Impact of policies and programmes for addressing adolescent pregnancy in Ghana

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Certificate of Original Authorship

I, Bright Opoku Ahinkorah, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Faculty of Health at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis. This document has not been submitted for qualifications at any other academic institution.

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Image 1: Male research assistant and adolescent girls during a focus group discussion session

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Image 2: Female research assistant and adolescent girls during a focus group discussion session

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Abbreviations

AIC: Akaike's Information Criterion

AOR: Adjusted Odds Ratios

ASRH: Adolescent Sexual and Reproductive Health

CHPS: Community Health Planning and Services

CI: Confidence Interval

COPNAG: Community Parents Network Advocacy Group

CSE: Comprehensive Sexuality Education

DHS: Demographic and Health Survey

FGD: Focus Group Discussion

GHS: Ghana Health Service

GW: Grassroots workers

HEP: Health education professionals

ICC: Intra-Class Correlation Coefficient

ICF: Inner City Fund

IDI: In-depth Interviews

IEC: information, education and communication

KEEA: Komenda-Edina-Eguafo-Abrem

LEAP: Livelihood Empowerment against Poverty

LMICs: Low-and middle-income countries

LR Test: Likelihood ratio Test

NGOs: Non-governmental organisations

NHIS: National Health Insurance Scheme

PASS: Promoting Safe Space for Adolescents

PECACEM: Promotion, Empowerment and Community Action against Child Marriage

PPAG: Planned Parenthood Association of Ghana

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses

RHESY: Reproductive health and education services for youth or young people

SRH: Sexual and Reproductive Health

SSA: Sub-Saharan Africa

UNESCO: United Nations Educational, Scientific and Cultural Organization

UNFPA: United Nations Population Fund

UNICEF: United Nations Children's Fund

WHO: World Health Organisation

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ABSTRACT

Introduction

In Ghana, national policies and programmes for reducing adolescent pregnancy have been developed over the past 20 years in order to address its unacceptably high rates. Despite this, adolescent pregnancy rates remain high in the country, making it difficult to understand the impact of the policies and programmes. Meanwhile, there is no empirical evidence on the impact of policies and programmes on adolescent pregnancy in Ghana. The purpose of the study was to examine the impact of policies and programmes for addressing adolescent pregnancy in Ghana.

Methods

This doctoral research derives its theoretical approach from implementation science. Multiple research approaches involving quantitative and qualitative research methods were adopted to achieve the purpose of the research. The quantitative approach involved analyses of secondary data from 32 countries in sub-Saharan Africa to examine the prevalence of first adolescent pregnancy and its associated factors. The qualitative approaches involved a scoping review of national policies for pregnancy prevention in Anglophone sub-Saharan African countries and interviews with health and education professionals, grassroots workers, and adolescent girls in Ghana.

Results

The results from the analyses of secondary data showed that several factors are associated with first adolescent pregnancy. These factors were considered as the key focus of the national policies for pregnancy prevention from the findings of the scoping review. The health and education professionals and grassroots workers had low level of awareness and knowledge of policies. By contrast, most could demonstrate awareness of relevant programmes and provide a detailed description of their implementation and activities carried out under each programme. Interviews with health and education professionals and grassroots workers showed key

perceived barriers and facilitators that influence the implementation of policies and programmes. Focus group discussions with adolescent girls also showed some key barriers and facilitators to access and use of pregnancy prevention information and services.

Conclusions

The study findings show that policies and programmes aimed at reducing adolescent pregnancy should focus on addressing the barriers towards implementation and factors which put adolescent girls at risk of pregnancy. The strengthening of existing legal frameworks on adolescent sexual and reproductive health can help address the risk factors for adolescent pregnancy. In the long term, understanding the complexities that underpin predictors of adolescent pregnancy and improve the implementation of policies will help to achieve the Sustainable Development Goal 3, which focuses on ensuring healthy lives and promoting wellbeing for all at all ages.

CHAPTER ONE: INTRODUCTION

This chapter provides an overview of the definition and conceptual understanding of adolescence and identifies adolescent pregnancy as one of the major challenges of the period from childhood to adulthood among girls. It then discusses adolescent pregnancy as a public health concern, and provides information on the socio-cultural determinants of adolescent pregnancy and the global interventions for adolescent pregnancy prevention. This is followed by the problem statement, aims and significance of the study. As this doctoral work is situated in Ghana, a brief overview of Ghana and the health systems is also provided in this chapter. The structure of the thesis is also outlined at the end of the chapter.

1.1 Adolescence: Definition and conceptual understandings

Adolescence is the stage of development between childhood and adulthood, and is characterised by rapid and significant physical, cognitive and psychosocial changes (UNICEF, 2013). These changes make adolescence a distinctive period in the life-course in its own right, as well as an important time for laying the foundations for good health in adulthood (WHO, 2014a). At the beginning of the 20th century, G Stanley Hall, whose publication *Adolescence* in 1904 is widely acknowledged as the first scientific body of work on adolescent development (Arnett, 2006), loosely defined adolescence as the developmental stage ranging from age 14 to 24 years (Hall, 1904). Today, the World Health Organisation (WHO) defines adolescence as the second decade of life (10 to19 years) (WHO, 2003). The WHO further classifies three sub-stages of adolescence (early, middle, late) whereas others, including the United Nations International Children's Emergency Fund (UNICEF), describe only two sub-stages of adolescence: early adolescence (10-14 years) and late adolescence (15-19 years) (Das et al., 2017; UNICEF, 2013). The current WHO definition conceives of adolescents as remaining dependent on parents and carers, emerging at the end of the teenage years with more adult roles and responsibilities including the attainment of the legal status of adult in most countries. The

WHO classifies older adolescents and young adults (15–24 years) as 'Youth', which acknowledges that beyond 'adolescence', there are still distinct developmental needs and role transitions. Although these definitions are contested, adolescence is generally defined as the age range of 10–24 years since this age range corresponds more closely to adolescent growth and general understandings of this phase of life and enables extended investments across a broader range of settings (Sawyer et al., 2018).

Despite this general definition, the advancement of neuroscience in the past two to three decades has contributed further to the debate about an appropriate definition of adolescence, with new understandings that the brain continues to develop into the third decade of life (Foulkes & Blakemore, 2018; Johnson et al., 2009). Hence, adolescence has been considered as a period that involves the completion of pubertal growth and sexual maturation and the development of new cognitive skills (including abstract thinking capacities), a clearer sense of personal and sexual identity, and a degree of emotional, personal, and financial independence from parents (Christie & Viner, 2005). Dynamic brain development interacts with the social environment to shape the capabilities an individual takes forward into adult life (Blakemore & Mills, 2014). Many cognitive abilities increase markedly from late childhood and peak in the early 20s and then decline slowly from the early 30s (Li et al., 2004). Similar to physical health, educational attainment between late childhood and the mid-20s also has a great influence on cognitive capacity in midlife (Richards & Deary, 2005).

Socio-culturally, adolescence is a stage in which an individual establishes the social, cultural, emotional, educational, and economic resources to maintain their health and wellbeing across the life course (Patton et al., 2016). The stage of adolescence is central in the development of capabilities related to health and wellbeing (Patton et al., 2016). These capabilities depend on available opportunities such as education and having financial resources to use those opportunities (World Bank, 2007). Adolescents who have educational

opportunities, fewer health risks, and slower transitions into marriage and parenthood generally lead to greater competences and resources for health (Patton et al., 2016). Conversely, early marriage and parenthood, little education, and early exposure to economic and social adversity are likely to diminish an individual's health and capabilities (Dishion et al., 2004).

Adolescence has also been described as the period during which most people begin to explore their sexuality and have concerns about their bodily changes during puberty, being sexually attracted to others, their sexual identity and orientation, and sexual feelings and how to manage them (UNICEF, 2013). In the process of exploring their sexuality, adolescents may encounter challenges that result in physical, emotional, and social morbidities (Kipping et al., 2012; Laski, 2015). Health risk behaviours such as alcohol, tobacco, and other drug use, as well as unprotected sex are prevalent and tend to cluster together which can compound risks. Mental health problems, sexually transmitted infections and adolescent pregnancy can all be associated with health risk behaviours (Cunningham et al., 2017; Ritchwood et al., 2015).

1.2 Adolescent pregnancy as a public health issue

In the same way that definitions of adolescence vary, so too do definitions of adolescent pregnancy. The World Health Organisation defines adolescent pregnancy as pregnancy that ensues in a girl aged 10-19 years in line with its definition of adolescents using chronological age (WHO, 2014b). Other scholars define adolescent pregnancy in the context of growth and maturation. For example, Isa and Gani (2012) define adolescent pregnancy as gestation in women before reaching the full somatic development, characterised by sex steroids and anabolic hormones. This definition can be applied to an individual irrespective of the legal age used to determine adult status or the legal status of the marriage (UNICEF, 2008). Studies in Ghana have often used the term, adolescent pregnancy, interchangeably with teenage pregnancy, where the phenomenon is broadly understood as the proportion of girls aged 12 and 19 who have ever given birth or are currently pregnant (Adu-Gyamfi, 2014; Ahinkorah, Hagan

Jr, Seidu, Budu, et al., 2019; Ahinkorah, Hagan Junior, et al., 2019; Nyarko, 2012). Throughout this chapter, 'prevalence of adolescent pregnancy' similarly refers to the proportion of adolescents experiencing pregnancy.

Adolescent pregnancy is a global phenomenon that occurs in high-, middle-, and low-income countries (WHO, 2018a). Globally, the rate of births to adolescents in 2018 was 44 per 1000 adolescent girls aged 15–19 years (WHO, 2018b). Approximately 16 million girls aged 15 to 19 years and 2.5 million girls under 16 years experience childbearing every year in low- and middle-income countries (LMICs) (Neal et al., 2012; UNFPA, 2015). In a number of high income countries, adolescent pregnancy rates have declined since the mid-1990s; however, the rate has remained extremely high in the United States (57 per 1000 adolescent girls aged 15–19 years) (Sedgh et al., 2015). The proportion of births that occurs among adolescent girls aged 15–19 years ranges from 2% in China to 18% in Latin America and the Caribbean and more than 50% in sub-Saharan Africa (SSA) (WHO, 2014a). According to the United Nations Population Fund (2013), approximately 95% of adolescent pregnancies occur in LMICs, where 36.4 million women become mothers before age 18. On average, adolescent birth rates in LMICs are twice that of high-income countries, with the rate in low-income countries being five times that of high income countries (WHO, 2014b).

For many adolescents, pregnancy and childbirth are neither planned nor wanted (Darroch et al., 2016; Krugu et al., 2017). This is because most adolescents have limited capacity to control their fertility and experience unintended pregnancy (Christofides et al., 2014; Izugbara, 2015). The Centers for Disease Control and Prevention (2015) defines unintended pregnancy as pregnancy that either occurred when no child or children were desired (unwanted) or happened at a time when it was not expected (mistimed). It is usually a result of inconsistent, non-use or incorrect use of effective contraceptive methods. Unintended

pregnancy is a core concept in understanding the fertility and unmet need for contraceptives of a woman (Bearak et al., 2018; Bearak et al., 2020).

Adolescent pregnancy has serious health implications for both the mother and the child. Pregnancy and childbirth related problems are the greatest cause of mortality among adolescent girls, with LMICs responsible for 99% of global maternal fatalities among women aged 15 to 49 (WHO, 2020). Eclampsia, puerperal endometritis, and systemic infections are more common in adolescent mothers than in women aged 20–24 years (WHO, 2016). In addition, approximately 3.9 million unsafe abortions among female adolescents occur each year, contributing to maternal death, morbidity, and long-term health issues (Darroch et al., 2016). Early childbearing can put both newborns and young mothers at danger. Low birth weight, preterm delivery, and serious neonatal disorders are more likely in babies born to adolescent mothers compared to older mothers. Rapid recurrent pregnancy is a source of concern for young mothers in particular circumstances, as it poses additional health risks to both the mother and the child (WHO, 2020).

1.3 Socio-cultural determinants of adolescent pregnancy

Adolescent pregnancy is associated with several intersecting and multilayered factors which are constructed negatively or positively depending on the social and cultural context (Kirchengast, 2012, 2016; Weed & Nicholson, 2015). The society in which adolescent girls live, and the cultural norms and practices around the adolescent girls may influence their engagement in risky sexual behaviours (Akella & Jordan, 2014). It is therefore important to consider the influence of social and cultural factors on adolescent pregnancy. This is supported by Bandura's Social Learning Theory, which emphasises the mutual interaction between cognitive, behavioural, and environmental determinants of human behaviour. This theory postulates that people learn new behaviours by watching others in a social situation, absorbing, and then emulating those behaviours. Hence, observation plays a key role in the learning

processes of an individual. According to the theory, learning may or may not lead to a permanent change in behaviour (Bandura, 1977). The immediate social groups from whom people learn includes family, friends, teachers, neighbours, and church groups. These social groups communicate attitudes, views, and values that an individual can adopt and inculcate. They also emphasise appropriate social behavioural codes of conduct (Akers & Sellers, 2004).

Various scholars have identified multiple layers of influence of socio-cultural factors on adolescent pregnancy. These include peers, family, school, and the wider society. Systematic reviews by Kassa et al. (2018) and Yakubu and Salisu (2018) identified peer influence and unwanted sexual advances from adult males (which often led to coercive sexual relations) as socio-cultural factors associated with adolescent pregnancy. Similarly, other scholars have also found peer pressure to be associated with adolescent pregnancy (Ahinkorah, Hagan Junior, et al., 2019; Krugu et al., 2016; Mushwana et al., 2015; Ogori et al., 2013). This can influence adolescent pregnancy through the perceptions, attitudes, and behaviours of adolescents. Where adolescent girls hold a positive perception and attitude towards adolescent pregnancy and see nothing wrong with getting pregnant as an adolescent, they are more likely to engage in risky sexual behaviours, which can result in pregnancy. Such adolescent girls can influence their peers to also engage in such behaviours (Ahinkorah, Hagan Junior, et al., 2019; Mushwana et al., 2015). Hayes argued that if an adolescent develops confidence that their peers are sexually active (even though they might not be), this belief is more likely to increase the adolescent's prospect of engaging in early sexual intercourse (Hayes, 1987).

Inadequate parental counselling and guidance, severe family dysfunction, parental neglect, and positive attitudes of parents and siblings toward pregnancy have also been identified as associated with adolescent pregnancy at the family level (Krugu et al., 2016; Marston et al., 2013; Okigbo & Speizer, 2015). The role of the family in adolescent pregnancy derives from the idea that the family serves as the immediate environment within which the

adolescent girl grows and develops (Morris et al., 2007; Okigbo & Speizer, 2015). This means that an adolescent girl acquires certain sexual and reproductive health (SRH) behaviours based on the support available from her family. Hence, where there appears to be inadequate support in the family and adolescent pregnancy is seen as an achievement, an adolescent girl may take the opportunity to engage in sexual behaviours that put her at risk of pregnancy.

Lack of comprehensive sexuality education (CSE), both in schools and at home with family members, is also associated with adolescent pregnancy (Atuyambe et al., 2015; Mushwana et al., 2015; Salami et al., 2014; Yidana et al., 2015). CSE that focuses on both abstinence and contraception has been found to protect adolescent girls against pregnancy (Stanger-Hall & Hall, 2011). However, many adolescent girls do not have access to such information and services due to resistance from traditional and religious leaders (Bantebya et al., 2014; Barroy et al., 2016).

Unequal gender power relations in society are also associated with adolescent pregnancy (Christofides et al., 2014; McCleary-Sills et al., 2013; McHunu et al., 2012). Gender norms are particularly significant in influencing relational health outcomes, such as SRH (Moreau et al., 2019). A number of studies have attributed hegemonic forms of masculinities to unsafe sexual interactions, by encouraging male sexual risk taking (Barker et al., 2010; Jewkes, Flood, et al., 2015), and predisposing women to a wide range of sexual health risks (Jewkes & Morrell, 2010), including intimate partner violence (Ahinkorah et al., 2018) and unprotected intercourse (Krishnan et al., 2008). In terms of unequal gender power relations, male beliefs, attitudes, and behaviours are key. These influence the control males have on adolescent girls and how they express this control when it comes to sexual and reproductive health decision-making (Connor et al., 2018) .

Marriages that occur during adolescence also contribute substantially to adolescent pregnancy worldwide (Parsons et al., 2015; Yakubu & Salisu, 2018). In most instances,

adolescents affected by early marriages are disadvantaged in relation to economic empowerment and self-efficacy and are at risk of early pregnancies (Adedokun et al., 2016; de Groot et al., 2018). The relationship between early marriages and pregnancy can be explained by the idea that conception is considered acceptable, and even an obligation, in the context of marriage (Brien et al., 1999). According to the WHO (2018a), once an adolescent girl is given into marriage, there is societal pressure to have children and this contributes significantly to the high prevalence of adolescent pregnancy. Together, these factors represent the most important contributors linked to adolescent pregnancy worldwide.

The lack of access to and use of modern contraceptive are important factors that contribute to adolescent pregnancy. This has been attributed to the fact that in most places, contraceptives are not easily accessible to adolescents. Even if adolescents are able to access contraceptives, they might not have the authority or financial means to do so, as well as the information needed to locate them and use them properly (Chandra-Mouli & Akwara, 2020). Moreover, when attempting to access contraception, they could encounter stigma. Additionally, they frequently have a higher risk of stopping their medication due to side effects, as well as because of shifting living circumstances and plans for having children. An important barrier to the availability and uptake of contraceptives among adolescents is the existence of restrictive laws and policies surrounding the provision of contraceptives based on age or marital status. This frequently occurs in conjunction with the prejudice of health professionals or their unwillingness to recognise the needs of teenagers in terms of their sexual health (WHO, 2020).

1.4 Global interventions for adolescent pregnancy prevention

Targets 3.1 and 3.7 of the Sustainable Development Goals reflect an important global response to adolescent pregnancy. These two targets aim to reduce the global maternal mortality ratio to less than 70 per 100,000 live births and ensure universal access to SRH

services, including contraceptives, information and education, and the integration of reproductive health into national strategies and programmes by 2030 (United Nations, 2015). A range of international responses are linked to the achievement of these goals.

In 2011, the WHO developed guidelines on preventing early pregnancies and reducing poor reproductive outcomes among adolescents in LMICs. The guidelines had a range of recommendations that focused broadly on reducing marriage before the age of 18 years, reducing pregnancy before the age of 20 years, increasing the use of contraception by adolescents at risk of unintended pregnancy, reducing coerced sex and unsafe abortion among adolescents, and increasing the use of skilled antenatal, childbirth and postnatal care among adolescents. In relation to reducing pregnancy before the age of 20 years, the WHO recommended information provision, sexuality and health education, life skills building, contraceptive counselling and service provision, and the creation of supportive environments for adolescent girls. Moreover, LMICs were encouraged to maintain and improve efforts to retain girls in school, both at the primary and secondary levels; to offer interventions that combine curriculum-based sexuality education with contraceptive promotion to adolescents; and to offer and promote postpartum and post-abortion contraception to adolescents through multiple home visits and/or clinic visits to reduce their chances of second pregnancies (WHO, 2011a).

In 2012, several United Nations bodies came together and recognised the importance of empowerment of adolescent girls to prevent adolescent pregnancy. The bodies included are the United Nations Children's Fund (UNICEF), International Labour Organisation, United Nations Educational, Scientific and Cultural Organisation (UNESCO), WHO, United Nations Development Fund for Women, and United Nations Population Fund (UNFPA). These bodies came up with a joint framework to harmonise policies that ensure the same level of empowerment for adolescent girls in high-income countries and LMICs. The framework aimed

to offer support for governments and societies to fulfil the obligations towards the rights of girls. The major idea behind the framework was the education of adolescent girls. This was based on the premise that educating girls is crucial for economic development and eradication of extreme poverty and hunger. This is because educated adolescents can work, be financially independent and contribute towards improving the living conditions of their households. Such economic and financial empowerment could play a key role in reducing adolescent pregnancy (United Nations General Assembly, 2012a).

