Processing System (CSPro 7.7.2) was employed to establish a complete framework for data collection. Due to the temporal alignment of data input during the collection phase, utilizing the computer-assisted personal interviewing (CAPI) methodology will invariably expedite the subsequent analysis of the acquired data. The researcher diligently engaged in a daily review of the data after synchronization, thereby employing a methodology that facilitated identifying and rectifying errors during the data collection.

## **4.3 Qualitative Data**

The dataset under consideration comprises information of a qualitative nature. Because of the complicated nature of the research subject, the researcher used a qualitative research approach to fully understand the various views, attitudes, and norms surrounding adolescent pregnancy. In investigating and elucidating the SRH behaviours and relationships of

adolescents, it is plausible to assert that the qualitative approach, buttressed by inductive reasoning, holds tremendous promise for success than its quantitative counterpart, which rests upon deductive reasoning. The conclusion above can be derived from the differentiation that Creswell (2003) posited about these two research methodologies.

Qualitative data were gathered using a KII guide and facilitated FGDs with above 18 years and young women (2024 years). The credibility of the data in this study was enhanced by including verbatim quotes, adhering to the standards outlined in the qualitative research reporting checklist (Govender, Taylor, & Naidoo, 2020).

Furthermore, it is noteworthy that various community groups, including but not limited to parents, actively participated in the dialogues that transpired within the designated focus groups. This methodology has facilitated the opportunity to critically contemplate adolescent pregnancy, encompassing diverse perspectives, notably the intricate complexities inherent within social and cultural contexts. Furthermore, a cohort of esteemed individuals from the local community, including educators, community leaders, and healthcare professionals, were diligently sought out for insightful interviews.

#### **4.4 Triangulation**

Triangulation is a critical strategy for enhancing credibility by cross-verifying data through multiple sources, methods, and perspectives (Cope, 2014). This study employed both methodological and source triangulation to validate findings. The integration of quantitative and qualitative data provided a comprehensive understanding of adolescent pregnancy by combining statistical analysis with in-depth narratives. Data from surveys, FGDs, and KIIs were compared and analysed to identify consistencies and discrepancies, ensuring that the findings were robust and reflective of the participants' experiences.

As described by Kyngäs et al. (2020), methodological triangulation is a research methodology that utilizes different data collection methods or analysis methods to investigate a certain topic. The aim is to enhance the reliability and validity of the research findings by corroborating results obtained from diverse sources or perspectives. Employing a combination of quantitative and qualitative approaches or integrating multiple data collection techniques, methodological triangulation mitigates the limitations and biases inherent in single-method studies (Bans-Akutey & Tiimub, 2021). This approach enhances the credibility and validity of research findings by providing a more comprehensive understanding of the studied phenomenon. It allows researchers to corroborate their findings and strengthen the overall validity of their results. By using different data sources or approaches, researchers can gain a more nuanced and comprehensive perspective on complex issues, thereby enhancing the richness and depth of their research (Molina-Azorin & Feters, 2019).

Methodological triangulation holds significant importance in this research, as adolescent pregnancies are a complex issue shaped by an interplay of social, cultural, economic, and individual factors. By employing a combination of data collection methods, including quantitative surveys and qualitative interviews, the study effectively captures the varied experiences and perspectives of adolescents in both rural and urban settings.

Triangulating data from different sources allows for a more thorough examination of the determinants of adolescent pregnancies and helps identify potential areas for targeted interventions and policy development. This study employed a mixed-methods strategy to achieve methodological triangulation (O'Neil, Eisenmann, & Holman, 2020). Structured questionnaires were used to collect quantitative data, administered by Computer-aided interviewing (CAPI) using tablets. The surveys covered a wide range of topics, including knowledge about SRH, behaviours, and the risk of adolescent pregnancy. Quantitative data yielded helpful information regarding the frequency and trends of adolescent pregnancies in

rural and urban areas. Qualitative data was gathered by conducting FGDs and KIIs in addition to quantitative data.

The qualitative method facilitates the examination of the fundamental societal, cultural, and individual elements that contribute to adolescent pregnancies. Additionally, it enhanced comprehension of the ideas, perspectives, and norms aligned with ASRH in Zambia. Data triangulation was achieved by comparing findings from both quantitative and qualitative data. This approach enabled the researcher to identify areas of convergence or divergence, thereby enriching the interpretation of the results. Integrating quantitative and qualitative data strengthened the reliability and validity of the research, ensuring that the study provides a comprehensive and holistic understanding of adolescent pregnancies in Zambia.

#### **4.4.1 Transferability**

In the context of data reliability, "transferability" pertains to the degree to which the findings or data can be applied to other contexts or settings. The data was collected in diverse geographical contexts encompassing both rural and urban areas within distinct regions globally renowned for their elevated prevalence of adolescent pregnancy. According to Heesen, Bright, and Zucker (2019), Dependability suggests that fellow scholars can effectively employ the outcomes of the conducted investigation for analogous purposes. Despite potential variations in presenting qualitative research outcomes, the emergent themes mainly possess a high degree of applicability to analogous circumstances. As highlighted by Amankwah (2016), the study offers extensive details regarding the geographical context of the research, the participants involved, and their diverse demographic characteristics.

The data analysis methodologies employed in this study significantly enhance the potential for data transferability. Utilizing SPSS as an analytical tool for processing qualitative data enabled clear and precise confirmations, as emphasized by Yauch and Steudal (2003).

This objective was achieved through a meticulous examination of the relationships between the dependent and independent variables. A substantial portion of the quantitative data comprises descriptive statistics, focusing on frequencies and percentages. These data are associated with categorical variables related to adolescent pregnancy, knowledge of SRH practices, and vulnerability to pregnancy.

Furthermore, the researcher calculated the average values and measures of dispersion for continuous variables, precisely age, educational level, and socioeconomic position (Cloutier & Ravasi, 2021). A comprehensive investigation was conducted to explore the correlation between the geographical location of individuals' dwellings (specifically, whether they reside in rural or urban areas) and their knowledge, practices, and susceptibility to adolescent pregnancy in SRH. Following Santos et al. (2020), this inquiry employed a bivariate analysis complemented by rigorous statistical tests, including chi-square testing, to ascertain the presence of statistically significant relationships. Furthermore, a rigorous analysis was conducted employing an independent t-test to ascertain the disparity in average scores of continuous variables among adolescents residing in rural and urban regions. Ultimately, a comprehensive binary logistics regression analysis was conducted to ascertain the extent to which the geographical location of the adolescent's residence, specifically whether it is situated in a rural or urban setting, serves as a noteworthy indicator of the occurrence of adolescent pregnancies.

This study considered the sociocultural norms that are anticipated to exert an influence on the rates of pregnancy. The model underwent modifications to incorporate variables that could engender perplexity, including age, educational attainment, socio-economic standing, and availability of SRH services. The employment of a regression analysis facilitated the examination of the potential association between geographical disparities in rural and urban contexts and the occurrence of pregnancy. Among adolescent girls. Utilizing quantitative

research methodology, including employing rigorous analytical instruments attenuated biases, engendering outcomes deemed reasonably objective and reliable (Cloutier & Ravasi, 2021).

Consequently, the generalizability of the findings is facilitated. Creswell (2012) and Aida and Mani (2019) concur in their scholarly works that utilizing statistical tables and graphics is an advisable approach for presenting a study's findings. Notwithstanding the inherent limitations of each respective methodology, it is imperative to acknowledge that the two methods mentioned above possess a symbiotic relationship, as they collectively tackle the multifaceted rural and urban determinants underpinning adolescent pregnancy prevalence.

The concept of transferability holds significant importance in this research, as it assesses the extent to which the findings can be generalized or applied to similar contexts. This section facilitates the evaluation of the relevance of the research findings to other regions or communities grappling with similar challenges related to adolescent pregnancies by furnishing information about the study's locations and participants (McBride, MacMillan, George, & Steiner, 2019). The study examined rural and urban regions with notable adolescent pregnancy rates to determine the applicability of the results in similar situations, therefore informing targeted actions and policies. Precisely, the themes and subthemes provided in qualitative data analysis identified detailed and thick descriptions of the study methods for transferability.

#### **4.4.2 Dependability**

Dependability, also known as reliability, as elucidated by Pilot and Beck (2014), pertains to the extent to which data remains unaltered over time, contingent upon the parameters delineated within the study. The data collection methods employed for qualitative and quantitative data acquisition, including utilization of structured questionnaires, as well as the implementation of KIIs and FGDs for qualitative data collection, ought to be amenable to

replication by fellow researchers investigating the identical subject matter, namely adolescent pregnancy.

Dependability is of utmost importance in this research study, as it investigates the enduring and uniform nature of the data over time and in comparable circumstances (Cain, MacDonald, Coker, Velasco, & West, 2019). By conducting a thorough data collection process and using standardized data collection tools, this section ensures that the research findings are replicable by other researchers (Bans-Akutey & Tiimub, 2021). Using quantitative analysis techniques, such as bivariate and multivariate regression analysis, with control for confounding variables, strengthens the Dependability of the research findings by minimizing biases and confounding factors.

#### **4.4.3 Confirmability**

According to Hendren, Newcomer, Pandey, Smith, & Sumner (2023), confirmability is an essential facet that contributes significantly to the overall Dependability of a study or research endeavour. Confirmability, in the context of research, pertains to the inherent consistency of the obtained findings and the extent to which the employed methodology can be replicated, thereby yielding results that are essentially indistinguishable from the original findings. The utilization of the CAPI framework proved advantageous in facilitating data storage and retrieval, particularly when handling quantitative information. It is important to highlight that qualitative data, which includes carefully documented observations from interviews with key informants and discussions in focus groups, were methodically arranged and categorized based on reoccurring themes.

The subjects above were subsequently subjected to collaborative analysis alongside those responsible for recording the minutes to mitigate potential biases (Hendren et al., 2023). Confirmability is relevant to the current research as it focuses on the objectivity and neutrality



of the research processes and results. This section establishes the confirmability of the research by explaining how the qualitative data analysis was conducted, including the organization of data into recurrent themes and the joint review with note-takers to reduce biases. Using CAPI for quantitative data collection further enhances confirmability by providing a systematic and consistent data storage and retrieval approach.

#### **4.4.4 Reliability and Validity of Data**

Validity can be classified into two primary types: internal validity and external validity. Internal validity refers to the precision and consistency of the measurement and testing processes, while external validity relates to the generalizability of the findings to the target population (Findley et al., 2021). Both factors are crucial in evaluating a research project's suitability, significance, and utility. Reliability pertains to the general consistency of the measuring equipment used in a research investigation. Reliability, also known as Dependability, as elucidated by Pilot and Beck (2014), pertains to the extent to which data remains unaltered over time, contingent upon the parameters delineated within the study.

Ensuring the reliability and validity of data was a critical aspect of this mixed-methods study. The data collection tools were collected based on a thorough review of literature and existing validated tools used in similar studies. Pre-testing of the research study tools to respondents who were not included in the final analysis reliability. The pre-test helped to identify ambiguous or unclear items, refine the wording of questions, and assess internal consistency. These steps ensured the measurement tools consistently captured the constructs of interest across respondents.

The data collection methods employed for quantitative and qualitative data acquisition, including utilization of structured questionnaires, as well as the implementation of KI and FGD guides for qualitative data collection, ought to be amenable to replication by fellow researchers

investigating the identical subject matter, namely adolescent pregnancy. Dependability is critical to the current research as it examines the consistency and stability of the data over time (Cain et al., 2019). By conducting a thorough data collection process and using standardized data collection tools, this section ensures that the research findings are replicable by other researchers (Bans-Akutey & Thimbu, 2021). Using quantitative analysis techniques, such as bivariate and multivariate regression analysis, with control for confounding variables, strengthens the Dependability of the research findings by minimizing biases and confounding factors.

Together, these strategies enhanced the robustness of the data and ensured that the findings were credible, reliable, and relevant to the rural and urban contexts of adolescent pregnancy in Zambia.

#### **4.5 Results of Descriptive Statistics**

This section outlines the demographic profiles and descriptive frequencies of respondents' data, focusing on variables such as age at first sexual debut, pregnancy intentions and outcomes, sources of SRH services, role of CHWs, factors contributing to adolescent pregnancies, their consequences, and potential strategies for prevention.

##### **4.5.1 Demographic Characteristics of Sample**

This section outlines the demographic and social backgrounds of the study participants. The research findings used to analyse this impact are summarized in Table 4.1. The results indicate that participants were drawn from the Southern and Eastern provinces of Zambia. The Eastern province accounted for 56.0% of the respondents, and the Southern province provided 44.0%. The research results also revealed that the respondents are distributed across several districts: Chipata (28%), Petauke (28%), Livingstone (28.3%), and Sinazongwe (15.8%).

Chipata and Livingstone represent the urban districts, while Petauke and Sinazongwe represent the rural districts. This distribution showcases a diverse geographical representation, which could be relevant in understanding rural-urban disparities in adolescent pregnancy outcomes.

**Table 4.1**

*Distribution of Study Sample by Demographic Characteristics*

Demographics		Frequency (N)	Percentage (%)	Total (%)
Province	Eastern	224	56.0	100
	Southern	176	44.0	
District	Chipata	112	28.0	100
	Petauke	112	28.0	
	Livingstone	113	28.3	
	Sinazongwe	63	15.8	
Ward	Dilika	112	28.0	100
	Chilimanyama	112	28.0	
	Namatama	113	28.3	
	Sinenge	63	15.8	
Place of residence	Urban	225	56.3	100
	Rural	175	43.8	
School Attendance	Yes	379	94.8	100
	No	21	5.3	
Highest Level of Education Attained	Primary	144	38.0	100
	Secondary	203	56.6	
	Higher	32	8.4	
Marital status	Never Married	237	59.3	100
	Cohabiting	12	3.0	
	Married	127	31.8	
	Separated	11	2.8	
	Divorced	13	3.3	

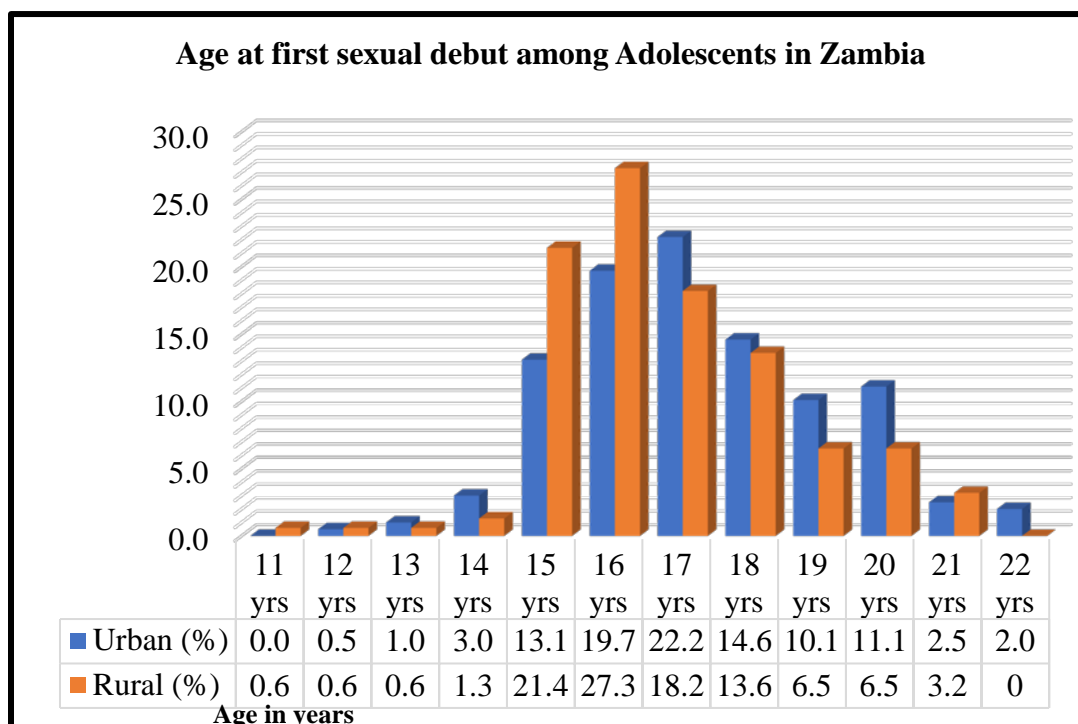
n = 400

The descriptive statistics also highlight a clear urban-rural divide, with 56.3% of respondents living in urban and 43.8% in rural settings. In addition, findings indicate that most of the respondents have attended school (94.8%), underscoring the importance of educational attainment in empowering adolescents with knowledge and decision-making capabilities related to their SRH well-being. Regarding the highest level of education attained, the data reveals that 56.6% of respondents have achieved secondary education, while 38% have attained primary education. A mere 8.4% of respondents have reached higher education levels. Marital status is another critical socio-demographic characteristic influencing adolescent pregnancies. Against this background, the research findings show that most respondents have never been married (59.3%), while only a negligible proportion is cohabiting (3%). A significant portion of the respondents were married (31.8%), with smaller percentages reporting being separated (2.8%) or divorced (3.3%).

#### **4.5.2 Age at First Sexual Debut**

Figure 4.1 below indicates the ages at which the study subjects had their initial sexual experience. The results revealed that most respondents from rural areas had their initial sexual experience between the ages of 15 and 18. This percentage was greater compared to their peers from urban areas. The findings show that at 15 years, 21.4% of rural adolescents had their first sexual debut, compared to only 13.1% of urban adolescents.

At 16 years, 27.3% of rural adolescents had their first sexual debut compared to 19.7% of urban adolescents. In comparison, urban adolescents report higher percentages of a sexual debut than their rural counterparts at ages 17 to 20 years, indicating a delayed first sexual experience compared to rural adolescents. The results suggest that in rural and urban settings, significant numbers of adolescents begin sexual activity before turning 18, the age of legal majority, and consent for sexual activity in Zambia.

**Figure 4.1:***Age Distribution of Respondents at First Sexual Debut***Table 4.2:***Age at First Sexual Debut Recode (Early Sex Debut)*

Outcome variable: <i>Early sex debut</i> (Binary)			Place of residence	
Label	Age category	Values	Urban (%)	Rural (%)
Early sex debut	19 years and below	1	84.2	90.1
Others	20 years and above	0,	15.8	9.9

n=400

The results in Table 4.2 above indicated that the Age at first sexual debut was recoded into two categories, namely 19 years and below and 20 years and above, and of the two categories, the former was assigned a value of 1, and the latter was assigned a value of zero or otherwise. The findings indicated that in urban areas, 84.2% of the respondents reported having their first sexual debut at 19 years old or younger, indicating a relatively high prevalence of

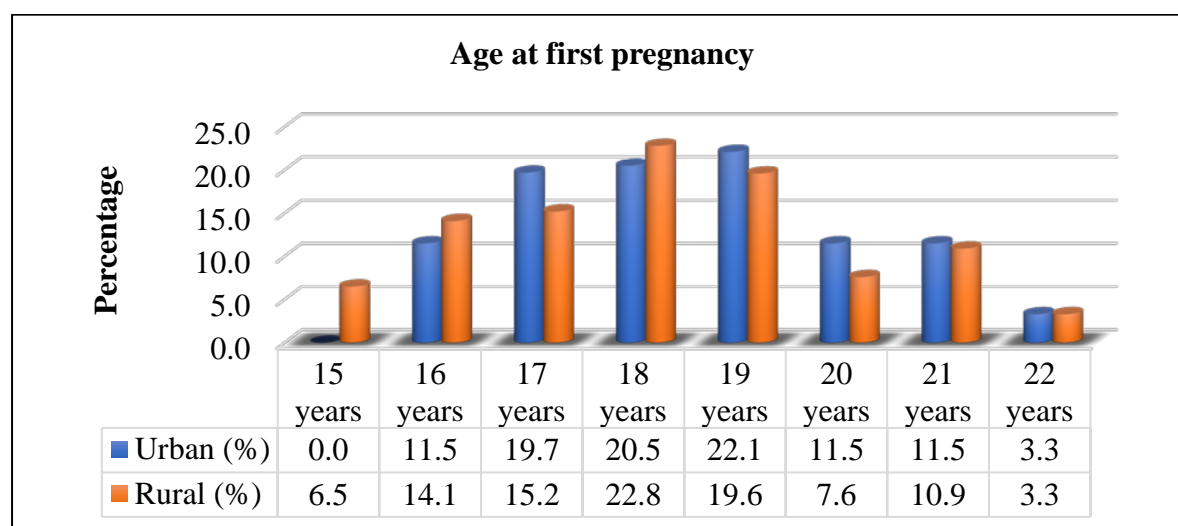
early sexual debut. In contrast, in rural areas, a slightly higher proportion (90.1%) reported early sexual debut, suggesting that early sexual debut is more prevalent rural than urban areas. The findings reveal a significant occurrence of early sexual debut among adolescents across both rural and urban areas in Zambia, with rural respondents demonstrating marginally higher rates of early sexual activity compared to those in urban settings.

### 4.5.3 Age at First Pregnancy

As part of their pregnancy history, respondents were asked to reveal the age at which they had their first pregnancy experience. Consequently, Figure 4.2 presents statistics about the age at which respondents from rural and urban areas experienced their first pregnancy. Among all respondents, the most common age at which they had their first pregnancy experience was 18 years, with approximately 23% reporting this age in the rural setting.

**Figure 4.2:**

*Distribution of Respondent's Data by Age at First Pregnancy*



The findings also indicated that the second most common age in the rural setting was 19, reported by approximately 20% of the respondents. Other typical ages at first pregnancy

experience in the rural context included 17 years (15.2%), 16 years (14.1%), 20 years (7.6%), 21 years (10.9%) and 22 years (3.3%). In urban areas, the most common reported age at first pregnancy was 18 years (20.5%), followed by 19 years (22.1%), and the least reported age was 22 years (3.3%). Thus, the findings confirmed slight differences in the age at which adolescents had their first pregnancy experience between rural and urban areas. Moreover, the age at first pregnancy results were recoded into binary outcomes relating to the prevalence of Adolescent pregnancy as shown in Table 4.3, below.

The results presented in Table 4.3 highlight the distribution of adolescent pregnancies across various age groups in rural and urban areas of Zambia. In urban settings, 73.7% of adolescent pregnancies were reported among girls aged 19 years or younger, reflecting a significant prevalence of pregnancies within this younger age group.

**Table 4.3**

*Age At First Pregnancy*

<b>Outcome variable:</b>			<b>Place of residence</b>	
<b>Adolescent pregnancy (Binary)</b>				
<b>Label</b>	<b>Age category</b>	<b>Values</b>	<b>Urban (%)</b>	<b>Rural (%)</b>
Adolescent pregnancy	19 years and below	1	73.7	78.2
Others	20 years and above	0, otherwise	26.3	21.8
n=400				

In rural areas, 78.2% of pregnancies were reported within this age group, indicating a slightly higher occurrence of adolescent pregnancies among younger girls compared to urban settings. These findings underscore a substantial proportion of adolescent pregnancies among girls aged 19 years or younger across both rural and urban areas in Zambia. Notably, the

prevalence appears to be marginally higher among younger girls in rural regions than in urban ones.

#### 4.5.4 Access and Uptake of SRH Services

The findings reveal that most participants in rural areas (80%) and urban areas (64%) acknowledged the availability of accessible locations where young individuals can obtain ASRH services.

**Table 4.4**

*Access and Uptake of ASRH Services*

ASRH Services		Place of residence		Total (%)
		Urban (%)	Rural (%)	
Is there a place around where young people like you can access ASRH services like relationships, sex, contraceptive use, STIs, and HIV?	No	36.0%	20.0%	29.0%
	Yes	64.0%	80.0%	71.0%
Do young people your age visit health facilities for ASRH services?	No	52.4%	36.0%	45.2%
	Yes	47.6%	64.0%	54.8%
n=400				

The study's results also revealed that 52.4% of respondents in urban reported that young people do not visit health facilities to consume ASRH services. However, most respondents from the rural setting (64%) reported that young people of their age visit health facilities for ASRH services.



#### 4.5.5 The Role of Healthcare Workers in SRH Services Provision

The research participants were asked to reveal their honest opinions on whether community health workers have visited young people in the last 12 months and the nature of the discussions they had with these health workers regarding family planning. Table 4.5 shows the results obtained concerning this inquiry. These findings suggested that rural areas (13.1%) have a higher percentage of young people visited by community health workers than urban areas (6.2%). More young people in urban areas (60.9%) reported discussing family planning with community health workers compared to rural areas (42.9%).

**Table 4.5**

*Community Health Workers' Role in Family Planning Services Provision*

Role of community health workers		Place of residence		Total (%)
		Urban (%)	Rural (%)	
Have you been visited by a community health worker in the past 12 months?	No	93.8%	86.9%	90.8%
	Yes	6.2%	13.1%	9.2%
Did the community health worker talk to you about family planning?	No	57.1%	39.1%	45.9%
	Yes	42.9%	60.9%	54.1%
Did the community health worker inform you about potential side effects or issues related to the family planning method?	No	74.1%	65.1%	69.8%
	Yes	25.9%	34.9%	30.2%

n = 400

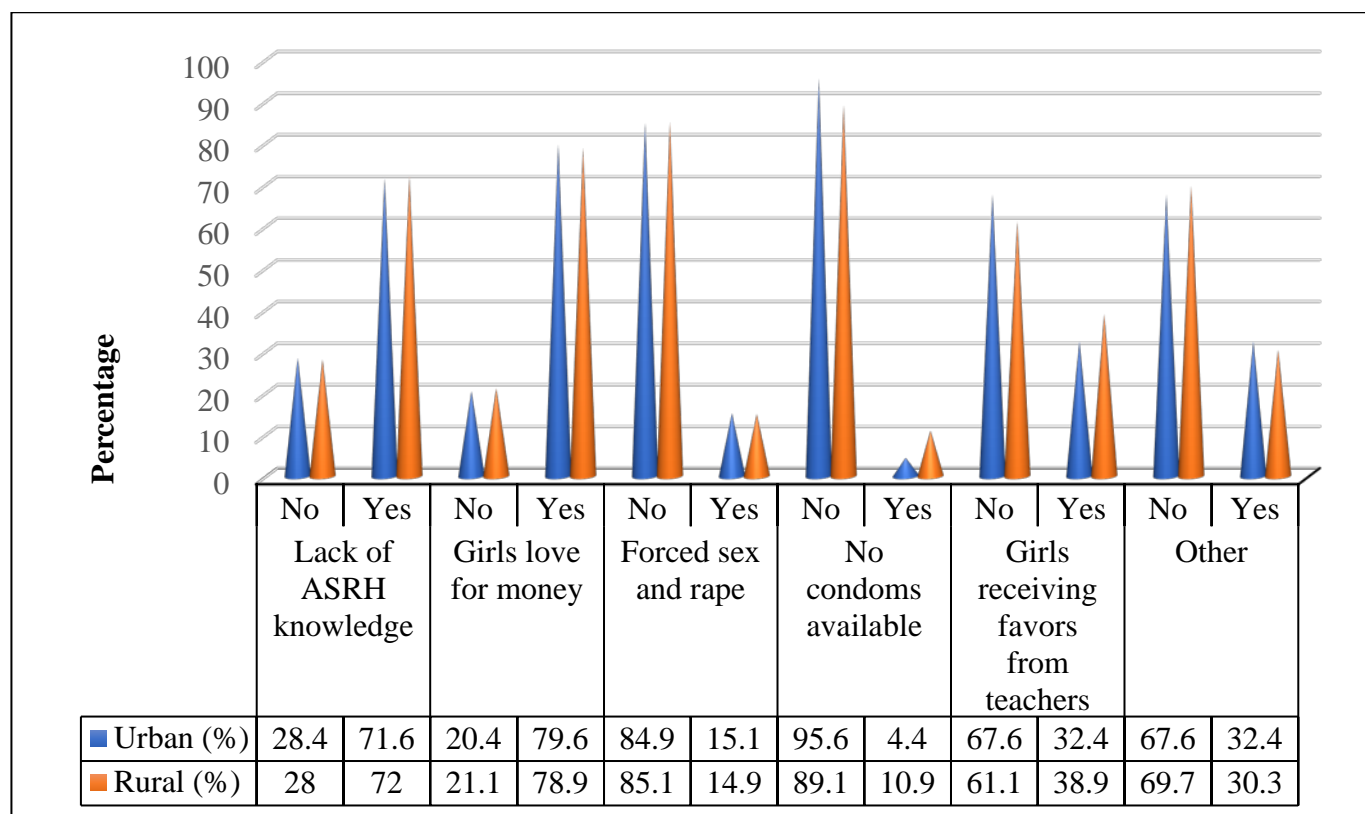
The research findings presented in Table 4.5 revealed that urban areas had a higher percentage (34.9%) of young people knowledgeable about the adverse effects or issues related to family planning methods, as informed by community health workers, compared to rural areas (25.9%).

#### 4.5.6 Causes of Adolescent Pregnancies

This section presents the research results related to the causes of adolescent pregnancies, focusing on differences between rural and urban areas. Figure 4.3 displays the causes of adolescent pregnancies in Zambia, differentiating between rural and urban areas. Thus, the research findings revealed that a high proportion of adolescents in urban (28.4%) and rural (28.0%) areas reported that a lack of knowledge about ASRH is one of the drivers of adolescent pregnancy. The respondents in both rural (21.1%) and urban (20.4%) areas believed that girls' love for money contributes to the incidence of adolescent pregnancies.

**Figure 4.3**

*Data Distribution Based on Factors Influencing Adolescent Pregnancy*



Furthermore, 15.1% of adolescents in both urban 14.9% and rural areas attributed adolescent pregnancies to forced sex and rape. In comparison, a small proportion of respondents

in urban (4.4%) and rural areas (10.9%) believed that the unavailability of condoms contributes to adolescent pregnancies. Similarly, a significant percentage of adolescents in urban (32.4%) and rural (38.9%) areas perceive that girls receiving favours from teachers can lead to adolescent pregnancies. However, the “Other” category, which encompasses additional factors such as poverty, ignorance, and peer pressure, was mentioned by a notable percentage of respondents in both rural (30.3%) and urban (32.4%) areas. Overall, the results highlight several factors adolescents perceive as contributing to adolescent pregnancies in Zambia. These factors include a lack of ASRH knowledge, economic motivations, issues related to consent and coercion, and utilization of contraceptives.

#### **4.5.7 Possible Ways of Preventing Adolescent Pregnancies**

Table 4.6 presents the research findings related to factors that adolescents perceive as contributing to reducing adolescent pregnancies, highlighting the differences across rural and urban settings. Research findings revealed that most adolescents in urban (84.4%) and rural (80.0%) settings believe that improved ASRH knowledge can contribute to reducing adolescent pregnancies. Above and beyond, a significant percentage of adolescents in urban (80.0%) and rural (74.9%) believe that open communication with parents or caregivers can help reduce adolescent pregnancies. Most adolescents in both urban (62.2%) and rural (61.7%) areas perceive that more access to contraceptives is a factor that can contribute to reducing adolescent pregnancies.

**Table 4.6***Possible Ways of Preventing Adolescent Pregnancies*

Preventions measures		Place of residence		Total (%)
		Urban (%)	Rural (%)	
Improved ASRH knowledge	No	15.6	20.0	17.5
	Yes	84.4	80.0	82.5
Open talk with parents/caregivers	No	20.0	25.1	22.3
	Yes	80.0	74.9	77.8
Ease access to contraceptives	No	37.8	38.3	38.0
	Yes	62.2	61.7	62.0
Condom use by sex partners	No	56.9	50.9	54.3
	Yes	43.1	49.1	45.8
Other	No	93.3	98.9	95.8
	Yes	6.7	1.1	4.3

Moreover, the research findings indicated that a relatively more significant percentage of respondents in rural (49.1%) than urban (43.1%) settings believed that condom use by sex partners could help reduce adolescent pregnancies. The “Other” category, which encompasses additional factors such as abstaining from sex and youth empowerment, was mentioned by a small portion of respondents in both rural (1.1%) and urban (6.7%) areas.