In 2013, the UNFPA proposed several strategies for reducing adolescent pregnancy in countries where rates of adolescent pregnancy were high. Some strategies focused on ensuring that adolescent girls who marry before age 18 have systematic support to help them avoid early and frequent childbearing. These should include ready access to SRH information and programmes that provide contraceptives, maternal health services, and HIV prevention and treatment; programmes that enable girls who are married or in a union to exercise their right to identify and understand their options to delay or limit childbearing, and to receive support from their husbands or partners and in-laws accordingly. Countries with high rates of child marriage and adolescent pregnancy as well as high unmet need for contraceptives were encouraged to consider a multi-faceted approach across sectors to delay marriage and motherhood for girls. Such approaches should include the enforcement of laws against child marriage, including the enactment and enforcement of statutes that raise the minimum age at marriage to 18 for both girls and boys. Moreover, countries should expand girls' opportunities for post-primary education, especially for rural and isolated girls during adolescence, and consider incentives to encourage families and communities to address the economic and social factors underlying adolescent pregnancy. Girls should also be offered opportunities to develop new skills and show their families a positive alternative to child marriage and motherhood (Loaiza & Liang,

2013). Together, these interventions provide a means for reducing adolescent pregnancy globally.

At the individual country level, the UNFPA recommends that these global interventions should be translated into national policies and programmes. The development of these policies and programmes should be done through data collection and analysis that identify the areas within the country where adolescent pregnancy is high and the country-specific factors that put the adolescent girls at risk of pregnancy. This recommendation is based on the premise that programmes and policies aimed at reducing adolescent pregnancy yield promising results, create momentum, and have shown evidence of the difference they can make in the lives of adolescent girls when they are implemented effectively (UNFPA, 2013a).

1.5 The thesis purpose

1.5.1 Problem statement

Adolescent pregnancy is a contemporary social issue in most countries in the world (Kirchengast, 2016) due to the health sequelae and social repercussions it has on adolescent girls (McHunu et al., 2012; Sychareun et al., 2018) and the health challenges it poses to the adolescent girl (Alan Guttmacher Institute, 2010). It has attracted much concern from religious leaders, the general public, policy makers and social scientists all over the world (Cherry & Dillon, 2014). Within the public health sector, dialogue on adolescent pregnancy is common (Wessells et al., 2014). This is because the consequences of adolescent pregnancy affect not only the adolescents but also their communities, school systems and governments as a whole (Jeha et al., 2015; Yussif et al., 2017).

In Ghana, where this doctoral research was conducted, several interventions have been implemented to address adolescent pregnancy. Such interventions include national policies (which are statements containing principles and a broad course of action adopted by the government in pursuit of a specific objective), such as the Adolescent Reproductive Health

Policy of 2000, the National Gender Policy, and the 2016-2020 Adolescent Health Service Policy and Strategy of Ghana. Apart from these national policies, government, and non-governmental organisations (NGOs) in the country have also implemented programmes (local means of implementing the strategies in policies) aimed at reducing adolescent pregnancy. For instance, a child rights organisation (Afrikids) in collaboration with the Ghana Health Service (GHS) and other stakeholders in the Upper East Region commenced a project to promote sex education in seven districts to reduce high adolescent pregnancy and unsafe abortion rates in the region in 2016. The Good Samaritan Network Foundation also implemented a project in the Adaklu District of the Volta Region of Ghana with an overall goal of improving and advancing the SRH rights of in-and out-of-school adolescents through the provision of appropriate education and access to SRH services.

Once such policies and programmes are available in the country and implemented in schools, communities, and health facilities, it is expected that adolescent pregnancy rates will reduce significantly. However, despite these programmes and services, adolescent pregnancy rates are still high in Ghana (Ghana Statistical Service et al., 2009, 2015). For instance, a recent national report shows that approximately 14% of adolescent girls aged 15–19 years had begun childbearing, of whom 11% had a live birth and 3% were pregnant with first child (Ghana Statistical Service et al., 2015). This situation raises questions about the effectiveness of adolescent reproductive health policies and programmes in dealing with adolescent pregnancy in Ghana. However, there is no empirical evidence on the impact of policies and programmes on adolescent pregnancy in Ghana. Hence, the purpose of the study was to examine the impact of policies and programmes for addressing adolescent pregnancy in Ghana.

1.5.2 Aims of this doctoral research

This study was guided by the following aims:

1. To determine the prevalence of first adolescent pregnancy and its associated factors in Ghana
2. To identify the policies and programmes that have been implemented with the aim of reducing adolescent pregnancy in Ghana
3. To explore the knowledge and awareness of policies and programmes among healthcare professionals and grassroots workers in Ghana
4. To explore the facilitators and barriers to the implementation, adoption, uptake, and effectiveness of policies and programmes among healthcare professionals, grassroots workers, and adolescent girls in Ghana
5. To synthesise the study's findings and make recommendations about ways to improve policies and programmes aimed at reducing adolescent pregnancy in Ghana and their implementation

1.5.3 Significance of the study

The study is significant for several reasons. Firstly, findings from the study will help policy makers in Ghana to identify some of the major gaps in the design of policies for reducing adolescent pregnancy. This will help enhance the revision of existing policies to ensure their effectiveness in addressing adolescent pregnancy. Secondly, findings from the study will help policy makers in Ghana to identify the policies and programmes which are deemed effective for addressing adolescent pregnancy. This may support implementation of such policies and programmes when addressing adolescent pregnancy. Moreover, the findings of the study will help government and NGOs achieve future policy and programme goals by recognising characteristics which are perceived to facilitate and hinder the implementation, adoption, and uptake of policies and programmes to reduce adolescent pregnancy, and how to engage

facilitators and overcome barriers. Finally, recommendations from the study findings will offer direction for future policy, implementation strategies and research on adolescent pregnancy in Ghana. Such recommendations can be used as guidance for revising or modifying existing policies or developing new ones that can directly or indirectly help to reduce adolescent pregnancy.

1.6 Background and context of Ghana

1.6.1 Overview

The Republic of Ghana is among the countries in the West African sub-region and has a total land area of 238,533 square kilometres (Ghana Statistical Service, 2010). The population of the country at the most recent census in 2021 numbered 30,832,019 (Ghana Statistical Service, 2021). The country has 16 regions, namely Oti, Brong Ahafo, Bono East, Ahafo, North East, Savannah, Western North, Western, Greater Accra, Central, Eastern, Upper East, Upper West, Volta, Northern, and Ashanti. In terms of geographical distribution, about 56.7% of Ghana's population is urbanised while the remainder live in rural areas (Ghana Statistical Service, 2021).

Figure 1.1: Map of Ghana showing the 2021 ten regions and their capitals

Source: (Ghana Statistical Service, 2021)

1.8.2 Health system of Ghana

In 2010, the WHO developed a framework of six building blocks of health systems that is widely used worldwide. In this framework, the characteristics of a strong health system are manifested in robust structures of governance, human resources, financing mechanisms, health information, medicines and technological supply structures that work together to provide responsive, equitable, accessible, and quality health services to the general population (World Health Organization, 2010). At the heart of a successful health system are people and their role as both recipients and producers of healthcare. Figure 1.2 presents a visual model of the WHO

building blocks framework, with emphasis on the key concepts and strategies proposed to facilitate improved functions for each block.

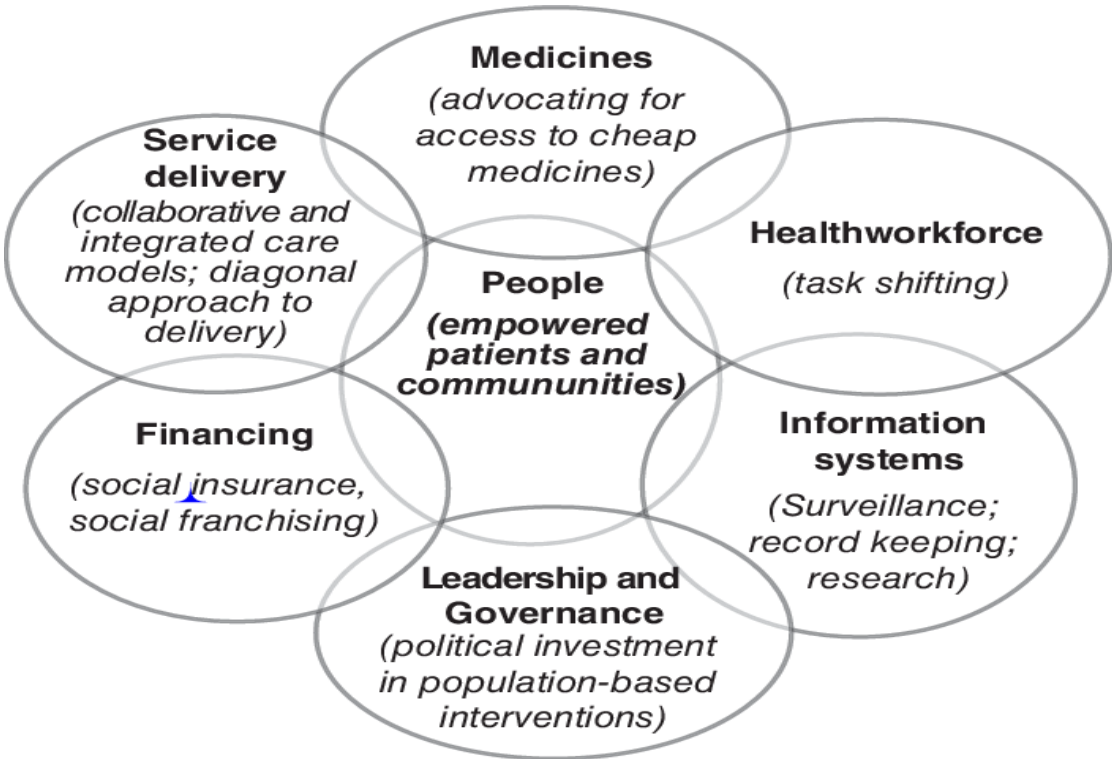


Figure 1.2: Health systems building blocks

Source: (World Health Organization, 2010)

1.8.2.1 Service delivery

Ghana has a comprehensive health service delivery system comprising programs at the community level, such as the Community-based Health Planning and Services (CHPS) initiative; subdistrict health centres and clinics; district general hospitals; regional general hospitals; and specialised tertiary hospitals. The public sector possesses the largest share of the market when it comes to health service delivery in terms of the number of health facilities and health providers (Saleh, 2013). The country operates a multi-level public healthcare delivery system. The top tier healthcare delivery institutions are autonomous teaching hospitals, which are national referral hospitals, and regional hospitals, which serve as referral centres for each of the ten political regions (Ministry of Health, 2015a).

At the district level, district hospitals serve as referral centres and provide basic and emergency healthcare to populations of 100,000-200,000 (Saleh, 2013). Each district is further divided into health sub-districts which are served by health centres that provide basic curative and preventive services covering populations of up to 20,000. In urbanised areas, their capacity is often enhanced, where they are then known as polyclinics, to serve populations of more than 20,000. At the bottom of the hierarchy of health service delivery are CHPS compounds/zones which comprise the main strategy for delivering basic primary healthcare at the community level (Ministry of Health, 2015b). These are mandated to provide mainly preventive services and treatment of minor ailments with over-the-counter medications to populations up to 750 or 5,000 households.

Ghana's healthcare sector has always been pluralistic (Aikins & Koram, 2017). In addition to the public sector services, there are private for-profit hospitals and clinics, quasi government hospitals and public specialised hospitals (Asamani et al., 2018). The traditional medicine sector preceded the institution of biomedical facilities in the colonial era and has seen tremendous improvement over time. Faith-based healing, which used to be provided by traditional shrine priests and Islamic diviners during the pre-colonial and colonial eras, is now a key transnational system led by charismatic Pentecostal churches. Other complementary and alternative medical systems, including Ayurvedic medicine, chiropractic, Chinese medicine and acupuncture, have also become a genuine source of healthcare for the Ghanaian population (Kretchy et al., 2014; Yarney et al., 2013).

In Ghana both public and private sectors provide SRH services such as family planning to adolescents. The private sector such as pharmacies and chemical sellers, private clinics and maternity homes as well as major NGOs, such as the Planned Parenthood Association of Ghana (PPAG) widely distributes short-term methods such as the pill and condoms (Ghana Statistical Service et al., 2015).

1.8.2.2 Medicines

Within the WHO health systems model, a proper functioning health system requires equitable access to scientifically sound essential vaccines, medical products and technologies of high quality, efficacy, safety and cost-effectiveness (World Health Organization, 2010). During the era of user-fee health services of the 1990s, the cost of medicines in private and public health facilities was a major source of catastrophic health expenditure for individuals and communities (Aikins & Koram, 2017). Available studies and reports indicate that procurement and distribution of medicines in the country came with challenges. The Central Medical Stores were considered an inefficient institution. Medical products were not procured in the right quantities and were poorly distributed; they ran out of stock, or stocks expired as a result of improper stock taking, monitoring and evaluation (National Health Insurance Authority, 2015). The private sector gave an alternative, but expensive, parallel system. A study of 240 representative facilities across the country showed that a significant proportion of both public and private health facilities procured medicines from the private sector (Ghana Statistical Service et al., 2015).

Some of the contraceptives available in health facilities in Ghana include modern contraceptives such as female and male sterilisation, intrauterine devices, injectables, implants, the pill, male and female condoms, emergency contraception. Emergency contraceptive pills such as Postinor-2™, Lydia post pill™, NorLevo™, and Pregnon™ are also available in pharmacies, family planning clinics and can be procured without a medical prescription (Mohammed et al., 2019).

There is evidence of dual use of pharmaceutical and traditional medicines in the country, with the majority of Ghanaians using ethno-pharmaceuticals as first point of call or as adjunct treatment with pharmaceutical drugs for a range of conditions including long-term chronic conditions, reproductive and sexual health problems and common infections (Kretchy

et al., 2014; Van Andel et al., 2012; Yarney et al., 2013). During pregnancy, some women, especially those in the rural areas using traditional medicines such as herbs on regular basis for curative, preventive and health promotion, or management therapies (Mohammed et al., 2019; Peprah et al., 2019). Other women, especially adolescent girls use traditional medicines to terminate unintended pregnancies (Engelbert Bain et al., 2019). The setting up of the National Health Insurance Scheme (NHIS) has reduced the cost of medicines as the majority of claims are for medicines. However, the high burden of chronic conditions has led to an increase in the proportional costs of medicines for the National Health Insurance Authority (NHIA), households and individuals (Aikins & Koram, 2017).

1.8.2.3 Health workforce

Ghana has made some progress in training and retaining its health workforce in recent years, which has almost doubled the health work force density from 1.07% in 2005 to 2.14% in 2015 (Saleh, 2013; World Health Organization, 2016). A report of the Ghana Health Service (2017) indicated that there were 3,365 doctors in Ghana, yielding a doctor to population ratio of 1:8,431, and 52,605 nurses resulting in a nurse to population ratio of 1:542. While the doctor to population ratios have seen improvement, regional disparities still exist (Aikins & Koram, 2017). For instance, whereas Greater Accra region has a doctor-population ratio of 1:3,582, the Upper West region has a doctor to population ratio of 1:25,878 (Ghana Health Service, 2017). This disparity partly explains the difference in access to healthcare resources in the country on the basis of geographical distribution. The full range of family planning methods as well as antenatal and postnatal care services are distributed by doctors, nurses, midwives, and pharmacists, mainly through health facilities. The public sector also provides support to major partners such as PPAG (Ghana Statistical Service et al., 2015).

1.8.2.4 Financing

Ghana's health financing system is complex, with several funding sources, multiple levels of government and non-government stakeholders, as well as public and private providers. Supply-side subsidies to public facilities complicate provider payment processes, which are largely not results-oriented (Saleh, 2013). Close to 50% of healthcare financing comes from the Government of Ghana, with non-government/private sources taking care of the rest. The non-government/ private sources are made up of insurance, donor funds and out-of-pocket payments (Aikins & Koram, 2017). Since 2003, the NHIS has become a key contributor of health funding in Ghana (Alhassan et al., 2016; Blanchet et al., 2012) According to the Health Sector Medium Term Development Plan (HSMTDP II) report, 71% of expenditure on preventive and public healthcare is sourced from development partners, with 29% sourced from the government and National Health Insurance Authority (National Health Insurance Authority, 2015). These sources of funding are also available for SRH services. SRH services such as family planning are funded by the Government and non-government/private sectors. The government supports the provision of SRH services through the National Health Insurance while donor agencies and NGOs are in charge of the private funding for SRH services in the country (Republic of Ghana, 2016a).

1.8.2.5 Health information systems

Health information systems and the staff that run them inform decision-making by gathering data from the health and other relevant sectors, analysing them, ensuring their overall quality, relevance and timeliness, and converting the data into information for health-related decision-making for a range of users (World Health Organization, 2010). In the past, the focus of health information in Ghana was on trends and patterns in service use and diagnoses. Currently, the focus has expanded to research-driven community-based health surveys, with nationally representative surveys tracking demographic and epidemiological trends such as

access and use of family planning and adolescent fertility over specified intervals. These surveys include the Ghana Living Standard Survey, Multiple Indicator Cluster Survey and Maternal Health Survey and the Demographic and Health Survey (Aryeetey & Kanbur, 2017).

1.8.2.6 Leadership and governance

Since 1972, successive governments have initiated health reforms geared towards enhancing the health status of Ghanaians. In the year 2000, the New Patriotic Party government assumed office and established a set of pro-poor policies undergirded by two Poverty Reduction Strategy initiatives. One key project involved extending the district level social health insurance experiment into a national initiative. The NHIS was implemented in 2003 to provide financial risk protection for individuals who receive healthcare under the GHS (Aikins & Koram, 2017). Within the GHS are several partners who perform different roles depending on their level of authority. One of the most significant players in the governance of the GHS is the GHS Council, set up to ensure the implementation of the functions of the Service; to facilitate collaboration between the Ministry of Health, the Teaching Hospitals and the GHS; and to advise the Minister on qualification for postings in the Service and on such matters as the Minister may request (Ghana Health Service, 2014). With ASRH, there has been marked improvement in coordination and collaboration among partners of Adolescent Health and Development at national level. Currently, there exists a National Steering Committee under the 21 auspices of National Population Council (NPC), which is in charge of ASRH in the country (Republic of Ghana, 2016a).

Recent changes mean that for adolescent girls, these building blocks are essential for enhancing their access to and use of sexual and reproductive health, including contraception services. Together, they provide the relevant information for understanding the context within which adolescent girls in Ghana can access a comprehensive health service delivery, delivered at different levels. They also help in understanding the availability and access to health services

such as contraception for adolescent girls as well as the available health workforce that provide these services. The existence of funding and health information systems also means that adolescent girls can access cost-effective information and services, provided under the leadership and governance of the country.

1.7 Thesis Structure

This thesis is organised into seven chapters. Chapter 1 constitutes the introduction section of the thesis and begins with the definition and conceptual understanding of adolescence, followed by a description of adolescent pregnancy as a public health issue. The chapter also shares insights into the socio-cultural determinants of adolescent pregnancy and looks at the global interventions for adolescent pregnancy prevention. In addition, the chapter states the problem that guided the study and presents the research aims and significance of the study. In the same chapter, information about the background and context of Ghana, which includes an overview of Ghana and the health system of the country, is provided. The chapter concludes with the structure of the thesis.

Chapter 2 is based on published findings from two studies which informed the empirical study. The first presents findings of an analysis of secondary data on the prevalence and factors associated with adolescent pregnancy in SSA. This was published in *Plos One*. The second presents a review of literature on policies aimed at reducing adolescent pregnancy in SSA. This involved a scoping review of national policies on adolescent pregnancy prevention in Anglophone SSA. These findings have been published in the *International Journal of Health Policy and Management.*

Chapter 3 presents an overview of the theoretical approach, methodology, research design, fieldwork, analytical processes, and ethical considerations that were employed to achieve the overall research aim of identifying and exploring the impact of policies and

programmes on adolescent pregnancy in Ghana. It also provides information on the researcher reflexivity.

In chapter four, findings are presented from the interviews conducted for this thesis with health and education professionals and grassroots workers demonstrating their knowledge and awareness of policies and programmes to reduce adolescent pregnancy in Ghana. The findings have been developed into a manuscript and submitted for publication to *Reproductive Health.*

Chapter five presents findings of the interviews that demonstrated the barriers and facilitators towards the implementation of policies and programmes aimed at reducing adolescent pregnancy in Ghana. The findings have been published in *BMJ Open.*

Chapter six synthesises the key findings obtained from each of these studies. The chapter further discusses the strengths and limitations of the study.

Chapter seven, which is the last chapter, discusses the significance of the research findings. It provides recommendations based on the findings and makes suggestions for future research.

1.8 Chapter summary

This chapter has provided evidence of the burden of adolescent pregnancy and its socio-cultural determinants. It has also highlighted the global interventions applied for adolescent pregnancy prevention. The chapter has also described the research problem that guided the study and presented the research aims and significance of the study. Information about the background and context of Ghana, which includes an overview of Ghana and its health systems has also been provided. This chapter has also provided the layout of the thesis.

CHAPTER TWO: LITERATURE REVIEW

This chapter sets out the methods and findings of a multi-country analysis of secondary data on the prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa (SSA) and a scoping review of policies relevant to the prevention of adolescent pregnancy in Anglophone SSA. The findings from these studies address the first and second aims of this doctoral thesis.

Prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa: a multi-country analysis

2.1 Introductory text

This first component of Chapter Two presents a comprehensive analysis of secondary data from 32 countries in SSA on the prevalence of first adolescent pregnancy and its associated factors. It provides elaborate information on the prevalence of adolescent pregnancy in each of the 32 countries, including Ghana, and identifies the factors associated with adolescent pregnancy in these countries. The results of this study address the first aim of this thesis and support the need to examine the national policies aimed at reducing adolescent pregnancy in Ghana. This multicountry study is significant in this thesis as it provides a broader picture of the situation of first adolescent pregnancy and its associated factors in a context which has similar characteristics as Ghana. Thus, these findings will help understand adolescent pregnancy in Ghana more broadly and ascertain if there are similarities and differences between what was found in this multicountry study and the findings of available national studies. This chapter is based on an article published in Plos One and is cited as follows:

Ahinkorah, B. O., Kang, M., Perry, L., Brooks, F., & Hayen, A. (2021). Prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa: A multi-country analysis. *Plos One*, *16*(2), 1-16.

2.2 Abstract

2.2.1 Introduction

In LMICs, pregnancy-related complications are major causes of death for young women. This study aimed to determine the prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa.

2.2.2 Methods

We undertook an analysis of cross-sectional secondary data from the Demographic and Health Surveys conducted in 32 sub-Saharan African countries between 2010 and 2018. We calculated the prevalence of first adolescent (aged 15 to 19 years) pregnancy in each country and examined associations between individual and contextual level factors and first adolescent pregnancy.

2.2.3 Results

Among adolescents of all countries, those resident in Congo experienced the highest prevalence of first adolescent pregnancy (44.3%) and Rwanda the lowest (7.2%). However, among adolescents who had ever had sex, the prevalence ranged from 36.5% in Rwanda to 75.6% in Chad. The odds of first adolescent pregnancy was higher with increasing age, working, being married/cohabiting, having primary education only, early sexual initiation, knowledge of contraceptives, no unmet need for contraception and poorest wealth quintile. By contrast, adolescents who lived in rural areas and in the West African sub-region had lower odds of first adolescent pregnancy.

2.2.4 Conclusion

The prevalence of adolescent pregnancy in sub-Saharan African countries is high. Understanding the predictors of first adolescent pregnancy can facilitate the development of effective social policies such as the contraception and comprehensive sex and relationship

education in sub-Saharan Africa and can help ensure healthy lives and promotion of well-being for adolescents and their families and communities.

Keywords: Adolescent pregnancy; Adolescent reproductive health; Factors; Prevalence; Sub-Saharan Africa

2.3 Introduction

Pregnancy among adolescent girls (aged 15 to19 years) is often associated with high risks to both the mother and the foetus (Pradhan et al., 2018) and can lead to intergenerational cycles of poverty, poor education and unemployment (Sama et al., 2017). In LMICs, pregnancy-related complications are major causes of death for girls aged 15 to 19 years old (Grønvik & Fossgard Sandøy, 2018).

Globally, adolescent birth rates have fallen from 65 births per 1000 women in 1990 to 47 births per 1,000 women in 2015 (United Nations et al., 2015). In 2014, Sedgh et al. (2015) provided a comprehensive overview of the variations in adolescent pregnancy across countries by looking at the trends of adolescent pregnancy, birth and abortion rates, and concluded that despite recent declines, adolescent pregnancy rates remain high in many countries. The number of adolescent pregnancies is projected to increase globally by 2030, as the total population of adolescents continues to grow, with the greatest proportional increases in Western and Central, Eastern and Southern Africa (UNFPA, 2013a). The projected increase in adolescent pregnancies is likely to be more prevalent in SSA, which already leads the world in teen pregnancies (UNFPA, 2013b; UNICEF, 2015) and child marriage (Petroni et al., 2017).

Efforts have been made to reduce adolescent pregnancy globally, and this is evident in the Sustainable Development Goal 3, Target 3.7 that seeks to ensure universal access to SRH services, including contraceptives, information and education, and the integration of reproductive health into national strategies and programmes by 2030 (United Nations, 2015). This is important in respect to the high rates of maternal mortality (Merdad & Ali, 2018),

abortion (Munakampe et al., 2018) and neonatal deaths (Neal et al., 2018b) associated with adolescent pregnancy in SSA. International evidence links the provision of high quality comprehensive sex and relationship education to improved use of contraception as major strategies for addressing adolescent pregnancy (Phillips & Mbizvo, 2016). In SSA, many programmes and strategies, including comprehensive sex education and contraceptive services, are geared towards the reduction in adolescent pregnancy (Awusabo-Asare, Stillman, Keogh, Doku, Kumi-Kyereme, Esia-Donkoh, & Bankole, 2017; Odejimi & Young, 2014; Sidze et al., 2017). However, their impact to date is unclear, as adolescent pregnancy rates remain high in countries in SSA (World Atlas, 2017).

The effectiveness of these programmes and strategies depends on multiple factors, but empirical evidence is not always available for all the potential predictors of adolescent pregnancy in the sub-Saharan African region. In this sub-region, most studies have focused on single countries only (Ahinkorah, 2019; Akanbi et al., 2016; Asare et al., 2019; Ayele et al., 2018; Donatus et al., 2018), with few using nationally-representative data from multiple countries (Odimegwu & Mkwananzi, 2016; Wado et al., 2019a). Others have combined the findings of single country studies and examined the predictors of adolescent pregnancy through systematic reviews and meta-analyses (Gunawardena et al., 2019; Kassa et al., 2018; Yakubu & Salisu, 2018). These studies have identified sexual coercion or pressure from male partners, low or incorrect use of contraceptives, lack of parental communication and support, early marriage, religion, early sexual debut, lack of CSE, residence, marital status, low self-esteem and educational status of adolescents as correlates of adolescent pregnancy (Gunawardena et al., 2019; Kassa et al., 2018; Yakubu & Salisu, 2018).

However, the major issues in these previous analyses include the use of outdated data, from as far back as 2001 (Yakubu & Salisu, 2018), and the combination of data which are nationally-representative with those from selected areas within single countries (Gunawardena

et al., 2019; Kassa et al., 2018; Yakubu & Salisu, 2018). No other publication has combined the findings of studies carried out in all countries in SSA using Demographic and Health Survey (DHS) data. Since adolescent pregnancy is a major phenomenon in SSA, examining its prevalence and predictors in multiple countries can help understand the patterns of prevalence and common predictors across the countries of SSA.

We, therefore, sought to fill these gaps by examining the prevalence of first adolescent pregnancy (defined in this study as the proportion of females aged 15 to 19 years who had ever given birth, were pregnant at the time of the survey, or who had ever had a pregnancy terminated) and its associated factors in SSA using nationally representative data from 32 countries collected between 2010 and 2018. Examination of factors associated with first adolescent pregnancy in multiple countries using DHS in this sub-region can help develop common strategies for dealing with adolescent pregnancy across the sub-region. Furthermore, large-scale, nationally representative surveys such as DHS provide opportunities for many countries to have more comprehensive information on adolescent fertility that assimilates some of the contextual, socio-economic and geographic factors (Neal et al., 2020). Findings from the study will also enhance the evidence available to inform policy and practice development towards achieving Sustainable Development Goal 3 which seeks to ensure healthy lives and promote well-being for all at all ages (United Nations, 2015).

2.4 Methods

2.4.1 Design and sampling

We conducted an analysis of secondary data from the DHS conducted between January 1 2010 and December 31, 2018 in 32 countries in SSA. The DHS is a nationwide survey mostly collected every five-year period across LMICs. It uses standard procedures for sampling, questionnaires, data collection, cleaning, coding and analysis, which allows for cross-country comparison (Corsi et al., 2012). The survey employs a stratified two-stage sampling technique

(Aliaga & Ruilin, 2006). In the first stage, a stratified sample of enumeration areas is selected with probability proportional to size. In the selected enumerations all households are listed to provide the sampling frame for household selection. In the second stage, a fixed number of households is selected for the interviews. In this study, we first accessed data on a total of 95,703 female adolescents (15-19 years) from 32 countries in SSA to analyse the prevalence of first adolescent pregnancy among all adolescents in SSA (see Table 2.4). For subsequent analysis, we excluded adolescents who had never had sex and examined the prevalence and predictors of first adolescent pregnancy among adolescents who had ever had sex. Within this subset, there were complete data available for the included variables of interest for 40,272 female adolescents. We included all who provided an age at first sex, while excluding those who responded that they had never had sex. The rationale was to examine the factors associated with first adolescent pregnancy among those adolescents who are at risk of getting pregnant through sexual initiation.

2.4.2 Definition of variables

2.4.2.1 Outcome variable

The outcome variable for this study was 'first adolescent pregnancy'. We defined this as females aged 15 to 19 years who had ever given birth, were pregnant at the time of the survey or who had ever had a pregnancy terminated. The rationale for looking at 'first adolescent pregnancy' was to provide a holistic measurement of adolescent pregnancy, which has been employed in previous studies among adolescents in SSA (Ahinkorah, 2019; Odimegwu & Mkwananzi, 2016) and globally, where birth and abortion rates (even in countries where data are limited) were each considered important 'pregnancy outcomes' (Sedgh et al., 2015). A similar concept was used by Neal et al. (2020) in their study on trends in adolescent first births in SSA, where the authors defined 'adolescent first births' as births that occurred before the age of 20 years among women aged 20-24. The need to include pregnancy and abortion data

and not just birth rate in the current study has been argued in the transition from the Millennium Development Goals to the Sustainable Development Goals, notwithstanding that under-reporting of abortion is inevitable (Hindin et al., 2016). A sole focus on adolescents who were pregnant at the time of the survey would lead to under-reporting of the actual prevalence of adolescent pregnancy since some girls would have been pregnant previously and have already given birth, and others would have been pregnant and had their pregnancies terminated.

2.4.2.2 Independent variables

We used eleven independent variables: eight were individual level and three contextual level variables. The individual level variables were age of respondents, marital status, highest educational level, occupation, exposure to media, age at first sex, knowledge of contraceptives and unmet need for contraception. Exposure to media was derived from the proportion of adolescents who either read a newspaper, listened to the radio or watched television at least once per week. The contextual level variables included wealth quintile, place of residence and sub-regions. It should be noted that apart from age at first sex, all the independent variables were measured at the survey date while first pregnancy might have happened years ago. This can lead to the possibility of reverse causality. A detailed description and coding of the variables is available in supplementary Table S1.

2.4.3 Statistical analysis

We used Stata version 13 to analyse the data. First, we calculated the prevalence of first adolescent pregnancy among all adolescents in the 32 SSA countries using frequencies and percentages. Next, we calculated the prevalence of first adolescent pregnancy among the subset of adolescents who had ever had sexual intercourse. We then conducted bivariate analysis using the chi-square test to assess relationships between potential explanatory variables and the outcome variable of first adolescent pregnancy. Finally, a two-level multilevel logistic

regression model was used to investigate the association between potential explanatory variables and the outcome variable among adolescents who had ever had sex.

The two-level multilevel logistic regression modelling in this study implies that adolescent girls were nested within clusters. Clusters were considered as random effects to cater for the unexplained variability at the individual and contextual levels (Ahinkorah, 2020; Solanke et al., 2019). Four models were fitted. Model 0 showed the variance in first adolescent pregnancy attributed to the distribution of the primary sampling units in the absence of the explanatory variables. Model I had the individual level variables while Model 2 contained the contextual level variables. The final model (Model 3) was the complete model that had both the individual and contextual level variables. The Stata command 'melogit' was used in fitting these models. Model comparison was done using the log-likelihood ratio and Akaike's Information Criterion (AIC) tests. The highest log-likelihood and the lowest AIC were used to determine the best fit model (see Table 3). Odds ratios and associated 95% confidence intervals (CIs) were presented for all the models apart from model 0. To ensure there was no strong correlation between the potential explanatory variables, a test for multicollinearity was done using the variance inflation factor and the results showed no evidence of collinearity among the explanatory variables (Mean =1.24, Maximum VIF=1.54 and Minimum VIF=1.06). Categories of the explanatory variables with the lowest prevalence of first adolescent pregnancy among adolescents who had ever had sex were used as reference values in the multivariable multilevel logistic regression analysis.

In terms of applying sample weights, since this was a pooled data analysis, the standard weight variable for the individual recode file (v005) was first de-normalised as follows: v005 × (total female population 15-49 in the country)/ (total number of women 15-49 interviewed in the survey) and then re-normalised so that in the pooled sample the average is 1. This was important because according to the DHS sampling and household listing manual, the

normalised weight is not valid for pooled data, even for data pooled for women and men in the same survey, because the normalisation factor is country and sex specific (ICF International, 2012).

2.4.4 Ethical approval

Individual national institutional review boards and the Inner City Fund (ICF) International Institutional Review Board gave ethical approval. Permission to use the data set was sought from MEASURE DHS. The dataset is available to the public at https://dhsprogram.com/data/available-datasets.cfm. The University of Technology Sydney Human Research Ethics Committee reviewed and approved the conduct of the study (ETH19-3919).

2.5 Results

The prevalence of first pregnancy among all adolescent girls in SSA ranged from 7.2% in Rwanda to 44.3% in Congo. However, among adolescents who had ever had sex, the prevalence ranged from 36.5% in Rwanda to 75.6% in Chad. Table 2.1 presents the prevalence of first adolescent pregnancy among all adolescent females (15 – 19 years) as well as for those who had ever had sex in SSA.

Table 2.1: Prevalence of adolescent pregnancy in 32 sub-Saharan African countries (DHS, 2010-2018)

Country	Year of survey	All adolescents; n	Adolescents who had ever had sex; n	Any first pregnancy[a] %	Any first pregnancy[b] %	Pregnant at the time of the survey[b] %	Ever given birth[b] %	Ever had a pregnancy terminated[b] %
Angola	2015-16	3363	2117	39.4	58.1	13.9	46.6	4.5
Benin	2017-18	3335	1624	21.1	43.9	13.2	31.7	4.7
Burkina Faso	2010	3347	1429	23.5	55.6	15.4	42.3	4.7
Burundi	2016-17	3968	549	7.9	58.7	19.2	42.2	4.1
Cameroon	2011	3579	1753	28.3	51.9	13.5	40.2	8.0
Chad	2014-15	3874	1785	35.9	75.6	8.2	62.1	6.1
Comoros	2012	1291	244	11.3	57.2	15.2	49.8	4.6
Congo	2011-12	2163	1396	44.3	56.4	12.3	42.3	13.9
Congo DR	2013-14	3980	2090	31.2	53.9	15.6	40.3	4.1
Côte d'Ivoire	2011-12	1995	1283	32.2	51.9	13.4	34.4	11.5
Ethiopia	2016	3498	842	13.3	52.5	12.2	40.9	3.7
Gabon	2012	1833	1129	38.0	47.5	11.4	33.7	11.4
Gambia	2013	2461	580	19.6	73.4	18.8	58.0	6.5
Ghana	2014	1756	698	15.1	38.0	8.9	25.9	7.7
Guinea	2018	2561	1102	27.6	65.6	16.9	48.5	6.2
Kenya	2014	2861	974	18.2	49.7	15.4	39.2	2.7
Lesotho	2014	1542	664	19.8	43.2	9.6	32.7	2.4
Liberia	2013	1914	1441	38.9	46.1	11.4	36.0	4.1
Malawi	2015-16	5273	2745	29.3	58.1	15.7	42.5	4.4
Mali	2018	2209	1223	36.3	64.1	16.8	52.1	5.1
Namibia	2013	1857	847	21.0	42.2	12.5	30.2	1.9
Niger	2012	1901	1131	37.1	67.3	20.0	52.3	8.0
Nigeria	2018	8423	1364	19.0	53.3	15.5	41.4	5.0
Rwanda	2014-15	2779	558	7.2	36.5	9.2	27.5	1.8
Senegal	2010-11	3604	930	22.3	68.5	16.4	54.3	7.1
Sierra Leone	2013	4050	2400	28.3	43.8	11.1	33.1	3.5
South Africa	2016	1505	620	16.9	37.1	7.7	28.2	2.0
Tanzania	2015-16	2931	1531	25.1	53.4	15.6	40.2	5.5
Togo	2013-14	1732	784	18.2	37.3	8.2	28.1	4.3
Uganda	2016	4276	1958	26.4	56.6	17.2	42.2	6.4
Zambia	2013-14	3686	1742	29.5	58.1	13.5	46.4	3.3
Zimbabwe	2015	2156	737	22.5	69.5	16.3	50.7	9.6

NB: [a]prevalence among all adolescents; [b]prevalence among adolescents who had ever had sex

Relationship between individual and contextual level variables and first pregnancy among adolescents who had ever had sex

We examined the correlates of first adolescent pregnancy for the sample of adolescents who had ever had sex (Table 2.5). Adolescent pregnancy was more likely with increasing age, rural residence, working, being or ever have been married or cohabiting, lower levels of education and non-exposure to media (television, newspaper and radio). Having first sex before 16 years of age, having no knowledge of contraceptives, having no unmet need for contraception, decreasing wealth, and the Central African sub-region were all associated with higher levels of adolescent pregnancy.

Table 2.2: Relationships between individual and contextual variables, and first pregnancy in adolescents who had ever had sex (DHS, 2010-2018)

Variables	Adolescent pregnancy n	%	Chi-square, p-value	Number
Individual level variables				
Age (years)			(10.6, <0.001)	
15	863	26.0		3320
16	2166	39.2		5521
17	3857	48.8		7898
18	7265	59.9		12134
19	7770	68.2		11400
Occupation			(392.9, <0.001)	
Not working	10577	49.5		21375
Working	11345	60.0		18897
Marital status			(28.6, <0.001)	
Never married	6315	30.3		20811
Married/cohabiting/previously married	15608	80.2		19461
Educational level			(8.4, <0.001)	
No Education	6040	68.6		8810
Primary	8733	61.1		14286
Secondary/Higher	7148	41.6		17176
Exposure to mass media			(671.4, <0.001)	
No	7621	64.9		11750
Yes	14302	50.1		28522
Age at first sex			(537.2, <0.001)	
Less than 16 years	13127	59.3		21980
16-19 years	8795	48.1		18292
Knowledge of contraceptives			(60.8, <0.001)	
Knows no methods	1720	60.7		2836
Knows traditional/modern methods	20202	54.0		37436
Unmet need for contraception			(988.2, <0.001)	
No	6650	68.4		9718
Yes	15273	50.0		30554
Contextual level variables				
Wealth quintile			(7.1, <0.001)	
Poorest	5087	66.3		7676
Poorer	5054	62.2		8124
Middle	4719	56.2		8399
Richer	4150	50.1		8288
Richest	2912	37.4		7785
Place of residence			(737.0, <0.001)	
Urban	6875	45.1		15228
Rural	15048	60.1		25044
Sub-regions			(337.8, <0.001)	
Western Africa	7806	53.7		14547
Eastern Africa	8081	54.8		14760
Central Africa	5161	58.4		8833
Southern Africa	874	41.0		2131

Factors associated with first pregnancy in adolescents who had ever had sex in sub-Saharan Africa

In terms of the individual level predictors, the odds of having first adolescent pregnancy in SSA increased with age, with those aged 19 years having approximately 13 times higher odds of experiencing first pregnancy compared to those aged 15 (AOR=12.81, 95% CI= 11.48-14.29). Adolescents who were working had 9% increase in odds of having first pregnancy compared to those who were not working (AOR=1.09, 95% CI= 1.04-1.15). Married/cohabiting/previously married adolescents were eight times more likely to have first pregnancy compared to never married adolescents (AOR=8.30, 95% CI=7.84-8.78). We also found a 38% increase in odds of having first pregnancy among adolescents with primary education only (AOR=1.38, 95% CI=1.30-1.46), compared to those with secondary/higher education. Adolescents who had no exposure to mass media (television, newspaper or radio) had 8% greater chance of having first pregnancy (AOR=1.08, 95% CI=1.02-1.15) compared to those who had mass media exposure. The odds of having first pregnancy tripled among adolescent girls who had first sex before age 16 (AOR=3.19, 95% CI=2.98-3.28) and those who had no unmet need for contraception (AOR=2.86, 95% CI=2.69-3.03) but decreased by 30% among those who had knowledge on either modern or traditional contraceptives.