#### 4.5.8 Uptake of Contraceptives

The data displayed in Table 4.7 illustrates utilization of contraceptives among adolescents in Zambia. The findings show that, in urban areas, 55.1% of the respondents acknowledged that they are currently using contraceptives (condoms) to delay or postpone pregnancy, while 44.9% are not. In rural areas, 50.3% of adolescents are currently using contraceptives (condoms) to delay or postpone pregnancy, and 49.7% are not. This suggests a relatively more extensive frequency of contraceptive usage in urban settings than in rural settings.

**Table 4.7***Contraceptive Uptake Among Adolescents In Zambia*

<b>Condom usage</b>		<b>Place of residence</b>		<b>Total (%)</b>
		<b>Urban (%)</b>	<b>Rural (%)</b>	
Are you or your partner currently utilizing any method of contraception to delay or prevent pregnancy?	No	44.9	49.7	47.0
	Yes	55.1	50.3	53.0

n=400

The findings also indicated that contraceptive usage is lower in rural regions compared to urban areas, but the disparity is not significant. It is important to highlight that a considerable percentage of adolescents in both settings are utilizing contraceptives.

#### **4.5.9 Reasons for Low Uptake of Contraceptives**

The information presented in Table 4.8 provides critical insights into the underlying factors contributing to the relatively low contraceptive usage in rural and urban contexts. According to the research findings, a more significant proportion of the respondents in rural regions (21.1%) expressed a desire to get pregnant, resulting in a lower rate of using contraception compared to respondents in urban areas (12.4%). In rural areas, the research findings indicated that 21.1% of the respondents' report that their spouses prohibit them from utilizing family planning or contraception, compared to urban areas (5.3%). A slightly higher percentage of adolescents in rural areas (22.3%) do not mind becoming pregnant than those in urban areas (19.1%). Based on the research findings, the difficulty in obtaining contraception methods was reported by a significant percentage of the respondents in rural settings (30.9%) than in urban settings (9.3%). This is usually the case since the service providers are known to the adolescents, making it difficult for them to request contraceptives.

**Table 4.8***Reasons for Low Uptake of Contraceptives Among Adolescents in Zambia*

Causes of low uptake of contraceptives		Place of residence		Total (%)
		Urban (%)	Rural (%)	
They want to get pregnant	No	87.6	78.9	83.8
	Yes	12.4	21.1	16.3
Partner does not allow use of FP/contraception	No	94.7	93.8	78.9
	Yes	5.3	6.3	21.1
Do not mind if they become pregnant	No	80.9	77.7	79.5
	Yes	19.1	22.3	20.5
Trouble getting the method	No	90.7	69.1	90.8
	Yes	9.3	30.9	9.2
Side effects	No	29.3	45.1	36.3
	Yes	70.7	54.9	63.7
Thought it is not possible to become pregnant	No	75.6	77.1	76.3
	Yes	24.4	22.9	23.8
Other	No	72.4	57.7	66.0
	Yes	27.6	42.3	34.0
n=400				

Furthermore, the findings indicated that more respondents in rural areas (70.7%) voiced concerns about contraceptive side effects compared to urban areas (54.9%). A significant proportion of participants in urban settings (77.1%) thought they could not become pregnant compared to those in rural areas (75.6%). The “*Other*” category, which encompassed additional factors such as peer pressure, stigma, and ignorance, was reported more frequently by rural respondents (42.3%) as compared to urban respondents (27.6%).

#### 4.5.10 Consequences of Adolescent Pregnancy

Table 4.9 provides insights into the consequences of pregnancies amongst adolescent girls in rural and urban settings. The results highlight that a small percentage of adolescents in urban (2.7%) and no one in rural areas reported that pregnant girls are sent away from home. More adolescents in rural areas (33.7%) reported that pregnant girls are sent away from school compared to urban areas (25.8%). A significant proportion of the respondents in urban areas (44.4 %) reported that victims of adolescent pregnancy would drop out of school compared to rural areas (37.7%). Likewise, in urban areas (13.3%) of the respondents reported that victims of adolescent pregnancy would get married against their wishes compared to rural areas (9.73%).

**Table 4.9**

*Consequences of Adolescent Pregnancy Among Schoolgirls in Zambia*

Consequences on girls		Place of residence		Total (%)
		Urban (%)	Rural (%)	
Sent away from home	No	97.3	100.0	98.5
	Yes	2.7	0.0	1.5
Send away from school	No	74.2	66.3	70.8
	Yes	25.8	33.7	29.3
Drops out of school	No	55.6	62.3	58.6
	Yes	44.4	37.7	41.5
Get married against her wish	No	86.7	90.3	88.3
	Yes	13.3	9.7	11.8
Goes back to school after delivery	No	1.3	7.4	4.0
	Yes	98.7	92.6	96.0
Other	No	98.7	94.9	97.0
	Yes	1.3	5.1	3.0

n=400

Moreover, the research findings confirmed that a significantly higher percentage of respondents in rural areas (92.6%) reported that victims of adolescent pregnancies return to school after giving birth compared to urban areas (98.7%). Table 4.10 explores the responses

to potential consequences or actions that follow after an adolescent pregnancy with a focus on schoolboys or sexual partners involved. The results highlight that a more significant proportion of participants in urban settings (63.6%) believed that nothing happens to the boy (sexual partner involved) if an adolescent girl becomes pregnant with him, compared to rural areas (59.4%). A significantly higher percentage of respondents in rural areas (96.9%) believed that the boy would be counselled or prosecuted if he was overage, compared to urban areas (89.3%).

**Table 4.10:**

*Consequences of Adolescent Pregnancy Among Schoolboys in Zambia*

Consequences on boys		Place of residence		Total (%)
		Urban (%)	Rural (%)	
Nothing	No	63.6	59.4	61.8
	Yes	36.4	40.6	38.2
The boy gets counselled if over age, prosecuted	No	89.3	96.9	92.5
	Yes	10.7	3.4	7.5
The boy will be sent away from school	No	93.8	82.9	89.0
	Yes	6.2	17.1	11.0
The boy continues with his education	No	24.2	23.4	24.3
	Yes	75.1	76.6	75.8
Other	No	99.1	96.6	98.0
	Yes	0.1	3.4	2.0

n=400

More respondents in rural areas (17.1%) reported that boys will be sent away from school compared to those in urban areas (6.2%). A comparable proportion of participants in urban (75.1%) and rural (76.6%) regions had the belief that the young man would pursue his studies despite being involved in adolescent pregnancy.

#### 4.5.11 Awareness and Experience of Harmful Practices

Table 4.11 provides insights into adolescents' awareness and experience of harmful practices, distinguishing between rural and urban settings. The empirical findings also revealed



that most of the respondents in urban (58.7%) and rural (54.9%) settings are aware of some harmful cultural practices or negative social norms practiced in their community or other communities, which may lead to adolescent pregnancy.

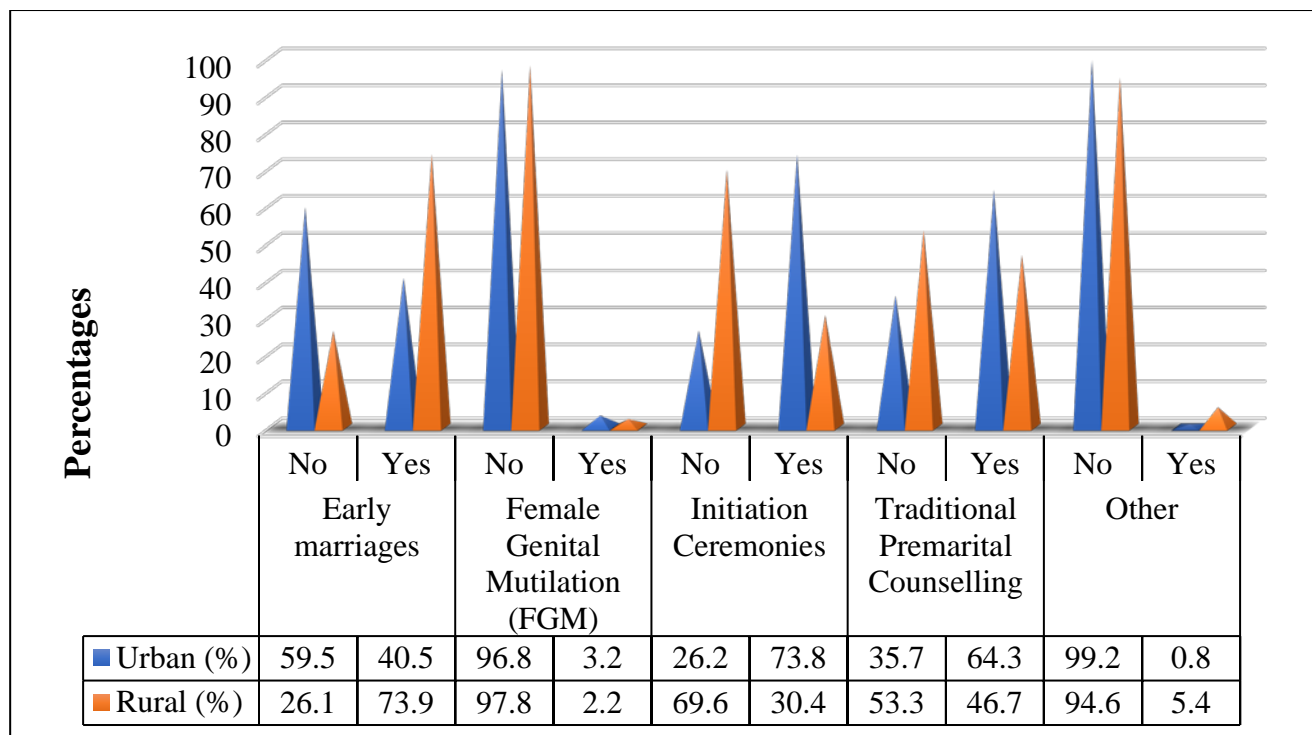
**Table 4.11**

*Awareness and Experience of Harmful Practices Among Adolescents in Zambia*

Harmful practices		Place of residence		Total (%)
		Urban (%)	Rural (%)	
Do you know any harmful cultural practices practiced in your community which may lead to adolescent pregnancy?	No	41.3%	45.1%	43.0%
	Yes	58.7%	54.9%	57.0%
Have you experienced any of these practices?	No	84.4%	85.1%	84.8%
	Yes	14.9%	15.6%	15.3%

n=400

While the majority of respondents in both urban (84.4%) and rural (85.1%) settings reported not having experienced harmful practices, a slightly lower percentage of adolescents in urban areas (14.9%) indicated personal exposure to harmful practices compared to those in rural areas (15.6%). Additionally, respondents were asked to identify the most prevalent harmful practices within their communities, with the results illustrated in Figure 4.4.

**Figure 4.4***Data Distribution Based on Harmful Cultural Practices*

The study findings indicated that most of the respondents in rural areas (73.9%) reported that early marriage is the most common harmful cultural practice in their community compared to those in urban areas (40.5%). Regarding FGM, very few respondents in urban (3.2%) and rural (2.2%) areas reported that FGM is practiced, indicating a widespread understanding that this practice is not shared. A significantly higher proportion of the respondents in rural areas (69.6%) reported that initiation ceremonies are practiced in their community than in urban areas (26.2%). Most research participants in rural areas (53.3%) reported that traditional premarital counselling is practiced in their community, compared to urban settings (35.7%). A small percentage of respondents in urban (0.8%) and rural (5.4%) areas mentioned other practices such as nightclubbing and concerts.

## **4.6 Results of Bivariate Analysis**

Significance tests were employed to examine the relationship between the dependent variable and independent variables concerning geographical location. The researcher utilized independent t-tests and chi-square tests to assess the associations between rural and urban residency and demographic factors such as age, level of education, marital status and selected variables which included age of sexual debut, access and uptake of ASRH services, harmful practices and the role of CHWs vis-a viz the risk of adolescent pregnancy. The results of the bivariate analysis are detailed in the following sections.

### **4.6.1 Mann-Whitney U Test Results**

Statistical analyses were conducted using independent t-tests or Mann-Whitney U tests to compare the mean scores of continuous variables between adolescents residing in rural and urban areas. Table 4.12 presents the results of the Mann-Whitney U test, a non-parametric statistical tool employed to determine significant differences between two independent groups without assuming a normal data distribution. For this study, the groups were categorized as urban and rural, with the variables under comparison including age at first sexual intercourse, and age at first pregnancy (for participants with previous pregnancies).

**Table 4.12***Mann-Whitney Test Results*

Continuous variables	Place of Residence	N	Mean Rank	Sum of Ranks	Test statistic	p-value
Age	Urban	225	202.97	45667.50	19132.50 (-0.492)	0.623
	Rural	175	197.33	34532.50		
	Total	400	-	-		
Age at first sexual intercourse experience	Urban	198	188.82	37385.50	12807.50** (-2.614)	0.009
	Rural	154	160.67	24742.50		
	Total	352	-	-		
Age at first pregnancy experience	Urban	122	111.01	13543.00	5184.00 (-0.970)	0.332
	Rural	92	102.85	9462.00		
	Total	214	-	-		

*Note.* \*\*  $p < 0.05$

Based on the Mann-Whitney U test results, no statistically significant difference was observed in the ages of respondents residing in urban versus rural areas. The Z-score of -0.492 indicates minimal deviation from the mean, while the p-value of 0.623 exceeds the commonly accepted significance threshold of 0.05. This finding suggests no substantial variation in age between the two groups.

Conversely, the Mann-Whitney U test revealed a statistically significant difference in the age at first sexual intercourse between rural and urban respondents, with a significance level of 5%. The Z-score of -2.614 indicates a meaningful deviation from zero, and the p-value of 0.009 falls below the standard significance level of 0.05. This result highlights a notable disparity in the age at which rural and urban participants engage in their first sexual experience.

Nevertheless, the Mann-Whitney U test applied on age at first pregnancy, specifically among those who have been pregnant before, likewise reveals no statistically significant disparity in the age at which rural and urban respondents encountered their initial pregnancy, at a significance level of 5%. The Z-score of -0.970 demonstrates minimal deviation from zero,

and the p-value of 0.332 exceeds the commonly accepted significance threshold of 0.05. In conclusion, while the Mann-Whitney U test reveals a significant difference in the age of sexual debut between rural and urban participants, no notable distinction was observed in the respondents' ages or the age at first pregnancy among those who have previously experienced pregnancy.

#### 4.6.2 Chi-Square Test Results

Chi-square tests were performed to analyse the relationships among research variables, using cross-tabulations of each independent variable and adolescent pregnancy within the context of the grouping variable "place of residence" (urban and rural). Table 4.13 shows the chi-square test results for the cross-tabulation between the respondents' age and adolescent pregnancy in rural and urban contexts.

**Table 4.13**  
*Age and Adolescent Pregnancy*

Place of Residence		Value	df	p-value (2-sided)
Urban	Pearson's chi-square	17.961**	6	0.006
	Likelihood ratio	18.309**	6	0.006
	Linear-by-linear association	5.363**	1	0.021
	Number of valid cases	225		
Rural	Pearson's chi-square	42.395**	6	0.000
	Likelihood ratio	44.688**	6	0.000
	Linear-by-linear association	28.732**	1	0.000
	Number of valid cases	175		

*Note.* \*\*  $p < 0.05$

In the urban setting, the Pearson chi-square statistic is 17.961 with 6 degrees of freedom, accompanied by a p-value of 0.006, indicating a significant relationship between age and adolescent pregnancy at the 5% significance level. Similarly, the Likelihood Ratio chi-

square statistic of 18.309, with 6 degrees of freedom and a p-value of 0.006, corroborates the Pearson chi-square findings. Furthermore, the linear-by-linear association chi-square value is 5.363 with 1 degree of freedom and a p-value of 0.021, signifying a significant linear trend in the relationship between these variables. These results collectively demonstrate a statistically significant association between age and adolescent pregnancy among urban respondents.

In the rural context, the Pearson chi-square statistic is 42.395 with 6 degrees of freedom and a p-value of less than 0.001, indicating a highly significant relationship between age and adolescent pregnancy. Similarly, the Likelihood Ratio chi-square statistic is 44.688 with 6 degrees of freedom and a p-value of less than 0.001, consistent with the Pearson chi-square findings. Furthermore, the linear-by-linear association chi-square statistic is 28.732 with 1 degree of freedom and a p-value of less than 0.001, highlighting a significant linear trend in the relationship between these variables. These results demonstrate a highly significant association between age and adolescent pregnancy among rural respondents. Additionally, the findings reveal a notable difference in the strength of the association between age and adolescent pregnancy when comparing rural and urban contexts, with a stronger correlation observed in rural areas.

Table 4.14 shows the results of the relationship between the level of education and adolescent pregnancy in Zambia across the urban-rural divide. Within the urban context, results confirmed that there is no statistically significant relationship between the level of education and adolescent pregnancy prevalence at a 5% level (Pearson  $X^2 = 5.854$ ,  $p = 0.054$ ; Likelihood Ratio  $X^2 = 5.854$ ,  $p = 0.054$ ). However, the results confirmed a statistically significant linear trend in the association between the level of education and adolescent pregnancy at the 5% significance level (linear-by-linear association  $X^2 = 4.903$ ,  $p = 0.027$ ).

**Table 4.14**  
*Levels of Education and Adolescent Pregnancy*

Place of Residence		Value	df	p-value (2-sided)	p-value (1-sided)
Urban	Pearson's chi-square	5.854**	2	0.054	
	Likelihood ratio	5.758	2	0.056	
	Linear-by-linear association	4.903**	1	0.027	
	Number of valid cases	222			
Rural	Pearson's chi-square	9.101**	1	0.003	
	Continuity correction	8.110**	1	0.004	
	Likelihood ratio	9.430**	1	0.002	
	Fisher's Exact Test			0.004	0.002
	Linear-by-linear association	9.043**	1	0.003	
	Number of valid cases	157			

*Note.* \*\*  $p < 0.05$

In the rural context, the findings reveal a statistically significant relationship between the level of education and adolescent pregnancy, as evidenced by the Pearson chi-square statistic ( $X^2 = 9.101$ ,  $p = 0.003$ ) and the Likelihood Ratio chi-square statistic ( $X^2 = 9.430$ ,  $p = 0.002$ ). Additionally, the two-sided Fisher's Exact test produces a p-value of 0.004, further confirming the strength of this association. The linear-by-linear association ( $X^2 = 9.043$ ,  $p = 0.003$ ) also indicates a significant linear trend at the 5% significance level. These results underscore a notable link between education level, adolescent pregnancy, and place of residence among rural respondents. In summary, this significant association highlights the critical role of educational attainment in understanding and addressing adolescent pregnancy rates, particularly within rural settings.

**Table 4.15**  
*Marital Status and Adolescent Pregnancy*

	Place of residence	Value	df	p-value (2-sided)
Urban	Pearson's chi-square	0.829	4	0.934
	Likelihood ratio	0.858	4	0.931
	Linear-by-linear association	0.515	1	0.473
	Number of valid cases	225		
Rural	Pearson's chi-square	3.294	4	0.510
	Likelihood ratio	3.270	4	0.514
	Linear-by-linear association	0.334	1	0.564
	Number of valid cases	175		

*Note.* \*\*  $p < 0.05$

The study also explored the relationship between marital status and adolescent pregnancy, as shown in Table 4.15. In urban settings, the results indicate no statistically significant association between marital status and adolescent pregnancy at the 5% significance level (Pearson  $X^2 = 0.829$ ,  $p = 0.934$ ; Likelihood Ratio  $X^2 = 0.858$ ,  $p = 0.931$ ). Additionally, the linear-by-linear association test confirmed the absence of a significant linear trend between these variables ( $X^2 = 0.515$ ,  $p = 0.473$ ). These findings suggest that marital status does not have a significant association with adolescent pregnancy among urban respondents.

Similarly, in rural settings, the findings also indicate no significant association between marital status and adolescent pregnancy (Pearson  $X^2 = 3.294$ ,  $p = 0.510$ ; Likelihood Ratio  $X^2 = 3.270$ ,  $p = 0.514$ ; Linear-by-linear association  $X^2 = 0.334$ ,  $p = 0.564$ ). Consequently, the results suggest that marital status is not significantly associated with adolescent pregnancy among both rural and urban respondents.

Table 4.16 presents the relationship between the age of first sexual activity and adolescent pregnancy in rural and urban areas. In urban contexts, the findings reveal a significant relationship between the age at first sexual debut and adolescent pregnancy (Pearson



$X^2 = 6.576$ ,  $p = 0.010$ ; Likelihood Ratio  $X^2 = 6.458$ ,  $p = 0.017$ ; Linear-by-linear association  $X^2 = 6.547$ ,  $p = 0.011$ ). Additionally, the continuity-corrected chi-square value is 5.740, with a p-value of 0.017, consistent with the Pearson chi-square result. The two-sided Fisher's Exact Test yielded a p-value of 0.012, further supporting the significance of this relationship. These results indicate a significant association between the age at first sexual debut and adolescent pregnancy among urban respondents.

**Table 4.16**  
*Age at First Sexual Debut and Adolescent Pregnancy*

Place of residence		Value	df	p-value (2-sided)	p-value (1-sided)
Urban	Pearson's chi-square	6.576**	1	0.010	
	Continuity correction	5.740**	1	0.017	
	Likelihood ratio	6.458**	1	0.011	
	Fisher's exact test			0.012	0.009
	Linear-by-linear association	6.547**	1	0.011	
	Number of valid cases	225			
Rural	Pearson's Chi-Square	4.831**	1	0.028	
	Continuity correction	4.053**	1	0.044	
	Likelihood ratio	4.766**	1	0.029	
	Fisher's exact test			0.041	0.023
	Linear-by-linear association	4.803**	1	0.028	
	Number of valid cases	175			

Note. \*\*  $p < 0.05$

In the rural context, the research findings indicated that there is a significant association between Age at first-sex debut and Adolescent Pregnancy among rural respondents (Pearson  $X^2 = 4.831$ ,  $p = 0.028$ ; Likelihood Ratio  $X^2 = 4.766$ ,  $p = 0.029$ ; Linear-by-linear association  $X^2 = 4.803$ ,  $p = 0.028$ ). In addition, the Continuity Correction and Fisher's Exact Test are consistent with the alluded findings and support the significance of the association (Continuity-

corrected  $X^2 = 4.053$ ,  $p = 0.044$ ; Fisher's Exact Test two-sided  $p = 0.028$ ). Overall, these results indicate a significant relationship between the age at first sexual debut and adolescent pregnancy among rural respondents as well. Consequently, there is a significant relationship between the age at first sexual debut and adolescent pregnancy, irrespective of place of residence. This underscores the importance of addressing early sexual debut in efforts to reduce adolescent pregnancy in both rural and urban areas.

**Table 4.17**

*ASRH Services Availability and Adolescent Pregnancy*

Place of residence		Value	df	p-value (2-sided)	p-value (1-sided)
Urban	Pearson's chi-square	2.521	1	0.112	
	Continuity correction	2.091	1	0.148	
	Likelihood ratio	2.506	1	0.113	
	Fisher's exact test			0.121	0.074
	Linear-by-linear association	2.509	1	0.113	
	Number of valid cases	225			
Rural	Pearson chi-square	1.705	1	0.192	
	Continuity correction	1.240	1	0.265	
	Likelihood ratio	1.746	1	0.186	
	Fisher's exact test			0.250	0.132
	Linear-by-linear association	1.695	1	0.193	
	Number of valid cases	175			

*Note.* \*\*  $p < 0.05$

Table 4.17 shows the results for the association between the availability of Adolescent ASRH services and adolescent pregnancy, considering place of residence (urban or rural). In the urban context, the research findings confirmed that there is no significant association between the availability of ASRH services and Adolescent Pregnancy among urban residents. (Pearson  $X^2 = 2.521$ ,  $p = 0.112$ ; Likelihood Ratio  $X^2 = 2.506$ ,  $p = 0.113$ ; Linear-by-linear

association  $X^2 = 2.509$ ,  $p = 0.113$ ). Moreover, the continuity correction ( $X^2 = 2.091$ ,  $p = 0.148$ ) and the two-sided Fisher's Exact Test ( $p = 0.121$ ) also suggested that no significant association exists. These findings indicate that there is no significant association between the availability of ASRH services and adolescent pregnancy among urban residents.

In the rural context, the findings indicate no significant association between the availability of ASRH services and adolescent pregnancy (Pearson  $X^2 = 1.705$ ,  $p = 0.192$ ; Likelihood Ratio  $X^2 = 1.746$ ,  $p = 0.186$ ; Linear-by-linear association  $X^2 = 1.695$ ,  $p = 0.193$ ). Additionally, both the Continuity Correction and Fisher's Exact Test corroborate these results, further confirming the lack of a significant relationship between the variables (Continuity-corrected  $X^2 = 1.240$ ,  $p = 0.265$ ; Fisher's Exact Test two-sided  $p = 0.250$ ). These findings suggest that the availability of ASRH services does not significantly influence adolescent pregnancy among rural residents. Taken together, the results indicate no significant association between the availability of ASRH services and adolescent pregnancy in either urban or rural contexts.

Besides availability of ASRH services, Table 4.18 presents the results for the association of ASRH services uptake and adolescent pregnancy in rural and urban settings. The results indicated that there is no significant association between ASRH services uptake and Adolescent Pregnancy in the urban setting (Pearson  $X^2 = 4.970$ ,  $p = 0.083$ ; Likelihood Ratio  $X^2 = 5.179$ ,  $p = 0.075$ ; Linear-by-linear association  $X^2 = 2.432$ ,  $p = 0.119$ ).

**Table 4.18***ASRH Services Uptake and Adolescent Pregnancy*

Place of residence		Value	df	p-value (2-sided)
Urban	Pearson's chi-square	4.970	2	0.083
	Likelihood ratio	5.179	2	0.075
	Linear-by-linear association	2.432	1	0.119
	Number of valid cases	225		
Rural	Pearson's chi-square	5.259	2	0.072
	Likelihood ratio	5.607	2	0.061
	Linear-by-linear association	4.834**	1	0.028
	Number of valid cases	175		

*Note.* \*\*  $p < 0.05$

Similarly, the research findings confirmed that there is no significant association between ASRH services uptake and adolescent pregnancy in rural setting (Pearson  $X^2 = 5.259$ ,  $p = 0.072$ ; Likelihood Ratio  $X^2 = 5.607$ ,  $p = 0.061$ ). However, the results also suggested that a significant linear trend exists in the association between ASRH services uptake and adolescent pregnancy in the rural setting. The results suggest that while there is no significant association between ASRH services uptake and adolescent pregnancy among both rural and urban residents based on the Pearson and Likelihood Ratio tests, there is a significant linear trend indicating an association between ASRH services uptake and Adolescent Pregnancy among rural residents based on the linear-by-linear association test.

Table 4.19 shows the results for the association between Contraceptive uptake and Adolescent Pregnancy, considering rural and urban settings. Based on the results, there is a highly significant association between Contraceptive uptake and Adolescent Pregnancy in urban settings (Pearson  $X^2 = 20.133$ ,  $p < 0.001$ ; Likelihood Ratio  $X^2 = 20.710$ ,  $p < 0.001$ ; Linear-by-linear association  $X^2 = 20.044$ ,  $p < 0.001$ ).

**Table 4.19***Association Between Contraceptive Uptake and Adolescent Pregnancy*

Place of residence		Value	df	p-value (2-sided)	p-value (1-sided)
Urban	Pearson's chi-square	20.133**	1	0.000	
	Continuity correction	18.924**	1	0.000	
	Likelihood ratio	20.710**	1	0.000	
	Fisher's exact test			0.000	0.000
	Linear-by-linear association	20.044**	1	0.000	
	Number of valid cases	225			
Rural	Pearson's chi-square	44.836**	1	0.000	
	Continuity correction	42.802**	1	0.000	
	Likelihood ratio	47.386**	1	0.000	
	Fisher's exact test			0.000	0.000
	Linear-by-linear association	44.580**	1	0.000	
	Number of valid cases	175			

*Note.* \*\*  $p < 0.05$ 

Furthermore, both the Continuity Correction and Fisher's Exact Test substantiated that there is a highly significant association between Contraceptive uptake and Adolescent Pregnancy among urban residents (Continuity-corrected  $X^2 = 18.924$ ,  $p < 0.001$ ; Fisher's Exact Test two-sided  $p < 0.001$ ). In the same vein, the research findings indicated a highly significant association between contraceptive uptake and Adolescent Pregnancy among rural respondents (Pearson  $X^2 = 44.836$ ,  $p < 0.001$ ; Likelihood Ratio  $X^2 = 47.386$ ,  $p < 0.001$ ; Linear-by-linear

association  $X^2 = 44.580$ ,  $p < 0.001$ ). The Continuity Correction and Fisher's Exact Tests also suggested a significant association between the variables mentioned in the rural context (Continuity-corrected  $X^2 = 42.802$ ,  $p < 0.001$ ; Fisher's Exact Test two-sided  $p < 0.001$ ). Overall, these results suggest a highly significant association between Contraceptive uptake and Adolescent Pregnancy in rural and urban settings. Table 4.20 presents the results for the association between Awareness of Harmful Practices and Adolescent Pregnancy, considering the place of residence (urban or rural) in Zambia. The study findings suggested that there is a significant association between Awareness of Harmful Practices and Adolescent Pregnancy among urban residents (Pearson  $X^2 = 9.023$ ,  $p = 0.003$ ; Likelihood Ratio  $X^2 = 8.840$ ,  $p = 0.003$ ; Linear-by-linear association  $X^2 = 8.982$ ,  $p = 0.003$ ; Continuity-corrected  $X^2 = 7.930$ ,  $p = 0.005$ ; Fisher's Exact Test two-sided  $p = 0.004$ ).

**Table 4.20**

*Awareness of Harmful Practices and Adolescent Pregnancy*

Place of Residence		Value	df	p-value (2-sided)	p-value (1-sided)
Urban	Pearson's chi-square	9.023**	1	0.003	
	Continuity correction	7.930**	1	0.005	
	Likelihood ratio	8.840**	1	0.003	
	Fisher's exact test			0.004	0.003
	Linear-by linear association	8.982**	1	0.003	
	Number of valid cases	225			
Rural	Pearson's chi-square	3.454	1	0.063	
	Continuity correction	2.698	1	0.100	
	Likelihood Ratio	3.396	1	0.065	
	Fisher's exact test			0.084	0.051
	Linear-by-linear association	3.434	1	0.064	
	Number of valid cases	175			

Note. \*\*  $p < 0.05$

However, in the rural context, the research results indicated that there is no significant association between Awareness of Harmful Practices and Adolescent Pregnancy among rural residents (Pearson  $X^2 = 3.454$ ,  $p = 0.063$ ; Likelihood Ratio  $X^2 = 3.396$ ,  $p = 0.065$ ; Linear-by-linear association  $X^2 = 3.434$ ,  $p = 0.064$ ; Continuity-corrected  $X^2 = 2.698$ ,  $p = 0.100$ ; Fisher's Exact Test two-sided  $p = 0.084$ ). Overall, these results suggested a significant association between awareness of harmful practices and adolescent pregnancy among urban residents, while there is no significant association among rural residents. Moreover, Table 4.21 presents the results for the association between experience of harmful practices and adolescent pregnancy. The results indicated a highly significant association between Experience of harmful practices and adolescent pregnancy among urban respondents. (Pearson  $X^2 = 10.677$ ,  $p = 0.001$ ; Likelihood Ratio  $X^2 = 11.992$ ,  $p = 0.001$ ; Linear-by-linear association  $X^2 = 10.630$ ,  $p = 0.001$ ; Continuity-corrected  $X^2 = 9.472$ ,  $p = 0.002$ ; Fisher's Exact Test two-sided  $p = 0.001$ ).