With the contextual level factors, the odds of having first pregnancy doubled amongst adolescents of the poorest wealth quintile (AOR=2.04, 95% CI=1.86-2.24), compared to those of the richest wealth quintile. On the other hand, a 12% decrease in odds of having first pregnancy was found among adolescent girls who lived in rural areas (AOR=0.88, 95% CI=0.83-0.94) and 36% decrease in odds among those who lived in the West African sub-region (AOR=0.64, 95% CI=0.57-0.72), compared to those who lived in urban areas and in Southern Africa, respectively.

With the random effects results, the complete model (Model III), which included all the individual and contextual level factors and had an AIC of 39677.8 and a log-likelihood ratio of -19816.9, was considered as the best fit model for predicting the occurrence of first adolescent pregnancy. The factors associated with first adolescent pregnancy in SSA are presented in Table 2.6.

Table 2.3: Factors associated with first pregnancy in adolescents who had ever had sex in sub-Saharan Africa (DHS, 2010-2018)

Characteristic	Model 0	Model I AOR[95%CI]; p-values	Model II AOR[95%CI]; p-values	Model III AOR[95%CI]
Fixed effects				
Age				
15		Ref		Ref
16		2.17[1.95-2.42]; <0.001		2.18[1.95-2.42]; <0.001
17		4.59[4.14-5.09]; <0.001		4.66[4.19-5.17]; <0.001
18		7.75[6.99-8.59]; <0.001		7.80[7.20-8.88]; <0.001
19		12.50[11.22-13.93]; <0.001		12.81[11.48-14.29]; <0.001
Occupation				
Not working		Ref		Ref
Working		1.07[1.02-1.12]; 0.009		1.09[1.04-1.15]; 0.001
Marital status				
Never married		Ref		Ref
Married/cohabiting/previously married		8.11[7.68-8.57]; <0.001		8.30[7.84-8.78]; <0.001
Educational level				
No Education		1.07[0.99-1.56]; 0.091		1.18[1.09-1.28]; <0.001
Primary		1.47[1.39-1.56]; <0.001		1.38[1.30-1.46]; <0.001
Secondary/Higher		Ref		Ref
Exposure to mass media				
No		1.27[1.20-1.35]; <0.001		1.08[1.02-1.15]; 0.008
Yes		Ref		Ref
Age at first sex				
Less than 16 years		3.19[3.02-3.37]; <0.001		3.09[2.92-3.28]; <0.001
16-19 years		Ref		Ref

Knowledge of contraceptives				
Knows no method		0.80[0.72-0.87]; <0.001		0.69[0.63-0.76]; <0.001
Knows either traditional/modern		Ref		Ref
Unmet need for contraception				
No		2.92[2.76-3.10]; <0.001		2.86[2.69-3.03]; <0.001
Yes		Ref		Ref
Wealth quintile				
Poorest			2.70[2.50-2.91]; <0.001	2.04[1.86-2.24]; <0.001
Poorer			2.34[2.17-2.52]; <0.001	1.99[1.81-2.18]; <0.001
Middle			1.93[1.80-2.08]; <0.001	1.73[1.59-1.89]; <0.001
Richer			1.57[1.47-1.68]; <0.001	1.47[1.36-1.60]; <0.001
Richest			Ref	Ref
Place of residence				
Urban			Ref	Ref
Rural			1.22[1.16-1.28]; <0.001	0.88[0.83-0.94]; <0.001
Sub-regions				
Western Africa			1.65[1.51-1.81]; <0.001	0.64[0.57-0.72]; <0.001
Eastern Africa			1.78[1.62-1.95]; <0.001	0.85[0.76-0.95]; 0.005
Central Africa			2.32[2.10-2.55]; <0.001	1.16[1.03-1.31]; 0.012
Southern Africa			Ref	Ref
Random effects				
Variance (SE)	0.02(0.01-0.03)	0.01(0.003-0.032)	0.01(0.007-0.026)	0.01(0.004-0.033)
ICC	0.01	0.003	0.004	0.006
Log-likelihood	-27681.3	-20127.6	-26767	-19816.9

LR Test	χ^2 =28.73, p< 0.001	χ^2 =3.54, p=0.03	χ^2 =11.56, p<0.001	χ^2=4.25, p=0.02
AIC	55366.6	40283.2	53554.0	39677.8
N	40272	40272	40272	40272

Exponentiated coefficients; 95% confidence intervals in brackets; AOR adjusted Odds Ratios CI Confidence Interval

N=Sample size; SE = Standard Error; ICC = Intra-Class Correlation Coefficient; LR Test= Likelihood ratio Test; AIC = Akaike's Information Criterion

Model 0: Null model without any explanatory variable

Model I: Adjusted for the individual level variables

Model II: Adjusted for the contextual level variables

Model III: Adjusted for individual and contextual level variables

2.6 Discussion

To our knowledge, this is the first study that has sought to examine the prevalence of first adolescent pregnancy and its associated factors across 32 sub-Saharan African countries. We found that the prevalence of first adolescent pregnancy was highest in Congo and lowest in Rwanda. Among adolescents who had ever had sex, we found that increasing age, working, being married/cohabiting, having primary education only, early sexual initiation, knowledge of contraceptives, no unmet need for contraception, and poorest wealth quintile were associated with having first adolescent pregnancy. By contrast, adolescents who lived in rural areas and in the West African sub-region had lower odds of having first pregnancy.

The high prevalence of first adolescent pregnancy in Congo and in Central Africa confirm the findings of a report by UNFPA (UNFPA, 2013b). One possible reason for this is that Congo has one of highest rates of child marriage globally, with one in three girls married before their 18th birthday and 7% married before the age of 15 (UNICEF, 2020). Several other studies have found an association between child marriage and adolescent pregnancy (Acharya et al., 2014; de Groot et al., 2018; Yaya et al., 2019). Most girls who experience child marriage have no formal education, live in poor households and often in rural areas, increasing their odds of engaging in behaviours that put them at risk of pregnancy (UNICEF, 2014).

Being married or in a relationship was also identified as a factor associated with first pregnancy among adolescent girls who had ever had sex in SSA. This is supported by previous studies (Baumgartner et al., 2009; Kassa et al., 2018). One of the plausible reasons for this is that marriage/cohabitation predisposes adolescent girls to pregnancy since this situation increases their desire to have children. This becomes even stronger in most sub-Saharan African countries, where adolescent girls may face social pressure to marry and, once married, to have children. On the other hand, other studies have shown that some adolescent girls are

given into marriage or end up cohabiting after pregnancy (Baatsen et al., 2018; Mehra et al., 2018).

In terms of the relationship between place of residence and first adolescent pregnancy, the odds of having first pregnancy was high among adolescents who lived in rural areas in the model that had only the contextual level factors (Model II). However, in the model that adjusted for both the individual and contextual level factors, a reverse association occurred. This could mean that individual level factors play a role in the association between place of residence and first adolescent pregnancy.

Adolescent girls with knowledge of contraceptives were more likely to have first pregnancy. Although apparently counter-intuitive, it is possible that knowledge of contraceptives occurred after a pregnancy had occurred. Other explanations include that reported knowledge was superficial and that adequate knowledge about the range and use of contraceptive methods was lacking (Boamah et al., 2014). Alternatively, pregnancy might have occurred in spite of contraceptive knowledge due to the desire or social pressure to become pregnant and was not mitigated by outside incentives to delay childbearing (Glassman et al., 2012). Societal norms such as condemning early engagement in sex, pregnancy and use of contraceptives among unmarried adolescents can also present major obstacles to contraceptive use (Nalwadda et al., 2010). Moreover, information on contraceptives may be incorrect and filled with misconceptions, especially when stemming from unreliable rather than trustworthy sources (Munakampe et al., 2018; Olukoya et al., 2001; Williamson et al., 2009). Studies from SSA have shown that higher knowledge of contraceptives, especially among adolescents, does not always lead to higher utilisation of contraceptives (Casey et al., 2020; Ochako et al., 2015; Williamson et al., 2009) and that most adolescents with high knowledge of contraceptives often face barriers in accessing and using contraceptives, including stigma and discrimination by healthcare providers and fear of side effects (Appiah et al., 2020; Grindlay et al., 2018;

Williamson et al., 2009). Other possible reasons for the finding is that knowledge of contraceptives can occur after childbirth/abortion (Gemzell-Danielsson & Kallner, 2015; Munakampe et al., 2018; Weisband et al., 2017).

Having no unmet needs for contraception was also shown to be associated with first adolescent pregnancy in our study. The possible reason for the seemingly counter-intuitive finding could be that adolescent girls may have different fertility intentions after pregnancy, abortion or childbirth (Guzzo et al., 2019). Other possible explanations for this include that adolescent girls may have used traditional or folkloric methods rather than modern contraceptives. Contraceptive failure, incorrect and inconsistent condom use as well as non-use of contraceptives can lead to unplanned pregnancy (Ajayi et al., 2016).

Higher levels of education were linked with lower likelihood of having first adolescent pregnancy in SSA, a finding consistent with much of the existing literature (Poudel et al., 2018; Wado et al., 2019a; Yakubu & Salisu, 2018). With greater education, adolescents' opportunities to avoid early childbearing may improve due to increased knowledge and agency in prevention of unintended pregnancies (Wado et al., 2019a). Adolescents with higher levels of education are also more likely to delay the onset of sexual relations and marriage. In addition, they are more empowered and better informed about those fundamental and legal rights that are indispensable in decision-making about healthy living, including optimal timing of marriage and pregnancy (Poudel et al., 2018). Another reason for this finding could be the possibility of reverse causality as adolescents with children might have to drop out of school.

Adolescent girls who were working were more likely to experience first pregnancy compared to those who were not working. Several other studies have also found the risk of adolescent pregnancy to be higher among adolescent girls in employment (Maness & Buhi, 2016; Odimegwu & Mkwananzi, 2016), perhaps because female adolescents who are not working may be in school. Most of these students may have access to sexuality education,

which has been found to reduce the likelihood of adolescent pregnancy (Breuner et al., 2016b; Carter, 2012; Sheldon, 2018). The likelihood of repeated pregnancies among out-of-school adolescents is very high, with a high prevalence of risky sexual behaviour reported among out-of-school adolescents (Kebede et al., 2018; Yi et al., 2010). The possibility of reverse causality may also account for the high prevalence of first pregnancy among working adolescents, as getting pregnant/having a child might influence the probability of working (DeVito, 2010).

Adolescent girls in SSA who were exposed to mass media (television, newspaper or radio) had lower odds of having first adolescent pregnancy. This supports the findings of previous studies (Ahinkorah, Hagan Jr, Seidu, Budu, et al., 2019; Asare et al., 2019; Masemola-Yende & Mataboge, 2015; Wado et al., 2019a). Adolescent girls who are exposed to mass media may have greater access to SRH information (Collins et al., 2010; Zaw et al., 2013). Such information can empower them in relation to their sexual rights and choices. SRH communications through the media may promote healthy sexual development and reduce sexual risk-taking behaviours (Titiloye & Ajuwon, 2017). On the other hand, studies have also found that exposure to mass media can be linked to adolescents engaging in behaviours that put them at risk of adolescent pregnancy (Houlihan & Houlihan, 2014; Landry et al., 2013).

Finally, later sexual debut was linked to lower rates of first adolescent pregnancy in SSA, as in other studies (Baumgartner et al., 2009; Durowade et al., 2017; Yakubu & Salisu, 2018). The possible reason for this finding is that later sexual debut is associated with less time of exposure to pregnancy (Habito et al., 2019). Other reasons could be that contraceptives are more often used effectively to prevent pregnancy among adolescent girls who engage in later sexual debut, and older adolescent girls might be more able to negotiate safer sex with their partner (Yakubu & Salisu, 2018).

2.6.1 Limitations of the study

Caution is required in interpreting this study's findings because the study's cross-sectional design did not permit the examination of causal relationships between these variables and rates of adolescent pregnancy in SSA. The use of composite data to examine the influences on adolescent pregnancy in 32 countries in SSA is a further limitation, taking into consideration the heterogeneity of these countries and their cultures. However, this was addressed to some extent by controlling for the effect of the sub-regional variable in the multilevel logistic regression analysis. The pooled data included surveys spanning close to a decade and experiences may vary across a decade. Moreover, including adolescents who had ever had a pregnancy terminated as part of the measure of adolescent pregnancy is likely to lead to bias in the findings since it has been found that data on pregnancy termination in the DHS are often of poor quality and under-reported (Sánchez-Páez & Ortega, 2019). Again, for some participants, questions asked referred to issues that occurred after pregnancy while for others, the questions asked referred to current pregnancy. For this latter group, current pregnancy may have affected their reported knowledge and behaviour. Finally, apart from age at first sex, data on the explanatory variables included in this study refer to the time of the surveys and may have differed to the experience at the time of pregnancy. This can lead to reverse causation, where, for example, education may have been discontinued, marriage occurred or knowledge of contraception acquired after pregnancy.

2.6.2 Policy and public health implications

Our findings have implications for policy, public health and further research. The prevalence of first adolescent pregnancy in SSA varies widely, with high prevalence among adolescents in Central Africa. Understanding the individual and contextual level factors associated with first adolescent pregnancy, while controlling for individual countries, adds to the existing literature and can help support improvement in social policy development. The

success of policies would depend on cultural and social change, coupled with engagement of adolescents and stakeholders in ASRH. There is evidence that policies exist across much of SSA that support CSE and SRH services accessibility in most countries in SSA. However, youth involvement in policy formulation, and plans for implementation, monitoring and evaluation are inadequate (Ahinkorah, Kang, et al., 2020). Such policies should also aim at eradicating child marriage, which puts adolescent girls at risk of pregnancy (Psaki, 2016a). In the long term, understanding the complexities that exist beneath predictors of adolescent pregnancy and improving the implementation of policies will help to achieve Sustainable Development Goal 3 that seeks to ensure healthy lives and promote well-being for all at all ages. Our findings provide a basis for future research on adolescent pregnancy in the region. Future studies should examine the predictors of adolescent pregnancy using prospective study designs which can address some of the major limitations of the current study. Additionally, the use of qualitative research can provide rich data to explain the complexities of adolescent pregnancy in differing cultures of SSA.

2.7 Conclusion

Concerns remain about the high level of first adolescent pregnancy across SSA. Building on previous research into factors associated with adolescent pregnancy in SSA, we found that age, occupation, marital status, level of education, early sexual initiation, knowledge of contraceptives, unmet need for contraception and wealth quintile are associated with first adolescent pregnancy in SSA. To ensure that SDG 3 can be realised by 2030, there need to be investment in policy implementation and evaluation and engagement with stakeholders of ASRH.

Prevention of adolescent pregnancy in Anglophone sub-Saharan Africa: a scoping review of national policies

2.8 Introductory text

This aspect of Chapter Two presents a comprehensive scoping review of national policies on adolescent pregnancy prevention in Anglophone SSA. Guided by a published Framework for Evaluating Programme and Policy Design on Adolescent Reproductive Health, a content analysis of the various elements of each policy was carried out. Key strengths and limitations of the policies were identified. The results of this study have addressed the second aim of this study. They support the need to explore the knowledge of policy and programme implementers and beneficiaries on policies and programmes on adolescent pregnancy in Ghana and the barriers and facilitators for their implementation. The scoping review is relevant to this thesis because it provides a broader understanding of the components of policies in a region with similar characteristics as Ghana. Moreover, most of the components of the policies of the other countries identified in the scoping review were available in the two policies from Ghana that were included in the review. This shows that understanding the policies of other countries in Anglophone SSA can help appreciate the factors that affect the implementation of policies in Ghana. This chapter is based on an article published in the *International Journal of Health Policy and Management* which is cited as follows:

Ahinkorah, B. O., Kang, M., Perry, L., & Brooks, F. (2020). Prevention of adolescent pregnancy in Anglophone sub-Saharan Africa: a scoping review of national policies. *International Journal of Health Policy and Management*, 1-14.

2.9 Abstract

2.9.1 Background

Despite the existence of preventive policies across sub-Saharan Africa, countries within the sub-region lead global rankings for rates of adolescent pregnancy. The aim of this scoping review was to identify and review national policies on the prevention of adolescent pregnancy in Anglophone sub-Saharan Africa.

2.9.2 Methods

Relevant policies were identified from searches of national government websites and the search engine Google. Recognised screening and data extraction processes were used; data were subjected to content analysis using a published Framework for Evaluating Programme and Policy Design on Adolescent Reproductive Health. The guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews was used in reporting the review.

2.9.3 Results

In line with the inclusion criteria that guided the selection of relevant policies in this study, 17 of 75 national policies were suitable for the analysis. All were backed by political recognition, were government and public initiatives, acknowledged a range of determinants of adolescent pregnancy and allocated human resources to policy activities. Few specified financial resourcing. Most policies acknowledged the importance of coordination and collaboration among public and private actors. All policies had objectives that addressed adolescent pregnancy but none were measurable or included timeframes. Provision of comprehensive sexuality education and adolescent reproductive health services was the most common recommendation. Monitoring and evaluation plans were present in all the policies. However, youth involvement in policy formulation, and plans for implementation, monitoring and evaluation was scarce.

2.9.4 Conclusion

Overall, national policy strengths were seen in relation to their political recognition, and all aspects of policy formulation. Policy implementation strengths and weaknesses were identified, the latter in relation to clear descriptions of financial resources. Importantly, the absence of measurable and time-bound objectives or formal evaluation of policy effectiveness confounds demonstration of what has been delivered and achieved. Youth involvement was notably absent in many policies. For future policy-setting, governments and policy makers should make efforts to engage young people in policy development and to be transparent, realistic and address the necessary financial resourcing. They should set quantifiable policy objectives that provide a basis for assessing the adoption, uptake and effectiveness of policies in relation to measurable objectives.

Keywords: Adolescent Pregnancy, Anglophone Sub-Saharan Africa, Policies

2.10 Background

The 1994 International Conference on Population and Development (ICPD) was a landmark event for adolescent sexual and reproductive health (ASRH), as the ensuing Programme of Action acknowledged the need to explicitly address the SRH of young people, including adolescents (United Nations, 1995). In line with this, improvement in ASRH became a global health priority (WHO, 1998). Subsequent decades have seen strategies adopted by international bodies such as the United Nations, World Health Organisation (WHO), United Nations Children's Fund (UNICEF) and United Nations Population Fund (UNFPA).

Adolescence is the transitional period from childhood to adulthood, often characterised by physical, psychological and social changes (UNICEF, 2013). These changes make adolescence a distinctive period in the life-course in its own right, as well as an important time for laying the foundations of good health in adulthood (WHO, 2014a). This period has been defined by WHO (2015b) as the period from 10-19 years of age and is generally classified into

early adolescence (10-14 years) and late adolescence (15-19 years) (Das et al., 2017; UNICEF, 2013).