**Table 4.21**

*Experience of Harmful practices and Adolescent Pregnancy*

Place of Residence		Value	df	p-value (2-sided)	p-value (1-sided)
Urban	Pearson's chi-square	10.677**	1	0.001	
	Continuity correction	9.472**	1	0.002	
	Likelihood ratio	11.992**	1	0.001	
	Fisher's Exact Test			0.001	0.001
	Linear-by-linear association	10.630**	1	0.001	
	Number of valid cases	225			
Rural	Pearson's chi-square	8.367**	1	0.004	
	Continuity correction	7.164**	1	0.007	
	Likelihood ratio	9.334**	1	0.002	
	Fisher's exact test			0.004	0.003
	Linear-by-linear association	8.319**	1	0.004	
	Number of valid cases	175			

*Note.* \*\*  $p < 0.05$

Additionally, the study results indicated a significant association between Experience of Harmful Practices and Adolescent Pregnancy among rural respondents (Pearson  $\chi^2 = 8.367$ ,  $p = 0.004$ ; Likelihood Ratio  $\chi^2 = 9.334$ ,  $p = 0.002$ ; Linear-by-linear association  $\chi^2 = 8.319$ ,  $p = 0.004$ ; Continuity-corrected  $\chi^2 = 7.164$ ,  $p = 0.007$ ; Fisher's Exact Test two-sided  $p = 0.004$ ). Overall, the findings indicate a strong and highly significant association between the experience of harmful practices and adolescent pregnancy across both rural and urban settings.

#### 4.7 Binary Logistics Regression Analysis Results

A binary logistic regression analysis was conducted to evaluate the impact of multiple independent variables including age, marital status, educational attainment, age at first sexual activity, availability and utilization of ASRH services, contraceptive uptake, awareness of harmful practices, and experience with harmful practices—on the probability of adolescent pregnancy in Zambia. Table 4.22 shows the predicted adolescent pregnancy values and accuracy across two steps in rural and urban settings. The table provides information on the observed outcomes, the model's predictions, and the percentage of correct predictions for each category.

**Table 4.22**  
*Classification Table*

Step observed		Place of residence (Selection variable)					
		Urban			Rural		
		Adolescent pregnancy		Percentage correct	Adolescent pregnancy		Percentage correct
		No	Yes		No	Yes	
0	Adolescent No	135	0	100.0	96	0	100.0
	pregnancy Yes	87	0	0.0	61	0	0.0
	Overall percentage	-	-	60.8	-	-	61.1
1	Adolescent No	107	28	79.3	79	17	82.3
	pregnancy Yes	39	48	55.2	19	42	68.9
	Overall percentage	-	-	69.8	-	-	65.3



Table 4.22 presents the classification results for adolescent pregnancy across urban and rural settings at Step 0 (baseline model with no predictors) and Step 1 (model including predictors).

At Step 0, the model predicts all cases as “No” for adolescent pregnancy:

- In the urban setting, the model correctly classified 135 non-pregnant adolescents (100%) but failed to correctly classify any pregnant adolescents (87 cases), resulting in 0% accuracy for the “Yes” category. The overall classification accuracy was 60.8%.
- In the rural setting, 96 “No” cases were correctly classified (100%), while all 61 “Yes” cases were misclassified as “No,” yielding 0% accuracy for adolescent pregnancy. The overall percentage correct was 61.1%.

At Step 1, after including predictors in the model:

- In the urban context, the model correctly classified 79.3% of the “No” cases and 55.2% of the “Yes” cases, resulting in an improved overall accuracy of 69.8%.
- In the rural context, 82.3% of “No” cases and 68.9% of “Yes” cases were correctly classified, increasing the overall classification accuracy to 65.3%.

These results indicate that the inclusion of predictors enhanced the model’s ability to correctly classify cases, particularly for adolescents who had experienced pregnancy, and the predictive performance was slightly higher in the urban setting.

#### **4.7.1 Goodness-of-Fit Test Results**

This section provides the outcomes of the goodness of fit tests, which encompass overall assessments of model coefficients, concise statistical summaries, and the Hosmer and Lemeshow test findings. Table 4.23 presents the outcomes of comprehensive examinations of model coefficients for two different environments: “urban” and “rural.” In urban settings, the Chi-square statistic is 59.747 with 14 degrees of freedom, and the p-value is 0.000, which is

below the established significance threshold of 0.05. This indicates that the model coefficients for the "urban" context have a statistically significant effect at the 5% level of significance. Similarly, in the "rural" context, the Chi-square statistic is 70.962 with 13 degrees of freedom, and the p-value is also 0.000. This confirms that the model coefficients in the "rural" context are collectively statistically significant at the same 5% significance level. Notably, the "Block" and "Model" rows reflect identical Chi-square statistics, degrees of freedom, and p-values as the "Step" row. The p-values being less than the chosen significance level (0.05) in both the "urban" and "rural" settings indicate that the model coefficients are collectively statistically significant at a 5% level of significance. This suggests that the variables introduced or retained in the model at step 1 significantly predict the outcome variable (adolescent pregnancy).

**Table 4.23**

*Omnibus Tests of Model Coefficients*

Step		Place of residence (Section variable)					
		Urban			Rural		
		Chi-square	df	p-value	Chi-square	df	p-value
1	Step	59.747**	14	0.000	70.962**	13	0.000
	Block	59.747**	14	0.000	70.962**	13	0.000
	Model	59.747**	14	0.000	70.962**	13	0.000

*Note.* \*\* p<0.05

In addition, Table 4.24 shows the summary statistics for the logistic regression model conducted in Step 1 for two settings: "urban" and "rural." The results indicated that, in the "urban" setting context, the -2 Log-likelihood statistic is 237.549, the Cox & Snell R Square is 0.236, and the Nagelkerke R Square is 0.320. In the "rural" setting, the -2 Log-likelihood statistic is 138.818, the Cox & Snell R Square is 0.364, and the Nagelkerke R Square is 0.493. These results indicate that the "rural" setting has a better fit based on the lower -2 Likelihood.

**Table 4.24**  
*Summary Statistics*

Step	Place of residence (selection variable)					
	Urban			Rural		
	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R-square	-2 Log likelihood	Cox & Snell R-square	Nagelkerke R-square
1	237.549	0.236	0.320	138.818	0.364	0.493

Overall, the model fits better in the “rural” setting than the “urban” setting, as suggested by the lower -2 Log-likelihood and higher R-squared values. Furthermore, the Hosmer and Lemeshow test was performed to evaluate the adequacy of the binary logistic regression model. It helps determine whether the model’s observed and expected event rates are significantly different. Thus, Table 4.25 shows the Hosmer and Lemeshow test results.

**Table 4.25**  
*Hosmer and Lemeshow Test Results*

Step	Place of residence (selection variable)					
	Urban			Rural		
	Chi-square	df	p-value	Chi-square	df	p-value
1	14.644	8	0.066	17.952	8	0.052

The findings indicate that the chi-square statistic for the "urban" setting is 14.644 with 8 degrees of freedom, accompanied by a p-value of 0.066. Similarly, the "rural" setting exhibits a chi-square statistic of 17.952 with 8 degrees of freedom and a p-value of 0.052. In both the "urban" and "rural" contexts, the p-values (0.066 and 0.052, respectively) exceed the standard significance threshold of 0.05, indicating no significant difference between the model's observed and expected event rates in either setting. These results reveal a strong alignment

between the logistic regression model and the data in both contexts. Consequently, the Hosmer-Lemeshow Test results confirm that the logistic regression model provides a good fit for the data, as there is no substantial divergence between the actual and predicted event rates.

#### **4.7.2 Binary Logistics Regression Coefficients**

Table 4.26 presents the binary logistic regression estimation results, showcasing each variable's statistical significance and direction of influence. In the urban setting, the research results revealed an intercept equivalent to -5.216, with a standard error of 3.195. However, the intercept is not statistically significant at a 5% significance level ( $p\text{-value} = 0.103$ ). In rural settings, however, the intercept for the binary logistics regression model is -3.771, with a standard error of 3.134. Likewise, the intercept is not statistically significant at a 5% significance level with a  $p\text{-value}$  of 0.229. Thus, there is no sufficient evidence to support that when all other variables are held constant, the odds of adolescent pregnancy are significantly higher in the rural setting ( $\text{Exp}(B) = 0.023$ ) than in the urban setting ( $\text{Exp}(B) = 0.005$ ).

##### **4.7.2.1 Respondents' Age, Marital Status, and Level of Education**

The study's results revealed that the age variable's coefficient in the urban context is 0.198, with a standard error of 0.101, and it is statistically significant at a 5% significance level with a  $p\text{-value}$  of 0.001. The  $\text{Exp}(B)$  of 1.219 indicated that for each one-unit increase in age, the odds of adolescent pregnancy in the urban setting increase by a factor of 1.219. On the other hand, the coefficient for the age variable in the rural context is 0.271, with a standard error of 0.119, which is statistically significant at a 5% significance level with a  $p\text{-value}$  of 0.000.

The  $\text{Exp}(B)$  of 1.312 means that for each one-unit increase in age, the odds of adolescent pregnancy in the rural setting increase by 1.312. Regarding the highest level of education attained in the urban context, the coefficient for primary education is 1.893 and was found to be statistically significant at a 5% level of significance ( $p < 0.05$ ).

**Table 4.26**  
*Binary Logistics Regression Model Coefficients*

Place of Residence	Variable		<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>p</i>	Exp( <i>B</i> )
Urban	Constant		-5.216	3.195	2.665	0.103	0.005
	Age		0.198**	0.101	3.830	0.040	1.219
	Level of education	Composite	-	-	8.253	0.016	-
		Primary (1)	1.893**	0.6661	8.192	0.004	6.640
		Secondary (2)	1.259**	0.594	4.490	0.034	3.524
	Marital status	Composite	-	-	1.672	0.796	-
		Never married	0.358	1.003	0.127	0.721	1.430
		Cohabiting (2)	-0.803	1.380	0.338	0.561	0.448
		Married (3)	0.144	1.029	0.019	0.889	1.155
		Separated (4)	0.015	1.710	0.000	0.993	1.015
	Early sex debut		0.880**	0.393	5.011	0.025	0.415
	ASRH services availability		0.498	0.359	1.930	0.165	1.646
	ASRH services uptake		-0.081	0.081	1.011	0.315	0.922
	Contraceptives uptake		-1.316**	0.355	13.724	0.000	0.268
	Role of CHW		-0.095	0.711	0.018	0.894	0.910
	Awareness of harmful practices		-1.008**	0.473	4.541	0.033	2.741
	Experience of Harmful practices		1.525**	0.571	7.142	0.037	4.597
Rural	Constant		-3.771	3.134	1.448	0.229	0.023
	Age		0.271**	0.119	5.173	0.023	1.312
	Level of education	Composite	-	-	-	-	-
		Primary (1)	1.449**	0.498	8.486	0.004	4.261
		Secondary (2)	-	-	-	-	-
	Marital status	Composite	-	-	6.445	0.168	-
		Never married	-2.234**	1.121	3.975	0.046	0.107
		Cohabiting (2)	-1.278	1.499	0.727	0.394	0.279
		Married (3)	-2.077	1.127	3.396	0.065	0.125
		Separated (4)	-3.563**	1.458	5.971	0.015	0.028
	Early sex debut		0.320**	0.510	0.395	0.030	0.726

Place of Residence	Variable	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>p</i>	Exp( <i>B</i> )
	ASRH services availability	0.208	0.614	1.114	0.735	1.231
	ASRH services uptake	-0.286**	0.145	3.896	0.048	0.751
	Contraceptives uptake	-2.305**	0.502	21.091	0.000	0.100
	Role of CHW	-0.790**	0.643	1.507	0.020	2.203
	Awareness of harmful practices	0.225	0.629	0.128	0.721	1.252
	Experience of Harmful practices	1.453**	0.724	4.026	0.045	4.275

\*\*p<0.05      *Note.* The dependent variable is Adolescent Pregnancy – Binary

The results based on the Exp(B) of 6.640 indicate that adolescents who have attained primary education as their highest level of qualification in the urban setting have significantly higher odds of pregnancy odds than the reference category (Composite level of education). Additionally, the empirical findings revealed that the coefficient for Secondary education (1.259) is statistically significant at a 5% significance level with a p-value of 0.034. The Exp(B) of 3.524 indicated that adolescents who have attained secondary education as their highest level of qualification in the urban setting have significantly higher odds of pregnancy than the reference category.

In the rural context, the coefficient for the Primary education category of the highest level of education categorical variable is 1.449, with a standard error of 0.498, and is statistically significant at a 5% significance level with a p-value of 0.004. The Exp(B) of 4.261 indicates that adolescents with primary education in the rural setting have significantly higher pregnancy odds than the reference category (Composite level of education). Precisely, adolescents who have never gone beyond primary education are 4.261 times more likely to experience pregnancy. However, the coefficient for secondary education is not provided for the rural setting, indicating that it is not statistically significant.

The results also revealed that, under the marital status categorical variable in the urban setting, none of the coefficients (including the 'never married,' 'cohabiting,' 'married,' and the separated category) are statistically significant at the 5% level of significance ( $p > 0.05$ ). However, in the rural context, the results indicated that the coefficient for the never married (-2.234) and the separated (-3.563) categories of the marital status categorical variable are statistically significant at a 5% significance level ( $p < 0.05$ ). The Exp(B) of 0.107 of those who were identified as 'never married' suggests that adolescents in this category have significantly lower odds of pregnancy than the reference category (composite marital status), and they are 0.107 times less likely to experience pregnancy. Against the same background, the Exp(B) of 0.028 of those identified as 'separated' suggests that adolescents in this category have significantly lower odds of pregnancy than the reference category (composite marital status) and are 0.046 times less likely to experience pregnancy.

#### **4.7.2.2 Age at First Sexual Debut**

The findings revealed that the coefficient for early sex debut in the urban context is 0.880, with a standard error of 0.393, and is statistically significant at a 5% significance level with a p-value of 0.025. The Exp(B) of 0.415 shows that early-sex debut among adolescents in the urban setting is associated with higher odds of adolescent pregnancy, such that early-sex debutants are 0.415 times more likely to experience adolescent pregnancy in the urban setting. Moreover, the results confirmed that the coefficient for the early sex debut variable in the rural context was positive at 0.320 and statistically significant at a 5% significance level (p-value = 0.030). The Exp(B) value of 0.726 indicates that early sexual debut among adolescents in rural areas is aligned with higher odds of experiencing adolescent pregnancy, with early sexual debutants being 0.726 times more likely to have adolescent pregnancy.

#### 4.7.2.3 ASRH Services Availability and Uptake

The research findings revealed that, in the urban context, the coefficients for ASRH services availability ( $B = 0.498$ ,  $SE = 0.359$ ,  $p > 0.05$ ) and uptake ( $B = -0.081$ ,  $SE = 0.081$ ,  $p = 0.315$ ) were not statistically significant at the 5% level of significance ( $p > 0.05$ ). Similarly, in the rural context, the results indicated that the availability of ASRH services ( $B = 0.498$ ,  $SE = 0.359$ ,  $p = 0.165$ ) did not have a statistically significant impact on the likelihood of adolescent pregnancy. Conversely, the uptake of ASRH services in rural areas ( $B = 0.498$ ,  $SE = 0.359$ ,  $p = 0.165$ ) demonstrated an association with reduced odds of adolescent pregnancy, although it did not reach statistical significance. Consequently, adolescents who utilized or consumed ASRH services are 0.286 times less likely to be victims of Adolescent pregnancy in the rural setting.

#### 4.5.3.4 Contraceptive Uptake

The coefficient for contraceptive uptake in the urban context ( $B = -1.316$ ) is statistically significant at a 5% significance level ( $p = 0.000$ ). The  $\text{Exp}(B)$  of 0.458 corresponding to the uptake of contraceptives by adolescents in the urban setting indicated that increased uptake of contraceptives is associated with lower odds of adolescent pregnancy. Consequently, the results also revealed that contraceptive use ( $B = -2.305$ ;  $SE = 0.502$ ;  $p = 0.000$ ) among rural adolescents is associated with lower odds of adolescent pregnancy at a 5% significance level. Thus, adolescents who utilized contraceptives are 0.1 times less likely to experience adolescent pregnancy in the rural setting ( $\text{Exp}(B) = 0.100$ ).

#### 4.5.3.5 Role of Community Health Workers (CHW)

Based on the research findings, the role of CHW on the odds of adolescent pregnancy in urban setting was found to be insignificant at a 5% level ( $B = -0.095$ ;  $SE = 0.711$ ;  $p = 0.894$ ).



In contrast, the results confirmed that the increased role of CHWs in rural settings is linked to a reduced likelihood of adolescent pregnancy at a 5% significance level ( $B = -0.790$ ;  $SE = 0.643$ ;  $p = 0.020$ ). The  $\text{Exp}(B)$  equivalent to 2.203 indicated that adolescents in the rural setting who have received guidance from CHWs are 2.203 times less likely to be victims of adolescent pregnancy.

#### **4.5.3.6 Awareness and Experience of Harmful Practices**

Above and beyond, the results further indicated that in the urban context, the awareness of harmful practices is significantly associated with lower odds of adolescent pregnancy at a 5% level ( $B = -1.008$ ;  $SE = 0.473$ ;  $p = 0.033$ ). Consequently, adolescents who had an awareness of harmful practices in the urban context are 2.471 times less likely to experience adolescent pregnancy ( $\text{Exp}(B) = 2.471$ ). However, based on the research findings, the experience of harmful practices was linked to higher odds of adolescent pregnancy in the urban ( $B = 1.525$ ;  $SE = 0.571$ ;  $p = 0.037$ ) and rural ( $B = 1.453$ ;  $SE = 0.724$ ;  $p = 0.045$ ) settings. Moreover, the  $\text{Exp}(B)$  values of 4.597 for urban settings and 4.275 for rural settings indicate that adolescents who have experienced harmful practices are over four times as likely to encounter adolescent pregnancy in both environments.

#### **4.5.4 Hypotheses Testing**

Hypothesis testing was a critical component of this study, designed to identify significant associations between key variables and adolescent pregnancy across varying contexts. The study developed multiple hypotheses to explore these relationships, focusing on demographic factors, sexual behaviour, access to SRH services, awareness of harmful practices, and the role of community healthcare workers. Statistical analyses were employed to test each hypothesis, providing insights into their significance and contributing to evidence-

based strategies for preventing adolescent pregnancy and informing targeted intervention efforts.

The study investigated the relationship between demographic factors, including marital status, age, and educational attainment, and the prevalence of adolescent pregnancy in both rural and urban regions of Zambia. Against this background, the first research hypothesis  $H_{1A}$ , which posited that there is a significant association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for the respondents' age, was tested based on the binary regression coefficients, the Wald statistics, and the associated p-values. In both the urban (Beta = 0.198, Wald = 3.830, p-value = 0.040) and rural (Beta = 0.271, Wald = 5.173, p-value = 0.023) context,  $H_{1A}$  was supported based on the research findings. Furthermore, the second research proposition  $H_{1B}$ , posited that there is a significant association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for respondents' marital status. The hypothesis was also tested based on two selected categories: 'Never married' (Ms1) and 'Separated' (Ms4). Based on the research results pertaining to these marital status categories, the hypothesis  $H_{1B}$  was not supported or rejected in the urban context (Ms1: Beta = 0.358, Wald = 0.127, p-value = 0.721; Ms4: Beta = 0.015, Wald = 0.000, p-value = 0.993) and supported in the rural context (Ms1: Beta = -2.234, Wald = 3.975, p-value = 0.046; Ms4: Beta = -3.563, Wald = 5.971, p-value = 0.015).

**Table 4.27**  
*Summary of Hypothesis Testing Results*

Hypothesis		Place of residence							
		Urban				Rural			
		Beta	Wald	p-value	Conclusion	Beta	Wald	p-value	Conclusion
<b>H<sub>1A</sub>:</b>	There is a significant association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for the respondents' age.	0.198**	3.830	0.040	Supported	0.271**	5.173	0.023	Supported
<b>H<sub>1B</sub>:</b>	There is a significant association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for respondents' marital status.	(Ms1): 0.358	0.127	0.721	Not supported	- 2.234**	3.975	0.046	Supported
		(Ms4): 0.015	0.000	0.993	Not supported	- 3.563**	5.971	0.015	Supported
<b>H<sub>1C</sub>:</b>	There is a significant association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for respondents' level of education.	(Le1): 1.893**	8.192	0.004	Supported	1.449**	8.486	0.004	Supported
<b>H<sub>2</sub>:</b>	There is a significant association between early sex debut and adolescent pregnancy across the rural-urban divide in Zambia.	0.880**	5.011	0.025	Supported	0.320**	0.395	0.030	Supported
<b>H<sub>3</sub>:</b>	There is a significant association between ASRH services availability and adolescent pregnancy across the rural-urban divide in Zambia.	0.498	1.930	0.165	Not supported	0.208	1.114	0.735	Not supported
<b>H<sub>4</sub>:</b>	There is a significant association between ASRH services uptake and adolescent pregnancy across the rural-urban divide in Zambia.	-0.081	1.011	0.315	Not supported	- 0.286**	3.896	0.048	Supported
<b>H<sub>5</sub>:</b>	There is a significant association between Contraceptives uptake and adolescent pregnancy across the rural-urban divide in Zambia.	- 1.316**	13.724	<0.001	Supported	- 2.305**	21.091	<0.001	Supported
<b>H<sub>6</sub>:</b>	There is a significant association between the role of CHWs and adolescent pregnancy across the rural-urban divide in Zambia.	-0.095	0.018	0.894	Not supported	- 0.790**	1.507	0.020	Supported
<b>H<sub>7</sub>:</b>	There is a significant association between awareness of harmful practices and adolescent pregnancy across the rural-urban divide in Zambia.	- 1.008**	4.541	0.033	Supported	0.225	0.128	0.721	Not supported
<b>H<sub>8</sub>:</b>	There is a significant association between experience of harmful practices and adolescent pregnancy across the rural-urban divide in Zambia.	1.525**	7.142	0.037	Supported	1.453**	4.026	0.045	Supported

The third hypothesis  $H_{1C}$  postulated that there is a significant association between adolescent pregnancy and demographic factors across the rural-urban divide when controlling for respondents' level of education. This hypothesis was tested based on one category of the level of education categorical variable, 'Primary education' (Le1). The research findings confirmed supported  $H_{1C}$  in both urban (Le1: Beta = 1.893, Wald = 8.192, p-value = 0.004) and rural (Le1: Beta = 1.449, Wald = 8.486, p-value = 0.004) settings. All the subsequent hypotheses from  $H_2$  to  $H_8$  were tested, and the results are summarised in Table 4.28. The hypothesis testing results supported a significant association between adolescent pregnancy and demographic factors across both rural and urban areas, even when controlling for age, suggesting that demographic characteristics play a crucial role in influencing adolescent pregnancy rates.

Furthermore, the findings regarding the association between adolescent pregnancy and marital status across rural and urban areas indicate that the relationship may vary depending on the specific marital status category considered. For example, while marital status (Ms4) appears to be aligned with adolescent pregnancy in rural areas, this relationship was not observed in urban areas.

The significant relationship between adolescent pregnancy and educational attainment across urban-rural settings, suggests that education has a significant impact on the incidence of adolescent pregnancy. Additionally, the significant association between early sexual activity and adolescent pregnancy across rural and urban areas underscores the importance of addressing early sexual debut in efforts to address adolescent pregnancy. The absence of a significant relationship between the availability of ASRH services and adolescent pregnancy in both rural and urban areas indicates that merely enhancing the accessibility of these services may not be adequate to lower adolescent pregnancy rates.

On the other hand, the significant association between ASRH services uptake and adolescent pregnancy in rural areas highlights the importance of facilitating access to and utilization of ASRH services to prevent unintended pregnancies. Furthermore, the significant association between contraceptive uptake and adolescent pregnancy in rural and urban areas suggest that increasing availability of contraceptives is critical for reducing adolescent pregnancy rates. The significant association between the role of community healthcare workers and adolescent pregnancy in rural areas highlights the important role that community healthcare workers play in advancing ASRH. Moreover, a significant association between awareness of harmful practices and adolescent pregnancy in urban areas emphasizes the importance of raising awareness about the consequences of harmful practices such as early marriage and transactional sex. Finally, the significant association between the experience of harmful practices and adolescent pregnancy in both rural and urban areas highlights the need to address underlying factors such as gender-based violence, poverty, and social norms that perpetuate harmful practices. These findings offer critical insights into the determinants of adolescent pregnancy rates in Zambia, emphasizing the necessity of adopting comprehensive, multi-dimensional strategies. Such approaches should address the intricate interactions between demographic, behavioural, and structural factors that influence adolescent reproductive health outcomes.

#### **4.6 Results of Qualitative Data Analysis**

The data-gathering approach involved conducting KIIs and FGDs to gather qualitative information in Zambia's Eastern and Southern provinces, spanning districts like Livingstone, Sinazongwe, Petauke, and Chipata. The KIIs engaged key informants, including the provincial medical officers, teachers, healthcare workers, village headmen/district administrators, and traditional or religious leaders, providing in-depth insights from various stakeholders. FGDs

involved different demographic and interest groups, such as women, men, and adolescents 18-19 and young women 20-24 years who experienced adolescent pregnancy, offering a broad spectrum of perspectives. In total, 20 KIIs and 12 FGDs were held across the two provinces.

**Table 4.28 (a)**

<i>Distribution of KII</i>			
<b>Role</b>	<b>Eastern Province</b>	<b>Southern Province</b>	<b>Total-20</b>
Provincial Health Director	1	1	2
District Administrator	1	1	2
Healthcare workers	4	4	8
Teachers	2	2	4
Traditional leaders	1	1	2
Religious leaders	1	1	2

**Table 4.28 (b)**

<i>Distribution of FGDs</i>				
<b>District</b>	<b>FGD adolescents &amp; young women</b>	<b>FGD with parents –groups</b>		<b>Total -12</b>
		<b>Men</b>	<b>Females</b>	
Site 1 - Chipata	1	1	1	3
Site 2 - Petauke	1	1	1	3
Site 3 - Livingstone	1	1	1	3
Site 4 - Sinazongwe	1	1	1	3

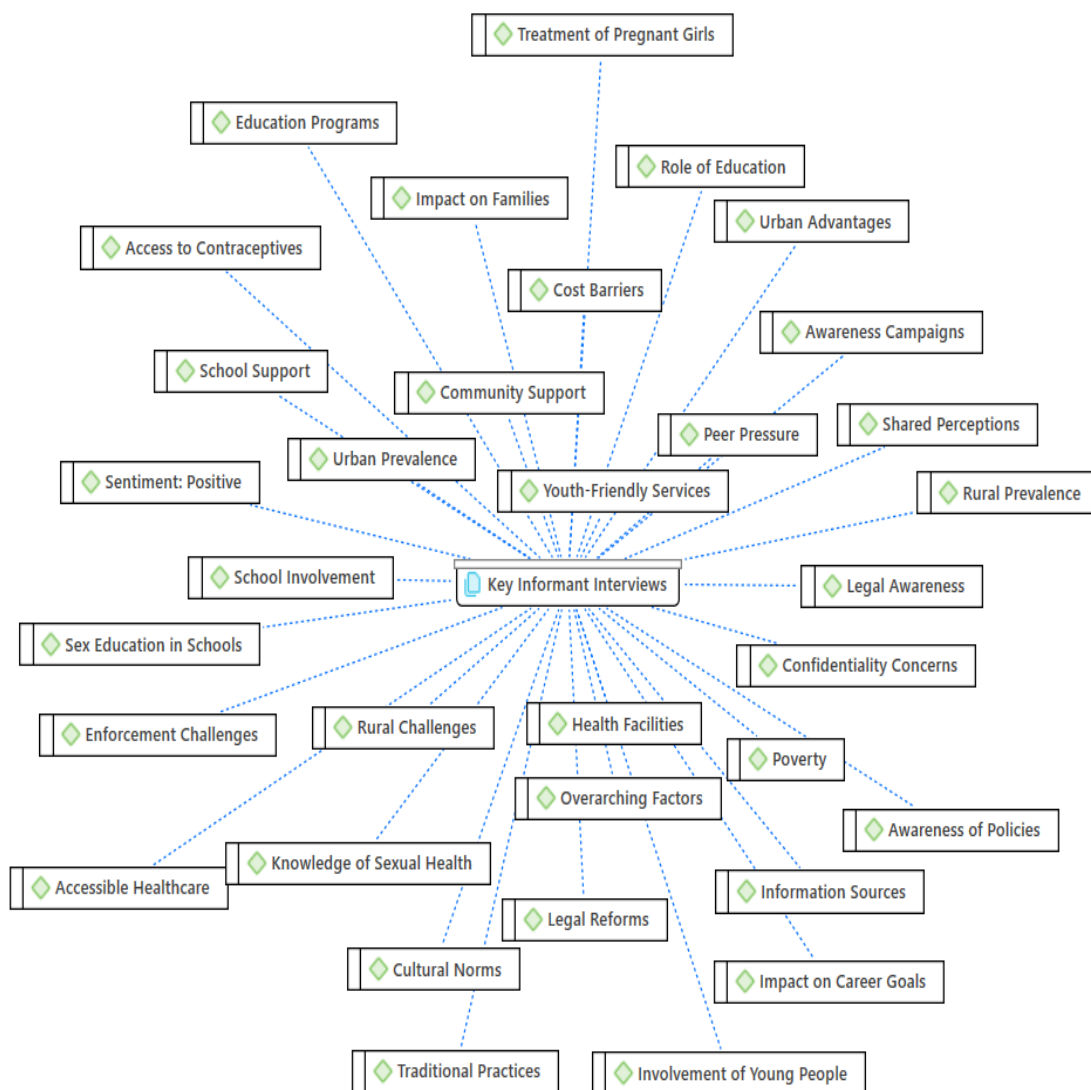
The geographic diversity and participant diversity were ensured in the data collection process. Following data collection, qualitative analysis methods, and Atlas.ti. 23 qualitative data analysis software was employed to identify patterns and key findings from the interviews and discussions, addressing ethical considerations.

### **4.6.1 Thematic Analysis**

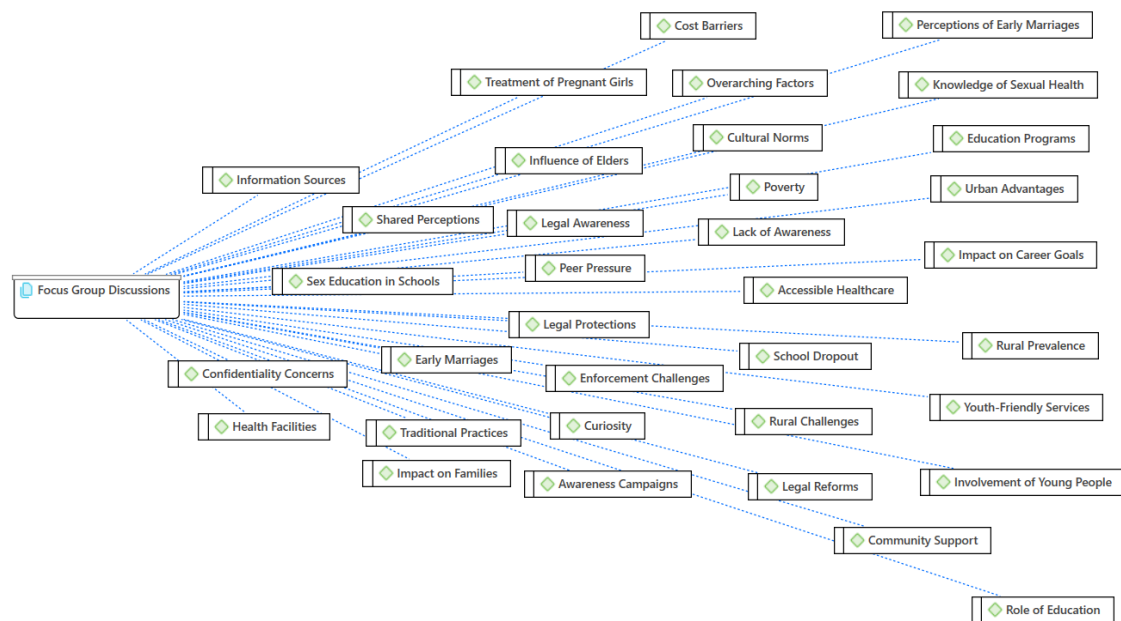
#### **4.6.1.1 Thematic Analysis Process**

Thematic analysis was employed to systematically examine qualitative data obtained from KIIs and FGDs. This analytic approach followed a structured, iterative process designed to identify, organize, and interpret patterns of meaning within the data.