The WHO guidelines 'Preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries' recognised a number of interventions to prevent early pregnancy. Legal reform and strategies to reduce child marriage, increase contraceptive use, reduce coerced sex and unsafe abortion, and increase the use of maternity healthcare services were highlighted (WHO, 2011b). Target 5.3 of the 17 Sustainable Development Goals (SDGs; 2016 – 2030) articulates specific aims towards addressing adolescent pregnancy, and includes the elimination of harmful practices such as child, early and forced marriage (United Nations, 2015). Despite these efforts, adolescent pregnancy remains a major challenge in developing countries (Asnong et al., 2018; Nguyen et al., 2016; Wado et al., 2019a). Many countries within SSA lead global rankings for rates of adolescent pregnancy; for example, reported births per 100,000 teenage women are: in Niger, 203.6; Mali, 175.4; Angola,166.6; Mozambique, 142.5, and Guinea, 141.7 (World Atlas, 2017).

Early and unintended pregnancies among adolescents are associated with adverse health, educational, social and economic outcomes (Wado et al., 2019a). Adolescents may be biologically immature with incomplete pelvic growth. Adolescent pregnancies are at greater risk of eclampsia and post-partum complications such as haemorrhage (Vogel et al., 2015), and pregnancy-related conditions are the second major cause of death among adolescent girls in developing countries (WHO, 2014c). The health implications of adolescent pregnancy also extend to the health of their infants, with studies demonstrating higher rates of perinatal death and low birth weight among babies born to mothers under 20 years of age (Ganchimeg et al., 2014; Neal et al., 2018a). Infants born to adolescents are also at risk of malnutrition, low and delayed mental and physical development, poor parent-child attachment (degree of closeness/warmth experienced in the relationship between child and parent) and less education

(Hodgkinson et al., 2014). Pregnant adolescents can develop psychological problems from social stigma, and suffer physical and domestic violence (Yakubu & Salisu, 2018). Adolescent pregnancy also disrupts young women's schooling and endangers their future economic opportunities, including reducing job market opportunities (UNESCO, 2017), and can initiate a poverty cycle in their families (Yakubu & Salisu, 2018).

In line with international recommendations for addressing adolescent pregnancy, several countries in SSA have made efforts to develop and implement such policies (Ayanaw Habitu et al., 2018; Kassa et al., 2018; Yakubu & Salisu, 2018). To assess the role, impact and/ or outcome of national policy in reducing adolescent pregnancy, it is useful to first understand the extent and scope of national policy in the region, and then to examine empirical data over the term of policy and beyond. This review, therefore, aims to scope and review the policies relevant to prevention of adolescent pregnancy in the 24 Anglophone sub-Saharan African countries.

2.11 Methodology and Methods

The authors used the methodological framework presented by Arksey and O'Malley (Arksey & O'Malley, 2005) for this scoping review, which included five key phases: (1) identifying the research question, (2) identifying relevant studies, (3) study selection, (4) charting the data, and (5) collating, summarising, and reporting the results. The optional 'consultation exercise' of the framework was not conducted.

2.11.1 Phase 1: The research question

This review was guided by the two research questions and seven objectives outlined below.

2.11.1.1 Review questions

1. What policies in Anglophone SSA are relevant to the prevention of adolescent pregnancy?
2. To what extent do these policies describe their stages of development and implementation and the key factors and actors required during these stages?

To develop our objectives and guide the data analysis, we adapted the Conceptual Framework for Evaluating Programme and Policy Design on Adolescent Reproductive Health described by Calves (Calves, 2002) (Figure 2.1). This framework was chosen because it focuses on the assessment of the first phases of policymaking processes: political recognition, policy formulation, the implementation plan, and the monitoring and evaluation plan. It also considers implementation issues: the level of coordination, collaboration, and youth involvement in adolescent reproductive health policy and programme design (Calves, 2002). Thus, it was seen as suitable to frame the response to the review questions and was applied in this review as follows:

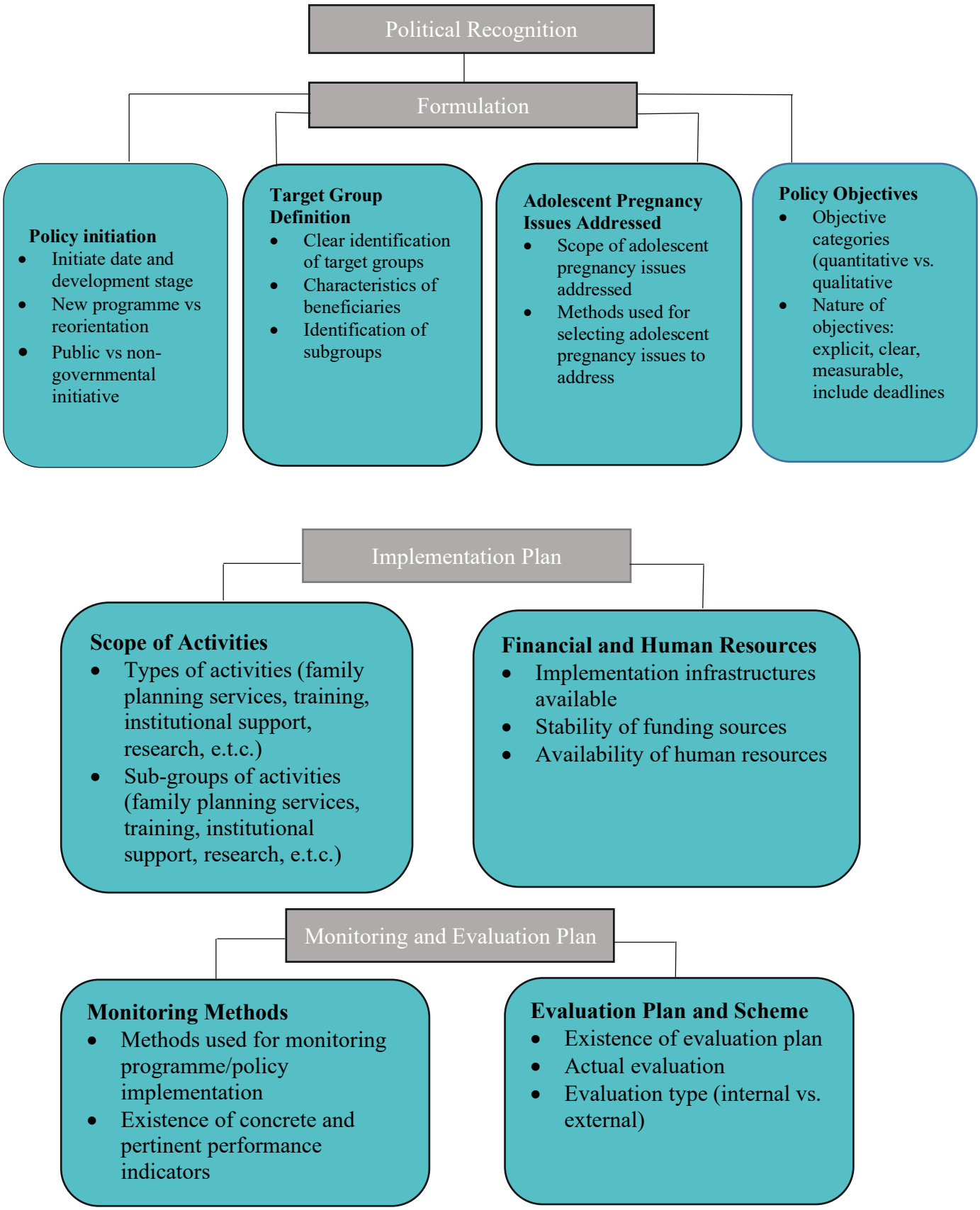
- Political recognition refers to the extent to which adolescent pregnancy considerations are acknowledged as national issues and priorities. This could be seen in statements by political leaders indicating their support for prevention of adolescent pregnancy.
- The formulation component focuses on the date of creation and stage of development of the policy; whether a policy is new or a reorientation of an existing policy, national/international or governmental/non-governmental initiative; the definition of the target group, the pregnancy issues addressed and policy objectives.
- The implementation plan considers the scope of activities, financial and human resources employed to reduce adolescent pregnancy.

- The monitoring and evaluation plan focuses on the monitoring methods, and the existence of an evaluation plan within the policies.
- In terms of the level of coordination and collaboration, the roles as well as the number of partners involved in public and private efforts are examined, with the level of coordination among policy actors regarded as an index of likely success.
- Finally, the level and nature of youth involvement at each stage of the policy design process is considered (Calves, 2002).

The scoping review objectives were to:

1. identify contemporary policies relevant to prevention of adolescent pregnancy in Anglophone SSA,
2. examine the role of political recognition in the development of these policies,
3. assess the role of policy initiation, target-group definition, adolescent reproductive health issues, and policy objectives in the formulation of these policies,
4. identify and describe policy implementation plans,
5. identify policy monitoring and evaluation plans, and any evidence of their effectiveness,
6. assess the extent of cooperation and collaboration in the development of these policies and,
7. explore the level of youth involvement in the development of these policies.

YOUTH INVOLVEMENT



LEVEL OF COOPERATION & COLLABORATION

Figure 2.1: **Reproduced with permission: Conceptual framework for evaluating programme and policy design on adolescent reproductive health**

Source: Calves (2002)

2.11.2 Phase 2: Identifying relevant policies

Data for the study were obtained from policies on the prevention of adolescent pregnancy in Anglophone SSA. Inclusion criteria were that policies:

- were national government policies,
- were published between 2010 and 2019,
- targeted adolescents or youth, and
- included strategies or interventions aimed at reducing adolescent pregnancy.

A preliminary search was conducted in Scopus, Medline/PubMed, CINAHL/EBSCO and Web of Science using search terms such as adolescent pregnancy policies, teenage pregnancy policies, school health policies, health policies, adolescent health policies, maternal and child health policies, SRH policies, health promotion policies, health education policies, health services policies or youth policies, and Anglophone countries in sub-Saharan Africa. This search yielded no results. The search, therefore, focused on a manual search of websites of the national health departments/ ministries and the most used search engine, Google (Forsey, 2018).

2.11.2.1 Manual search of websites of national health departments

The search took place between February 11, 2019 and March 9, 2019. The 24 Anglophone sub-Saharan African countries' national health department websites were searched manually. Table 2.1 shows a list of the countries and the websites from which relevant policies on adolescent pregnancy included in this study were found. Policies published in the last decade were considered for this review in order to have recent or current understanding of the policy measures. Given possible variations in Anglophone and Francophone political systems (Basedau & Stroh, 2009; Makoba, 1999; W., 1993) and policy processes (Ali et al., 2019; Defor et al., 2017; Mwisongo et al., 2016; Nabyonga-Orem et al., 2016) and to limit the review to

policies published in English, the search was limited to national policies developed by Anglophone countries.

Table 2.1: List of countries and sources of data on policies relevant to prevention of adolescent pregnancy

Country	Website
Botswana	http://www.moh.gov.bw
Burundi	http://ghdx.healthdata.org/organizations/ministry-public-health-burundi
Eritrea	http://ghdx.healthdata.org/organizations/ministry-health-eritrea
Ethiopia	http://www.moh.gov.et/ejcc/
Ghana	http://www.moh.gov.gh; http://www.mogcsp.gov.gh/
Kenya	http://www.health.go.ke; https://www.popcouncil.org/
Lesotho	https://www.gov.ls/ministry-of-health/
Liberia	http://www.moh.gov.lr
Malawi	http://www.health.gov.mw
Mauritius	http://www.health.govmu.org
Namibia	http://www.mhss.gov.na; https://www.moe.gov.na
Nigeria	http://www.health.gov.ng
Seychelles	http://www.health.gov.sc
Sierra Leone	http://www.health.gov.sl; https://www.afro.who.int
South Africa	http://www.health.gov.za
South Sudan	https://www.moh-rss.org/
Sudan	http://ghdx.healthdata.org/organizations/federal-ministry-health-sudan
eSwatini	http://www.gov.sz/index.php/ministries-departments/ministry-of-health
Rwanda	http://www.moh.gov.rw
Tanzania	http://www.moh.go.tz
The Gambia	http://www.moh.gov.gm
Zambia	http://www.moh.gov.zm
Zimbabwe	http://www.mohcc.gov.zw
Uganda	http://www.health.go.ug

*eSwatini previously known as Swaziland

2.11.2.2 Searching using Google

A search was conducted using the search engine Google with no date restrictions, with search terms focused on adolescent/teenage pregnancy policies, school health policies, health policies, adolescent health policies, maternal and child health policies, SRH policies, health promotion policies, health education policies, health services policies and youth policies in Anglophone countries in sub-Saharan Africa.

Next, a more specific search was conducted through Google using the same search terms but replacing 'Anglophone countries in sub-Saharan Africa' with the names of each of the 24 countries. The first 50 hits (as sorted by relevance by Google) were screened for relevant policies in line with recommendations of previous studies (Hughes et al., 2014; Reed et al., 2015). The first 50 hits were the point beyond which no further relevant policies on adolescent pregnancy appeared. In total, 41 policies were first sourced using Google, and 34 policies were retrieved from the government websites.

2.11.3 Phase 3: Study selection

A three-stage screening process was used to determine the final sample of policies for analysis, as set out in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) extension for scoping reviews flow diagram (Tricco et al., 2018) In the first and second stages, duplicate records as well as policies published before 2010 or that did not target adolescents/youth were removed. The remaining 24 policies were read in full, seeking evidence of strategies or interventions aimed at reducing adolescent pregnancy. A further seven were excluded, leaving 17 eligible policies from 12 of the 24 countries. The policy search and screening process is shown in Figure 2.2.

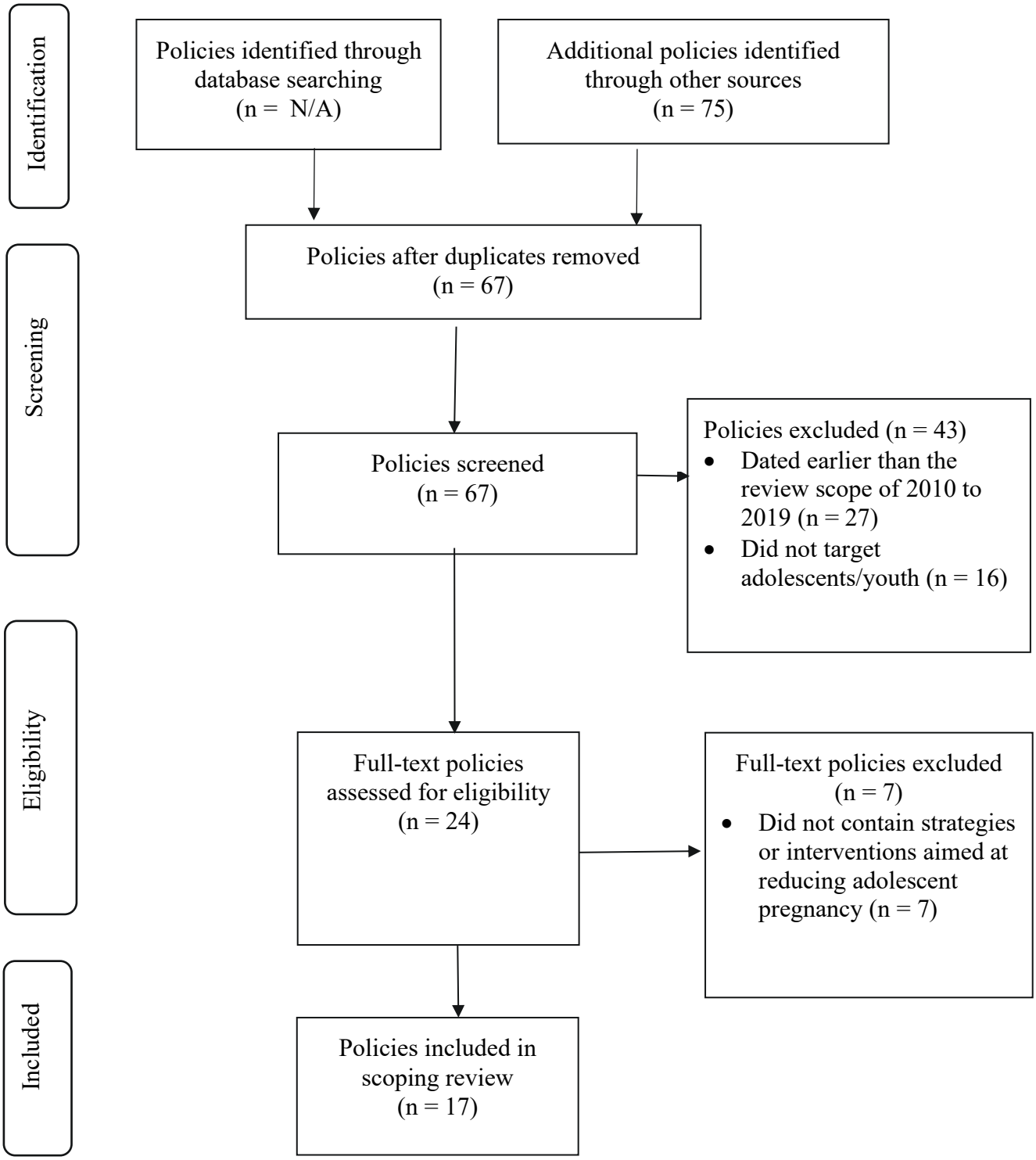


Figure 2.2: The searching and screening process, an adapted PRISMA extension for scoping reviews flow diagram

Source: Tricco et al. (2018)

2.11.4 Phase 4: Charting the data

Using NVivo version 11, a matrix was created for the extraction and display of data from the policies guided by the Conceptual Framework For Evaluating Programme And Policy Design On Adolescent Reproductive Health (Figure 1) (Calves, 2002). The matrix assisted with data organisation by ensuring that extracted data were mapped according to the components of the conceptual framework. First, all policy documents were imported into NVivo. Secondly, ten 'Nodes' were created which corresponded to the ten framework components: (1) political recognition, (2) policy initiation, (3) target group definition, (4) adolescent pregnancy issues addressed, (5) policy objectives, (6) scope of activities, (7) financial and human resources, (8) monitoring and evaluation plan (9) level of cooperation and collaboration and (10) level of youth involvement. Data charting was an iterative process in which two authors extracted data and updated the data charting form as relevant content emerged.

2.11.5 Phase 5: Collating, summarizing, and reporting the results

Content analysis (Vaismoradi et al., 2013) was applied by the first author to analyse the policies and guided by the 'Conceptual Framework For Evaluating Programme And Policy Design On Adolescent Reproductive Health' (Figure 2.1). Content analysis involves a systematic coding and categorizing approach used for exploring large amounts of textual information to determine trends and patterns of words used, their frequency, their relationships, and the structures and discourses of communication (Mayring, 2015). The PRISMA extension for scoping reviews guidelines was used in reporting the review (Tricco et al., 2018).

2.12 Results

The key components of the policies relevant to the prevention of adolescent pregnancy in Anglophone SSA based on the ten key elements of the framework (Figure 1) are presented in Table 2.

2.12.1 Political recognition

All the policies except the Adolescent Health Service Policy and Strategy of Ghana (Republic of Ghana, 2016a) covered issues on adolescent reproductive health and had statements by political leaders indicative of political recognition. Some of these statements reflected the efforts expended in this area, and included statements such as 'significant efforts have been made by the government in collaboration with the community and stakeholders in expanding, improving and distribution of the reproductive, maternal, newborn, child and adolescent health services to the target population' (United Republic of Tanzania, 2017). Such statements by political leaders reflect their will to improve ASRH through collaboration with other major stakeholders. Aspirational statements were common in most of the policies. For example, policies of Namibia and Sierra Leone had statements such as, 'as we move closer towards the 2015 Millennium Development Goals and Vision 2030, it is time to implement a new policy to address adolescent pregnancy that will make a real and sustainable difference to the lives of children in Namibia'(Republic of Namibia, 2010) and that, 'the health and wellbeing of women, mothers, newborns, children and adolescents is a priority for the Government of Sierra Leone'(Republic of Sierra Leone, 2017).

2.12.2 Policy initiation

The 17 policies included in the scoping review were initiated between 2010 and 2017. Four were revisions (Republic of Botswana, 2010; Republic of Kenya, 2015; Republic of Malawi, 2013; United Republic of Tanzania, 2017) and the remainder were new policies. Whilst the new policies were initiated to improve the health and wellbeing of the general population of

those countries, especially adolescents, the revised policies were initiated to meet the changing health needs of the general population, including adolescents. For instance, Kenya initiated a National Adolescent Sexual and Reproductive Health Policy in 2015 based on the idea that 'many continuing and emerging issues have come to the fore as a result of advances in information, communication and technology (ICT) and the resultant exposure to materials and practices that influence young people's behaviour' (Republic of Kenya, 2015). Similarly, Malawi initiated a Revised National Youth Policy in 2013 'to embrace new challenges and other emerging issues currently facing the youth in Malawi' (Republic of Malawi, 2013).

2.12.3 Target group definition

We examined whether the policies identified adolescents/youths as the target population, provided clear characteristics of the expected beneficiaries and mentioned sub-groups of adolescents/youth. Thirteen policies specifically mentioned adolescents/youth as the target group, whilst the remaining three used terms including 'boys and girls' (Republic of Ghana, 2015; Republic of The Gambia, 2010a, 2010b) and 'learners of school-going age' (Republic of Namibia, 2010). Where the focus was on adolescents, most policies defined this as persons aged 10-19 years. However, the definition of youth varied from one policy to another. For instance, in the National Adolescent and Youth Health Policy of South Africa (Republic of South Africa, 2017) and the Adolescent Health Service Policy and Strategy of Ghana (Republic of Ghana, 2016a), 'youth' was defined as persons aged 10-24 years, but as persons aged 10-35 years and 15-35 years in the National Youth Policy of Malawi (Republic of Malawi, 2013) and the Revised National Youth Policy of Botswana (Republic of Botswana, 2010), respectively. Apart from identifying adolescents/ youths as the primary target group, the National Adolescent Sexual and Reproductive Health Policy of Kenya (Republic of Kenya, 2015) and the Revised National Youth Policy of Botswana (Republic of Botswana, 2010) went a step further to identify sub-groups of adolescents/youths. Other groups such as parents, community

leaders, teachers and health providers were considered 'secondary targets' of specific training, information, education and communication or advocacy activities (Republic of South Africa, 2012).

2.12.4 Adolescent pregnancy issues addressed

This aspect of the assessment looked at the adolescent pregnancy issues addressed, taking into consideration the specific determinants of adolescent pregnancy covered in the policies. Child marriage, gender-based violence, early sexual initiation, multiple sexual partners, coerced sex, lack of contraceptive education, lack of affordable and adequate contraceptive commodities, and inconsistent and incorrect condom use, poverty, illiteracy, unemployment and school drop-outs were referred to as the determinants of adolescent pregnancy in the policies. Whilst some of the policies referred to all of these determinants, others referred to only a limited number. For instance, the Gender and Women Empowerment Policy of the Gambia (Republic of The Gambia, 2010b) describes the determinants of adolescent pregnancy as follows:

> 'The girl-child has limited understanding of the basic physiology of the menstrual cycle, poor sexual relationship, and limited knowledge on the causes of pregnancy and that one act of sexual intercourse can lead to pregnancy. This can be attributed to the fact that most adolescent and youth have very limited access to SRH information. This is because sexuality issues are shrouded in taboos and parents do not talk to their children about sex and sexuality issues; as a result they get their information from their peers who are also not adequately informed.'

Furthermore, the National Policy on Sexual and Reproductive Health of eSwatini (The Kingdom of Swaziland, 2013) also referred to the determinants of adolescent pregnancy as follows: 'Adolescents and youth in Swaziland do not have adequate information and accessibility to services which will enable them to make informed decisions on their sexuality and reproductive health.' Adolescent pregnancy issues were identified from a range of sources

including primary data, secondary data, informal feedback from the field and international standards. However, secondary data analysis was the dominant method used, and in most instances, the Demographic and Health Survey (DHS) was the major secondary data source. The DHS is a nationwide survey collected every five-year period across low- and middle-income countries (Aliaga & Ren, 2006).

2.12.5 Policy objectives

All 17 policies set both general and specific objectives. All objectives were qualitative in the sense that they were not expressed in quantifiable terms and were not measurable. Examples of qualitative objectives were to 'Improve access to information on health and health services relevant to the age and gender specific needs of adolescents and young people to enable them make informed decisions' (Republic of Ghana, 2016a) and 'Address the special SRH and rights-related needs of marginalized and vulnerable adolescents' (Republic of Kenya, 2015). It must, however, be acknowledged that although the National Adolescent Sexual and Reproductive Health Policy of Kenya stated qualitative objectives, a portion of the policy had some quantitative indicators as benchmarks for evaluating the objectives. These benchmarks included 'Increasing condom use at sexual debut for 15- 24 years olds from 67% in 2010 to 75% in 2020 among women and 58% in 2010 to 65% in 2020 among men', and 'to increase the age of sexual debut among 12-14 years olds from 10 years in 2015 to 15 years in 2020' (Republic of Kenya, 2015). The objectives of the policies differed in terms of explicitness (stating desired results rather than referring to activities to be performed), clarity (well-defined terms and concepts), measurement (whether objectives allow for verification of achievement) and timeframes (whether specific dates have been established for reaching each objective).

Some of the objectives in the policies were explicit and clear on prevention of adolescent pregnancy, for example, 'To increase learner education about sexual responsibility and sexual health to help prevent learner pregnancies' (Republic of Namibia, 2010), and to

‘Strengthen access to adolescents-friendly SRH information, counselling and medical care services for various groups of adolescents’ (Republic of Seychelles, 2012). However, others were broad and did not provide direct solutions to adolescent pregnancy. Most such objectives were in the National Gender Policy of Ghana and the Integrated School Health Policy of South Africa. Examples were ‘To improve women’s economic opportunities including engendering macro-economic and trade policies so that the basic and strategic needs of both men and women are addressed’ (Republic of Ghana, 2015) and ‘To provide preventive and promotive services that address the health needs of school-going children and youth with regard to both their immediate and future health (Republic of South Africa, 2012). Only the Gambia National Gender Policy had an objective that included a timeframe: to ‘Enact laws that will prohibit all forms of gender-based violence by 2020’ (Republic of The Gambia, 2010a).

2.12.6 Scope of activities

All the policies outlined a broad scope of activities to implement their objectives. The activities included information, education and communication; advocacy; provision of adolescent reproductive health services; CSE; youth empowerment; the training of healthcare providers, parents and community members; and political and legal actions that support adolescent reproductive health. Of all these activities, CSE and provision of adolescent reproductive health services were the most common (see Table 2). In terms of recency, CSE was mentioned mostly in policies that were published between 2013 and 2017 (see Table 2.2).

2.12.7 Financial and human resources

Human and financial resources are important in the development of policies. All the policies identified the human resources necessary to implement the activities outlined. The human resources included ministries, health professionals, local government authorities, educators, development partners, civil society organisations and NGOs. Eight of the policies specifically mentioned financial resources and sources of funding. For instance, the National Reproductive

Health Policy of South Sudan stated that 'the government of South Sudan is providing the bulk of financial resources for reproductive health, with the support of various bilateral and multilateral development partners, including UN agencies' (Republic of South Sudan, 2013). Similarly, the National Policy on Sexual and Reproductive Health of Swaziland mentions that 'financing implementation of this policy shall be funded primarily by Government with contributions from development partners and private sector' (The Kingdom of Swaziland, 2013).

2.12.8 Monitoring and evaluation plan

The review considered whether the policies specified or described a monitoring and evaluation plan and performance indicators; if so, whether performance indicators were concrete and pertinent in relation to the objectives of the policies. All the policies had plans for monitoring and evaluation except the Adolescent Health Service Policy and Strategy of Ghana (Republic of Ghana, 2016a). Most included general guidelines for monitoring and evaluation, but the content on monitoring and evaluation in some of the policies was brief. For instance, the Reproductive Health Policy of Seychelles provided guidelines but little discussion of monitoring and evaluation needs, recommending, 'Monitoring and evaluation will be done through: conducting routine surveys and tracking inter-mediate and long term indicators based on programme objectives and national Inter-Reproductive Health Programme' (Republic of Seychelles, 2012). Few policies included performance indicators, and most of the indicators were neither concrete nor pertinent to the objectives of the policies. For instance, performance indicators such as 'coverage of services', 'quality of services' and 'sustainability of school health services in all districts'(Republic of South Africa, 2012) were not defined in measurable ways. The most frequently cited monitoring methods were periodic surveys, reports and meetings (see Table 2.5).

2.12.9 Level of coordination and collaboration

The level of coordination and collaboration was assessed by examining the roles as well as the number of partners involved in public and private efforts. Apart from listing NGOs and national and international agencies as the main participants in policy implementation, all policies acknowledged the importance of coordination and collaboration. While all the policies generally stressed the need for collaboration between government and non-governmental actors, only one made specific reference to such coordination in its policy objectives as follows: 'Promote partnership and inter-sectoral collaboration among adolescent and youth groups, relevant institutions and communities in the provision and utilization of Adolescent and Youth Responsive Health Service' (Republic of Ghana, 2016a).

2.12.10 Level of youth involvement

The level and nature of youth involvement were examined at each stage of the policy design process (formulation, implementation plan, monitoring and evaluation), distinguishing between direct and indirect modes of involvement. Examples of indirect youth involvement included surveys with adolescents, adolescent focus groups and informal feedback from adolescents from the field. Direct involvement refers to activities in which adolescents are collaborative partners (Calves, 2002). In terms of indirect youth involvement, the kinds of data used to develop the policies implied that youths were involved in surveys, focus groups and other means of data collection. Few of the policies talked about direct youth involvement, where adolescents/youth were involved as collaborative partners, actively involved in activities for the formulation, implementation plan, monitoring and evaluation of the policies (see Table 2.2).

Table 2.2: Summary of policies relevant to prevention of adolescent pregnancy in Anglophone sub-Saharan Africa

Policy title (Country, date)	Political recognition	Policy initiation	Target group definition	Adolescent pregnancy issues / determinants addressed	Policy objectives		Scope of activities	Resources	M & E plan	Cooperation & Collaboration	Youth involvement
					Quantitative vs. Qualitative	Explicit, clear, measurable, deadlines					
Revised National Youth Policy (Botswana, 2010)(Republic of Botswana, 2010)	✓	Revised	Youth (15-35y) Additional subgroups of youth	Poverty Unemployment	Qualitative	X	IEC (peer education, youth life skills, youth and health empowerment programmes) Health Services (youth friendliness, include vulnerable groups) Institutional support (supportive legal environments)	Financial X Human ✓	✓	✓	X
National Gender Policy (Ghana, 2015)(Republic of Ghana, 2015)	✓	New	Boys and girls	Poverty Sexual violence	Qualitative	X	IEC (education, school retention programmes) Institutional support (Welfare department, trafficking secretariat, human rights court)	Financial ✓ Human ✓	✓	✓	X
Adolescent Health Service Policy and Strategy (Ghana, 2016)(Republic of Ghana, 2016a)	X	New	Young people (10-24y)	Access to contraceptive services Coerced sex Concurrent partners Child marriage Contraceptive use Early sexual initiation Multiple sexual partners Sexual violence	Qualitative	X	IEC (Social and Behavioural Change Communication strategy) Health Services (increase access for adolescents) Training (needs assessment of staff, and capacity building of staff)	Financial ✓ Human ✓	X	✓	✓
National Adolescent Sexual	✓	Revised	Adolescents (10-19y)	Availability of SRH services Child marriage	Qualitative	X	IEC (parents, communities, adolescents, professionals, CSE, digital platforms to access	Financial X	✓	✓	✓

and Reproductive Health Policy (Kenya, 2015)(Republic of Kenya, 2015)			Additional subgroups of adolescent	Coerced sex/sexual abuse Early sexual initiation Low self-confidence Multiple sexual partners Poverty			information) Health Services (strengthen capacities to provide appropriate information and services) Training (build the capacity of health care providers Institutional Support (ensure attainment of ASRH rights) Research (data management and analysis)	Human ✓			
National Youth Policy (Malawi, 2013)(Republic of Malawi, 2013)	✓	Revised	Youth (10-35y)	Unemployment Early marriage	Qualitative	X	IEC (youth involvement in program design, CSE, target school drop outs, vulnerable youth) Health Services (adequate and accessible youth friendly health services) Institutional Support (advocate for increase in the legal age of marriage, regulations and enforcement of laws that advance youth reproductive health including sexual violence)	Financial X Human ✓	✓	✓	✓
National Health Policy Framework (Namibia, 2010)(Namibia, 2010)	✓	New	Young people and adolescent	Low contraceptive prevalence rate Unmet need for contraceptives	Qualitative	X	IEC (community, adolescents) Health Services (adolescent-friendly) Training (staff of health services)	Financial ✓ Human ✓	✓	✓	X
Education Sector Policy for the Prevention and Management of	✓	New	Learners of school-going age	Early sexual debut Forced sex Gender inequity	Qualitative	X	IEC (CSE) Health Services (counselling)	Financial ✓ Human ✓	✓	✓	X

Learner Pregnancy (Namibia, 2010)(Republic of Namibia, 2010)											
Reproductive Health Policy (Seychelles, 2012)(Republic of Seychelles, 2012)	✓	New	Adolescents Youth	Early sexual debut; Sexual abuse; Sexual violence; Unprotected sex; Intergenerational sex	Qualitative	X	Health Services (access to ASRH) Training (teachers, counsellors, professionals) Institutional support (school health programme)	Financial X Human ✓	✓	✓	X
Reproductive, Maternal, Newborn, Child & Adolescent Health Policy (Sierra Leone, 2017)(Republic of Sierra Leone, 2017)	✓	New	Adolescents		Qualitative	X	IEC (CSE, adolescents) Health Services (adolescent friendly, increase uptake) Training (health workers Institutional support (address legal and sociocultural barriers to health services, advocate elimination of harmful practices)	Financial X Human ✓	✓	✓	X
Integrated School Health Policy (South Africa, 2012)(Republic of South Africa, 2012)	✓	New	Youth	Low contraceptive use Early sexual debut.	Qualitative	X	IEC (CSE)	Financial X Human ✓	✓	✓	✓
National Adolescent and Youth Health Policy (South Africa, 2017)(Republic of South Africa, 2017)	✓	New	Adolescent and youth (10-24y)	Lack of access to SRH services	Qualitative	X	IEC (CSE) Health Services (access to youth friendly services)	Financial ✓ Human ✓	✓	✓	X

National Family Planning Policy (South Sudan, 2012)(Sudan, 2013)	✓	New	Adolescents Youth	Illiteracy Early marriage Access to contraceptives Spacing or limiting childbirth	Qualitative	X	IEC (adolescents) Health Services (provision of accessible services)	Financial ✓ Human ✓	✓	✓	X
National Reproductive Health Policy (South Sudan, 2013)(Republic of South Sudan, 2013)	✓	New	Adolescents	Inadequate access to SRH services Early marriage Gender-based violence	Qualitative	X	Health Services (increase availability, ensure equity of access, improve facilities Institutional support (eradicate gender based discrimination and violence)	Financial ✓ Human ✓	✓	✓	X
National Policy on Sexual and Reproductive Health (eSwatini, 2013)(The Kingdom of Swaziland, 2013)	✓	New	Youth Adolescents	Inadequate access to SRH services	Qualitative	X	IEC (schools, community) Health Services (enable resources)	Financial ✓ Human ✓	✓	✓	X
The National Health Policy (Tanzania, 2017)(Tanzania, 2017)	✓	Revised	Adolescents	Low supply of contraceptive methods Limited knowledge	Qualitative	X	Health Services (ensure quality services to adolescents, strengthen services) Institutional support (ensure law enforcement re gender based violence)	Financial X Human ✓	✓	✓	X
Gender and Women Empowerment Policy 2010-2020 (The Gambia, 2010)(Republic of	✓	New	Boys and girls	Early marriage Limited access to SRH information	Qualitative	X	IEC (schools, out of school, community)	Financial X Human ✓	✓	✓	X

The Gambia, 2010b)											
Gambia National Gender Policy 2010-2020 (The Gambia, 2010)(Republic of The Gambia, 2010a)	✓	New	Boys and girls	Early sexual debut; school drop-out	Qualitative	X	IEC (schools, community) Institutional support (school retention, for reporting sexual abuse)	Financial X Human ✓	✓	✓	X

ASRH: Adolescent Sexual and Reproductive Health

CSE: Comprehensive Sexuality Education

IEC: information, education and communication

M&E: Monitoring and Evaluation

SRH: Sexual and Reproductive Health

X: Not described

✓: Described

2.13 Discussion

This scoping review identified 17 current policies relevant to the prevention of adolescent pregnancy in Anglophone SSA. All were backed by political recognition, and targeted adolescents/youth. All policies referred to or addressed a range of determinants of adolescent pregnancy. Although most of the policies' objectives addressed adolescent pregnancy, none was measurable and only one included a timeframe. CSE and provision of adolescent reproductive health services were the most common recommendations across policies. All policies identified human resources to support policy activities but few had financial resources allocated. Most acknowledged the importance of coordination and collaboration among public and private actors. Monitoring and evaluation plans were present in all policies. However, youth involvement in policy formulation, plans for implementation, monitoring and evaluation was not adequately addressed.

Political recognition was evident in the development of these policies. This is in line with the findings of Dye (1998) and Stover and Johnston (1999), who identified political recognition as a necessary first step in policy and programme development, and Birdthistle and Vince-Whitman (1997), who found that the existence of clear national guidelines was often pivotal to an ASRH programme's success. However, as all the policies were government and public initiatives, statements of governmental support were to be expected.

A wide range of determinants of adolescent pregnancy were identified in the policies, as in other studies from SSA (Gunawardena et al., 2019; Kassa et al., 2018; Mkwananzi & Odimegwu; Yakubu & Salisu, 2018). Such information is useful for countries to enable them to set comprehensive and systematic strategies and targets to address adolescent pregnancy. The policies had appropriate objectives, and CSE was the predominant recommended activity. Developmentally appropriate, evidence-based education about human sexuality and sexual reproduction, provided over time by paediatricians, schools, other professionals and parents, is

important to help children and adolescents make informed, positive, and safe choices about healthy relationships, responsible sexual activity, and their reproductive health (Breuner et al., 2016a; LeBrun & Omar, 2015; Panchaud et al., 2019). The enactment of such rational choices may depend on the accessibility and availability of SRH services for adolescents, as well as the needed support from policy makers and funders. Adequate support for the provision of reproductive health services will enhance access and, therefore, use of the services by adolescents.

The need for coordination and collaboration between public and private actors is a key policy component. Senderowitz (1997) and Hughes and McCauley (1998) explained why coordination and collaboration between public and private actors is needed in policy development. They viewed collaboration and coordination of public and private efforts as essential elements of successful policy and programme design, contributing to flexible programming. In relation to adolescent reproductive health policies, Calves (2002) explained that coordination and collaboration of governmental and non-governmental efforts in adolescent reproductive health are critical, particularly because non-governmental organisations often play a vital role in providing ASRH information and services. Despite the existence of human resources supporting policy activities, few policies considered financial resources a key element. In line with this finding, Calves (2002) explained that most government policies in Togo, Cameroon and Burkina Faso provide inadequate information on financial resources.

The majority of the policies had plans for monitoring and evaluation, key elements in health policy. O'Neill et al. (2016), for example, explain that monitoring and evaluation are a necessary basis for accountability, to provide documentation of programmes, demonstrate whether they are achieving their intended influence and indicate the extent to which they are reaching their target audience (Adamchak et al., 2000). Hence, ensuring that monitoring and

evaluation elements are in place at programme start-up has been considered important to help demonstrate policy and programme success and to identify aspects of policies and programmes that require formulating or strengthening (Calves, 2002).

The level of youth involvement in the policies was low. Only four of the policies mentioned youth involvement, only in the forms of surveys with adolescents, adolescent focus groups and informal feedback from adolescents. There was no evidence of involvement of adolescents as collaborative partners in the implementation of policy activities or in monitoring and evaluation. The absence of youth involvement indicated the low priority given to the voice of youth in policy development, which hinders the ability of youth to contribute to policy effectiveness. Similarly, Calves (2002) found that few government policies identified youth involvement as intrinsic to policy formulation, planning for implementation, monitoring or evaluation despite the vital role attributed to youth involvement in all stages of youth policy and programme development, implementation and evaluation (Hughes & McCauley, 1998; Senderowitz, 1997). The minimal involvement of youth in policies relevant to prevention of adolescent pregnancy is likely to negatively affect the adoption, uptake and effectiveness of these policies. However, it is important to acknowledge that policy documents may not describe all processes and activities undertaken in the development of the policy including youth involvement.