The process began with data familiarization, whereby transcripts were read and re-read to ensure deep immersion and contextual understanding. The researcher transcribed the responses from KIIs and FGDs verbatim, ensuring they were well-acquainted with data. This step involved reading field notes to understand the content deeply. Beyond the familiarization stage, initial codes were generated by identifying the data's recurring patterns, topics, or themes. Segments of data relevant to the research objectives were systematically tagged. These codes were often single words or short phrases, summarizing the content's essence, as shown in Figures 4.5 and 4.6 below.

**Figure 4.5***Initial Codes Generated from KIIs*

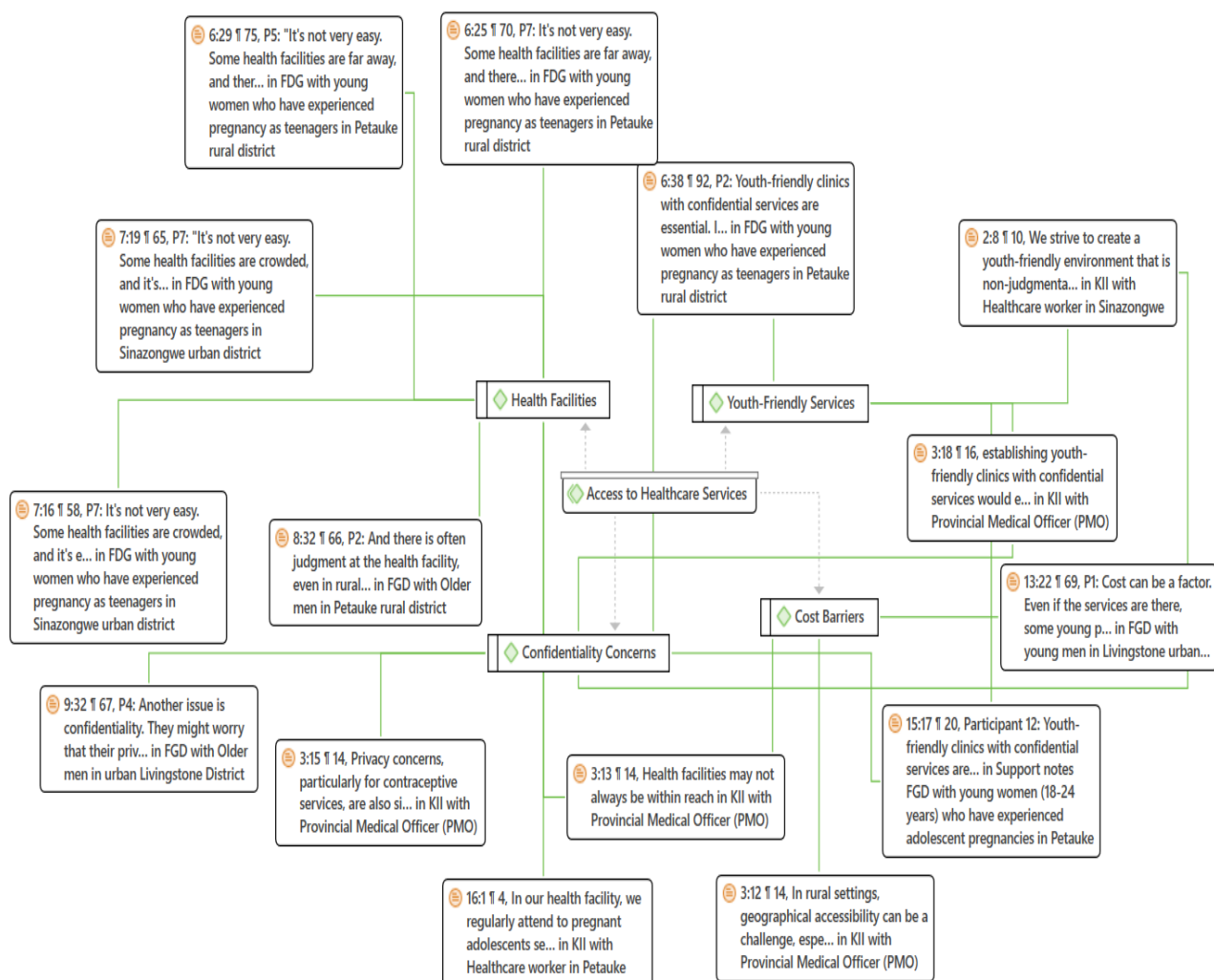


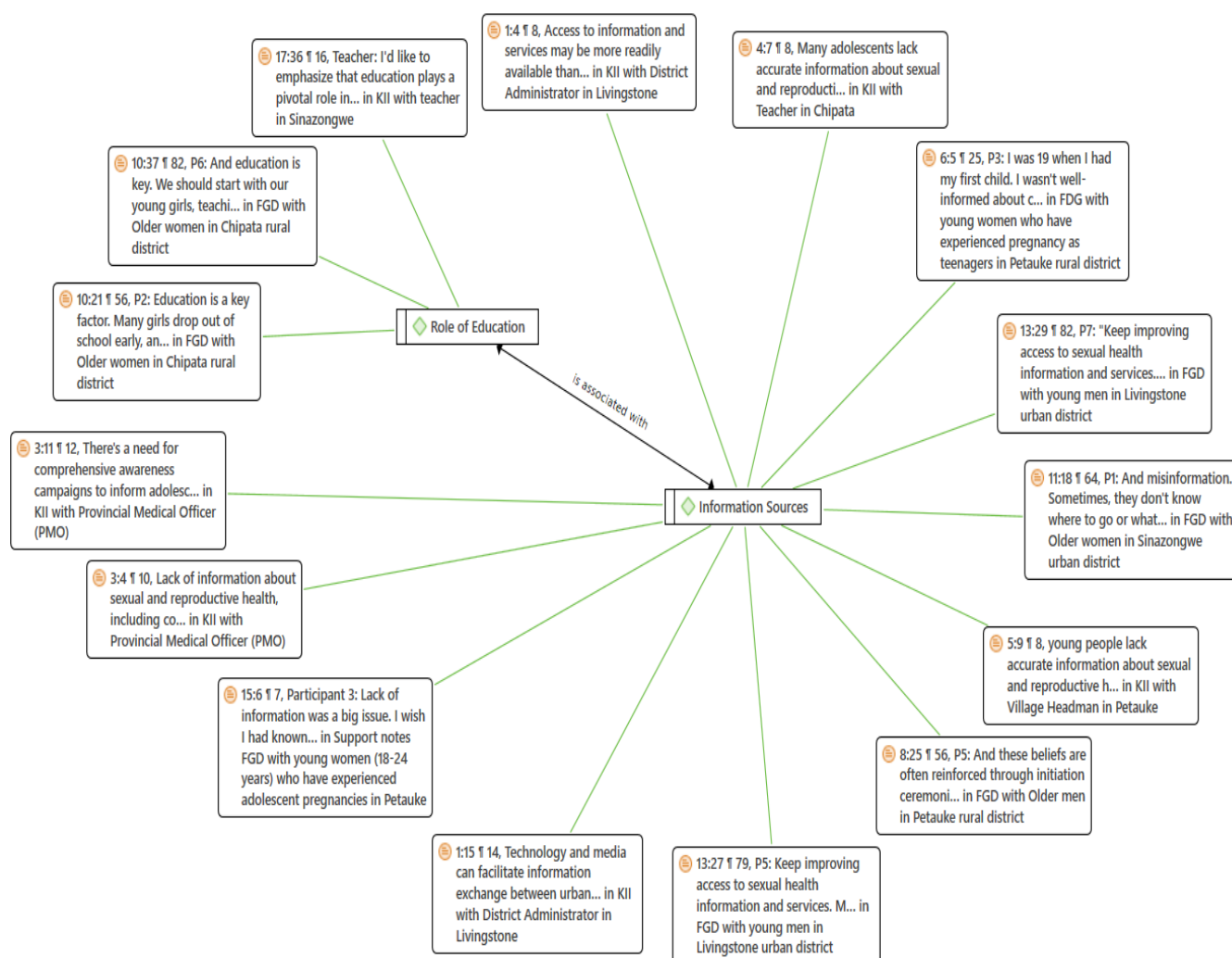
**Figure 4.6***Initial Codes Generated from FGDs*

The researcher then organized the initial codes into broader concepts encompassing multiple related codes (themes). The process involved generating a word cloud in the qualitative analysis software (Atlas ti. 23), picking the words with the highest frequency, while considering the research objectives. As shown in Figure 4.7 below, themes were generated from frequently mentioned words (those written in larger font sizes on the word cloud) like adolescents, pregnancy, education, sex, healthcare, services, access, pressure, and awareness.

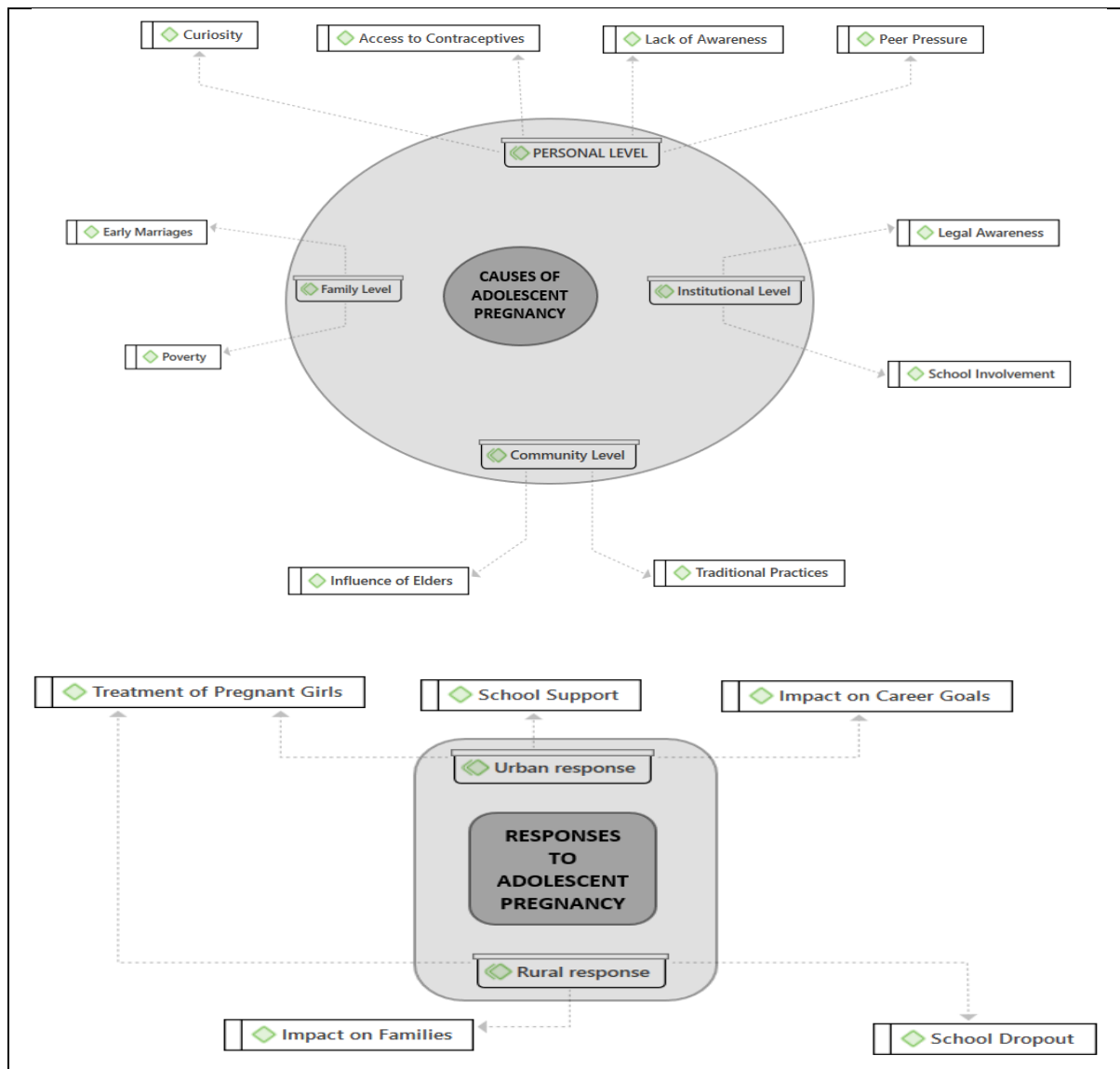
**Figure 4.7***Word Cloud*

The researcher ensured that each theme was coherent and aligned to the research questions. The identified themes were reviewed, refined, and defined. Data within each theme were systematically charted, collating and summarizing data relevant to each theme from the transcripts, as shown in Figure 4.8 below. The researcher examined the relationships between themes and considered the broader context, looked for patterns and connections between themes, and considered how themes related to one another, as shown in Figure 4.9 below.

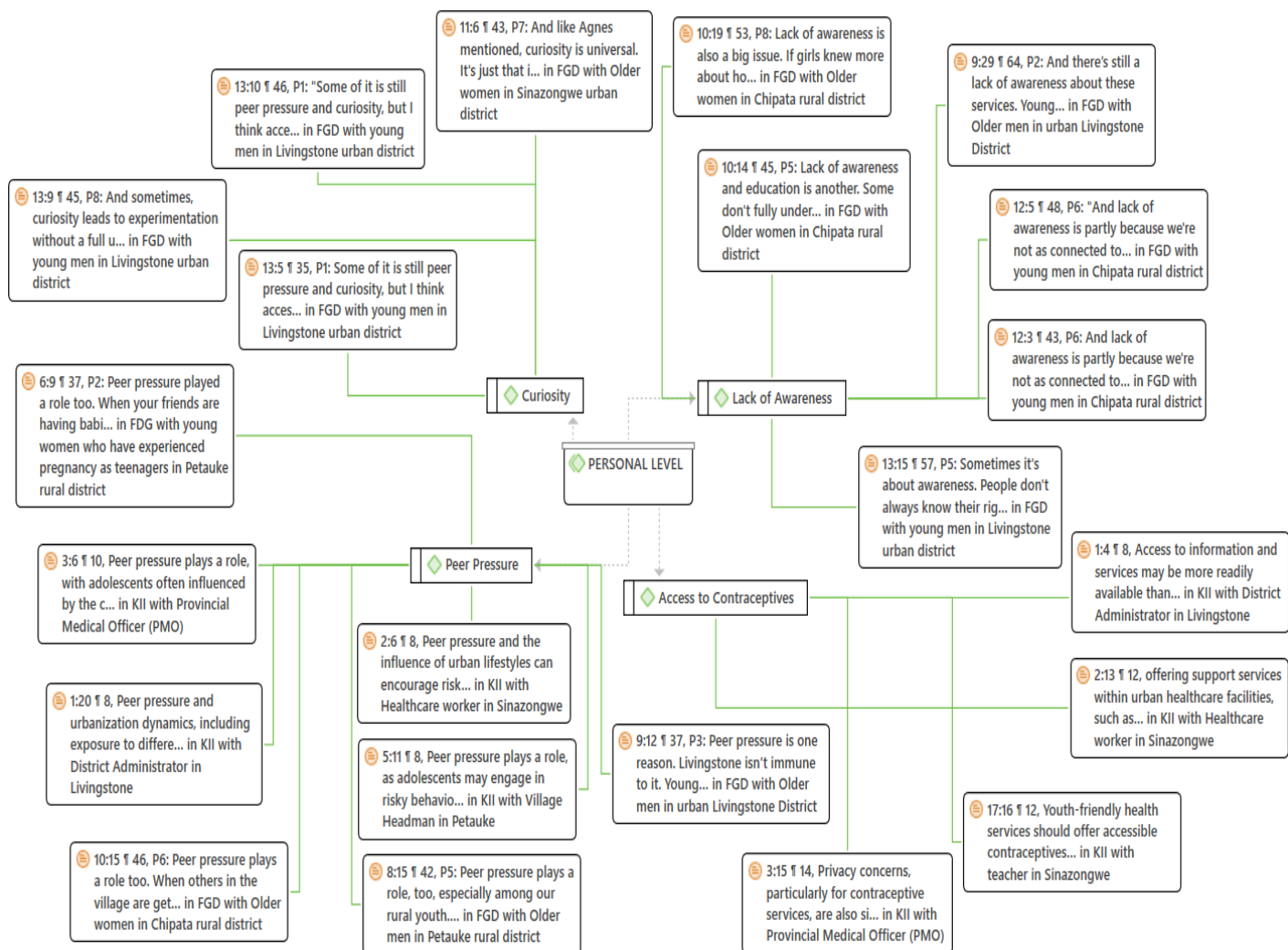
**Figure 4.8***Data Charting Without Relationship Linkages*

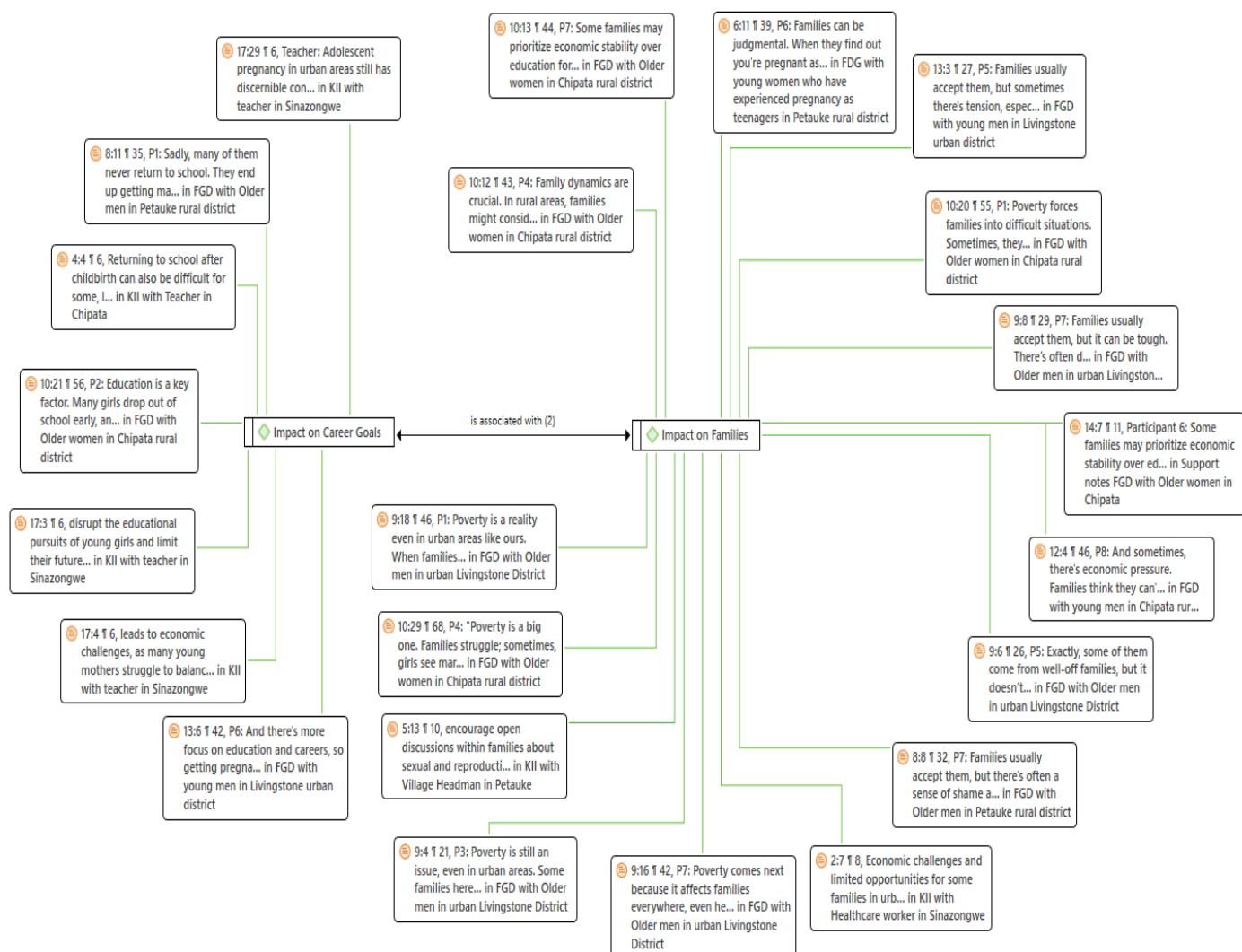
**Figure 4.9***Data Charting with Relationship Linkages*

As part of the thematic analysis process, the researcher generated sub-themes, which are more specific than the main themes and were derived where necessary. These subthemes helped to categorize further and understand the data, as depicted in Figure 4.10 below.

**Figure 4.10***Factors Contributing to and Addressing Adolescent Pregnancy*

Causes of adolescent pregnancy were contextualized to the SEM (personal, family, community, and institutional levels). The identified themes and subthemes were validated through discussion and consensus between the researcher, peer reviewers, and the supervisor. Any discrepancies or uncertainties were addressed and resolved.

**Figure 4.11***Personal Level Factors Exacerbating Adolescent Pregnancy*

**Figure 4.12***Impact of Adolescent Pregnancy on Families and Career Goals*

Finally, the research findings were reported based on the identified themes and subthemes, supported by excerpts from the KIIs and FGDs. The thematic analysis of the qualitative data from KIIs and FGDs revealed several key themes and subthemes, including sociocultural factors, access to SRH services, contraceptive use, sexuality education, gender dynamics, peer influence, healthcare interventions, and psychosocial well-being.

The subthemes within the category of cultural beliefs and practices reveal that traditions, such as initiation ceremonies, play a substantial role in shaping adolescent sexual

behaviour, with a more pronounced impact observed in the Eastern Province compared to the Southern Province. Among the Chewa people, it is customary for every young girl to undergo initiation upon reaching menarche. Initiations may encourage early sexual activity and unprotected sex, often with negative consequences, especially for adolescent girls who are taught sexual ways of pleasing men and not protection from STIs and HIV. Moreover, participants discussed the profound stigma and discrimination faced by adolescent mothers.

This stigmatization hinders their ability to obtain essential services and contributes to social exclusion. Regarding healthcare, respondents identified several barriers to accessing services, including financial limitations, long distances to health facilities, and insufficient transportation options. Concerns were raised about the judgmental attitudes of healthcare workers when adolescents sought reproductive health services. Such attitudes can deter adolescents from seeking essential care.

Under the sexuality education category, participants discussed the importance of formal education settings in delivering CSE. However, it was noted that the quality and availability of sexuality education programs vary across schools. Adolescents often rely on informal sources such as peers, social media, and, sometimes, inaccurate information. Thus, the subtheme highlights the need for reliable information sources. In the gender dynamics context, power imbalances in sexual relationships were frequently discussed. The data indicated that, in many cases, adolescents and young women have limited agency in sexual decision-making, increasing their vulnerability to early pregnancy.

The peer influence sub-theme uncovered that adolescents are usually influenced by their peers when making sexual decisions. This can result in risky behaviours, including unprotected sex. Some adolescents and young women who became pregnant as adolescents found strength and guidance from supportive friends. Regarding healthcare solutions, the availability and accessibility of contraceptives emerged as a critical factor in preventing



adolescent pregnancies. Challenges related to confidentiality and logistics were discussed. There is a call for more CSE programs. Participants emphasized the need to equip adolescents with the skills and knowledge required for informed choices. The psychosocial well-being category established that adolescent mothers often face emotional and psychological challenges. The subtheme explored issues related to depression, anxiety, and the need for psychosocial support. The role of family support systems in helping adolescent mothers was emphasized. In some cases, families played a pivotal role in caring for young mothers and their babies. The themes and subthemes offer a detailed insight into the intricate factors influencing adolescent pregnancy in Zambia.

#### **4.6.2 The Prevalence of Adolescent Pregnancy**

This section outlines qualitative research findings on the occurrence of adolescent pregnancy in Zambia. It includes quotations and excerpts derived from the qualitative data collected through KIIs and FGDs.

##### **4.6.2.1 Rural Prevalence**

Adolescent pregnancy is a critical concern in rural areas with far-reaching implications, particularly for education. KI 2 from Petauke rural district emphasized, *“Adolescent pregnancy is a significant concern in Petauke rural district, and it has far-reaching implications for education.”* This sentiment was echoed by KI -1 from Petauke rural district, who stated, *“In our village and across Petauke rural district, adolescent pregnancy is indeed a pressing concern.”*

Furthermore, an FGD with older women in the Sinazongwe district revealed the distressing reality of young girls becoming mothers early, leading to the abandonment of their educational pursuits. One participant noted, *“It is distressing to witness young girls becoming*

*mothers so early. We have seen cases where girls drop out of school due to pregnancies, limiting their future opportunities.”*

The high poverty levels in Sinazongwe compel many adolescents, particularly young girls, to engage in transactional sex as a means for securing basic necessities such as food, school fees, and other essential items. Sinazongwe serves as a key route for truck drivers traveling to neighbouring countries, increasing exposure to transient relationships and transactional sex. The mobility of truck drivers often leads to short-term interactions that can leave adolescents vulnerable to pregnancy and sexually transmitted infections (STIs). KI-3 from Petauke further highlighted the significant rural and urban disparity in adolescent prevalence: *“The prevalence of adolescent pregnancies is notably higher here compared to urban areas.”*

However, Petauke rural places a high value on traditional norms and cultural practices, with community leaders such as traditional chiefs wielding significant influence—often surpassing the reach of conventional laws. This is partly why initiations and child marriages are more prevalent in the Eastern Province compared to the Southern Province.

#### **4.6.2.2 Urban Prevalence**

Adolescent pregnancy is also a concern in urban areas, though with comparatively lower prevalence. KI- 2 from Livingstone urban district confirmed this, stating, *“Adolescent pregnancy is a concern in Livingstone urban district, although the prevalence is comparatively lower than in rural areas.”*

Nevertheless, it was stressed that adolescent pregnancy, even in urban areas, has significant consequences, particularly in disrupting the educational pursuits of young girls and limiting their future opportunities. Livingstone urban district was also not exempt from the issue. Unlike Chipata, which retains some of the gender norms and standards from rural

communities, Livingstone is an urban tourist area that is also a transient town for truckers. Young girls fall victim to transactional sex for survival. Transactional sex often involves power imbalances, leaving adolescents with limited ability to negotiate safer sexual practices, such as contraceptive use. This further increases their risk of adolescent pregnancy and health complications.

Furthermore, in comparison to Chipata, where traditional influences persist, involvement in transactional relationships often results in social stigma. This stigma can leave young girls socially isolated and deter them from accessing reproductive health services, thereby increasing their susceptibility to unintended pregnancies.

### **4.6.3 Causes of Adolescent Pregnancy**

#### **4.6.3.1 Personal Level**

##### ***4.6.3.1.1 Awareness and education***

The qualitative findings from the research on adolescent pregnancies in Zambia highlight the critical issue of lack of awareness as a significant factor contributing to early pregnancies. Participants from various regions highlighted the consequences of insufficient knowledge about SRH, including early pregnancy. As Participant 2 in the FGD with adolescents and young women in Sinazongwe observed, ‘returning to school with a child is challenging, and child marriages are unfortunately common.’ Lack of awareness not only affects the adolescents themselves but also the broader community. Participant 2 in the FGD with older men in the Livingstone district noted a lack of awareness about available services, with young people potentially unaware of how to seek help. This gap in awareness was further echoed by Participant 5 in the FGD with older women in the Chipata district, who stressed the importance of disseminating more information to address the issue effectively.

Furthermore, participants in a FGD with older women in Chipata district emphasized the importance of increasing awareness about bodily functions and self-protection. They highlighted that improved knowledge in these areas has the potential to significantly influence and alter outcomes for adolescents. The following were the remarks of one of the FGD participants: *“Lack of awareness is also a big issue. If girls knew more about how their bodies work and how to protect themselves, things might be different.”* (Participant 8, FGD with Older women, Chipata district).

Lack of awareness in rural areas was also attributed to the limited access to information sources. Participant 6 in the FGD with young men in the Chipata district noted that urban areas are more connected to information sources, contributing to better awareness. The lack of awareness extends to understanding one's rights and legal protections. For instance, participant 5 in the FGD with young men in the Livingstone district noted, *“Sometimes it’s about awareness. People don’t always know their rights or the laws that protect them.”*

- **Information sources**

The research results underscores the importance of improving the availability of SRH information and services, especially in urban areas. KI- 1 from Livingstone pointed out that *“while access to information and services may be more readily available than in rural settings, there is still a gap in knowledge due to the lack of comprehensive sex education and awareness campaigns”* The participant also emphasized the potential of technology and media as effective tools for facilitating the exchange of information between rural and urban areas. KI-4 from the Southern Province highlighted the critical gap in information regarding SRH), including contraception, as a significant contributor to adolescent pregnancy. The participant underscored the importance of comprehensive awareness campaigns to educate adolescents about their reproductive rights and the legal protections available to them.

Similarly, Key Informant 2 (KI-2) from Chipata highlighted that many adolescents lack accurate information about SRH, which often leads to risky behaviours. This point was reinforced by Key Informant 1 (KI-1) from Petauke, who emphasized that young people frequently make misguided decisions due to inadequate SRH knowledge. Personal narratives from young women who have experienced adolescent pregnancy provide a poignant perspective. For instance, Participant 3 from Petauke shared her experience of becoming a mother at 19, attributing her situation to a lack of information about contraceptives and challenges in negotiating condom use with her partner. The participant expressed the need for more comprehensive education about contraceptives and the consequences of early pregnancy, stressing the importance of equipping adolescents with the knowledge to make informed decisions. These accounts underscore the critical need for empowering adolescents with accurate SRH information to prevent unintended pregnancies and support healthier life choices.

- **Knowledge of SRH**

One of the key findings of the research is the significant lack of information and awareness on SRH among urban adolescents. Participant 5 in the FGD with adolescents and young women who had experienced pregnancy as adolescents in Petauke noted, *“I was 19 when I had my first child. I wasn't well-informed about contraceptives, and I faced economic hardships.”* The absence of comprehensive sexual reproductive health education was highlighted as a prominent factor, leading to misguided decisions. KI- 1 in Livingstone pointed out that *“access to information and services may be more readily available than in rural settings, but the lack of sexuality education and awareness campaigns can still leave gaps in knowledge.”*

The research findings underscore the critical importance of creating safe spaces where adolescents can discuss SRH issues without fear of judgment or stigma. KI-4 from the Southern Province highlighted how stigma and fear of judgment prevent adolescents from accessing

SRH services openly, emphasizing the need for supportive environments that encourage adolescents to seek information and support without hesitation. Accessibility to sexual health services was identified as a pivotal factor in bridging the knowledge gap. Participants, such as Participant 5 in the FGD with adolescents and young women who have experienced pregnancy as adolescents in Petauke, recommended initiatives such as mobile clinics and the involvement of community health workers to bring SRH services closer to both rural and urban communities. These approaches would not only enhance knowledge but also help mitigate the stigma associated with seeking SRH services.

The collective input from participants highlighted the urgency of continually improving the availability of SRH information and services. Specific recommendations included increasing the ease of access to contraceptives and expanding awareness campaigns to ensure adolescents have access to comprehensive education on safe sex practices. This is especially relevant in urban areas, where adolescents often face unique challenges despite the relatively higher availability of educational resources.

Participants also emphasized the importance of breaking down societal and cultural barriers that inhibit open discussions about sexual health. KI-3 from Petauke stressed the value of creating environments where adolescents feel comfortable seeking information and support without judgment. Such environments are crucial for reducing adolescent pregnancy rates and equipping young people with the knowledge and tools they need to make informed decisions about their reproductive health. These findings collectively point to the need for community-driven initiatives, enhanced SRH service delivery, and widespread educational efforts to address both knowledge gaps and societal barriers.

#### ● **Role of education**

A recurring theme in the research findings is the pivotal role of education. Participant 2, in an FGD with women in Chipata, succinctly pointed out that “*education is a key factor.*”

Many girls drop out of school prematurely in urban areas, rendering them more vulnerable to adolescent pregnancy. Education equips adolescents with the knowledge and skills necessary to make informed choices. Another participant in the same FGD, Participant 6, highlighted the importance of education, stating, *“We should start with our young girls, teaching them about their bodies and their rights.”*

The findings emphasize the need for CSE tailored to urban contexts. KI-3 in Sinazongwe emphasized this need: *“I'd like to emphasize that education plays a pivotal role in addressing adolescent pregnancy. Sexuality education, tailored to urban contexts, should be prioritized.”* CSE equips adolescents with accurate information on SRHR contraceptive methods and their rights. Ensuring the effectiveness of education in addressing adolescent pregnancy requires proper teacher training and the creation of safe spaces within schools. Teachers need adequate training and resources to navigate sensitive discussions effectively. Safe spaces within schools can encourage open conversations, foster understanding, and provide support.

- **CSE**

The research findings underscore the inadequacy of current sexuality education programs in schools. Participant 4, in an FGD with older men in the Livingstone district, highlighted this issue, noting that “schools do teach something, but not enough about safe sex and contraceptives.” Similarly, Participant 2, in an FGD with older women in Chipata, expressed concerns, stating, *“Lack of sexuality education in schools is a major concern. Without proper information, adolescents are left vulnerable to misinformation and risky behaviours.”* These statements collectively emphasize the critical need to enhance the existing sexuality education programs to provide adolescents with comprehensive and accurate information about sexual health, contraception, and responsible sexual behaviour.

Participants and key informants in the research study consistently emphasized the need for CSE. KI- 3 from Sinazongwe advocated for the integration of CSE into school curricula, with a focus on “*responsible sexual behaviour and contraceptive knowledge.*” Participants also echoed this sentiment. Participant 4, in an FGD with adolescents and young women in Petauke expressed the viewpoint that “*We need more sexuality education in schools and communities.*” This participant recognized that knowledge is power, and CSE equips adolescents with the information they need to make informed choices on their SRH.

#### **4.6.3.1.2 Curiosity**

Curiosity was identified as a universal factor contributing to adolescent pregnancies, as noted by Participant 7 during the FGD with older women in Sinazongwe. In urban areas, the availability of information on SRH can sometimes inadvertently fuel curiosity, leading to experimentation. This curiosity, combined with peer pressure, often drives adolescents to engage in risky behaviours, such as sexual experimentation, increasing their vulnerability to unintended pregnancies. For instance, one of the participants in an FGD with young men in Livingstone noted that “*sometimes, curiosity leads to experimentation without a full understanding of the consequences.*” (Participant 8).

#### **4.6.3.1.3 Peer pressure**

The qualitative findings shed light on the influential role of peer pressure as a driving factor behind adolescent pregnancies in both rural and urban settings. Participants from rural and urban settings emphasized the impact of peer pressure on adolescents’ decision-making and behaviours. Key informants and participants in FGDs provided valuable insights into this phenomenon. KI-1 from Livingstone highlighted that peer pressure, urbanization dynamics, and exposure to different lifestyles significantly influence adolescent behaviour. This



observation underscores that urban areas are not immune to the pervasive influence of peer pressure. KI-3 from *Sinazongwe* further stressed the role of peer pressure, especially in urban settings, where adolescents may be influenced by their peers to engage in risky behaviours.

KI-1 from Petauke noted that peer pressure significantly influences adolescent behaviour in rural areas. Adolescents may feel compelled to conform to the perceived norm of their peers, which can lead to early pregnancies. The participants in the FGDs provided personal perspectives on peer pressure. In the FGD with Older Men in Petauke, Participant 5 acknowledged that:

*‘Rural youth often engage in risky behaviours driven by the desire to fit in and be seen as adults.’*

The desire to belong and gain acceptance within their peer group can significantly influence the likelihood of early pregnancies. Participant 3 in the FGD with Older Men in Livingstone echoed the idea that young people often want to fit in and be seen as adults. Peer pressure can drive them to make decisions they may not have considered otherwise. Adolescents may feel pressured to follow the choices of others in their village, even if those choices lead to early pregnancies. For instance, it was reported that *“when others in the village get pregnant, they might feel pressure to do the same. It is like they want to fit in.”* (Participant 6, FGD with Older women, Chipata).

#### ***4.6.3.1.4 Access to contraceptives***

The qualitative findings indicate that access to contraceptives is more readily available in urban areas compared to rural settings. However, even in urban regions, knowledge gaps and barriers remain. KI-1 from Livingstone emphasizes that ‘despite better availability of reproductive health services, gaps in knowledge persist due to the lack of CSE and awareness campaigns.’ This finding underscores the importance of both availability and education to

equip adolescents with the necessary information to make informed choices. Privacy concerns were also identified as significant barriers to accessing contraceptives, particularly for adolescents. One KI informant highlighted, “*Privacy concerns, particularly for contraceptive services, are also significant barriers.*” (KI- 4, Sinazongwe).

To address the challenges in contraceptive availability, the research suggests offering support services within urban healthcare facilities. KI-3 from Sinazongwe emphasizes that ‘counselling and mentorship programs can provide pregnant adolescents with the necessary emotional and educational support.’ Furthermore, it was recommended that youth-friendly health services ‘should offer accessible contraceptives and support for pregnant students,’ as highlighted by KI-2 from Sinazongwe. These support services are essential in addressing the physical, emotional, and educational needs of pregnant adolescents, providing a comprehensive approach to reducing adolescent pregnancies.

#### **4.6.3.2 Family Level**

##### ***4.6.3.2.1 Poverty***

Poverty was consistently identified as a significant contributing factor to early pregnancies in both rural and urban areas. The economic vulnerabilities many young girls face often lead them to seek relationships with older partners for financial support. Participants emphasized the dire economic circumstances in rural settings, where limited opportunities and lack of sex education exacerbated the issue. Poverty can push girls into situations where they feel they have no choice but to start families early in the hope of improving their financial circumstances, although this often proves challenging.

Moreover, the impact of poverty was not exclusive to rural areas; it was also observed in urban regions, where struggling families could lead some girls to view early pregnancies as a means of finding support or escaping difficult situations. The quote below illustrate how

poverty significantly influences adolescent pregnancies, with financial hardship driving many young girls into early motherhood. Verbatim quotations from the qualitative findings include:

*“Poverty and economic vulnerabilities are also contributors, as young girls may seek relationships with older partners for financial support.”* (KI-2, Chipata)

*“Poverty is a big reason. In our rural setting, we face limited opportunities, and girls think starting a family early is a way to escape from the financial struggles.”* (Participant 2, FGD with older men, Petauke)

*“Poverty is a big one. Families struggle sometimes, girls see marriage and having children as their only options. It’s heartbreaking to see them in that situation.”* (Participant 4, FGD with older women, Chipata)

*“Poverty and economic vulnerabilities drive some adolescents to engage in relationships with older partners, seeking financial support.”* (KI-3, Petauke)

#### **4.6.3.2.2 Early and Child Marriages**

The qualitative results highlight that early and child marriages are prevalent in both rural and urban areas, with rural regions being particularly affected by this practice. Participants consistently recognized early and child marriages as major contributors to adolescent pregnancies. This practice is deeply entrenched in some communities, where girls are often expected to become mothers at a young age, sometimes even before completing their education. Participant 5 in the FGD with adolescents and young women who have experienced pregnancy as adolescents in Petauke shared that early marriages are common in her community, where families may not prioritize girls' education. She noted, *"Early marriages are common in my community, and some families don't prioritize education for girls. It's almost expected that you'll become mother young."*

Cultural practices significantly contribute to the continuation of early marriages and pregnancies. Participant 4, in the same FGD, stressed the need for awareness campaigns that challenge these norms and promote education, stating, “*Cultural practices can perpetuate early marriages and pregnancies. Communities need awareness campaigns that challenge these norms and promote education.*” The importance of awareness campaigns is further underscored by Participant 3 in the FGD, emphasizing the need to educate communities about the risks of early pregnancies and the advantages of postponing motherhood, “*We need more awareness campaigns to show the risks of early pregnancies and the benefits of delaying.*” Participant 7 in the FGD reiterated the importance of awareness campaigns, suggesting that they could potentially lead to a shift in community practices, particularly concerning early marriages, “*We need more awareness campaigns to show the risks of early pregnancies and the benefits of delaying.*”

However, despite the challenges posed by early and child marriages, especially in rural settings, there is potential for change. Participant 5 in the FGD with adolescents and young women who have experienced adolescent pregnancies in Petauke pointed out that it is challenging for young mothers to return to school while facing the responsibilities of motherhood. Nevertheless, there is room for progress through awareness campaigns and community initiatives, “*It’s tough to go back to school with a child. Child marriages are common here too, unfortunately.*”

Child marriages, although legally prohibited, persist in some remote villages. The enforcement of existing laws against early marriage is recognized as essential. Participant 4 in the FGD with older women in Chipata emphasized that if communities understand the legal and health consequences of early marriages, they might be prompted to reconsider their practices, and she noted, “*Strengthening the enforcement of laws against early marriage is*

*essential. If communities understand the legal consequences, they might rethink their practices.”*

### **4.6.3.3 Community Level**

#### **4.6.3.3.1 Cultural norms**

KI- 1 from Petauke highlighted that initiation ceremonies are deeply rooted in cultural tradition. These ceremonies are significant in the community’s cultural and traditional fabric and are not easily disregarded or replaced. Traditions like these have persisted for generations, shaping the values and expectations within these communities. Participant 3, in an FGD with older men from Petauke, made a crucial point regarding the strength of cultural norms, highlighting that ‘in some rural areas, these norms hold more sway than government laws.’ Traditional practices and beliefs can outweigh legal regulations and significantly influence adolescents' choices and behaviours.

Participant 4, in an FGD with older men from Livingstone, expressed that urban communities are moving away from strict reliance on cultural norms. Instead, the emphasis is on factors like education and the availability of ASRH services. This shift indicates that urban areas are evolving and adapting to more contemporary challenges and opportunities. Participant 2, in an FGD with older women from Sinazongwe, echoed the sentiment that urban communities have ‘fewer’ traditional norms. The focus has shifted away from cultural practices, emphasizing contemporary challenges and solutions. Participant 7, in an FGD with young men from Livingstone, provided insights into the urban environment, where diverse cultures and lifestyles coexist. This diversity can ignite curiosity among young people about relationships and sexual experiences from an early age, which is significantly different from rural settings where traditional norms may play a more dominant role.

#### 4.6.3.3.2 Influence of elders

The traditional role of elders in the community has historically been pivotal in guiding young people. As one participant expressed, *‘Elders in the community used to play a big role in guiding young people, but it's not as strong as it used to be.’* (Participant 4, FGD with adolescents and young women who have experienced pregnancy as adolescents Petauke). Elders were highly respected as sources of wisdom and custodians of community values, playing a significant role in influencing the decisions and behaviours of adolescents.

However, qualitative findings indicated that the influence of elders has declined over time. As modernization and urbanization have reshaped communities, younger generations have increasingly challenged traditional customs. Some young individuals no longer consider the guidance of elders as the sole authority in making life choices. One participant noted this shift: *“Elders used to play a big role in enforcing these customs, but now, some young people challenge them”* (Participant 4, FGD with young men, Chipata).

The qualitative findings underscore the crucial role of community elders and traditional leaders in addressing adolescent pregnancies. These influential figures, who hold significant authority over community norms and values, are uniquely positioned to guide adolescents toward making informed and responsible choices. Engaging elders in awareness campaigns and educational initiatives can foster community-wide support for promoting ASRH. One participant emphasized this role: *‘Engaging traditional leaders and community elders is crucial. They hold influence and can help shift harmful norms by endorsing education and delaying marriage’* (Participant 3, FGD with older women, Chipata). By actively endorsing education and advocating for delaying marriage, these influential figures can contribute to reducing the prevalence of adolescent pregnancies.

#### 4.6.3.3.3 *Traditional practices*

While deeply rooted in Zambian culture and traditions, traditional practices appear to be changing, particularly in urban areas. Participant 6, in the FGD with older women from Chipata, noted that “*young girls are less interested in cultural practices these days.*” This shift in interest away from traditional practices among young girls may pose challenges, as these ceremonies often carry cultural significance. In urban settings, as mentioned by participants in Sinazongwe, traditional norms seem to have less influence, with contemporary challenges taking precedence. These changes in perception and engagement with traditional practices could affect how cultural factors influence adolescent pregnancies in different regions of Zambia. While traditional practices remain relevant in some areas, especially in rural areas, they are less prominent in urban settings where adolescents face distinct challenges.

In addition to cultural norms, KI informant 1 from Petauke emphasized that initiation ceremonies are deeply rooted in the community’s culture and traditions. These ceremonies are integral to the local way of life and contribute to shaping the values and expectations regarding adolescent behaviour. Participant 5, in an FGD with older men from Petauke, provided insights into the prevailing beliefs in rural areas, where there is a strong conviction that girls should remain pure until marriage. This idea is deeply entrenched in their traditions, and families hold expectations. There is a sense of honour associated with maintaining purity until marriage, which can impact the choices of adolescents.

Participant 6, in an FGD with older men from Petauke, highlighted the role of initiation ceremonies in reinforcing these traditional beliefs. While these ceremonies are intended to prepare girls for adulthood, they sometimes focus on traditional submissive sexual roles more than promoting safe sexual behaviour. This highlights the tension between cultural traditions and the need for CSE that emphasizes responsible sexual behaviour and contraception for sexually active adolescents. In contrast to rural areas, participant 6, in an FGD with older

women from Chipata, corroborated with the view that young girls in urban settings are becoming less interested in traditional practices. This shift may create challenges and alter how cultural norms influence adolescent behaviour.

#### **4.6.3.4 Institutional Level**

##### ***4.6.3.4.1 School involvement***

Based on qualitative findings, the role of schools in addressing adolescent pregnancies is considered significant. KI- 3 from Sinazongwe highlighted the need to integrate CSE into school curricula, emphasizing responsible sexual behaviour and contraceptive knowledge. This approach has the potential to create well-informed students equipped with knowledge and skills required to make informed decisions about their SRH. It was noted that returning to school after childbirth was challenging for some adolescent mothers, leading to extended periods of absence, as KI-2 from Chipata pointed out. This challenge further underscores the importance of providing appropriate support and flexibility within the educational system to accommodate pregnant and parenting students.

KI-2 from Sinazongwe highlighted the school's recognition of the importance of addressing adolescent pregnancy and its commitment to supporting pregnant and parenting students with dignity and respect. While specific programs tailored to this issue are currently lacking, the school endeavours to create an understanding and accommodating environment. As noted,

*“Flexibility regarding attendance, deadlines, and counselling services is already provided to support these students.”*

However, additional resources and targeted programs are needed to address the unique challenges faced by pregnant and parenting students more effectively. Integrating CSE into the curriculum and fostering a supportive educational environment are critical strategies for



reducing adolescent pregnancies and enabling pregnant adolescents to continue their education without stigma or barriers.

#### ***4.6.3.4.2 Legal and policy awareness***

The awareness and understanding of existing laws and policies related to adolescent pregnancy appear to be limited across both rural and urban areas of Zambia. One KI from Petauke (KI-4) emphasized that ‘the awareness of these legal frameworks is generally lacking.’ Furthermore, the enforcement of these laws is often found to be ineffective, especially in rural areas. Participant 2 from the FGD with older men in Petauke highlighted that, “*while laws exist, they are not adequately enforced in rural communities*”.

Participants noted that while some knowledge of these laws exists in urban areas, they are not widely discussed or well-known among the population. This lack of awareness about the legal protections and rights available to adolescents is a concern. Participant 6, in the FGD with older men from Livingstone, stressed the need for increased awareness, suggesting that the laws should be more well-known, especially in urban communities.

Additionally, there is a recognized issue of follow-through in implementing these laws, which can lead to the gap between legal intentions and practical outcomes, as mentioned by Participant 7 in the same group discussion in Livingstone: “*Raising awareness and improving the understanding and enforcement of existing laws and policies are vital to addressing adolescent pregnancies effectively in both rural and urban areas*”.

KI-4 from the Southern province highlighted the general lack of awareness regarding the laws, including policies concerning adolescent pregnancy. This lack of awareness is not confined to a specific region but is a prevalent issue in rural and urban areas. Limited awareness of laws and policies emphasizes the need for more comprehensive dissemination and education about legal protections and rights related to adolescent pregnancy.

#### 4.6.3.4.3 Law Enforcement challenges

KI-4 from the Eastern province emphasizes the need to strengthen the enforcement of relevant laws, suggesting that societal norms can hinder effective enforcement. Additionally, Participant 6 from Livingstone highlighted the challenges authorities face in prioritizing these issues in rural settings. *“In rural areas, enforcing laws related to adolescent pregnancy can be particularly challenging”.*

This difficulty stems from the entrenched societal norms and traditional practices that often shape the community’s behaviour and attitudes. These norms may perpetuate early marriages and adolescent pregnancies, making it hard for authorities to enforce the existing laws. KI-4 from the Eastern province underscores the importance of strengthening these laws enforcement to ensure that offenders consequences are realized. This may require raising awareness and fostering a shift in societal norms and practices.

In urban areas like Livingstone, the challenges in enforcing laws related to adolescent pregnancy may differ. Participant 6 highlights the complexity of urban life, where numerous issues demand the attention of authorities. Adolescent pregnancy might not always be prioritized amid these competing concerns. The urban environment presents its unique challenges in law enforcement, and authorities need to find effective ways to address these challenges. Participant 4, in the FGD with older women in Chipata, emphasized the importance of strengthening the enforcement of laws against early marriage and noted that,

*‘If communities fully understand the legal consequences of early marriage, they might reconsider their practices.’*

This insight reinforces the need for enforcement and awareness efforts to curb practices that contribute to adolescent pregnancy.

#### **4.6.3.4.4 Legal protections**

The qualitative findings explore the awareness and enforcement of laws designed to protect adolescents from early pregnancies. Participant 2, during the FGD with older men in Petauke, acknowledged the existence of laws aimed at safeguarding young people. However, in rural areas like Petauke, these laws are often poorly enforced. While the government's intentions may be commendable, the practical realities in rural communities tell a different story. Participant 3, from the same group, emphasized that cultural norms frequently take precedence over legal frameworks, with deeply rooted traditions influencing behaviour more significantly than government laws, making effective enforcement a considerable challenge.

Although urban areas face different dynamics, challenges in enforcing laws related to adolescent pregnancy persist. Participant 3, in the FGD with older men in Livingstone, observed that even in urban settings, "*laws related to protecting young people may not be enforced effectively.*" Participant 7 from the same group highlighted that inconsistent enforcement raises concerns about the equitable application of these laws across geographic regions. In rural areas, the issue of limited awareness compounds the problem, as pointed out by Participant 3 in the FGD with older women in Chipata. While these laws may exist, they are often not widely communicated or understood, further complicating enforcement efforts.

Participant 1, during the FGD with young men in Livingstone, reinforced the need for stronger and more consistent enforcement mechanisms, noting that the existing laws often fail to penetrate rural areas or address enforcement gaps effectively. These perspectives underscore the critical need for robust awareness campaigns, community engagement, and consistent enforcement to ensure that laws protecting adolescents from early pregnancies are both understood and implemented effectively, regardless of geographic or cultural context.

#### 4.6.3.4.5 Access to health services

- **Confidentiality concerns**

Confidentiality concerns emerged as a significant barrier to adolescents accessing SRH services. KI-3 from Sinazongwe emphasized the importance of creating a non-judgmental and welcoming youth-friendly environment. This underscores the need for healthcare facilities to be sensitive to the unique needs and fears of adolescents, particularly in addressing their concerns about privacy and judgment. Maintaining confidentiality, especially for contraceptive services, is critical, as highlighted by KI-4 from the Eastern Province.

To encourage adolescents to seek SRH services without fear, the implementation of youth-friendly clinics that prioritize confidentiality is essential. This sentiment was strongly echoed by participants in the FGDs. For instance, Participant 2 from the FGD with adolescents and young women who experienced pregnancy as adolescents in Petauke highlighted the need for clinics offering confidential services. She stressed that such facilities would make it easier for adolescents to seek help, knowing their privacy would be respected. These findings underline the importance of tailoring SRH services to ensure that adolescents feel safe, supported, and confident in accessing the care they need. Similarly, Participant 4 from the FGD with older men in Livingstone highlighted that *'confidentiality concerns are a real issue, and adolescents might hesitate to utilize reproductive health services due to fears that their privacy will not be respected.'* Thus, ensuring confidentiality in healthcare settings is crucial to addressing adolescents' unique needs and concerns and encouraging them to seek the care they require without judgment or fear.

- **Cost barriers**

The research findings revealed that cost barriers significantly impact adolescents' ability to obtain reproductive health services. KI-4 from the Southern province emphasized that in rural settings, 'geographical accessibility can be a challenge, especially for individuals residing in remote areas.' This highlights the geographic disparities in service availability and

accessibility, particularly in more isolated regions. Furthermore, the cost of services was recognized as a potential barrier, as mentioned by Participant 1 in the FGD with young men in Livingstone, who noted that “... *even if services are available, the financial aspect can hinder young people from accessing the care they need.*” The cost of services, including contraceptives and healthcare visits, poses a tangible barrier for adolescents, particularly in settings with limited economic resources. To address this issue, measures should be taken to ensure affordability and availability of services for all, irrespective of their financial means or geographic location.

- **Health facilities**

The qualitative findings underscored several challenges related to health facilities, which can hinder availability of SRH services for adolescents. KI-4 from the Southern province pointed out that ‘health facilities may not always be within reach,’ highlighting the issue of geographic accessibility, which is particularly problematic in rural areas. Furthermore, participants in the FGDs raised concerns about the ease of accessing health facilities. In Petauke, young women who had experienced pregnancy as adolescents (Participant 7) noted that ‘*some health facilities are far away.*’ This underscores the challenge of geographic accessibility, which can deter adolescents from seeking necessary services.

Furthermore, participants in these discussions also highlighted the issue of judgment from healthcare workers, particularly in rural areas. In Sinazongwe, young women (Participant 7) expressed concerns about potential embarrassment when asking for contraceptives at crowded health facilities. Such judgment and discomfort can be significant barriers, especially for rural youth who may already face societal stigmatization. In contrast, KI-3 from Petauke mentioned that their health facility regularly attends to pregnant adolescents seeking antenatal care and delivery services. This demonstrates the importance of providing non-judgmental and youth-friendly healthcare services to ensure adolescents feel comfortable seeking the care they need. Considering these findings, addressing issues related to the accessibility and acceptability

of health facilities, particularly in rural areas, and promoting non-judgmental, youth-friendly services are crucial for enhancing adolescents' ability to obtain reproductive health services.

- **Youth-Friendly Services**

Furthermore, healthcare facilities alluded to earlier, the qualitative results emphasize the importance of adolescent-friendly health services to address high adolescent pregnancies. For instance, KI-3 from Sinazongwe underscored the need to 'create a non-judgmental and welcoming environment within health facilities.' KI-4 from the Eastern province further emphasized the significance of establishing youth-friendly clinics with confidential services, which would encourage adolescents to seek help without fear. KI from Petauke highlighted the need to improve the availability of youth-friendly health services, making contraceptives readily available and ensuring privacy for adolescents. This perspective resonates with the experiences of those who faced adolescent pregnancies, such as Participant 2 from Petauke, who emphasized the critical importance of youth-friendly clinics offering confidential services, enabling adolescents to access support in a safe and nonjudgmental environment.

Additionally, Key Informant 3 (KI-3) from Petauke emphasized the need to enhance the availability and accessibility of youth-friendly health services. This includes ensuring a consistent supply of contraceptives and equipping healthcare providers with the necessary training to cater to the unique needs of pregnant adolescents. Similarly, in Sinazongwe, KI-3 highlighted the critical role of youth-friendly health services in facilitating access to contraceptives and offering tailored support for adolescents who are pregnant or at risk. Sinazongwe KI-3, also emphasized the importance of youth-friendly health services, especially in offering accessible contraceptives and providing support for pregnant students. These findings collectively underscore the importance of creating a healthcare environment tailored

to the specific requirements and issues of adolescents, promoting accessibility and confidentiality, and including non-judgmental care to encourage them to seek necessary SRH services.

#### **4.6.4 Response to Adolescent Pregnancy**

##### **4.6.4.1 Rural Response**

###### ***4.6.4.1.1 Impact on families***

The qualitative results revealed an array of responses to adolescent pregnancy in rural settings, specifically focusing on the impact of family dynamics on early pregnancies. The findings highlight the influence of economic challenges, societal priorities, and the role of harmful traditional practices in driving adolescents toward early parenthood. Economic challenges and limited opportunities were identified as factors driving adolescents into relationships with older partners for financial support. KI-3 from Sinazongwe stated, ‘*Some families in urban areas prioritize economic stability over education for their daughters.*’ This prioritization of financial stability over education can lead girls to seek older partners for support, increasing their vulnerability to early pregnancies.

In rural areas, families can often be judgmental when an adolescent becomes pregnant, creating significant challenges for the pregnant adolescent. In an FGD with adolescents and young women who experienced pregnancy as adolescents in Petauke, participants revealed that some families, upon learning of the pregnancy, distance themselves from the adolescent and fail to provide support for her to continue her education. This lack of support not only disrupts her educational trajectory but also increases her vulnerability to further socio-economic hardships. Participant 7, from the FGDs with older men in Petauke, emphasized that while families may eventually accept pregnant adolescents, there is often a pervasive sense of shame attached to the situation. This sense of shame can manifest in the form of isolation, with

adolescents feeling as though they are carrying a heavy burden. Gossip within the rural community further compounds their struggles, intensifying feelings of stigma and exclusion.

Additionally, poverty was highlighted as a critical factor contributing to early pregnancies in rural areas. Participant 3, from the FGDs with older men in Livingstone, pointed out that poverty within families can drive adolescents toward early pregnancies, often as a result of engaging in transactional relationships or early marriages to alleviate financial hardships. The intersection of poverty, stigma, and lack of family support creates a challenging environment for pregnant adolescents in rural communities, leaving them with limited options for improving their circumstances.

Harmful traditional practices, such as initiation ceremonies, were mentioned in an FGD with older women in Chipata as factors that can push girls into early sexual relationships and marriages, ultimately increasing their vulnerability to pregnancy. Participant 4, from the same FGD, emphasized that these practices do not always focus on the right aspects and may not provide adolescents with information and guidance required to make informed decisions. Understanding family dynamics is crucial when addressing adolescent pregnancies in rural areas. In Chipata, participant 1, from an FGD with older women, highlighted that *'families in rural settings might consider early marriage acceptable for girls, perpetuating a cycle of early pregnancies.'* Family struggles can further exacerbate the issue, as Participant 1 from a discussion with older women in Chipata pointed out, leading some girls to see early marriage and having children as their only option to reduce their family's financial burden.

#### ***4.6.4.1.2 School re-entry after adolescent pregnancy***

Re-entering school after experiencing adolescent pregnancy presents significant challenges, particularly for girls in rural communities. Child marriages, school dropouts, and shattered aspirations are often the unfortunate outcomes, further hindering these girls' ability



to pursue their education. In rural settings, these challenges are particularly pronounced. Key informant KI-2 from Sinazongwe, also identified as KI-3, highlighted the detrimental impact of adolescent pregnancies on students' academic progress, attendance, and overall well-being. These consequences often create significant barriers for pregnant adolescents attempting to reintegrate into the school system.

Participant 6, an older man from an FGD in Petauke, shared the poignant story of a 15-year-old girl who was forced to leave school after becoming pregnant. Her dreams of a better future were derailed by the difficulties associated with adolescent pregnancy, highlighting the harsh realities many young girls face. Similarly, Participant 8, from an FGD with older women in Chipata, noted that it is rare for pregnant adolescents to return to school, as societal norms and stigma often work against them. In rural areas, where child marriages are more prevalent, these societal pressures further limit the opportunities for girls to continue their education and rebuild their lives.

These findings underscore the need for targeted interventions that address the barriers to school re-entry for pregnant adolescents. Community education programs, policies supporting re-entry, and counselling services for pregnant adolescents and their families are essential to mitigating the adverse effects of adolescent pregnancy on education. By fostering supportive environments and addressing systemic and cultural barriers, these efforts can help ensure that young mothers could resume their education and achieve their aspirations.

#### ***4.6.4.1.3 Treatment of pregnant adolescent girls***

The research findings revealed the treatment and support of pregnant adolescents in rural communities. KI-3 from Sinazongwe pointed out that pregnant adolescents face unique healthcare challenges, including delayed prenatal care initiation. '*Many of them delay seeking prenatal care due to fear, lack of knowledge, or societal stigma.*' Such delays can result in

complications for both the adolescent mothers and their babies. The societal stigma surrounding adolescent pregnancy extends to families, as revealed in an FGD with young women who have experienced pregnancy as adolescents in Petauke. Participant 6 noted that families can be judgmental, often pushing pregnant adolescents away and not supporting their continuation of education. Lack of family support can exacerbate the challenges faced by these girls. In addition, KI-3 from Petauke stated that their health facility regularly attends to pregnant adolescents seeking antenatal care and delivery services. However, challenges exist, including inadequate prenatal care due to delayed pregnancy recognition and transportation issues. Some pregnant adolescents live in remote areas, making it difficult for them to reach healthcare facilities.

#### **4.6.4.2 Urban Response**

##### ***4.6.4.2.1 Impact on career goals***

The qualitative findings also highlighted urban responses to adolescent pregnancy and their impact on adolescents' career aspirations. KI-2 from Chipata pointed out that adolescent pregnancy disrupts the educational pursuits of young girls in urban areas. This disruption can have long-term consequences on their academic progress and future opportunities. The focus is placed on the importance of education and career aspirations, and early pregnancy is seen as a significant obstacle to achieving these goals. In Livingstone, a participant from an FGD with men emphasized the impact of adolescent pregnancy on education and career aspirations. The disruption caused by early pregnancy can lead to extended periods of absence from school, creating hurdles for young mothers. In Chipata, KI-2 discussed the consequences of adolescent pregnancy in urban areas. Unintended pregnancy not only affects education but also leads to economic challenges. Many young mothers struggle to balance their educational pursuits with caregiving responsibilities.

#### ***4.6.4.2.2 Treatment of pregnant adolescent girls***

The research findings revealed the treatment and support of pregnant adolescents in urban areas. In Chipata, KI-3 mentioned that pregnant students often encounter increased absenteeism due to health issues and other related challenges. The societal stigma surrounding pregnancy can affect their emotional well-being and hinder their overall participation and engagement in the classroom. In Livingstone, participant 2, from an FGD with men, highlighted that local schools have policies to support pregnant girls in continuing their education. These policies are crucial in providing a supportive educational environment for pregnant adolescents though in reality some affected girls encounter barriers within the school system and families.

#### ***4.6.4.2.3 School support in response to adolescent pregnancy in urban areas***

The research findings revealed that urban schools are implementing measures to support pregnant and parenting students by fostering a supportive and accommodating environment. While these initiatives are valuable, there is a need for additional resources and programs to enhance their ability to address the unique needs of adolescent mothers and fathers. This recognition reflects the commitment to ensuring pregnant and parenting students have the necessary support and resources to continue their education and achieve their academic goals.

KI-2 from Chipata provides insights into the strategies employed by schools in creating a supportive environment for these students and highlights the need for additional resources and programs to address their unique needs. In Livingstone, schools acknowledge the importance of addressing adolescent pregnancy and creating a supportive environment for pregnant and parenting students. KI-2 emphasized that the dignity and rights of these students

are respected. Schools strive to be understanding and accommodating, offering flexibility regarding attendance, deadlines, and counselling.

#### **4.6.5 Rural and Urban Perspective on Adolescent Pregnancy**

##### **4.6.5.1 Perceptions of early and child marriages**

Regarding perceptions of early and child marriages, Participant 4, in the FGD with adolescents and young women who have experienced pregnancy as adolescents in Petauke, highlighted the significant role that cultural practices play in perpetuating early marriages and pregnancies in rural areas. Deeply entrenched cultural norms often prioritize traditional practices over education, reinforcing the expectation that young girls transition into motherhood at an early age. These cultural expectations undermine efforts to delay marriage and motherhood, perpetuating cycles of poverty and limited opportunities for young women.

A common concern shared across both rural and urban settings is the need to strengthen the enforcement of laws against early marriage. Raising awareness about the legal consequences of early marriages has the potential to challenge entrenched practices and encourage communities to rethink these harmful traditions. This approach is particularly critical in regions where early marriages are most prevalent, as robust legal frameworks and community education can help shift perceptions and protect the rights of young girls. Empowering communities through education and advocacy not only fosters legal compliance but also promotes cultural change that values education and delays early motherhood. The quote, *“In my community, early marriages are common, and some families do not prioritize education for girls. It’s almost expected that you will become a mother young,”* reflects the prevailing situation in rural communities.