Whilst the policies had appropriate objectives, none was measurable or time-limited; points also noted by Calves (2002). This challenges verification of policy achievements and time requirements, making it difficult to determine whether the policies are effective. None of the policies was accompanied by a formal process of evaluation of their effectiveness in meeting the primary objective of reducing adolescent pregnancy rates; however, an indirect approach to assess their efficacy has been adopted by a number of countries. These countries have analysed pregnancy rates before and after policy implementation using data from the

DHS, which has been undertaken at regular intervals. Of the 12 countries whose policies were assessed, only three had data on adolescent pregnancy rates before and after the policies cited in this review (see Table 2.3). Although not representative of the countries, assessment of pregnancy rates before and after policy launch in these three countries provides at least an indication of policy effectiveness in Anglophone SSA. However, there is the need to take into consideration that policies and laws are important but, on their own, are likely insufficient to drive change.

As shown in Table 2.3, pregnancy rates in Malawi increased from 25.6% to 29.0% after launch of their National Youth Policy that specifically aimed to reduce adolescent pregnancy. Similarly, despite the existence of the National Health Policy Framework of Namibia in 2010, adolescent pregnancy rates increased from 15.4% to 18.6%. Like Malawi and Namibia, South Africa also experienced a rise in pregnancy rates from 11.9% to 15.6% despite the existence of the Integrated School Health Policy. The rising pregnancy rates experienced in these countries may result from barriers such as requirements for parental/spousal consent to access ASRH services, stigma surrounding premarital sex, pressure from community members to prove and protect fertility after marriage and the inability of adolescents to access long-acting contraceptive methods and safe abortion care from health workers (Chandra-Mouli et al., 2019). To understand these barriers and how they inhibit the effective implementation of policies on adolescent pregnancy, it is important to systematically review how the policies were developed, implemented and evaluated, and to address the gaps in these policies, including inadequate financial resources, low youth involvement, and non-measurable and time-limited objectives.

Table 2.3: Pre and post policy pregnancy rates of selected countries

Country; date	DHS Survey years	*Pre-policy	*Post-policy
Malawi; 2013	2010; 2015	25.6%	29.0%
Namibia; 2010	2006; 2013	15.4%	18.6%
South Africa; 2012	2003; 2016	11.9%	15.6%

DHS: Demographic and Health Survey

***Pre- and Post-Policy adolescent pregnancy rates**

2.13.1 Review limitations

Despite the use of a conceptual framework to assess the various components of the policies, this study could not take into account the multiple drivers of adolescent pregnancies. Also, the search conducted for this review was restricted to national policies in the English language found on government websites and via Google. It is possible that some national government policies, or separate policy implementation plans, may not be publicly available, or not available online, and may, therefore, have been missed. Again, using this approach to account for changes in adolescent pregnancy rates, given the wide range of socio-economic and cultural factors, is a key limitation of the study. Inclusion of policies from non-English-speaking countries, multi-national organisations and NGOs, such as the WHO, may have changed the picture. We acknowledge that legislative differences might be one of the causes of differences in policies. Finally, we acknowledge that the policy documents, may not describe all processes and activities undertaken in the development of the policy. More importantly, there is the need for sub-national policy documents given that some countries have devolved local governments.

2.14 Conclusion and Implications

This review contributes a broad perspective on policies in SSA and their role in addressing adolescent pregnancy rates. Findings can serve as a benchmark for future revision of national policies geared towards addressing adolescent pregnancy in SSA. Guided by the Conceptual Framework for Evaluating Programme and Policy Design on Adolescent Reproductive Health (Calves, 2002), we found that all national policies relevant to pregnancy prevention in

Anglophone SSA during the target years were backed by political recognition, formulated for clearly defined target groups and referred to adolescent pregnancy issues with clear and explicit objectives. On the whole, strengths were seen in policy implementation, monitoring and evaluation plans which included clear descriptions of scope of activities, human resourcing, and collaboration and coordination between public and private actors. However, there were gaps in relation to financial resourcing and youth involvement. Importantly, the absence of measurable and time-bound objectives or formal evaluation of policy effectiveness confounds demonstration of what has been delivered and achieved. Further evaluation and more time for policy impact will be required to demonstrate whether and how policies may be achieving meaningful reductions in adolescent pregnancy rates. Further studies should seek to include sub-national policy documents where countries have devolved local governments.

For future policy-setting, governments and policy makers are encouraged to be transparent and realistic about the necessary financial resourcing and identify funding sources. Quantifiable policy objectives should be set to provide a basis for assessing the implementation and outcomes of policies: their adoption, uptake and effectiveness in relation to objectives. Governments and policy makers require education on the roles, function and importance of youth involvement in policy formulation, implementation and monitoring and evaluation. Youth advocate groups should be established and members trained to contribute towards this function. This should be done with the support of other major stakeholders in youth health. However, given the well-recognised inclination of organisations to monitor only those things that are easy to measure, it is important to identify and prioritise monitoring of those elements of the policies and programmes that are most meaningful to policy makers and their target populations.

Future policy development should include a consideration of a combination of feasible and effective approaches such as ASRH information and education in schools, communities

and media. Other important issues that can increase policy effectiveness include enhancing access to SRH services by removing cost-related barriers and supporting health workers to provide counselling services. The wider policy environment can also be mobilised to encompass responses to the social determinants of adolescent pregnancy. Finally, qualitative research is required to understand the barriers that impede the implementation of policies and programmes.

2.15 Chapter summary

This chapter has presented two published studies which provide novel, empirical research that has contextualised the next parts of this thesis. The first identified that the prevalence of first adolescent pregnancy in sub-Saharan African countries remains high. The high prevalence of adolescent pregnancy is also true for Ghana, where 15.1% and 38% of all adolescent girls and adolescent girls who had ever had sex had experienced first pregnancy as shown in the first published study in this chapter. Factors such as child marriage, low level of education, early sexual initiation and poverty were found to be the key predictors of adolescent pregnancy in SSA. Studies in Ghana have also identified these factors as the key drivers of adolescent pregnancy in Ghana (Adu-Gyamfi, 2014; Ahinkorah, Hagan Jr, Seidu, Budu, et al., 2019; Ahinkorah, Hagan Junior, et al., 2019; Nyarko, 2012). This is an indication that the major drivers of adolescent pregnancy in Ghana are not different from those across SSA. However, contextual differences may influence the extent to which these factors contribute to adolescent pregnancy in Ghana compared to some other countries in SSA.

In the second study, twelve countries in Anglophone SSA had current national policies which specifically target the reduction of adolescent pregnancy through reducing child marriage, gender-based violence, early sexual initiation, multiple sexual partners and coerced sex. They also aim to address other determinants of adolescent pregnancy such as poverty, illiteracy, unemployment and school drop-outs. This finding is also true for Ghana, whose two

policies included in the scoping review (National Gender Policy and Adolescent Health Service Policy and Strategy) focused on reducing adolescent pregnancy by reducing poverty, sexual violence, coerced sex, concurrent sexual partners, child marriage, and early sexual initiation. The policies also focused on enhancing contraceptive education, affordable and adequate contraceptive commodities, and consistent and correct condom use. Access and use of contraceptives were also mentioned by the two policies from Ghana included in the scoping review as important in dealing with adolescent pregnancy. It is important to note that the policies that were included in the scoping review were up to 10 years old at the time of the review. Hence, while they provided important information about progress over time, current evidence is also needed to inform future development. Several of the key predictors identified in the first study directly align with policy targets identified in the second; this was true for Ghana as well as other sub-Saharan African countries.

Findings from these two studies pointed out features in evidence that are worthy of further examination in Ghana. In the first study, various factors were identified as associated with first adolescent pregnancy in SSA, including Ghana. In the second study, some of these factors were considered as key targets of the national policies on adolescent pregnancy. These findings indicate that to ensure the effectiveness of policies and programmes on adolescent pregnancy, key stakeholders must be informed of the policies and programmes that they are responsible for implementing. In addition, benefits could accrue to policies and programmes from the involvement of those with first-hand knowledge of the circumstances and problems being addressed, as well as those who are aware of and will oversee implementation of policies and programmes into action. This formed the foundation for the third aim of this study which sought to explore the knowledge and awareness of policies and programmes among healthcare professionals and grassroots workers in Ghana. This aim was addressed in chapter four of the thesis. Findings of the secondary analysis and the scoping review indicated that there could be

some potential barriers and facilitators to the implementation of policies and programmes which need to be identified. The findings of the secondary analysis and the scoping review taken together suggest that, despite the existence of national policies, the prevalence of adolescent pregnancy remains high in SSA, including in Ghana. This provoked questions about implementation and the role of policy in effecting real change. This formed the basis for the fourth aim of the study, which has been addressed in chapter five. Thus, an exploration of policy implementation would bring deeper understanding of whether there are barriers which impede the realisation of policy goals. Conversely, it is important to examine potential facilitators of policy implementation. Understanding these barriers and facilitators to the implementation of these policies is useful for providing evidence-based solutions for reducing adolescent pregnancy. The findings from these two published studies, therefore, provide the basis for the primary research. The design of the primary study, including the sampling of health and education professionals, grassroots workers, and adolescent girls was based on the findings of the secondary data analysis and the scoping review.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter describes the design and methodology for the primary study of this doctoral research. The aims of this study were to:

- explore the knowledge and awareness of policies and programmes among healthcare professionals and grassroots workers in Ghana
- explore the facilitators and barriers to the implementation, adoption, uptake, and effectiveness of policies and programmes among healthcare professionals, grassroots workers, and adolescent girls in Ghana

3.2 The theoretical approach: implementation science

This doctoral research derives its theoretical approach from implementation science. Implementation science originates from 'evidence-based medicine', which developed into evidence-based practice in the 1990s (Sackett et al., 1996). In 1991, Gordon Guyatt and colleagues introduced the term 'evidence-based medicine' to shift the emphasis in clinical decision-making from 'pathophysiologic rationale and intuition, and unsystematic clinical experience', to scientific, clinically relevant research (Guyatt, 1991). Evidence-based clinical decision-making was further explained in 1996 by D. L. Sackett, as deriving from not only research evidence but also clinical expertise, applied within the context of the unique values and circumstances of individual patients (Sackett et al., 1996).

As time progressed, many other authors have built on these early works. Notably, Greenhalgh et al. advocated for a structured and systematic approach to evidence-based clinical decision-making through framing a focused question; searching thoroughly for research derived evidence; appraising the evidence for its validity and relevance; seeking and incorporating the user's values and preferences; and evaluating the effectiveness through planned review against agreed success criteria (Greenhalgh et al., 2003).

Implementation science grew from the experience of clinicians as they struggled to apply evidence to practice, both developing a new evidence base and drawing on wider fields of knowledge to address the challenges they encountered (Nilsen, 2015). It refers to the scientific study of methods to enhance the systematic uptake of research findings and other evidence-based practices into routine practice to advance the quality and effectiveness of health services and care (Eccles & Mittman, 2006). Hence, implementation science does not aim to establish the health impact of a clinical innovation, but to identify, apply and evaluate the factors and processes that affect its uptake into routine use (Bauer & Kirchner, 2020).

Over more than two decades, implementation scientists have produced a range of theories, models and frameworks to help clarify which factors influence the implementation of evidence-based practice in health care and ensure its sustainability (Nilsen, 2015; Tabak et al., 2012). These theories, models and frameworks have been broadly classified according to three overarching aims (Nilsen, 2015): (1) to describe and/or guide the process of translating research into practice; (2) to understand and/or explain those factors which influence implementation outcomes; and (3) to evaluate implementation. Using these three aims, five categories of implementation science theories have been described: (1) process models, (2) determinant frameworks, (3) evaluation frameworks, (4) classic theories and (5) implementation theories. Process models are used to describe and/or guide the process of translating research into practice; determinant frameworks, evaluation frameworks and classic theories aim at understanding and/or explaining what influences implementation outcomes, and implementation theories aim to evaluate implementation outcomes (see Figure 3.1).

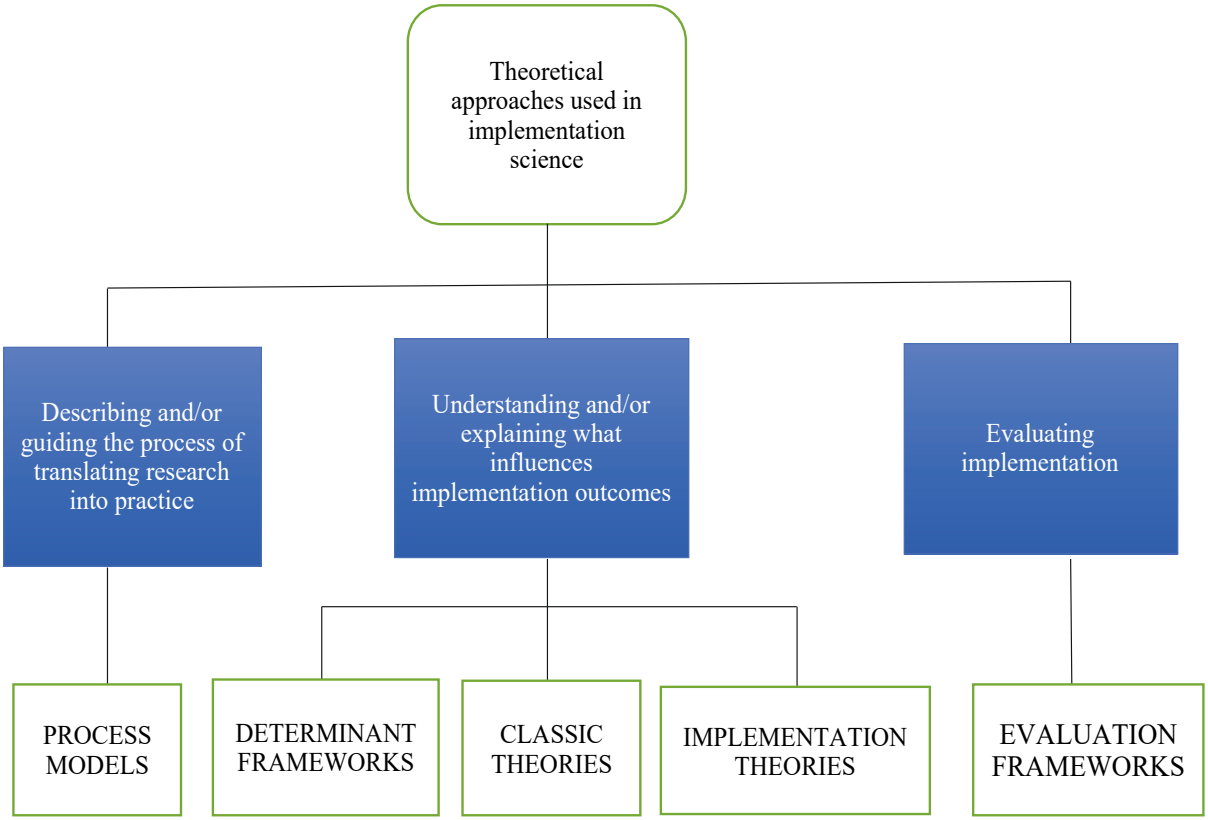


Figure 3.1: Theories, models, and frameworks in implementation science

Source: Adapted from (Nilsen, 2015)

3.2.1 The implementation science framework for this study

The Ecological Framework for Understanding Effective Implementation is a determinant framework of implementation science which was used to seek understanding and/or explanation of the factors that influence implementation outcomes (see Figure 3.2). Developed by Durlak and DuPre (2008), it was considered appropriate for this research because it facilitates comprehensive and evidenced-based findings based on factors that influenced implementation outcomes in a review of 500 studies and 81 reports (Durlak & DuPre, 2008). These findings were drawn from prevention and health promotion programmes for children and adolescents on issues related to physical health and development, academic performance, drug use, and various social and mental health issues such as violence, bullying, and positive youth development. Such issues are among the social determinants of adolescent pregnancy, which feature in policies and programmes aimed at reducing adolescent pregnancy. The

Framework incorporates components essential for population health and for generating evidence for policy and practice change (McIsaac et al., 2018), identifying both the impact of interventions and the factors that influence their implementation. It relates directly with the study aim of identifying the facilitators and the barriers to the implementation, uptake, and effectiveness of the policies and programmes aimed at reducing adolescent pregnancy.

According to this Framework, implementation is influenced by variables present in five categories: community level factors, provider characteristics, innovation characteristics, the prevention delivery system, and the prevention support system. All these elements can be seen reflected in the Consolidated Framework for Implementation Research, internationally the most-cited and most often applied composite framework for assessing context in terms of barriers and facilitators to successful implementation (Damschroder et al., 2009).

3.2.1.1 Community level factors

Community level factors are located within the community where implementation of an intervention occurs. These factors include, but are not limited to, the local politics, funding and the prevention research system (Greenhalgh et al., 2008; Stith et al., 2006). This prevention research system includes elements of community engagement and sensitisation, collaboration, and effective information sharing (O'Connell et al., 2009). These elements provide the context within which the intervention is implemented. Politics can either impede or facilitate the implementation of interventions. For example, when staff are pressured to offer new programmes by their supervisors, their implementation may not be effective, possibly because they are not committed to the intervention. Insufficient funding or delays in the provision of funds for the implementation of interventions can also hinder the effectiveness of the interventions. These factors vary depending on the community context (Durlak & DuPre, 2008). These factors exist in the Ghanaian context and could play a role in the implementation of policies and programmes on adolescent pregnancy. Hence, health and education

professionals, grassroots workers and adolescent girls were asked questions about the community level factors that were barriers or facilitators to the implementation of policies and programmes. These key informants had either lived or worked in the communities and were considered as knowledgeable of the community level factors.

3.2.1.2 Provider characteristics

Provider characteristics include the perceived need for innovation, potential benefits of innovation, self-efficacy, and skill proficiency. The perceived need for innovation refers to the extent to which the proposed innovation is seen as relevant to local needs. The perceived benefits of innovation refer to the extent to which the innovation achieves benefits desired at the local level (Greenhalgh et al., 2008). Self-efficacy is defined as the extent to which providers feel they will be able to do what is expected to achieve the goal of the innovation. Skill proficiency is the possession of the skills necessary for implementation (Stith et al., 2006). This component of the framework is underpinned by the assumption that policy and programme implementers who recognise a specific need for the policies and programmes, believe the policies and programmes will produce desired benefits, feel more confident in their ability to do what is expected (self-efficacy), and have the requisite skills to implement a policy or programme at higher levels of fidelity (Durlak & DuPre, 2008). These characteristics were assessed in this study by exploring the perceptions of health and education professionals and grassroots workers on the need for, and potential benefits of, the policies and programmes, their self-efficacy, skill proficiency and knowledge. This was considered appropriate since the characteristics of health and education professionals and grassroots workers play a major role in the implementation of policies and programmes in Ghana.

3.2.1.3 Innovation characteristics

Innovation characteristics refer to the adaptability and compatibility of the innovation (Durlak & DuPre, 2008). Compatibility also refers to the contextual appropriateness, fit, congruence

and match of the innovation, and has been defined as the extent to which the intervention fits with an organisation's mission, priorities, and values. Adaptability is defined as the extent to which the intervention can be modified to fit the preferences of providers, the practices of the organisation, community needs, values and cultural norms (Greenhalgh et al., 2008). In line with this, this study examined the extent to which the policies and programmes on adolescent pregnancy fit with the mission, priorities, and existing practices of local governments and NGOs. This was done by asking health and education professionals, grassroots workers and adolescent girls questions on the characteristics of innovations that may serve as barriers or facilitators to the implementation of policies and programmes in Ghana. The research also looked at whether the policies and programmes could be modified to fit the needs of policy makers, programme coordinators, organisations, and communities to enhance implementation.