Early marriages are not only prevalent but often culturally ingrained in rural settings, where education is frequently deprioritized for girls. In these communities, societal expectations lean heavily toward early motherhood, further limiting opportunities for

educational advancement. While similar challenges exist in urban areas, there is a noticeable shift in perspective, with a growing emphasis on education and career aspirations. Participants in urban settings demonstrated a greater awareness of the consequences of early pregnancies, highlighting the importance of education as a pathway to broader opportunities. The prevailing perception in urban areas is that early marriages significantly disrupt educational trajectories and curtail future prospects, underscoring the need for continued advocacy and awareness to address these disparities.

#### **4.6.5.2 Rural challenges**

As highlighted by KI-4 in the Eastern province, *‘enforcing laws related to adolescent pregnancy can be particularly challenging in rural settings.’* The predominant societal norms and deeply rooted cultural practices often hinder effective enforcement. These norms can perpetuate harmful customs, such as early marriages, which are detrimental to adolescent girls. Geographical accessibility presents a significant challenge in rural areas. Key informant, 4 from the Southern province, points out that *‘remote areas can be especially challenging to reach.’* The absence of adequate infrastructure and transportation options significantly restricts young people's access to essential services.

Research findings indicated that rural communities have limited availability of healthcare services. KI-3 in Petauke highlights that *‘some clinics are crowded, making it challenging for adolescents to seek services related to reproductive health and contraceptives.’* Moreover, the stigma attached to asking for contraceptives can deter young people from seeking necessary healthcare. The KI further emphasizes the challenges related to transportation, particularly for pregnant adolescents living in remote areas. The difficulties they face in accessing healthcare facilities can delay receiving crucial antenatal care.

#### 4.6.5.3 Urban advantages

The qualitative results underscored the advantages and favourable circumstances in urban areas regarding addressing adolescent pregnancy. KI-3 from Livingstone acknowledges that *‘adolescent pregnancy remains a concern in the urban district, but the prevalence is comparatively lower than in rural areas.’* This lower prevalence may be attributed to several urban advantages. Urban areas tend to place a higher value on education. According to a participant in an FGD with older men in Livingstone, there is a greater likelihood of young girls attempting to return to school after experiencing adolescent pregnancy compared to rural areas.

Moreover, KI-2 from Livingstone urban district highlighted that in urban areas, *‘adolescent girls are more likely to attempt a return to school after falling pregnant compared to their rural counterparts.’* This is attributed to the high value placed on education in urban communities. This perspective was echoed during an FGD with older men in the Livingstone District, where participants highlighted that urban communities place greater emphasis on education and service accessibility, relying less on cultural norms. Additionally, the discussion addressed the importance of maintaining privacy in urban clinics. In the Chipata district, participants mentioned, *“urban clinics offer more privacy, making young people feel more comfortable seeking services, which may contribute to addressing the issue of adolescent pregnancies.”*

This reflects the importance placed on education in urban communities and the determination to continue schooling even after a pregnancy. Moreover, urban settings often offer a higher degree of privacy and confidentiality. In the FGD with older women in Sinazongwe, it is noted that urban clinics can provide more privacy for adolescents seeking healthcare services. This enhanced privacy can make young people feel more comfortable

when seeking services related to reproductive health and contraceptives. Seeking these services in an urban environment may carry less judgment or stigma.

#### **4.6.6 Common Themes on Adolescent Pregnancy**

##### **4.6.6.1 Overarching factors**

Based on the qualitative findings, common themes that emerged from discussions on adolescent pregnancy in both rural and urban areas provide an overarching understanding of the factors influencing adolescent pregnancy and serve as a foundation for potential strategies and interventions. One overarching factor identified by the key informants is the need to foster dialogue and collaboration between rural and urban areas. As emphasized by KI-1 in Petauke, it is crucial to establish connections and communication channels between rural and urban settings to address the issue of adolescent pregnancy effectively. Collaboration can enable the sharing of best practices, resources, and experiences, leading to a comprehensive approach to tackling adolescent pregnancy.

Economic challenges are another pervasive factor. It is observed that poverty remains an issue, even in urban areas. Some families in urban settings struggle financially, compelling adolescent girls into commercial sex activities or even marriages and hence leading to adolescent pregnancies. Participant 3, in an FGD with older men from Livingstone, highlighted the financial difficulties faced by some families, suggesting a link between economic hardships and adolescent pregnancy.

##### **4.6.6.2 Shared perception**

A crucial common view centres on the significance of CSE. KI-3 in Chipata stressed the need to include CSE within school curricula. Education should focus on promoting responsible sexual behaviour and delivering comprehensive knowledge about contraception, equipping young people with the information needed to make informed decisions regarding

their SRH. Various stakeholders share this perception and highlight the crucial role of education in addressing adolescent pregnancy.

Another common understanding is the importance of offering support services within schools. These services can include counselling and mentorship programs, which provide pregnant and parenting students with necessary emotional and educational support. KI-2 in Chipata underlined this, recognizing the value of creating safe spaces within schools for open conversations to foster understanding and support. The shared perception is that schools have a pivotal role in supporting adolescent mothers to continue with education and receive the support they require. The shared perception also acknowledges poverty as a significant factor contributing to adolescent pregnancy. Participant 4, in an FGD with adolescents and young women who have experienced pregnancy as adolescents, stated that when adolescents and their families cannot afford education or basic needs, marriage and pregnancy may be perceived as a way out of these difficulties. This understanding of the economic dimension of adolescent pregnancy is shared among various stakeholders.

#### **4.8 Evaluation of Findings**

This section employs data triangulation to present a thorough understanding of the key factors influencing adolescent pregnancy in Zambia. By integrating multiple data sources and research methods, data triangulation validates and corroborates findings, ensuring a more nuanced analysis. The study combined quantitative and qualitative approaches to examine the multifaceted issue of adolescent pregnancy from diverse perspectives. This section provides an in-depth analysis through data triangulation, offering a holistic insight into the factors influencing adolescent pregnancy in Zambia.

This analysis combines quantitative insights from frequency distribution tables and binary logistic regression with qualitative data analysis findings from KIIs and FGDs. While



the quantitative data highlighted prevalence rates and statistical associations, the qualitative data provided contextual insights and nuanced perspectives from adolescents and key informants.

#### 4.8.1 Quantitative Findings

The quantitative analysis revealed several key predictors of adolescent pregnancy, with notable variations across rural and urban contexts:

- **Age and adolescent pregnancy:** Age was a statistically significant predictor of adolescent pregnancy in both rural and urban settings, with increasing age correlating with a higher likelihood of pregnancy ( $B = 0.198$ ,  $\text{Exp}(B) = 1.219$  in urban;  $B = 0.271$ ,  $\text{Exp}(B) = 1.312$  in rural,  $p < 0.05$ ). This finding aligns with existing literature, which suggests that older adolescents face increased exposure to risk factors such as peer influence, economic vulnerability, and reduced parental oversight.
- **Education level:** Educational attainment significantly influenced adolescent pregnancy rates, with primary education being associated with notably higher odds of adolescent pregnancy in both urban ( $B = 1.893$ ,  $\text{Exp}(B) = 6.640$ ) and rural ( $B = 1.449$ ,  $\text{Exp}(B) = 4.261$ ) areas. The impact of education as a protective factor was particularly pronounced in urban settings, reinforcing concerns about the limitations of CSE. Even among adolescents with secondary education, the risk of pregnancy remained elevated in urban areas ( $B = 1.259$ ,  $\text{Exp}(B) = 3.524$ ,  $p < 0.05$ ), highlighting persistent gaps in reproductive health education and service access.
- **Marital status:** Adolescent marriage was a strong predictor of pregnancy in rural areas, with married adolescents at substantially higher risk, while those who were never married or separated had significantly lower odds of pregnancy ( $B = -2.234$ ,  $\text{Exp}(B) =$

0.107;  $B = -3.563$ ,  $\text{Exp}(B) = 0.028$ ,  $p < 0.05$ ). This finding underscores the role of child marriage as a driver of early pregnancies in rural communities.

- **Early sexual debut:** Adolescents who initiated sexual activity at a younger age exhibited a significantly higher likelihood of pregnancy, both in urban ( $B = 0.880$ ,  $\text{Exp}(B) = 0.415$ ) and rural ( $B = 0.320$ ,  $\text{Exp}(B) = 0.726$ ) settings. This reinforces the need for early intervention through CSE programs to delay sexual initiation.
- **ASRH services availability:** The research findings indicate that availability of ASRH services does not have a statistically significant impact on adolescent pregnancy in both urban ( $B = 0.498$ ,  $SE = 0.359$ ,  $p > 0.05$ ) and rural ( $B = 0.498$ ,  $SE = 0.359$ ,  $p = 0.165$ ) settings. This suggests that merely having ASRH services accessible in a given location does not necessarily translate into lower adolescent pregnancy rates.
- **ASRH services uptake:** Similarly, the uptake of ASRH services in urban areas ( $B = -0.081$ ,  $SE = 0.081$ ,  $p = 0.315$ ) did not show a statistically significant effect on reducing adolescent pregnancy. However, in rural areas, the uptake of ASRH services ( $B = 0.498$ ,  $SE = 0.359$ ,  $p = 0.165$ ) was associated with a decreased likelihood of adolescent pregnancy, though this effect was not statistically significant at the 5% level. This suggests a potential but inconclusive relationship between ASRH service utilization and pregnancy prevention in rural settings. While the findings indicate that adolescents who utilized ASRH services in rural areas were 0.286 times less likely to experience adolescent pregnancy, the lack of statistical significance may imply that other factors, such as cultural norms, service quality, and accessibility barriers, could be influencing this relationship.
- **Contraceptive uptake:** Increased contraceptive use was associated with a lower risk of adolescent pregnancy in both urban ( $B = -1.316$ ,  $\text{Exp}(B) = 0.268$ ) and rural ( $B = -$

2.305,  $\text{Exp}(B) = 0.100$ ) settings. This underscores the necessity of improving access to and education about contraception as a key strategy for pregnancy prevention.

- **Awareness of harmful practices:** Awareness of harmful practices emerged as a significant protective factor in urban settings ( $B = -1.008$ ,  $p < 0.05$ ,  $\text{Exp}(B) = 2.741$ ), while the actual experience of harmful practices significantly increased the likelihood of adolescent pregnancy in both urban ( $B = 1.525$ ,  $p < 0.05$ ,  $\text{Exp}(B) = 4.597$ ) and rural ( $B = 1.453$ ,  $p < 0.05$ ,  $\text{Exp}(B) = 4.275$ ) areas. This finding emphasizes the critical role of CHWs in mitigating the impact of harmful socio-cultural practices through education and community engagement.
- **Experience of harmful practices:** Experience of harmful practices is a significant predictor of adolescent pregnancy in both rural and urban settings, with urban adolescents experiencing harmful practices having 4.6 times higher odds ( $B = 1.525$ ,  $p < 0.05$ ,  $\text{Exp}(B) = 4.597$ ) of adolescent pregnancy, while their rural counterparts had 4.3 times higher odds ( $B = 1.453$ ,  $p < 0.05$ ,  $\text{Exp}(B) = 4.275$ ). These findings underscore the pervasive and detrimental impact of harmful cultural, social, and economic practices on adolescent reproductive health outcomes.
- **Role of CHWs:**

The impact of CHWs on adolescent pregnancy was found to be insignificant in urban areas ( $B = -0.095$ ,  $p = 0.894$ ), suggesting that CHW interventions in these settings do not significantly influence pregnancy rates. However, in rural areas, CHWs played a significant role in reducing adolescent pregnancy, with a statistically significant association at the 5% level ( $B = -0.790$ ,  $p = 0.020$ ). Adolescents who received CHW guidance in rural areas were found to be 2.203 times less likely to experience adolescent pregnancy, underscoring the critical role of CHWs in rural SRH interventions.

#### 4.8.2 Qualitative Findings

The qualitative data provided deeper insight into the individual, family, socio-cultural and structural determinants of adolescent pregnancy, corroborating and contextualizing the quantitative results:

- **Lack of awareness and education:** Participants consistently reported inadequate SRH knowledge as a major contributor to adolescent pregnancies. The absence of CSE within schools and communities leaves adolescents susceptible to misinformation and risky sexual behaviours.
- **Cultural beliefs and practices:** In rural communities, initiation ceremonies and other traditional rites often normalize early sexual activity, inadvertently increasing pregnancy risks. Cultural norms frequently override formal legal protections, perpetuating child marriages and limiting young girls' autonomy over their reproductive health.
- **SRH barriers:** The accessibility of ASRH services remains a substantial challenge, particularly in rural areas, where financial constraints, long distances to healthcare facilities, and stigma from healthcare providers deter adolescents from seeking essential SRH services. Urban adolescents, while benefiting from greater healthcare availability, still face concerns related to privacy and confidentiality.
- **Economic vulnerability and transactional relationships:** Poverty emerged as a major factor influencing adolescent pregnancy, with many young girls engaging in transactional relationships due to financial insecurity. This trend was especially pronounced in rural areas, where economic opportunities for adolescent girls are severely limited.
- **Early and child marriages:** While prevalent in both rural and urban settings, child marriages were found to be more widespread in rural areas, particularly in the Eastern

Province. Cultural traditions and economic hardships drive these marriages, underscoring the need for stronger legal enforcement and community sensitization.

- Peer pressure and gender dynamics: Social pressures, power imbalances in relationships, and limited decision-making capacity for adolescents and young women were key factors contributing to adolescent pregnancies. Many participants emphasized the need for gender-sensitive interventions that empower adolescent girls and challenge societal norms that perpetuate gender inequalities.
- Psychosocial well-being: Adolescent mothers indicated that they frequently face stigma, social isolation, and mental health challenges. The findings highlight the importance of integrating psychosocial support services into existing SRH programs to help young mothers navigate the emotional and social burdens associated with early pregnancy.

#### **4.8.3 Triangulation**

Triangulation, the process of integrating multiple data sources to validate and enrich research findings, served as a critical analytical strategy in this study. By combining quantitative and qualitative evidence, the research illuminated the multidimensional, context-specific drivers of adolescent pregnancy in Zambia and provided a more holistic understanding than either method could offer alone. This approach aligns with best practices in public health research, where complex social and behavioural phenomena require both statistical measurement and interpretive depth.

Notably, both strands of data converged on several critical themes, including the influence of age, education level, early sexual debut, cultural norms, limited access to ASRH services, and household economic vulnerability. The quantitative data quantified the magnitude and strength of associations between these variables and adolescent pregnancy, confirming the

statistical significance of key risk factors across rural and urban settings. In contrast, the qualitative findings offered deeper insight into the *why* and *how* behind these patterns capturing adolescents' lived experiences, perceptions of gender norms, barriers to care, and the nuanced social dynamics that shape their reproductive choices.

This integrated analysis strengthened the study's validity and practical relevance by:

- Cross-validating findings from different methods to enhance credibility.
- Clarifying causal pathways through complementary perspectives.
- Surfacing hidden influences, such as stigma or family dynamics, that may not be captured in survey data.
- Supporting tailored interventions based on both population-level trends and local realities.

Ultimately, triangulation provided a richer, more reliable evidence base for informing adolescent pregnancy prevention strategies in Zambia. It underscored the need for multisectoral, context-sensitive public health responses that are grounded in both empirical data and the lived experiences of adolescents.

#### **4.8.4 Corroboration and Convergence**

The convergence of quantitative and qualitative findings significantly strengthens the credibility and interpretive depth of this study. This alignment between data strands reinforces the validity of the conclusions and lends weight to the call for a comprehensive, multi-layered public health response to adolescent pregnancy in Zambia. It confirms that adolescent pregnancy is not a result of isolated individual behaviour but is shaped by intersecting structural, social, and systemic factors that demand integrated solutions.

Both data sources consistently highlighted the critical role of access to accurate, age-appropriate sexual and reproductive health (SRH) information and services in preventing

adolescent pregnancy. In particular, the findings validate the urgent need to fully implement and scale up CSE in schools and communities and to expand youth-friendly SRH services that are confidential, accessible, and non-judgmental. This is especially vital in marginalized rural communities, where adolescents often face compounded barriers including distance, poverty, and cultural stigma.

Furthermore, the triangulated data illuminated common structural barriers—such as restrictive gender norms, stigma, social silence around sexuality, and provider bias—which undermine adolescents’ ability to access and utilize SRH services effectively. These challenges are often deeply embedded within community and institutional systems, reinforcing intergenerational cycles of disempowerment and poor health outcomes.

The corroboration of findings underscores the necessity of moving beyond individual-level interventions focused solely on awareness-raising or behaviour change. Instead, it calls for multi-level strategies that also address the social, cultural, and systemic determinants of adolescent pregnancy. This includes engaging parents, community leaders, educators, and health providers; reforming institutional practices; and enforcing legal protections that uphold adolescent rights.

This convergence affirms that a siloed or fragmented response is insufficient. What is required is a coordinated, evidence-driven, and equity-focused public health approach that not only informs but transforms the environments in which adolescents make reproductive choices. Such an approach is critical to reducing adolescent pregnancy and advancing broader goals in health, gender equality, and sustainable development.

#### **4.8.5 Divergence and Complementarity**

The study revealed important divergences and complementarities between the quantitative and qualitative data, offering a richer and more nuanced understanding of the

multifactorial drivers of adolescent pregnancy in Zambia. These insights reflect the value of a mixed-methods approach, where different data sources not only confirm but also illuminate distinct dimensions of the research problem.

Quantitatively, the data established that adolescent pregnancy was significantly more prevalent in rural areas, with early marriage emerging as a dominant predictor. This trend was robustly corroborated by qualitative accounts, where rural participants described how entrenched cultural traditions, gender expectations, and chronic poverty perpetuate early marriage and limit girls' agency over reproductive decisions. These qualitative narratives provided depth and meaning to the statistical trends, revealing how structural drivers like household poverty, dowry practices, and community norms directly shape reproductive pathways for rural adolescents.

Conversely, in urban settings, while early marriage was less common, the qualitative findings surfaced additional drivers of adolescent pregnancy namely peer pressure, sexual experimentation, limited parental guidance, and media influence. These factors were reflected in the quantitative data but with less statistical weight, suggesting they are more subtle or context-specific influences that nonetheless carry significant behavioural implications. The qualitative data enriched this understanding by portraying urban adolescents as navigating complex social environments where increased autonomy does not necessarily translate into informed decision-making.

This complementarity between the data strands underscores the importance of integrating both measurable patterns and lived experiences to capture the full landscape of adolescent pregnancy. While quantitative methods highlighted broad associations and prevalence patterns, qualitative data offered contextual explanations, shedding light on the motivations, perceptions, and constraints that shape adolescent behaviour in different settings.



The divergence between rural and urban drivers further reinforces the need for geographically and culturally responsive programming. A one-size-fits-all approach risks overlooking the structural and psychosocial distinctions between rural and urban adolescents. For instance, while rural interventions may need to prioritize ending child marriage and expanding access to SRHR services, urban strategies may need to focus more on psychosocial support, CSE integration in school curricula, and adolescent mental health services.

These findings highlight the necessity of multi-sectoral, cross-cutting interventions that engage education, health, social welfare, and community systems simultaneously. Importantly, these interventions must be grounded in the local realities of adolescents responsive to their age, gender, setting, and socio-economic status.

In sum, the interplay of convergence and divergence between data strands enhances the credibility and practical relevance of the study's conclusions. It affirms the value of triangulated evidence in designing integrated, equity-focused interventions that are tailored to local contexts and rooted in adolescent voices. Such nuanced, evidence-informed approaches are essential to reducing adolescent pregnancy and advancing adolescent well-being in both rural and urban Zambia.

#### **4.8.6 Contradictions**

A notable contradiction emerged regarding the association of education and adolescent pregnancies. While qualitative data emphasized that education is highly valued in urban areas and that adolescent pregnancies often disrupt career aspirations, the quantitative analysis did not establish a direct correlation between educational attainment and the likelihood of adolescent pregnancies. This divergence suggests a more nuanced and context-specific relationship between education and adolescent pregnancies, underscoring the need for further investigation to explore underlying factors influencing this dynamic.

This contradiction highlights the limitations of relying solely on one data source and reinforces the value of mixed methods approaches in capturing the full spectrum of influences shaping adolescent reproductive outcomes.

#### **4.8.7 Chapter Summary**

This chapter explored the complex factors contributing to adolescent pregnancy, highlighting its multifaceted nature as a critical public health challenge in Zambia. A comprehensive statistical analysis was conducted to identify key determinants of adolescent pregnancy, with binary logistic regression emerging as the most suitable analytical tool. This method was selected for its ability to effectively quantify relationships between predictors and the likelihood of adolescent pregnancy, offering robust insights into the interplay of various socio-demographic, cultural, and economic factors.

The quantitative findings provided a foundational understanding of the prevalence and predictors of adolescent pregnancy, while the qualitative data offered nuanced perspectives that enriched the analysis. By exploring lived experiences, cultural norms, and community dynamics, the qualitative approach revealed contextual dimensions that quantitative methods alone could not fully capture. Together, these complementary methodologies provided a holistic view of the determinants of adolescent pregnancy in both rural and urban settings of Zambia.

Key themes such as gender dynamics, healthcare access disparities, educational gaps, and the influence of socio-cultural norms were examined in depth. The integration of quantitative and qualitative findings underscored areas of alignment, divergence, and complementarity, shedding light on the unique challenges faced by adolescents in different geographical contexts. Additionally, contradictions in the data, such as the complex

relationship between education and adolescent pregnancy, were highlighted, emphasizing the need for further investigation.

This chapter not only detailed the analytical approaches employed but also offered actionable insights into the structural, community, and individual factors driving adolescent pregnancies in Zambia. These findings provide a critical foundation for formulating evidence-based policies and interventions aimed at mitigating this pressing public health issue.

## **CHAPTER 5: IMPLICATIONS, RECOMMENDATIONS AND CONCLUSIONS**

### **5.0 Introduction**

Adolescent pregnancy remains a persistent and multifaceted public health challenge in Zambia, with far-reaching social, economic, and developmental consequences. Despite various national and sub-national interventions, Zambia continues to experience high rates of adolescent pregnancy, with rural areas disproportionately affected. This phenomenon significantly undermines the health, education, and socio-economic prospects of adolescent girls, perpetuating cycles of poverty and gender inequality. According to the Central Statistical Office (2018), 37% of girls in rural areas experience adolescent pregnancy, compared to 17% in urban areas, a disparity that underscores the need for differentiated, context-specific responses.

This study sought to investigate the multi-level and context-specific factors that drive adolescent pregnancy in Zambia's Eastern and Southern Provinces, using Bronfenbrenner's SEM as a guiding theoretical framework. SEM facilitated an in-depth analysis of how individual, interpersonal, community, and structural factors intersect to influence adolescent reproductive outcomes across different geographic settings. The overarching goal of the study was to generate evidence-based insights that can inform the development of responsive policies, programs, and interventions aimed at reducing adolescent pregnancy and enhancing adolescent well-being.

A mixed-methods comparative research design was employed to meet this objective. The study integrated quantitative and qualitative approaches, enabling a robust analysis of both measurable trends and the lived experiences of adolescent girls and young women. Quantitative data were collected through structured surveys involving 400 participants aged 18-24, while qualitative insights were gathered through in-depth interviews and FGDs with adolescents,

community leaders, and service providers. This methodological approach facilitated triangulation, which enhanced the credibility and depth of the findings.

While the study offers important contributions, limitations must be acknowledged. First, the study focused on young women aged 18-24, which, although methodologically justified for ethical and practical reasons, excludes younger adolescents (10-17 years) who are also at substantial risk of early pregnancy. This choice, while mitigating ethical risks and recall bias, limits the generalizability of the findings to the entire adolescent population. Additionally, the reliance on self-reported data introduces potential for social desirability bias, particularly regarding sensitive topics such as sexual activity, contraceptive use, and early marriage. Contextual limitations also exist, as the findings reflect conditions in the Eastern and Southern Provinces and may not be representative of other regions in Zambia.

Ethical principles were strictly adhered to throughout the research process. Informed consent was obtained from all participants, with efforts made to ensure they fully understood the study's purpose, procedures, and their right to withdraw at any time. Participants were assured of confidentiality and anonymity, and data were securely stored to protect their identities. Adolescents under 18 were not included in the study to address consent-related ethical concerns, and no incentives were provided, ensuring participation remained voluntary and non-coercive. These measures reflect the researcher's commitment to conducting ethical and respectful research that prioritizes the well-being and dignity of participants.

This chapter synthesizes the study's findings and situates them within the broader policy and programmatic context. It begins by outlining the strengths and limitations of the study, reinforcing the importance of methodological transparency. It then discusses the ethical dimensions, emphasizing how the study upheld research integrity and participant protection. The chapter proceeds to explore the implications of the findings at multiple levels, policy, programmatic, community, and individual, drawing on the SEM framework to propose

comprehensive interventions. Evidence-informed recommendations for stakeholders, including policymakers, healthcare providers, educators, and community actors, are then presented. These recommendations are designed to reduce adolescent pregnancy, address rural-urban disparities, and improve access to ASRH services. The chapter concludes by summarizing the key contributions of the study and identifying areas for future research to further strengthen the evidence base on adolescent pregnancy in Zambia.

## **5.1 Implications**

The findings of this study hold critical implications for national efforts to reduce adolescent pregnancy in Zambia. Anchored in Bronfenbrenner's SEM, the results confirm that adolescent pregnancy is driven by interrelated factors at individual, interpersonal, community, and structural levels requiring coordinated, multi-sectoral interventions. These findings reinforce the view that tackling adolescent pregnancy demands an integrated approach that goes beyond isolated health interventions to address the broader social and environmental determinants of adolescent behaviour.

At the individual level, risk factors such as early sexual debut, limited knowledge about SRH, and low contraceptive uptake highlight the importance of adolescent-focused education and access to information. Interpersonal influences, particularly the role of family, peers, and intimate partners, underscore the need for interventions that build supportive environments around adolescents. At the community level, prevailing gender norms, cultural rites such as initiation ceremonies, and the social acceptance of early marriage function as powerful forces shaping adolescent reproductive choices. Finally, at the structural level, inadequate implementation of policies, weak service delivery systems, and poverty form systemic barriers that reinforce adolescent pregnancy as both a cause and consequence of inequality.

Zambia has made notable progress in developing policies to address ASRH, including the Adolescent Health Strategy (2017–2021) and the National Health Strategic Plan (NHSP). These frameworks prioritize improved access to youth-friendly SRH services, CSE, and the integration of adolescent health into primary care. However, this study identifies key implementation gaps and areas for policy strengthening:

- Limited access to adolescent-friendly SRH services, especially in rural areas, persists despite policy commitments. The findings highlight the need to decentralize services, invest in mobile health units, and ensure that health workers are trained in non-judgmental, adolescent-responsive care. Additionally, integration of adolescent services into mainstream health delivery systems must be strengthened to improve continuity and reduce stigma. Health facilities must also improve confidentiality and adolescent feedback mechanisms to foster trust.
- While CSE is a priority in policy, inconsistent delivery and resistance from communities and schools continue to limit its impact. The study underscores the importance of strengthening partnerships with religious and traditional leaders to promote CSE as a tool for empowerment rather than moral decay. Innovative delivery methods such as peer-to-peer education, digital platforms, and integration into non-formal education settings could help increase coverage and acceptability.
- Existing policies do not adequately address the re-entry of pregnant adolescents into the education system, despite the high rates of school dropout identified in this study. Policy revisions should ensure that re-entry guidelines are enforced and coupled with economic support, such as bursaries or childcare services, to facilitate continued education. In addition, schools must create stigma-free environments and provide counselling to help reintegrate adolescent mothers effectively.

- The study also reveals that harmful social norms and early marriage remain unchallenged in some communities, suggesting a need to intensify engagement with community leaders (traditional and religious) and scale up behaviour change communication (BCC) strategies within the national ASRH response, supported by legal frameworks that are effectively implemented and monitored. These strategies must be participatory, locally contextualized, and sustained through multi-year funding. Community dialogues, social norm transformation campaigns, and involvement of male champions can further catalyse positive change.

In aligning with the SDGs, particularly SDG 3 (health), SDG 4 (education), and SDG 5 (gender equality). These findings call for a more robust translation of existing policies into action. This includes establishing measurable indicators of progress, allocating sufficient resources for implementation, and ensuring accountability at both national and sub-national levels. The evidence from this study provides a strong rationale for multisectoral coordination and resource mobilization to support adolescent girls in navigating their reproductive health with dignity and autonomy. It also emphasizes the need for intersectional approaches that recognize the overlapping vulnerabilities adolescents face due to gender, geography, and socio-economic status.

### **5.1.1 Regional Comparisons and Contextual Relevance**

This study's findings resonate with trends observed in other sub-Saharan African countries and validate the potential of regionally adapted interventions:

- Uganda's School Health Policy and re-entry guidelines have improved educational retention and delayed early marriage.
- Kenya's "Linda Dada" initiative has successfully combined legal measures with mentorship and economic empowerment to reduce adolescent pregnancies.



- Nigeria's community-led campaigns, such as Girls Not Brides, effectively engage faith leaders to deliver culturally sensitive ASRH messages
- South Africa's Integrated School Health Programme demonstrates how school-based service integration increases contraceptive uptake among adolescents.

These examples offer valuable lessons. Zambia can strengthen its response by institutionalizing re-entry policies, expanding youth-friendly health services, promoting community-based approaches, and leveraging public-private partnerships to address the rural-urban disparities. Lessons from these countries suggest that success lies not only in the design of interventions but in their contextualization, community ownership, and sustained investment.

Ultimately, this study contributes to the growing evidence base advocating for gender-transformative, community-driven, and context-responsive interventions to reduce adolescent pregnancy and enhance adolescent health outcomes.

### **5.1.2 Implications by Research Questions**

#### **RQ1: What are the factors that influence adolescent pregnancy in Eastern and Southern provinces of Zambia?**

The study revealed a complex interplay of demographic, socio-cultural, economic, and health system-related factors contributing to adolescent pregnancy. Quantitative analysis identified key determinants including age, marital status, education level, early sexual debut, and low contraceptive use as significant predictors. Older adolescents and those who had not progressed beyond primary education were more likely to experience pregnancy, particularly if they were married or had initiated sexual activity at a younger age.

Qualitative data provided deeper insights into these patterns, revealing how structural inequalities and community-level factors exacerbate vulnerability. Practices such as child marriage and initiation ceremonies reinforce early sexual and reproductive expectations. Peer pressure limited parental communication, and economic hardship, particularly in rural settings further limit adolescents' ability to make autonomous decisions about their sexual health. Inadequate access to ASRH services, provider stigma, and misinformation about contraceptives also emerged as significant barriers.

#### Public Health Implications:

The findings highlight adolescent pregnancy as a multidimensional health issue rooted in social determinants, requiring systemic and sustainable interventions. The implications include:

- Reframing adolescent pregnancy as a preventable public health outcome, influenced not only by individual choices but by upstream factors such as poverty, education inequality, gender norms, and health system gaps.
- Strengthening community-based health promotion strategies, including culturally appropriate CSE that equips adolescents with accurate, age-appropriate knowledge while engaging parents, traditional leaders, and educators in reshaping norms around adolescent sexuality and contraception.
- Integrating adolescent-friendly SRH services into primary healthcare platforms, with a focus on confidentiality, respectful care, and provider capacity-building. Mobile health outreach and school-based health services can extend reach, particularly in underserved rural areas.
- Targeted public health communication campaigns to address myths and stigma related to contraceptive use, challenge early marriage norms, and promote adolescent health

rights using channels relevant to adolescents, including radio, social media, and youth forums.

- Applying a life-course approach to prevention, starting with early investments in girl education, life skills, and health literacy recognizing that adolescent pregnancy carries significant intergenerational health and social consequences, including increased risks of maternal morbidity, poor birth outcomes, and long-term socio-economic disadvantage.
- Enhancing surveillance and data systems to monitor adolescent pregnancy trends, disaggregate data by location and age group, and inform real-time program adaptations.

The study underscores the need to shift from reactive to preventive, equity-driven public health strategies that target the root causes of adolescent pregnancy. These must be tailored to the specific realities of rural and urban contexts, with a focus on empowering adolescents, improving service quality and access, and transforming the structural conditions that perpetuate early pregnancy.

**RQ2: Are there differences and similarities in the factors that influence adolescent pregnancy between selected rural and urban areas in Eastern and Southern provinces of Zambia?**

The study identified both shared and context-specific determinants of adolescent pregnancy across rural and urban settings. Across both contexts, early sexual debut, limited educational attainment, and non-use of contraception emerged as consistent risk factors. However, rural adolescents exhibited slightly higher pregnancy rates, attributable to a convergence of factors such as early marriage, deeply entrenched cultural norms around fertility, and inadequate access to adolescent-responsive SRH services. In these areas,

pregnancy often signified a socially accepted transition to womanhood, reinforced by community expectations and limited life alternatives.

By contrast, urban adolescents, while benefiting from relatively greater service availability and education opportunities, faced distinct challenges. These included social stigma around adolescent sexuality, limited privacy and confidentiality in health facilities, and exposure to conflicting messages via social media and peer networks. These barriers often undermined their ability to seek and use SRH services effectively, despite geographic proximity to health infrastructure.

#### Public Health Implications:

These findings reinforce the importance of differentiated, equity-oriented programming that acknowledges the heterogeneity of adolescent lived experiences across settings:

- Rural programming must prioritize health systems strengthening, including the deployment of mobile clinics, CHWs, and school-linked health services to overcome geographic and financial barriers. Interventions should integrate SRH with broader social protection measures such as food security, livelihoods, and education support to reduce the socio-economic drivers of early marriage and pregnancy.
- Urban strategies should focus on improving quality, acceptability, and confidentiality of services. This includes provider training on youth-friendly care, redesigning service points to ensure privacy, and addressing misinformation through digital health literacy campaigns. Engaging adolescents in the co-creation of services can increase trust and uptake.
- In both contexts, normative change interventions are essential. This entails collaborating with community leaders, parents, teachers, and male peers to shift social expectations around gender roles, marriage, and adolescent sexuality.

- The similarities across rural and urban settings (e.g., early sexual debut, education gaps) suggest a need for universal interventions such as national CSE programs and mass media campaigns paired with context-specific enhancements to address unique local barriers.
- Importantly, these findings underscore adolescent pregnancy as a public health equity and development issue. Without context-tailored interventions, rural adolescents already facing compounded disadvantage will continue to bear a disproportionate burden of early pregnancy and its lifelong consequences.

Adolescent pregnancy prevention must be locally responsive and systems-oriented, addressing not only service availability but also the underlying cultural, economic, and informational landscapes that shape adolescents' reproductive choices in both rural and urban Zambia.

**RQ3: What are the barriers and enablers to interventions that prevent adolescent pregnancy across the rural-urban divide?**

The study identified a range of barriers that undermine the effectiveness of adolescent pregnancy prevention interventions, with distinct patterns across rural and urban settings. Common barriers included inadequate delivery of CSE, stigmatization of adolescent sexuality, health provider bias, negative gender norms, limited confidentiality in service settings, and weak community engagement. These barriers were consistently more severe in rural areas, where structural limitations such as long distances to health facilities, fewer trained health workers, and entrenched socio-cultural practices restricted both access to and utilization of SRH services.

In urban contexts, although physical access to SRH services was relatively better, adolescents continued to face psychosocial and informational barriers, including fear of

judgment, misinformation, and conflicting narratives from social media and peer groups. Concerns around privacy, especially within congested urban health facilities, often deterred adolescents from seeking care. Furthermore, inconsistent implementation of national ASRH policies contributed to a fragmented service environment across both contexts.

On the other hand, the study also revealed important enabling factors. Where implemented, youth-friendly services, peer education programmes, and school-based CSE improved adolescent SRH knowledge and service uptake. The presence of trained, non-judgmental providers, coupled with safe spaces for discussion and care, significantly enhanced adolescents' trust in and engagement with services. Supportive policy and legal frameworks such as guidelines on youth-friendly health services and the National Adolescent Health Strategy were identified as foundational enablers when translated into practice.

#### Public Health Implications:

From a public health systems perspective, these findings illustrate the need to address both supply-side and demand-side barriers through comprehensive, equity-focused strategies:

- **Health System Strengthening:** It is critical to invest in decentralised, adolescent-responsive service delivery, including mobile health units and school-based health platforms, especially in underserved rural communities. This must be accompanied by routine provider training in respectful, confidential, and non-discriminatory care to mitigate service-level stigma.
- **Integrated Health-Education Linkages:** Strengthening partnerships between the health and education sectors can help embed CSE into school curricula and facilitate referrals to adolescent-friendly health services and the has been piloted in some provinces like North-Western Province in Solowezi district. This continuum of care is essential to reinforcing SRH knowledge with access to actual services.

- **Community-Based Approaches:** In both rural and urban settings, community mobilisation and engagement of traditional, religious, and youth leaders are essential to overcoming resistance, building trust, and reshaping social norms around adolescent sexuality and contraception. Locally adapted behaviour change communication (BCC) strategies are crucial for shifting harmful perceptions and creating enabling environments.
- **Health Information and Literacy:** The study highlights an urgent need for adolescent-centred communication strategies to address misinformation, particularly in urban areas. Leveraging digital platforms, radio, and peer networks can enhance SRH literacy and promote health-seeking behaviour.
- **Policy Implementation and Accountability:** The gap between policy and practice remains a major barrier. Strengthening monitoring and evaluation systems at district and facility levels is essential to ensure that national ASRH strategies are implemented equitably and effectively, with attention to rural-urban disparities.

Bridging the rural-urban divide in adolescent pregnancy prevention requires a multi-sectoral, systems-level approach. Interventions must be not only age and gender-responsive, but also structurally adaptive, tailored to the specific physical, cultural, and informational environments adolescents inhabit. Effective public health action must simultaneously strengthen service systems, address social determinants, and centre the voices and realities of adolescents in programme design and delivery.

**RQ4: What are the social, economic, and health impacts of adolescent pregnancy across the rural-urban divide?**

The study revealed that adolescent pregnancy has wide-ranging and often interlinked social, economic, and health consequences for young women in both rural and urban areas,

reinforcing its classification as a public health and development challenge. These consequences not only compromise individual well-being but also contribute to persistent cycles of intergenerational poverty and gender inequality.

Socially, adolescent pregnancy was frequently associated with stigma, social isolation, and strained family or peer relationships. These effects were more pronounced in urban areas, where societal expectations around delayed childbearing, career progression, and education were higher. Adolescent mothers often faced rejection from schools, diminished peer support, and negative labelling within their communities, impacting their psychosocial well-being and self-esteem.

Economically, pregnancy during adolescence disrupted educational attainment and hindered skills acquisition, significantly reducing long-term earning potential. In rural settings, these impacts were compounded by early marriage, school expulsion, and a lack of re-entry options for adolescent mothers. Vocational and livelihood opportunities for young mothers were limited, reinforcing dependency and increasing vulnerability to further exploitation. These findings highlight how adolescent pregnancy reinforces structural poverty; particularly where institutional support is weak.

Health impacts were also substantial. Physiological immaturity among adolescents led to increased risk of maternal complications, such as obstructed labour, anaemia, and hypertensive disorders. Rural adolescents were more likely to give birth without skilled attendance and had limited access to quality antenatal and postnatal care. Additionally, the study found that mental health issues including depression, anxiety, and emotional distress were prevalent but under-recognized across both settings. Psychosocial services were often absent or inaccessible, reflecting a critical gap in adolescent-focused health programming.



### Public Health Implications:

Through a public health lens, the impacts of adolescent pregnancy are multidimensional and cumulative, requiring cross-sectoral interventions that are not only curative but preventive and promotive. Key implications include:

- **Apply a life course and equity framework:** Public health programmes should recognize that adolescent pregnancy can have long-term impacts on both the young mother and her child. This includes poorer maternal and child health outcomes, lower school completion rates, and increased vulnerability to gender-based violence. Addressing these impacts requires early investment in education, SRH, and social support systems that protect adolescent girls before and after pregnancy.
- **Strengthen adolescent-friendly maternal health services:** Ensure that adolescent mothers can access quality antenatal, delivery, and postnatal care, delivered in a stigma-free environment. Rural health systems must be supported to extend skilled birth attendance, while urban services should emphasize confidentiality and respectful care.
- **Integrate psychosocial support into ASRH programming:** Mental health support which is currently a neglected area must be mainstreamed into youth health services. Counselling, peer support groups, and safe spaces can help adolescent mothers manage social stigma and emotional distress.
- **Expand second-chance education and skills training:** Education re-entry and vocational programmes should be institutionalized and backed by social protection measures such as childcare, transportation stipends, and flexible learning schedules, especially in rural areas.
- **Promote community reintegration and stigma reduction:** Behaviour change strategies must be implemented to challenge harmful stereotypes about adolescent mothers.

Community engagement is essential to fostering acceptance and supporting re-entry into schools, families, and peer networks.

The findings reinforce that adolescent pregnancy is not merely a health event, it is a socio-development determinant of future disadvantage. Effective public health responses must address both the immediate clinical needs and the long-term structural factors that shape - adolescent mothers' trajectories. Empowering these young girls through health, education, and livelihood support is essential for breaking cycles of marginalization and ensuring equitable health and development outcomes.

**RQ5: What are some of the best practices and interventions that can be adopted to prevent unintended adolescent pregnancy?**

The study identified a range of promising practices and intervention strategies for preventing unintended adolescent pregnancy, validated through both qualitative and quantitative evidence. These included:

- The integration of age-appropriate, gender-transformative CSE in both formal and informal settings, enabling adolescents to acquire accurate SRH knowledge, critical thinking skills, and confidence to make informed choices.
- The expansion of adolescent-responsive SRH services, particularly through mobile outreach models in rural areas where distance, stigma, and health worker shortages impede access.
- Engagement of traditional and religious leaders as trusted gatekeepers, whose support is critical in promoting community acceptance of adolescent SRH programmes and challenging norms around early marriage and sexual silence.

- Enforcement of child marriage laws, coupled with public awareness campaigns and community-based legal literacy initiatives, to ensure adolescents and families understand their rights and the protective role of the law.
- Economic empowerment strategies such as bursaries, vocational training, and conditional cash transfers to address the structural drivers of adolescent vulnerability especially poverty, which pushes many girls into transactional relationships or early unions.
- Strengthened parent-child communication and peer-led initiatives, which foster supportive social environments for adolescents to access accurate information and navigate sexual health decisions.

#### Public Health Implications:

These best practices represent key pillars of an effective primary prevention strategy. Preventing unintended adolescent pregnancy requires going beyond biomedical responses to address social determinants, system barriers, and normative drivers. The following implications are particularly critical:

- Invest in layered, multisectoral interventions: No single intervention is sufficient. Effective programming must combine education, health, legal protection, and social support, implemented simultaneously and contextually. Integration of services across health and education systems increases efficiency and impact.
- Ensure adolescent participation and cultural adaptation: Interventions must be designed with adolescents, not just for them, ensuring that services reflect their needs, preferences, and realities. Programmes should be tailored to local cultural contexts and use participatory approaches to enhance acceptability and sustainability.

- Embed equity and gender responsiveness into programming: Recognizing that adolescent girls face unique structural disadvantages, interventions must prioritize gender equality, social inclusion, and rural–urban equity. This includes affirmative programming for rural adolescents and adolescent mothers who are often left behind.
- Strengthen community ownership and social norm change: Long-term sustainability depends on shifting the community narrative around adolescent sexuality, gender roles, and fertility expectations. Engaging influential community figures, parents, and male peers through transformative, dialogue-based strategies can facilitate normative change.
- Embed accountability and adaptive learning mechanisms: Scale-up requires robust monitoring, evaluation, and feedback systems to track implementation, measure outcomes, and adapt interventions based on real-time data. Community feedback loops and youth scorecards can enhance transparency and responsiveness.

### **5.1.2 Alignment with Conceptual Framework and Literature**

The study's findings align closely with Bronfenbrenner's SEM, demonstrating that adolescent pregnancy is influenced not only by individual choices but by layered systems of influence across family, peers, community, and policy structures. The study affirms the need for interventions that operate at all levels:

- Microsystem: Empowering individual adolescents through CSE, contraceptive access, and supportive peer/parent relationships.
- Mesosystem: Engaging schools, families, and service providers to coordinate around adolescent needs.

- Ecosystem: Engaging communities, especially traditional and religious leaders to address genders norms and socio-cultural practices that perpetuate adolescent pregnancy.
- Macrosystem: Influencing policy enforcement, and resource allocation through advocacy, law reform, and leadership engagement, including bridging the gap between traditional and conventional marriages.

The study contributes to the regional body of literature by offering locally grounded evidence from Zambia, affirming known associations (education, poverty, cultural practices) while providing new insights into policy-practice gaps, the limited influence of CHWs in urban settings, and the persistence of initiation rites despite SRHR investments. These findings stress the importance of culturally responsive and community-embedded interventions.

## **5.2 Recommendation for Application**

The results and findings presented in Chapter Four offer critical insights into the multilevel factors influencing adolescent pregnancy in Zambia. Informed by Bronfenbrenner's SEM and framed within the literature reviewed in Chapter Two, this section presents targeted recommendations for application at individual, interpersonal, community, and policy levels. These recommendations reflect the need for integrated, context-specific strategies that address the root causes of adolescent pregnancy and align with sustainable development priorities.

Despite significant investment in ARH interventions, Zambia continues to experience high adolescent pregnancy rates, particularly in rural areas (42%) compared to urban areas (17%). Previous research often emphasized outcomes without examining geographical disparities or underlying determinants. This study bridges that gap, offering evidence-informed and heuristic contributions to existing knowledge. As adolescent pregnancy has implications for achieving SDGs 3 (health), 4 (education), 5 (gender equality), and 8

(economic growth), its reduction requires a comprehensive, multisectoral approach that empowers adolescents to make informed reproductive decisions and enables equitable access to supportive structures.

### **5.2.1 Microsystem Recommendations**

At the individual level, this study identified several key factors associated with high adolescent pregnancy prevalence:

#### **(a) Limited ASRH Information and Knowledge**

Findings indicated significant gaps in knowledge regarding ASRH, particularly among rural adolescents. The lack of CSE contributes to early sexual debut and low contraceptive uptake.

- Recommendation: Implement age-appropriate, evidence-based CSE in both school and community settings for in- and out-of-school adolescents. These programs could be informed by UNESCO's International Technical Guidance on Sexuality Education (2018), emphasizing knowledge, attitudes, and values that support healthy relationships and informed decision-making.
- Recommendation: Provide life skills and communication training to equip adolescents with negotiation skills and self-efficacy for safer sexual decision-making. The development of assertiveness and refusal skills should be incorporated to help young people resist peer pressure.
- Recommendation: Expand access to youth-friendly services that ensure confidentiality and nonjudgmental care by training healthcare providers in adolescent-centred approaches.

#### **(b) Peer Pressure**

Peer influence was identified as a significant factor promoting risky behaviours and early sexual initiation. These dynamics often intersect with digital media, body image concerns, and shifting gender norms.

- Recommendation: Establish school-based mentorship and peer-led support programs that promote self-confidence, critical thinking, and healthy decision-making among adolescents.
- Recommendation: Design social and behaviour change communication (SBCC) campaigns that target peer norms, encourage delayed sexual initiation, and celebrate academic and personal achievement.

### **5.2.2 Mesosystem Recommendations**

Interpersonal relationships, particularly within families shape adolescent behaviour. The study found poor parent-child communication, limited emotional support, and economic hardship to be key barriers to positive ASRH outcomes.

- Recommendation: Promote open, non-judgmental communication between parents and adolescents on SRH topics through community-based parenting workshops. Interventions like the Families Matter. Programs (WHO/CDC) have shown promise in similar settings.
- Recommendation: Encourage family-based counselling to address stigma and provide psychosocial support to pregnant adolescents and adolescent mothers. These efforts should involve both caregivers and extended family members.
- Recommendation: Address household poverty through cash transfers, education bursaries, and community-based income-generating projects. These interventions can mitigate financial pressures that push adolescents into transactional sex. Social protection programs targeting adolescent girls can reduce early sexual activity and marriage.

### 5.2.3 Community-Level Recommendations

The study highlighted harmful socio-cultural norms, including early marriage and gender stereotypes, which persist in rural communities and significantly impact adolescent pregnancy rates.

- Recommendation: Engage traditional and religious leaders as change agents to transform harmful norms and promote adolescent well-being. The success of programs like the SASA! Faith intervention (Raising Voices, Uganda) underscores the importance of local leadership.
- Recommendation: Reframe initiation ceremonies to focus on health, life skills, menstrual hygiene, and self-esteem, with support from trained female elders. This transformation should be grounded in community consultation and respect for cultural values.
- Recommendation: Implement sustained awareness campaigns and peer-led initiatives to address misconceptions about contraceptives and normalize service uptake. These should include visual storytelling, community radio, and mobile messaging.
- Recommendation: Strengthen community health structures such as village health committees and school governance boards to support adolescent-friendly initiatives and local accountability. Community scorecards and youth-led audits can foster transparency.
- Recommendation: Establish partnerships with private sector actors such as health providers, radio stations, mobile tech firms, to enhance SRHR messaging and service delivery. Corporate Social Responsibility (CSR) platforms can be leveraged to fund adolescent initiatives.

### 5.2.4 Policy-Level Recommendations

Two primary policy-level factors were identified: inconsistent enforcement of laws/policies and inequitable access to ASRH services.



### **(a) Legal and Policy Enforcement**

Despite progressive laws like the Marriage Act (2015) and Adolescent Health Strategy (2017–2021), enforcement remains weak.

- Recommendation: Strengthen legal enforcement mechanisms, including community monitoring and penalties for violations of child marriage and SRHR rights. Establishing child protection committees in all districts/community level can institutionalize local accountability.
- Recommendation: Harmonize statutory laws with customary practices through dialogue with traditional leaders and constitutional safeguards. The African Charter on the Rights and Welfare of the Child provides a regional framework for alignment.

### **(b) Re-entry Policy and Education Environment**

Although Zambia's Re-Entry Policy allows adolescent mothers to return to school, implementation is uneven, particularly in rural areas.

- Recommendation: Institutionalize reintegration support systems, including mentorship programs, school sensitization, flexible attendance, and psychosocial services. The school environment must be nurturing and stigma-free to facilitate retention and success.

### **(c) Social Protection and Economic Empowerment**

Poverty is a recurring theme in adolescent pregnancy. The study calls for robust social safety nets.

- Recommendation: Operationalize the National Social Protection Policy (2014) through targeted bursaries, vocational training, and conditional cash transfers for vulnerable adolescent girls. These should be gender-responsive and youth-focused.

#### **(d) Access to Adolescent-Friendly SRHR Services**

There are significant disparities in access to ASRH services between rural and urban areas.

- Recommendation: Scale up youth-friendly health services in rural settings through mobile outreach, telemedicine, and integration with primary healthcare. Integrating SRHR into universal health coverage platforms can facilitate sustainability.
- Recommendation: Train rural healthcare providers on confidentiality, gender sensitivity, and adolescent-centred service delivery. Continuous professional development linked to licensing can institutionalize these standards.

#### **(e) Legal and Constitutional Support**

For laws to be effective, they must align with constitutional rights.

- Recommendation: Embed ASRH rights within Zambia's constitutional and legal framework and reject harmful customary norms that contravene human rights.
- Recommendation: Launch public education campaigns to raise awareness on adolescents' rights to health, education, and protection from exploitation. These campaigns should be led by youth and monitored for reach and impact.

#### **(f) Multi-Sectoral Integration and Policy Planning**

The policy environment must respond to adolescent needs holistically.

- Recommendation: Zambia's next Adolescent Health Strategy should adopt a multisectoral implementation plan that integrates education, health, social protection, and gender sectors. Strong coordination mechanisms and dedicated budget lines must be established.
- Recommendation: Allocate funding for community-based outreach and monitor impact using disaggregated rural-urban data. Data-driven policy decisions will ensure responsiveness and equity.

For these recommendations to be effective, they must be implemented in coordination across sectors, grounded in community realities, and centred on the rights and agency of adolescents. National and subnational actors must ensure that policies translate into tangible outcomes and that adolescents are meaningfully involved in shaping the interventions intended to benefit them.

By implementing these evidence-based strategies, Zambia can make meaningful progress toward reducing adolescent pregnancy and advancing gender equality, educational attainment, and reproductive rights for all young people.

### **5.3 Recommendations for future research**

Grounded in the study's mixed-methods findings and Bronfenbrenner's SEM, the following public health-oriented research priorities are proposed:

#### **1. Evaluate the Effectiveness and Quality of ASRH Service Delivery**

While service availability alone was not significantly associated with reduced pregnancy rates, qualitative insights pointed to barriers such as stigma, confidentiality concerns, and provider attitudes. Future research should assess how service quality, adolescent responsiveness, and provider training influence uptake and outcomes, especially in rural areas where CHWs showed significant impact.

#### **2. Examine the Role of Early CSE**

Given the strong association between early sexual debut and pregnancy, studies should assess the timing, content, and delivery models of CSE in both formal and non-formal settings. Research should explore how culturally adapted, age-appropriate CSE can delay sexual initiation and increase contraceptive literacy.

#### **3. Explore the Link Between Poverty and Adolescent Pregnancy**

Economic vulnerability especially in rural areas was a recurring theme. Research should focus on economic drivers of early pregnancy and evaluate the impact of social protection schemes, such as conditional cash transfers and livelihood support, on adolescent reproductive health.

4. Investigate Psychosocial Impacts and Mental Health Needs of Adolescent Mothers  
Stigma, isolation, and emotional distress emerged as key challenges for pregnant adolescents. Future public health research should explore the mental health consequences of adolescent pregnancy and identify effective models for integrating psychosocial support into SRHR services.

5. Study Cultural Norms and Community Engagement Strategies

Given the influence of harmful practices like child marriage and initiation rites, future research should examine how cultural and religious norms evolve, and how community-based interventions including engagement with traditional leaders can sustainably shift norms and increase public support for adolescent SRHR.

These research priorities will contribute to evidence-based public health strategies that are adolescent-centred, equity-focused, and contextually responsive, thereby enhancing the effectiveness of adolescent pregnancy prevention efforts in Zambia and similar settings.

## **5.4 Conclusions**

This doctoral research set out to examine the multilevel, context-specific factors contributing to adolescent pregnancy in Zambia, adopting a mixed-methods, rural-urban comparative approach anchored in Bronfenbrenner's SEM. The study was motivated by the urgent need to address a persistent public health and development challenge namely, Zambia's

high adolescent fertility rate, which remains at 29% nationally, with rural areas recording even higher levels. Despite several national efforts and global commitments to improve ASRH, early pregnancy continues to undermine the health, education, and socioeconomic outcomes of adolescent girls and perpetuates cycles of gender inequality and poverty.

Framed within a public health paradigm, this study emphasized that adolescent pregnancy cannot be addressed in isolation from the broader determinants of health. It is not merely a consequence of individual behaviour or lack of knowledge; rather, it is a manifestation of structural and systemic inequalities. The study revealed a complex interplay of individual-level factors such as early sexual debut, low contraceptive use, and limited agency and broader social, economic, and cultural influences, including child marriage, gender norms, poverty, and restricted access to adolescent-friendly health services. Particularly in rural areas, geographic isolation and service delivery gaps exacerbate these risks, further marginalizing young people who are already disadvantaged.

By integrating survey data from 400 young women aged 18-24 with qualitative evidence from FGDs and KIIs, the study generated a nuanced, layered understanding of adolescent pregnancy as a multidimensional public health issue. The mixed-methods design enhanced both the analytical depth and validity of the findings, revealing that adolescent pregnancy outcomes are shaped by a wide array of ecological factors, ranging from individual beliefs and behaviours to interpersonal dynamics, community structures, and macro-level policy environments. This reinforces the need for multisectoral interventions that address the full spectrum of determinants.

The application of Bronfenbrenner's SEM allowed for a comprehensive conceptual framing, illustrating how nested systems influence adolescent health behaviours. The model's utility was particularly evident in identifying both proximal and distal factors contributing to adolescent pregnancy in different settings. For instance, while individual knowledge and

attitudes are important, they are often constrained or enabled by broader forces such as school policies, healthcare provider attitudes, legal frameworks, and sociocultural expectations. This systemic view aligns with contemporary public health thinking, which advocates for upstream interventions and the integration of health with education, gender, and social protection systems.

One of the study's most significant contributions lies in its comparative lens, which sheds light on the differential realities faced by rural and urban adolescents. In rural areas, the challenges are largely structural, ranging from limited availability of adolescent-responsive services and long distances to health facilities, to economic insecurity and deeply entrenched gender and cultural practices like child marriage and initiation ceremonies. In contrast, urban adolescents, while generally having better access to health services and education, grapple with stigma, misinformation, and peer pressures, including those amplified by digital media. These insights challenge homogenized policy responses and underscore the importance of tailoring interventions to local contexts.

Furthermore, the study fills an important gap in national and regional literature, much of which focuses on the consequences of adolescent pregnancy without fully exploring its root causes or disaggregating findings by geography and social status. By centering both structural and agency-based perspectives, the research enriches theoretical and empirical discussions in adolescent SRHR and public health, while offering evidence that is directly translatable to policy and practice. The findings stress that universal approaches are insufficient; differentiated, locally grounded solutions are needed to address the diversity of adolescent experiences and vulnerabilities.

The study also strongly connects the issue of adolescent pregnancy to the broader sustainable development agenda. It demonstrates that adolescent pregnancy is a major barrier to achieving multiple interlinked SDGs, including:

SDG 3 (Good Health and Well-being): Adolescent pregnancies contribute to maternal morbidity and mortality, increase the risk of neonatal complications, and reduce access to essential health services.

SDG 4 (Quality Education): Pregnant adolescents are often pushed out of school due to stigma, expulsion policies, or the lack of support systems for young mothers inspite of school re-entry policies.

SDG 5 (Gender Equality): Adolescent pregnancy both reflects and reinforces gender inequality by limiting girls' autonomy and future prospects.

SDG 8 (Decent Work and Economic Growth): Disrupted education and early motherhood constrain young girls' ability to access employment and economic opportunities.

Reducing adolescent pregnancy is therefore not only a public health priority, but also a cornerstone for inclusive and sustainable development, and social justice. It requires a long-term, multisectoral commitment that aligns health, education, social protection, and gender equality policies.

Critically, the research underscores the importance of including adolescents themselves in both programme design and implementation. Their insights on stigma, privacy concerns, service quality, and support networks provide invaluable input for creating systems that are truly responsive to their needs. Adolescents are not passive recipients of health services or policy; they are rights-holders and agents of change whose participation is essential for sustainable progress.

The study's methodological strengths, including its use of triangulation, comparative analysis, and the SEM, ensure the robustness and applicability of its findings. Its participatory ethos and attention to place/location-based differences, provide a compelling model for future public health research, especially in settings with diverse socio-cultural and infrastructural realities.

Finally, the implications of this research extend beyond Zambia. The challenges it describes; limited adolescent agency, socio-cultural norms and practices, resistance to CSE, structural public health system gaps, and fragmented policy implementation, are mirrored in many other LMICs. As such, this study offers a replicable analytical framework and methodological approach for assessing and addressing adolescent pregnancy globally. It calls for a global recommitment to adolescent health and wellbeing, emphasizing that the choices made today in policy and practice will shape the development trajectories of nations for generations to come.

In conclusion, adolescent pregnancy is both a public health crisis and a development challenge that requires urgent, coordinated, and context-specific responses. Through this research, a compelling case has been made for evidence-based, multisectoral, and adolescent centered interventions. Addressing adolescent pregnancy is not only essential to protecting the rights and health of young people, but also fundamental to achieving equity, sustainability, and shared prosperity across generations.

#### **5.4.1 Addressing the Research Problem**

This study set out to investigate the persistently high rates of adolescent pregnancy in Zambia, an issue that remains a critical public health priority and a barrier to sustainable development. Adolescent pregnancy not only compromises the health and futures of individual girls but also signals broader failures in health systems, social protection, and gender equity. With a national prevalence of 29% and disproportionately higher rates of 37% in rural areas (CSO, 2018), Zambia continues to face a SRH crisis with serious implications for maternal and child health, education, economic productivity, and intergenerational poverty.

Framed through a public health lens, adolescent pregnancy reflects the intersection of individual vulnerabilities and systemic failures. It is both preventable and predictable, shaped by well-known risk factors such as low educational attainment, early sexual debut, limited



access to adolescent-friendly SRH services, child marriage, and entrenched gender norms. Yet, policy and programmatic responses have often been fragmented, inadequately resourced, and insufficiently tailored to the lived realities of adolescents, particularly in underserved rural areas.

This study sought to move beyond descriptive statistics by examining the underlying determinants of adolescent pregnancy through a comparative, mixed-methods design grounded in Bronfenbrenner's SEM. By exploring multi-level drivers, including individual behaviours, interpersonal relationships, community norms, institutional access, and policy environments, the study provides a holistic understanding of adolescent pregnancy as a multi-dimensional public health issue. It positions adolescent pregnancy not simply as a consequence of poor individual choices, but as a symptom of systemic inequities in access to information, services, and opportunities.

Key findings reveal the influence of social determinants of health, such as poverty, education, gender-based power imbalances, and cultural traditions including initiation ceremonies and early marriage, particularly in rural areas. These determinants interact with health system weaknesses, including limited SRH service availability, provider bias, and lack of confidentiality, to exacerbate adolescent vulnerability. Notably, the study identifies geographic inequities, where rural girls face structural barriers to prevention, while urban girls contend with social stigma, misinformation, and inadequate youth engagement.

These insights underscore the need for comprehensive, equity-oriented, and culturally responsive interventions. Addressing adolescent pregnancy requires a shift from reactive, fragmented efforts to preventive, multisectoral strategies that promote health across the life course. These include school-based CSE, community mobilization, adolescent-responsive primary health care, and integrated policies that link education, health, social protection, and justice systems.

In addressing the research problem, the study contributes evidence-based guidance for developing adolescent health policies and programs that are grounded in the principles of health equity, prevention, participation, and rights. It calls for strategic investments that empower adolescents as active agents of change, rather than passive recipients of services. Moreover, the findings emphasize the importance of resilient health systems and community partnerships to sustain gains in ASRH.

Ultimately, this research affirms that reducing adolescent pregnancy is both a public health imperative and a development necessity. It offers actionable insights for stakeholders seeking to improve adolescent wellbeing, promote gender equality, and accelerate progress toward Zambia's commitments under the SDGs, particularly SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), and SDG 5 (Gender Equality).

#### **5.4.2 Theoretical and Practical Significance**

The theoretical significance of this research cannot be overstated. By employing Bronfenbrenner's SEM and an adapted conceptual framework, this study has illuminated the multidimensional nature of adolescent pregnancy. It demonstrates how individual, family, community, and policy-level variables interact to shape ASRH outcomes. This reinforces the holistic foundation of the SEM, advocating for integrated, context-sensitive, and multi-level interventions to prevent adolescent pregnancy. The findings affirm the central tenets of the SEM by illustrating that adolescent pregnancy is influenced not solely by individual behaviour but also by broader structural, cultural, and economic systems.

Furthermore, the study bridges a significant gap in the literature. While previous research in Zambia often emphasized the consequences of adolescent pregnancy, this study explores the root causes, offering a comprehensive and comparative analysis across rural and urban contexts. It provides insight into how cultural practices, poverty, peer norms, educational attainment, and access to services vary geographically, and how these shape adolescent

behaviour and outcomes. For example, rural girls face heightened vulnerability due to early marriage, poverty, and limited SRHR service access, while urban adolescents grapple with peer pressure and differing aspirations.

This nuanced analysis disrupts the homogenized treatment of adolescent pregnancy and highlights the importance of designing geographically and culturally responsive strategies. It expands the theoretical discourse on adolescent reproductive health by positioning adolescent pregnancy as a context-dependent phenomenon, influenced by the interaction of micro-, meso-, and macro-level forces. Such insights contribute to the evolving use of ecological models in global health and development studies.

From a practical standpoint, this research directly supports national efforts to reduce adolescent pregnancy by identifying evidence-based, scalable best practices. These include gender-transformative CSE, youth-friendly SRHR services, economic empowerment for girls, and community mobilization strategies. By drawing attention to implementation gaps, such as low awareness of policies like the Re-Entry Policy and inadequate service coverage in rural areas, the study provides actionable guidance for improving policy execution and service delivery. The findings also highlight the importance of multisectoral collaboration involving healthcare providers, educators, policymakers, civil society, and community leaders. The study underscores that sustainable adolescent pregnancy prevention requires joint action across health, education, gender, and social protection sectors. It provides a foundation for cross-sector coordination in both policy formulation and program design.

### **5.4.3 Contributions to Practice**

This research makes substantial contributions to public health practice by providing a robust, evidence-based foundation for addressing adolescent pregnancy in Zambia. The findings present actionable entry points across the SEM ranging from individual agency to

broader policy structures and offer a practical roadmap for stakeholders including government agencies, development partners, educators, healthcare providers, and community leaders.

- Individual Level

At the individual level, the study underscores the importance of equipping adolescents with accurate SRH information and knowledge, practical life skills, and access to resources that enable informed decision-making. Age-appropriate, gender-transformative CSE is shown to be a critical tool in empowering young people to delay sexual debut, negotiate safe sex, and avoid unintended pregnancies. In addition, the research highlights the value of building adolescents' soft skills such as communication, critical thinking, and assertiveness which serve as protective factors against coercion and peer pressure. Special emphasis is placed on the need to tailor these interventions to the needs of rural girls, who face compounded vulnerabilities due to poverty, gender norms, and service access barriers.

- Family Level

The study demonstrates that family environments play a pivotal role in shaping adolescent sexual behaviour. Open, trusting, and non-judgmental parent-child communication about SRH emerged as a key protective factor. Yet, many families lack the knowledge, comfort, or cultural permission to engage in such dialogue. Interventions should therefore prioritize parent training and family life education programs that strengthen intergenerational communication and challenge taboos. Additionally, given the strong link between household poverty and adolescent pregnancy, the study recommends integrating economic empowerment initiatives such as social cash transfers, school bursaries, and income-generating activities into adolescent-focused programs to address structural drivers of early pregnancy.

- Community Level

At the community level, the research identifies traditional and religious leaders as pivotal gatekeepers of social norms. Their influence can either perpetuate harmful practices such as child marriage and gender-based restrictions or serve as a catalyst for positive change. The study calls for deliberate engagement with these leaders through culturally respectful platforms to transform beliefs that normalize adolescent pregnancy. Moreover, reforming initiation ceremonies to align with health-promoting messages, promoting adolescent role models, and strengthening community dialogues on adolescent rights and well-being are essential to shifting entrenched norms. Community-based programming must be inclusive, locally adapted, and responsive to adolescents lived experiences.

- Institutional Level

Institutions, particularly in the education and health sectors, are central to the prevention and management of adolescent pregnancy. The study reveals persistent systemic barriers, such as the limited availability of adolescent-responsive SRH services in rural areas, negative provider attitudes, and weak school-health linkages. To address these gaps, the research advocates for sustained investment in capacity-building for health workers and educators, ensuring they deliver youth-friendly, rights-based, and non-discriminatory services. Schools should serve as hubs for health promotion, offering CSE, referrals, and supportive re-entry pathways for adolescent mothers. Establishing adolescent-friendly spaces in both health and education facilities is vital to improving service uptake and retention.

- Policy Level

At the policy level, the study highlights the critical role of legal and regulatory frameworks in shaping adolescent health outcomes. Existing laws such as the Marriage Act and the Re-entry Policy must be implemented consistently and accompanied by clear

accountability mechanisms. The study calls for policy reforms that mandate CSE delivery in schools, strengthen protection against sexual violence, and ensure financial support for adolescent mothers returning to school. Additionally, policy planning must be informed by disaggregated data systems that monitor progress across age, gender, and geographic location to ensure no adolescent is left behind.

The study also emphasizes the need for intersectoral coordination, bringing together health, education, social protection, justice, and youth development sectors to deliver a coherent and sustained national response. Public-private partnerships, civil society engagement, and youth-led advocacy should be integral to both design and implementation phases.

- Overall Contribution to Practice

This research contributes a context-specific, action-oriented framework for reducing adolescent pregnancy and promoting adolescent health in Zambia. By identifying scalable, evidence-based interventions and aligning them with local socio-cultural dynamics, the study supports the operationalization of national strategies such as the Adolescent Health Strategy and contributes directly to achieving SDGs- 3 (Good Health and Well-being), 4 (Quality Education), 5 (Gender Equality), and 10 (Reduced Inequalities).

This study provides a comprehensive blueprint for practitioners seeking to implement adolescent pregnancy prevention interventions that are holistic, equitable, and grounded in the realities of Zambian adolescents' lives. It reinforces that with sustained political will, multisectoral action, and adolescent-centered programming, meaningful progress is possible.

#### **5.4.4 Final Reflections**

This doctoral dissertation closes with a call to action, one rooted in both urgency and hope. The evidence is unequivocal: adolescent pregnancy is not merely a health or education

concern. It is a profound public health and development crisis that compromises the rights, well-being, and futures of girls, while constraining Zambia's progress across generations. Yet it is not inevitable. Adolescent pregnancy is both preventable and solvable with the right combination of political commitment, strategic investment, and inclusive, multisectoral engagement.

As this study has demonstrated, adolescent pregnancy is a sentinel indicator of broader public health system failures, gaps in access to services, weak prevention efforts, insufficient health literacy, and entrenched structural inequalities. It is also a driver of intergenerational cycles of poor health, poverty, and social exclusion. Addressing it is therefore not only a moral imperative but a strategic public health investment with high returns for maternal and child health, education, economic productivity, and gender equality. As such, preventing adolescent pregnancy must be prioritized as a core component of universal health coverage, health systems strengthening, and sustainable development strategies.

Zambia stands at a pivotal moment. The findings of this study provide a clear and actionable path forward grounded in the lived experiences of adolescents and informed by the structural, cultural, and systemic conditions that shape their choices. With strong leadership, increased and sustained resource allocation, responsive institutions, and the meaningful engagement of communities and young people, transformative change is not only possible, it is within reach.

This research contributes a robust, context-specific body of evidence to inform that change. It offers policymakers critical insights for designing equitable and effective interventions; it equips practitioners with a framework for integrated programming; and perhaps most importantly, it amplifies the voices of adolescents whose realities are often marginalized in policy dialogue.

However, evidence alone is not sufficient. The momentum generated by this study must translate into coordinated, strategic, and sustained action across all levels of society. Education systems, health services, families, community structures, and government institutions must work collectively to dismantle the barriers that sustain adolescent pregnancy and create environments that empower every girl to thrive.

Only through such collective, rights-based, and gender-transformative approaches can Zambia fully realize the potential of its young people ensuring that every adolescent, regardless of geography, socioeconomic status, or life circumstance, has the knowledge, agency, and support to define her own future. A future free from the constraints of early pregnancy and rich with opportunity, dignity, and possibility.



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## APPENDICES

## APPENDIX 1: RESEARCH QUESTIONNAIRE

**ADOLESCENT PREGNANCY IN ZAMBIA: AN URBAN-RURAL COMPARATIVE STUDY  
ADOLESCENT (18-24 YEARS) QUESTIONNAIRE**

**Introduction:**

My name is Gift Malunga. I am a researcher conducting a study on “Adolescent pregnancy- an urban-rural comparative analysis of contributing factors in Eastern and Southern Provinces.” The purpose of this study is to investigate the rural-urban drivers and factors associated with adolescent pregnancy in Zambia. Available evidence shows that there are rural-urban variations in adolescent pregnancy prevalence rates, with rural areas having the highest rates (37%) while urban areas have the lowest pregnancy rates at 17%. There is limited if any evidence on the glaring geographical differences on adolescent pregnancies. It is therefore important to understand the key drivers and related factors associated with adolescent pregnancy based on the rural urban divide. You have been selected to participate in this study because you are a young woman who is 18 years or older and you have lived in this community for more than three months. I feel that your experiences will be valuable to learn how we can improve the health for young people, especially adolescent girls in your community and in Zambia.

Participating in this survey is purely voluntary. The interview will take about 30 to 45 minutes to complete. I will treat the information you will provide confidentially. Please express yourself freely and also feel free to ask anytime if you do not understand a question. Thank you for your cooperation.

Do you agree to participate in this survey?

Yes, Proceed with the interview.

No, End interview and thank interviewee for their time

**IDENTIFICATION**

1	Province				
2	District				
4	Ward				
5	Place of Residence	Urban.....1 Rural.....2			
6	Date of Interview (DD/MM/YYYY)				

**SECTION 1: RESPONDENT'S  
BACKGROUND**

	Questions	Response
1.1	Have you lived in this household for at least 6 months or intend to live in this household for at least 6 months?	Yes.....1 No.....2
1.2	In what month and year were you born? (MM/YYYY)	
1.3	How old were you at your last birthday (completed years)? ( <i>Compare and Correct Q1.3 if inconsistent</i> )	(Type number in complete years)
1.4	Have you ever attended school? ( <i>If Answer is “No” proceed to Q1.6</i> )	Yes.....1 No.....2
1.5	What is the highest level of school you attended?	Primary.....1 Secondary.....2

		Higher.....3
1.6	What is your marital status? <i>(If Answer is “Never Married” go to Q2.1 and ask respondent)</i>	Never Married.....1 Cohabiting.....2 Married.....3 Separated.....4 Divorced.....5 Widowed.....6
1.8	Have you ever had/do you currently have a partner (boyfriend or girlfriend)?	Yes.....1 No.....2
<b>SECTION 2: SEXUAL ACTIVITY</b>		
2.1	Have you ever had sexual intercourse with a man before?	Yes.....1 No.....2
2.2	If yes to Q 2.1, at what age did you have your first sexual intercourse experience?	(Type number in complete years)
2.3	Did you use any protection during sex?	Yes.....1 No.....2
2.4	Do you use any protection whenever you have sex with your sexual partner(s)? <i>(Ask this question to who are currently married or cohabiting)</i>	Yes.....1 No.....2

<b>SECTION 3: CONTRACEPTION KNOWLEDGE, USE AND REPRODUCTION</b>		
<b>Now I would like to talk about Family planning, the various ways or methods that a couple / sexual partners can use to delay or avoid pregnancy.</b>		
<b>READING THE NAME AND DESCRIPTION OF EACH METHOD. CIRCLE CODE 1 IF METHOD IS RECOGNIZED, AND CODE 2 IF NOT RECOGNIZED.</b>		
3.1	Are you currently pregnant? (If yes end the interview)	Yes.....1 No.....2
3.2	If no to Q 3.1, have you ever been pregnant before?	Yes.....1 No.....2
3.3	If you have been pregnant before, at what age do you experience your first pregnancy?	..... years
3.4	If you have been pregnant before, was there any pregnancy that was miscarried, aborted, or ended in a stillbirth?	Yes.....1 No.....2
3.5	If yes to Q 3.3, when did the last of such pregnancy end?	Year.....1
3.6	How many months pregnant were you when that pregnancy ended?	3..... 4..... 6+.....
3.7	Have you ever had a pregnancy or child that you did not intend to have in the last two years?	Yes.....1 No.....2
3.8	Do you currently have intentions to postpone the birth of your next/first child for at least two years?	Yes.....1 No.....2
3.9	Is there a place around where young people like you can access ASRH services like relationships, sex, contraceptive use, STI infections and HIV?	Yes.....1 .....2
3.10	What kinds of services are provided? Circle all that applies	1. Sex and relationships 2. VCT for HIV 3. STI treatment 4. FP services



		5. Pregnancy care 6. Psychosocial support 7. Education on SRH matters 8. Miscarriage/post-abortion services 9. Others
3.11	Do young people your age visit health facilities for SRH services	1. Yes 2. No
3.12	Have you heard of any other ways or methods that women or men can use to avoid pregnancy	Yes.....1 Yes, Modern Method  (Specify) Yes, Tradition Method  (Specify) No.....2
<b>Have you ever heard of any of the following contraception methods?</b>		
3.13	Female Sterilization. PROBE: Women can have an operation to avoid having any more children.	Yes.....1 No.....2
3.15	Intrauterine devices PROBE: Women can have a loop or coil placed inside them by a doctor, nurse, or clinic officer which can prevent pregnancy for one or more years.	
3.16	Long acting and reversible contraceptives- Injectables. PROBE: Women can have an injection by a doctor, nurse, or clinic officer that stops them from becoming pregnant for one or more months.	
3.17	Implants. PROBE: Women can have one or more small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years	Yes.....1 No.....2
3.18	Pill. PROBE: Women can take a pill every day to avoid becoming pregnant.	Yes.....1 No.....2
3.19	Emergency Contraception. PROBE: As an emergency measure, within five days after they have unprotected sexual intercourse, women can take special pills to prevent pregnancy.	Yes.....1 No.....2
3.20	Standard Days Method (Cycle Beads). PROBE: A woman uses a string of coloured beads to know the days she can get pregnant. On the days she can get pregnant, she uses a condom or does not have sexual intercourse	Yes.....1 No.....2
3.21	Rhythm Method. PROBE: To avoid pregnancy, women do not have sexual intercourse on the days of the month they think they can get pregnant	Yes.....1 No.....2
3.22	Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?	Yes.....1 No.....2
3.23	If yes to Q 3.22, which method(s) are you using? <b>Record all mentioned. if more than one method mentioned, follow skip instruction for highest method in list</b>	Yes.....1 No.....2
3.25	Where did you obtain the (current method of contraception) at that time?	Government Hospital Government Health Centre Government Health Post

		Mobile Clinic/Hospital Community-Based Agent/Fieldworker Other Public Sector
3.26	In the last 12 months, were you ever visited by a community health worker?	Yes.....1 No.....2
3.27	Did the community health worker talk to you about family planning?	Yes.....1 No.....2
3.28	At that time, were you told about side effects or problems you might have with the method?	Yes.....1 No.....2
3.30	Why are some teenagers not using FP/Contraceptives?	Because: 1.They want to get pregnant 2. Partner does not allow FP/contraception 3. Do not mind if they get pregnant 4. Trouble getting the method 5. Side effects 6. Thought it is not possible to become pregnant 7. Other
3.31	Did you use a condom during the last sexual activity/encounter you had?	1.Yes 2. No
3.32	If no, why?	1.They were not available 2. Expensive 3. Partner refused to use 4. We trust each other 5. Didn't feel like 6. I don't trust condoms 7. Other
<b>SECTION 4: Knowledge on Adolescent pregnancy</b>		
4.1	What do you think are the causes of teenage pregnancies??	1. Lack of ASRH knowledge 2. Girls love for money 3. Forced sex and rape 4. No condoms available 5. Girls receiving favours from teachers 6. Others
4.2	How can teenage pregnancies be prevented?	1. Improved ASRH knowledge 2. Open talk with parents/caregivers 3. access of contraceptives 4. Condom use by sex partners 5. Other
4.3	If a schoolgirl becomes pregnant, what is likely to happen to her?	

		1.Sent away from home 2. Sent away from school 3. Drops out of school 4. Gets married against her wish 5. Goes back to school after delivery 6. Other
4.4	What is likely to happen to a schoolboy who impregnates a schoolgirl?	1.Nothing 2. The boy gets counselled, if over age prosecuted 3. The boy sent away from school 4. Continues with Education 5. Other
	Harmful cultural practices	
4.5	Do you know any harmful cultural practices/ negative social norms practiced in your community or other communities which may lead to adolescent pregnancy? (Harmful cultural practices/negative cultural norms include child marriage, girl initiation which involves teaching young girls how to sleep and please men)	Yes.....1 No.....2 Don't Know.....3
4.6	If yes which practice are common in your community which may result in adolescent pregnancy?	1. Early marriages  2. Girls not allowed to complete their education  3. FGM 4. Other
4.7	Do you know girls of your age who have experienced such practices	Yes.....1 No.....2 Don't Know.....3
4.8	Have you experienced any of these practices?	Yes.....1 No.....2
4.9	How can these practices be prevented?	1. Prosecute the perpetrators 2. Community Awareness 3. Other

## APPENDIX 2: FGD GUIDE

**Guidance to the FGD facilitator:** I will welcome everyone to the group discussion and allow everyone to introduce themselves and where they are coming from. I will make everyone feel comfortable, assure them the discussion will not take long, and ensure that every participant signs the consent form as appropriate. I will explain that I will be asking questions to which any group member is free to respond. I will also explain that the questions are meant to guide the discussion. Participants are not restricted to directly answering the question but can add more information based on their knowledge, perceptions, and beliefs. Participants will be reminded that information provided during the discussion will be treated with confidentiality and individuals' names or any other means of identity will not be quoted.

- Date of FGD\_\_\_\_\_
- Name of community\_\_\_\_\_
- Number and Gender of respondents: Males\_\_\_\_\_Females\_\_\_\_\_
- Age group (age range, lowest to highest):  
\_\_\_\_\_

### Part 1: Experience of adolescent pregnancy

1. We are going to discuss adolescent pregnancies. Can you share with me how prevalent are adolescent pregnancies in your community?
2. At what age do most girls get pregnant in this community?
3. Do each one of you know a girl that got pregnant before they reached the age of 18 years
4. How are those girls treated in your community? Are they accepted by their families?
5. In your experience, do girls who drop out of school because of pregnancy go back to school or most of them end up in child marriages?

### Part 2: Causes of adolescent pregnancy

1. In your opinion what are the reasons why adolescent girls get pregnant in your community? **Note to interviewer: take note of every reason that has been mentioned and ask the following questions**
  - a. Of the reasons you have mentioned can you rank them in order of importance with number one being the major cause and the last number being the least cause.
  - b. Why do you think these are the major reasons?
  - c. Are there any similarities or differences in rural and urban areas?
2. Do you know of traditional and cultural norms that lead adolescent girls to get pregnant?

#### **For each norm mentioned I will probe by asking the following questions**

- a. How is such a social norm practiced and by who?
- b. How is it reinforced in the community?
- c. What happens if a person does not abide by such a norm?

### Part 3: Laws and policies

3. Can you share with me the laws and policies of the country that deals with adolescent pregnancies that you are aware of?
4. In your community, can you mention some cultural and traditional regulations that prohibit adolescent pregnancies and how these are reinforced?
5. In your opinion why are the government laws and policies not effective in preventing pregnancies?
6. In your opinion why are the cultural and traditional regulations you mentioned not effective in preventing pregnancies.

**Part 4: Exploring barriers to services access in health facilities**

- 1) The government has introduced health services for young people so that they can access services in health facilities. In your opinion, do you think it is easy for young people to go to a health facility and access services such as condoms and contraceptives? Probe reasons to answer.
- 2) What are some of the barriers that hinder young people from accessing sexual and reproductive health services in health facilities?

**Part 5: Exploring interventions to be implemented**

- 1) What cultural and traditional norms you think should be changed in order to help girls not to get pregnant early? How can these norms be changed?
- 2) What should the parents/guardians be doing to prevent teenage pregnancies in your community?
- 3) What should government and other organizations such as UNFPA and others do to help young people prevent teenage pregnancy?
- 4) Are there any best practices in preventing adolescent pregnancy?

**Conclusion and final words**

As we come to the end of our discussion, are there any other issues that you want to discuss about what we have discussed?

### APPENDIX 3: KII GUIDE

My name is Gift Malunga. I am a researcher conducting a study on “Adolescent pregnancy in Zambia-an urban-rural comparative analysis of contributing factors in the Eastern and Southern Provinces.” This study aims to investigate the rural-urban drivers and factors associated with adolescent pregnancy in Zambia. Available evidence shows that there are rural-urban variations in adolescent pregnancy prevalence rates, with rural areas having the highest rates (37%) while urban areas have the lowest pregnancy rates at 17%. There is limited evidence of the glaring geographical differences in adolescent pregnancies. It is, therefore, important to understand the key drivers and related factors associated with adolescent pregnancy based on the rural-urban divide. You have been selected to participate in this study because you are a parent, community leader/teacher/nurse and have lived in this community for over three months. I feel that your knowledge/ observations on adolescent pregnancy will be valuable to learn how we can improve the health of young people, especially adolescent girls, in your community and in Zambia.

Participating in this survey is purely voluntary. The interview will take about 30 minutes to complete. I will treat the information you will provide confidentially. Please express yourself freely, and feel free to ask anytime if you do not understand a question. Thank you for your cooperation.

Do you agree to participate in this survey?

Yes, Proceed with the interview.

No, End the interview and thank the interviewee for their time.

Questions:

- How prevalent are adolescent pregnancies in your district/community/health facility?
- In your opinion, what the key drivers of these adolescent pregnancies?
- What cultural norms you know that drive adolescent pregnancy and how can these norms be addressed
- What is the status of implementation of national laws such as the defilement laws in your district?
- What do you suggest parents, government and civil society organisations can do to prevent adolescent pregnancies?
- Any other advice you have regarding adolescent pregnancies.

#### Information sheet for participants

##### Sponsors of the study

This is a self-sponsored study which is entirely meant to fulfil the requirements of the award of an academic qualification.

##### Information about the formative study

**Why is the study being carried out?** The purpose of this study is to investigate the rural- urban drivers and factors associated with adolescent pregnancy in Zambia.

**What are the benefits of participating in the study?** There are no immediate benefits to you for participating in the study. You will not receive any money or any payment in kind. However, the study will contribute to the huge body of knowledge on matters that relate to adolescent pregnancy in Zambia.

**Is participation voluntary?** Your participation is completely voluntary. You are free to refuse to take part in the study and you are also free to withdraw from the study at any time. Before accepting to

participate you are free to talk about the study with anyone you wish to so that you can make an informed decision. When you refuse to participate, or you decide to withdraw from the study you will not suffer any consequences at all. While you are participating in the study and a researcher is asking you questions, you are free not to answer some of the questions you may find too personal. You are therefore not obliged to answer all the questions. However, we will be most grateful if you can answer all the questions honestly.

**What will happen if I agree to participate?** If you agree to participate, you will be given a consent form to sign stating that you have voluntarily agreed to participate in this study. A research assistant will ask you some questions relating to sexual reproductive health and adolescent pregnancies. You are free not to answer any of these questions.

**How about confidentiality?** We will ensure that your confidentiality is protected at all times. We will not write your names or any identifiers such as your house number, phone numbers or any other identifiers on any of the research instruments therefore no one will identify the responses you will provide to us. In addition, all the questionnaires relating to this study will be securely kept by the person in charge of the study. After we have analysed the data, your answers will be mixed with other people's answers and be put in one report that will highlight the results of the study. There is no way anyone will know what answers you gave.

**Who should I contact if there is a problem?** If you have any questions on the study or there is a problem that you would like to be addressed, you are free to contact me, and my phone number is +260760998899.

## **APPENDIX 4: PARTICIPANTS INCLUSION CRITERIA**

### **Introduction**

Good morning/afternoon. Thank you for taking the time to talk to me today. My name is Gift Malunga. I am conducting a study to ascertain context-specific drivers and risk factors of adolescent pregnancy in the Eastern and Southern Provinces of Zambia.

### **Purpose of the study**

The purpose of this study is to investigate the rural-urban drivers and factors associated with adolescent pregnancy in the Eastern and Southern Provinces of Zambia

The Study participant must:

- Be a young person age between 18 – 24 years.
- Freely agree to participate in the formative study by signing the informed Consent form and if less than 18 years old must have parental permission to participate in the study.
- Live in the community where the study is being implemented

Your participation in this study is voluntary. You will be free to skip any questions you do not want to answer, and you are free to withdraw from the study at any time. Your decision to take part or not to take part in the interview will have no impact on your well-being.

### **Screening questions**

#### **1. How old are you?**

Which year were you born? \_\_\_\_\_ (Validate age)

[If less than 18 years or above 24 years terminate discussion and thank the potential participant. Explain why they cannot be recruited into the study]

#### **2. If above 18 years old, have you freely agreed to participate in the study?**

**0 = No, 1 = Yes**

*(If NO thank the participant and terminate recruitment)*

**0 = No, 1 = Yes**

*(If NO thank the participant and terminate recruitment)*

#### **3. Have you stayed in this community for the last one month?**

**0=No, 1=YES** [If NO please thank and terminate recruitment]

#### **4. Are you willing to participate in the study?**

**0=NO** [please thank and terminate recruitment], **1=YES**



## APPENDIX 5: INFORMED CONSENT FORM

### General introduction

Good morning or afternoon. My name is Gift Malunga. I am conducting a study to ascertain context-specific drivers and risk factors of adolescent pregnancy in Zambia. This study aims to investigate the rural-urban drivers and factors associated with adolescent pregnancy in the Eastern and Southern Provinces of Zambia. Available evidence shows that there are rural-urban variations in adolescent pregnancy prevalence rates, with rural areas having the highest rates (37%) while urban areas have the lowest pregnancy rates at 17%. There is limited evidence of the glaring geographical differences in adolescent pregnancies. It is, therefore, important to understand the key drivers and related factors associated with adolescent pregnancy based on the rural-urban divide. You have been selected to participate in this study because you are a girl who is 18 years or older, and you have lived in this community for more than three months. Your experiences will be valuable in learning how we can improve young people's health, especially adolescent girls in your community and Zambia.

### Purpose of the Study: Why are we doing this study?

As you may be aware, some girls are getting pregnant early, and they drop out of school; some end up in child marriages. We are conducting this study to understand why this is the case.

**What will happen if I take part?** If you agree to take part in the study, I will first ask you to sign this form. If you consent, you will then participate in an FGD with other adolescents. The group will comprise of 8-10 participants. You together with your colleagues in your group will be asked questions about adolescent pregnancy and what your opinions on how to prevent pregnancies among adolescents. The FGD will take about 30 minutes. The responses will be recorded on a digital recorder and then transcribed on paper by the interviewer. Some of the questions are personal and you may find them difficult or sensitive to answer. You do not need to answer any questions that you do not want to.

### Risks: What are the risks of the study?

An inconvenience may be the time and effort you take to be a participant. You may find one or more questions that we ask to be upsetting or emotionally sensitive. You do not have to respond to any question that makes you uncomfortable. You may withdraw from the group discussion at any time without penalty. A risk may be a breach of confidentiality (something you will say during the focus group is shared with others outside the group), but I will take precautions to see that this does not happen.

### Benefits: What are the benefits of participating?

There are no immediate no economic or material benefits for participating in this study. However, the study will contribute to the huge body of knowledge on matters that relate to adolescent pregnancy in Zambia.

### Confidentiality: Will my participation in the study be kept confidential?

Other focus group participants will know what you will say during the FGDs. However, we will ask participants to keep information shared during the focus group confidential. The information that is collected during the focus group such as audio voice recordings will be kept safely. Recordings will be destroyed on completion of the analysis and report writing for this study. Your responses will be combined with responses from others no one will be able to identify your specific responses. Your name and or other identifiers will not be included in reports from this study. Your signature at the bottom of this form will not be used for any other purpose apart from proving that you have read or have been read to the information and that you have understood this information. I will make every effort to protect your privacy and maintain the confidentiality of all the information that you provide.

**Voluntariness: What are my rights as a research participant?**

Your participation in this study is completely voluntary. If you decide not to participate, you will not lose any existing benefits to which you are entitled. If you agree to participate in this study, you may end your participation at any time without penalty or loss of existing benefits to which you are entitled. If you decide to take part, you are free to refrain from answering any questions. You are free to withdraw at any time.

**Additional Information**

**What will I receive for participating?** You will not receive anything for participating in the study.

**What will happen to the results of the research study?** I will write a report combining all of the responses from other people I will interview. The report will be purely for academic purposes.

**Who has reviewed the study for ethical issues?** This study has been reviewed by the UNICAF University Ethics Research Committee and ERES Converge Institutional Review Board which is a committee whose task it is to make sure that research participants are protected from harm.

**What if I need more information?** If you have any questions, you may ask them now or later, even after the study has started. If you wish to ask questions later, me on +260760998899.

Do you have any questions? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, note the questions below:

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-----  
-----

Would you be willing to participate in the study?

Yes \_\_\_\_\_ No \_\_\_\_\_

Participant Statement: I have read the Informed Consent for this study. I have received an explanation of the planned research, procedures, risks and benefits and privacy of my personal information. I understand that my participation in this study is voluntary.

Researcher (Gift Malunga): I confirm that I have personally explained the nature and extent of the planned research, study procedures, potential risks and benefits, and confidentiality of personal information. I agree to keep the in-depth interview private.

Signature of person obtaining consent: \_\_\_\_\_ Date: \_\_\_\_\_

## APPENDIX 6: ETHICAL APPROVAL DOCUMENTS



UU\_GL - Version 2.0



### Gatekeeper letter

**Address:** Eastern/Southern Provinces, Zambia

**Date:** 22-Dec-2022

**Subject:** Permission to conduct a study

Dear XXXX,

I am a doctoral student at Unicaf University in Zambia.

As part of my degree, I am carrying out a study on Adolescent Preganancy in Zambia. Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using interview administered questionnaires and focus group discussions.

The title of my study is Adolescent Preganancy in Zambia: A rural - urban comparative study. My supervisor is : Dr Luchuo Engelbert Bain

As you might be aware, girls are experiencing a lot of challenges, including early pregnancy. The purpose of this of this study is to investigate the rural- urban drivers and factors associated with adolescent pregnancy in Zambia. Available evidence shows that there are rural- urban variations in adolescent pregnancy prevalence rates, with rural areas having the highest rates (37%) while urban areas have the lowest pregnancy rates at 17%. There is limited, if any evidence on the glaring geographical differences on adolescents pregnancies.

I am kindly requesting your permission to conduct the study in your province/district. I will interview young women above 18 years of age who are not currently pregnant, including community members for 5 days.

I look forward to your consideration of this study given its importance. Please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Gift Malunga

**Student's Name:** Gift Malunga

**Student's E-mail:** malunga@unfpa.org

**Student's Address and Telephone:** C/o UNFPA Lusaka Zambia

**Supervisor's Title and Name:** Dr Luchuo Engelbert Bain

**Supervisor's Position:** Lecturer and Reserch Fellow

**Supervisor's E-mail:** l.bain@unicaf.org



## Informed Consent Form

### Part 1: Debriefing of Participants

**Student's Name:** Gift Malunga

**Student's E-mail Address:** malunga@unfpa.org

**Student ID #:** 1904D8194941

**Supervisor's Name:** Dr Luchuo Engelbert Bain

**University Campus:** Unicaf University Zambia (UUZ)



**Program of Study:** UUZ: PhD Doctorate of Philosophy

**Research Project Title:** Adolescent pregnancy in Zambia: An urban – rural comparative study

**Date:**

**Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words).**

The purpose of this of this study is to investigate the rural- urban drivers and factors associated with adolescent pregnancy in Zambia. Available evidence shows that there are rural- urban variations in adolescent pregnancy prevalence rates, with rural areas having the highest rates (37%) while urban areas have the lowest pregnancy rates at 17%. There is limited evidence on the glaring geographical differences on adolescent pregnancies. It is therefore important to understand the key drivers and related factors associated with adolescent pregnancy based on the rural- urban divide.

You have been selected to participate in this study because you are a young woman who is 18 years or older and you have lived in this community for more than three months. I feel that your experiences will be valuable to learn how we can improve the health for young people, especially adolescent girls in your community and in Zambia.

The above named Student is committed in ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, Gift Malunga, ensure that all information stated above is true and that all conditions have been met.

**Student's Signature:** GM Malunga



UREC Decision, Version 2.0

**Unicaf University Research Ethics Committee  
Decision****Student's Name:** Gift Malunga**Student's ID #:** R1904D8194941**Supervisor's Name:** Dr. Luchuo Engelbert Bain**Program of Study:** UU-DOC-900-3-ZM**Offer ID /Group ID:** O47714G49162**Dissertation Stage:** DS3**Research Project Title:****Adolescent pregnancy in Zambia: An urban – rural comparative study****Comments:** No comments.**Decision\*:** A. Approved without revision or comments**Date:** 03 Mar 2023

\*Provisional approval provided at the Dissertation Stage 1, whereas the final approval is provided at the Dissertation stage 3. The student is allowed to proceed to data collection following the final approval.

**APPENDIX 7: TURNITIN ORIGINALITY REPORT**