3.2.1.4 Prevention delivery system

The prevention delivery system refers to factors related to organisational capacity for the implementation interventions. These can be categorised into general organisational factors, specific organisational practices and processes, and specific staffing considerations (Durlak & DuPre, 2008). The general organisational factors include positive work climate, organisational norms regarding change, integration of new programming, and shared vision. Positive work climate looks at the views of employees about morale, trust, collegiality, and methods of resolving disagreements. Organisational norms refer to the collective reputation and norms shared by an organisation in terms of its desire to adopt new ideas as opposed to maintaining the status quo. Integration of new programming focuses on the extent to which an organisation can incorporate new ideas into its routine practices. Shared vision refers to the degree of unity that exists among members of a given organisation towards achieving a particular goal. The specific practices and processes refer to the extent to which the various stakeholders of an innovation collaborate to determine the type of innovation to be implemented and the

implementation processes. They also describe the extent of cooperation and collaboration among local agencies that can bring on board their perspectives, skills and resources to enhance the implementation of the innovation. Effective mechanisms that make it possible for frequent and open communication are also key aspects of the specific practices and processes. Task sharing within the organisation also constitutes an essential element of the specific practices and processes. Specific staffing considerations include leadership, internal advocates and managerial/supervisory/administrative support for providers during implementation as essential for the effective implementation of an innovation (Greenhalgh et al., 2008; Stith et al., 2006). To understand the role of the prevention delivery system in the implementation of policies and programmes on adolescent pregnancy in the Ghanaian context, this study asked health and education professionals and grassroots workers questions on how positive work climate, organisational norms regarding change, integration of new programming, and shared vision can be barriers or facilitators to the implementation of policies and programmes.

3.2.1.5 Prevention support system

The prevention support system consists of training and technical assistance (Durlak & DuPre, 2008). Training refers to the means to ensure that providers of interventions are proficient in the skills necessary to implement an innovation and their self-efficacy is developed. Technical assistance focuses on the provision of resources such as re-training, training of new staff, emotional support, and mechanisms to enhance the problem-solving skills of innovation providers. In line with this, this study asked health and education professionals and grassroots workers questions on the influence of human resources and their competences on the implementation, adoption, uptake and effectiveness of policies and programmes on adolescent pregnancy in Ghana.

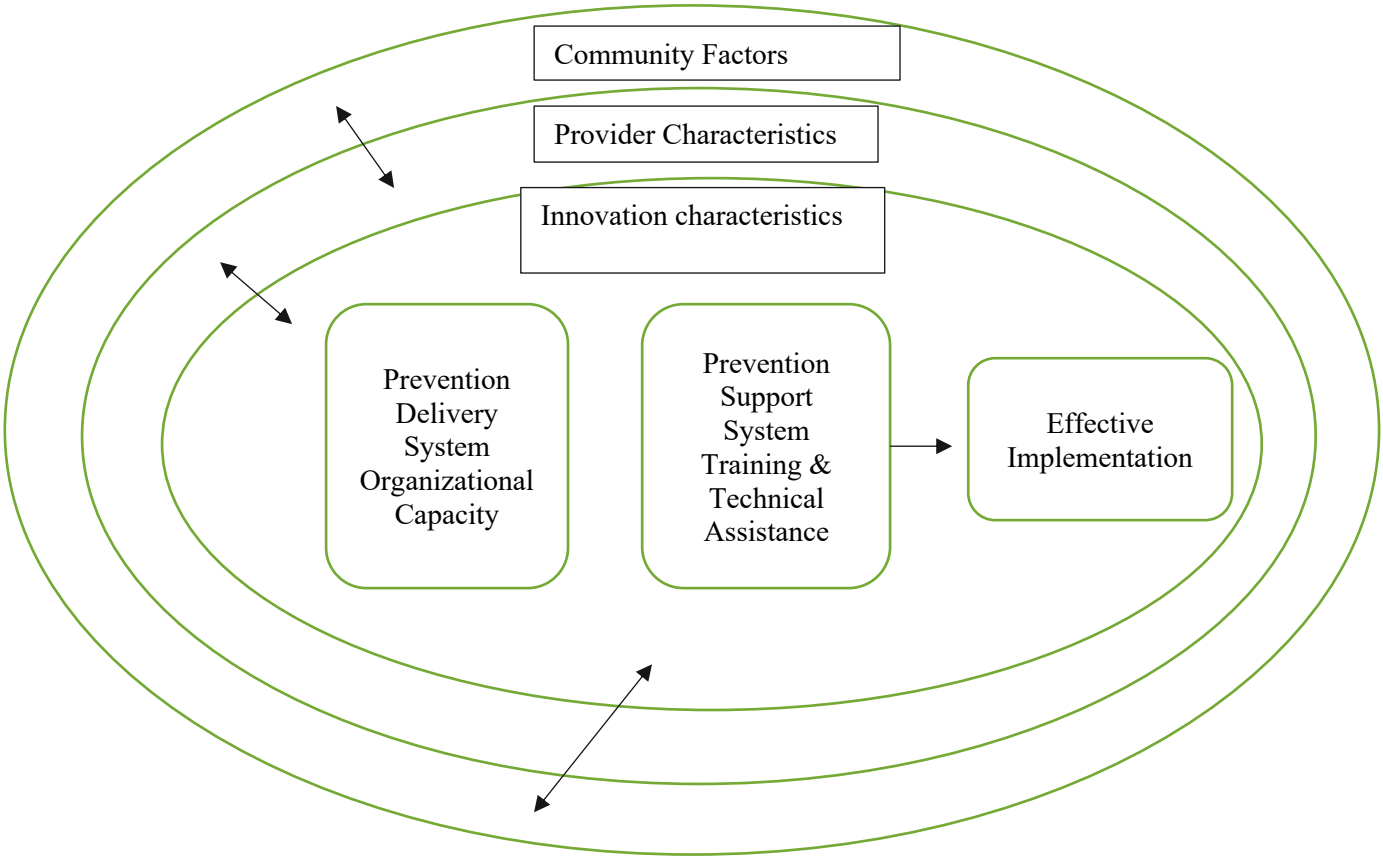


Figure 3.2: Ecological Framework for Understanding Effective Implementation

Source: Adapted from (Durlak & DuPre, 2008)

3.3 Research design

3.3.1 Research approach

This doctoral research used the realist approach to evaluation as its research design. The realist approach is a form of theory-based evaluation developed to reinforce the explanatory power of evaluation studies (Hewitt et al., 2012). The approach, was developed by Ray Pawson and Nick Tilley (Pawson & Tilley, 1997), and focuses on strengthening the drive for evidence-based policy (Pawson, 2002). The realist approach provides a universal approach to evaluation and can be applied to various fields of human social life, including healthcare, through the implementation of policies, programmes or projects (Hewitt et al., 2012).

The main premise of the realist approach is that social programmes only work for certain people in certain circumstances, and hence it is important to understand and explain the

patterns of success and failure (Hewitt et al., 2012). The key question that guides researchers using the realist approach is 'what is it about this kind of intervention that works, for whom, in what circumstances, in what aspects, and why?' (Pawson et al., 2004). The realist approach proposes that the implementation of all complex social interventions occurs within pre-existing social contexts such as organisational factors, group traits, interpersonal relationships, or economic factors. These factors interact with the mechanisms of the interventions, triggering some and inhibiting or modifying others. It is the role of the realist researcher to unpack and evaluate the impact of the contextual factors on the mechanisms and outcomes (Pawson & Tilley, 1997). Applying the realist approach to this study enabled the identification of the contexts and mechanisms that influence the implementation of policies and programmes on adolescent pregnancy.

Philosophically, the realist approach is entrenched in realism, which combines three social science principles: causal explanations are achievable; social reality is primarily an interpretative reality of social actors; and social actors evaluate their social reality (Delanty, 1997) to detect underlying causal mechanisms and explore the conditions that make them workable (McEvoy & Richards, 2003; Wilson & McCormack, 2006). This context-specific approach to causality defines an outcome as a product of context and mechanism (Pawson et al., 1997) and can, therefore, be useful in exposing and unpacking the complexities of contexts and interrelated mechanisms that are fundamental in implementation activities (Rycroft-Malone et al., 2012). Realism was essential in this doctoral research to unpack the realities surrounding the implementation of policies and programmes on adolescent pregnancy based on the views and understanding of diverse stakeholders (health and education professionals and grassroots workers) and beneficiaries (pregnant, parenting and/or non-pregnant adolescents).

Idealist ontology, subjectivist epistemology and interpretivist methodology influenced the choice of the research design. Idealism views reality as dependent on the culture and shared meanings that humans have about a phenomenon (Berger & Luckmann, 1991; Ritchie et al., 2013). Subjectivist epistemology maintains that we understand that researchers cannot be completely objective; rather, it is acknowledged that an interrelationship exists between the researcher and the participant (Mills et al., 2006). Interpretivist methodology maintains that individuals create their own new understandings or knowledge through the interaction of what they already believe and the ideas, events and activities with which they come into contact (Gardner, 2010; Ültanır, 2012).

In relation to this study, idealism means that the culture and shared meanings that research participants have about adolescent pregnancy will influence their perception about the barriers and facilitators towards the implementation of policies and programmes on adolescent pregnancy. Subjectivist epistemology in this study shows that the interaction between the researcher and the research participants can be used to help understand the barriers and facilitators towards the implementation of policies and programmes. Applying interpretivist methodology in this study means that the interaction between what the research participants believe about barriers and facilitators towards the implementation of policies and programmes as well as ideas, events, and activities they have encountered will determine the kind of information they will provide.

3.3.2 Qualitative research

This doctoral research involved cross-sectional, qualitative research among three target groups: (1) health and education professionals, (2) grassroots workers, and (3) pregnant, parenting and/or non-pregnant adolescents. Qualitative research involves the study of the nature of phenomena, including their quality, different manifestations, the context in which they appear or the perspectives from which they can be perceived (Philipsen & Vernooy-

Dassen, 2004). Qualitative research can be employed very well in research problems that include assessing complex multi-component interventions or systems (of change) (Busetto et al., 2020). It goes beyond addressing questions that relate to 'what works', towards 'what works for whom, when, how and why', and focuses on the improvement of interventions rather than accreditation (Chambers et al., 2013; Lamont et al., 2016). This approach was appropriate for this study as it provided methods to identify the policies and programmes that have been implemented with the aim of reducing adolescent pregnancy in Ghana; to determine what facilitates their implementation, adoption, uptake, and effectiveness; and to determine the barriers that have deterred their implementation, adoption, uptake, and effectiveness. Similar approaches have been used in previous studies whose aims aligned with those of this doctoral research (Card, 1999; Franklin & Corcoran, 2000; Geary et al., 2014; Leerlooijer et al., 2013).

3.3.3 Triangulation

Triangulation refers to the process of using multiple methods or data sources in qualitative research to develop a full understanding of phenomena. It is a strategy to test validity through the convergence of information from different sources (Nancy Carter et al.). Policy and programme implementation in Ghana follows a top-down approach from senior health and education professionals to the grassroots workers and to the beneficiaries. Hence, this study focused on health and education professionals, grassroots workers, and pregnant, parenting, and non-pregnant adolescents. These three groups of participants were chosen to examine perspectives of key stakeholder groups and to triangulate the findings to obtain a deeper and broader understanding of the barriers and facilitators. While senior health and education professionals oversee the implementation of policies and programmes at the regional and district levels, grassroots workers often oversee implementation at the community level. The adolescents are the intended principal beneficiaries of the policies and programmes.

3.4 Setting

The study setting was the Central Region of Ghana. This region was chosen since it has reported a consistently high prevalence of adolescent pregnancy (i.e., pregnancy in the second decade of life, 15 – 19 years) compared to the other regions and the whole country since 1993. For instance, in 2003, the proportion of the female adolescent population pregnant with their first child in the Central Region was 10.5% compared to 3.5% in the whole country. In 2008, the region recorded a prevalence of adolescent pregnancy of 4.8% compared to 3.4% in the whole country. In 2014, the proportion of adolescents pregnant with their first child in the Central Region was 7.0%, compared to 2.9% in the whole country (Ghana Statistical Service et al., 2004, 2009, 2015). Within this region, three districts were selected for data collection based on the high prevalence of adolescent pregnancy in these districts compared to other districts within the region. The districts were Cape Coast Municipality, Komenda-Edina-Eguafo-Abrem (KEEA) Municipality, and Assin South District.

3.5 Study participants and sampling frame

3.5.1 Health and education professionals

The sampling frame included policy and programme implementers such as the regional director, regional head of the ASRH units of the regional health directorate, the regional director of the Department of Gender, regional School Health Education Programme Coordinator and programme coordinators for NGOs that offer ASRH services in the region. The health and education professionals worked across districts in the Central Region for several government and NGOs that represented United Nations agencies, local NGOs, international NGOs and relevant governmental departments.

Inclusion criteria

The inclusion criteria were: (1) senior managers in the health and education sector, or (2) programme coordinators/heads (3) who had worked in the region for a minimum of five

years and (4) had been directly involved in the implementation of policies and programmes on adolescent pregnancy in the Central Region.

3.5.2 Grassroots workers

These included chiefs, chiefs' linguists, queen mothers, assembly members, youth leaders, community health volunteers, community committee members and secretaries, facilitators of NGOs, parent-teacher association chairs, and youth leaders. The concepts of chief and chief's linguist in Ghana originated from the colonial era. At that time, the colonial government selected elders from every community who were the heads of the communities and called them 'chiefs'. They were responsible for taking down the instructions of the colonial government to members of the community. Each chief had a linguist called the chief's linguist who was responsible for delivering messages to the community members on behalf of the chief (Atuoye & Odame, 2013). After independence, the chieftaincy institution continued but with the introduction of queen mothers, who are traditional female leaders and mostly responsible for women's and children's issues in their respective communities. In Ghana, queen mothers are selected from the royal family of each town and village. The head of the royal family and the elders choose both the chief and the queen mother. The royal families are made up of the first settlers of an area. Apart from the chiefs and queen mothers, there are also youth leaders and community committee members and secretaries who are also part of the decision-making body at the community level. These work together with the chiefs and queen mothers in making decisions for the community. The youth leaders and community committee members and secretaries are mostly selected by the chiefs (Crook, 2005). In each community, there are assembly members who are heads of an electoral area within the community. They are responsible for making decisions and laws in the electoral area through the district assembly.

Inclusion criteria

The inclusion criteria were (1) traditional or political leaders in the community, or (2) sexual and reproductive health programme coordinators/heads in the community (3) who had worked in the region for a minimum of five years, and (4) had been directly involved in the implementation of policies and programmes on adolescent pregnancy in the Central Region.

3.5.3 Adolescents

The sampling frame included female adolescents aged 15 to 19 years who lived in the Central Region of Ghana. These include both non-pregnant and pregnant/parenting adolescents. We decided only to interview adolescent girls to privilege and prioritise their perspectives. Adolescent girls are those with direct and in-depth experiences of barriers to accessing ASRH interventions. We could have conducted separate/additional interviews with adolescent boys (as well as men who are fathers of children born to adolescent girls). However, this would have added considerable resourcing needs to the study which was already impacted significantly by COVID-19.

Inclusion/ Exclusion criteria

The inclusion criteria for this study were female adolescents aged 15 to 19 years who lived in selected communities in districts within the Central Region where adolescent pregnancy is higher compared to other districts. Female adolescents who spoke neither the 'Twi' nor 'Fante' language were excluded from participation.

3.6 Sampling and recruitment

3.6.1 Sampling and recruitment of health and education professionals

The study employed purposive sampling to recruit the health and education professionals. Purposive sampling involves selecting participants who are knowledgeable about the issue in question, because of their involvement and experience of the situation (Brink et al., 1996). Creswell (2002) states that purposive sampling refers to selection of sites or

participants that will best help the researcher to understand the problem and the research question. This is because individuals selected must possess the information that is required in the study and must be willing to reflect on and share this knowledge. The inclusion criteria expressed the purposive sampling strategy: that is, professionals with a minimum of five years' work experience in the Central Region were considered to have the in-depth knowledge required to inform the study.

Recruitment of professionals occurred in a three-step process. First, three professionals known by the candidate for this study as experts in ASRH issues in the Central Region (Central Regional Director for the Department of Gender, Programmes Coordinator for the Planned Parenthood Association of Ghana (PPAG), Central Region, and a lecturer at the University of Cape Coast) were initially contacted through a combination of WhatsApp™ messaging and calls to inform them about the study and ask for their assistance in making a list of government organisations and NGOs that are involved in the implementation of policies and programmes for reducing adolescent pregnancy in the Central Region. Together with these experts, a list of eleven institutions was made (two government organisations and nine NGOs). The governmental organisations were Ghana Education Service (GES) and Ghana Health Service (GHS). The NGOs were United Nations agencies, local NGOs, international NGOs, and relevant governmental departments.

The second step involved a formal meeting with the Central Regional Director for the Department of Gender to assist the candidate to compile a list of health and education professionals deemed suitable for recruitment. The Director for Gender was chosen as the person responsible for the implementation of programmes and projects in relation to women's rights and empowerment through advocacy, research and education by networking and collaborating with partners and stakeholders. An initial list of 20 eligible health and education

professionals was compiled but three were excluded because their contact details were not available. This led to a final list of 17 eligible participants.

The final step involved contacting all 17 eligible participants through WhatsApp™ and telephone calls. Of these 17, 15 participated in the interviews. Two participants could not be included in the study because approval from their supervisors was not available in time.

3.6.2 Sampling and recruitment of grassroots workers

Recruitment of grassroots workers involved a two-step process and a combination of purposive and snowball sampling. First, using purposive sampling, the Central Regional Director for the Department of Gender assisted in identifying an initial six grassroots workers in the three districts. The inclusion criteria expressed the purposive sampling strategy: that is, grassroots workers who held appropriate roles in their communities, who had worked in the region for a minimum of five years in the Central Region were considered to have the in-depth knowledge required to inform the study. These six grassroots workers participated in the interviews. In the second step, further nine potential participants were suggested by the six grassroots workers who were initially contacted using snowball sampling, which is a sampling approach that relies on referrals from initially selected respondents to other persons believed to have the characteristics of interest (Ghaljaie et al., 2017). These nine participants also participated in the interviews. The grassroots workers were recruited from three communities in the three districts within the Central Region which were selected as the study settings. The communities were Ekon, Kissi, and Nyankumasi, which were in the Cape Coast Municipality, KEEA Municipality, and Assin South District respectively.

3.6.3 Sampling and recruitment of adolescent girls

Convenience sampling was used to recruit the adolescent girls. Convenience sampling is a type of sampling in which participants are selected for the purpose of the study if they meet certain practical criteria, such as geographical proximity, availability at a certain time, easy

accessibility or the willingness to volunteer (Dornyei, 2007). The adolescent girls were recruited from the same communities where the grassroots workers were selected. Convenience sampling was used because the data collection involved the selection of adolescent girls according to their convenient accessibility and proximity (Elfil & Negida, 2017; Gravetter & Forzano, 2012).

3.7 Data collection instruments

Data were collected from health and education professionals and grassroots workers via semi-structured interviews. Semi-structured interview is a qualitative data collection approach in which the researcher asks key informants a series of predetermined but open-ended questions. In this type of interview, the researcher has more control over the topics of the interview than in unstructured interviews (Given, 2008). However, the interviewee also has some freedom and ability to control the direction of the narrative. Semi-structured interview guides were used as the data collection instrument (Appendix 11 and 12). Interview prompts were guided by the constructs of the Ecological Framework for Understanding Effective Implementation, and included knowledge and awareness of policies and programmes to address adolescent pregnancy, perceptions of the facilitators and barriers to implementation, and suggestions for improving implementation.

Focus group discussions were used to collect data from the adolescent girls. Focus group discussions are interviews conducted to explore the views of groups of people on the research topic, drawing from the complex personal experiences, beliefs, perceptions and attitudes through a moderated interaction (Nyumba et al., 2018). The reason for the choice of focus group discussions is that interactions between focus group discussion members can generate additional data and themes, and enhance the sharing of experiences with members of the group (Femdal & Solbjør, 2018). Focus group discussion guide was the data collection instrument (Appendix 13). Focus group discussion prompts covered issues such as adolescents'

access to pregnancy prevention information and service in Ghana; their perception of the facilitators towards access to pregnancy prevention information and services in Ghana; and their perception of the barriers associated with access to pregnancy prevention information and services in Ghana.

3.8 Data collection procedure

The candidate for this study intended to travel to Ghana in March 2020 to conduct all fieldwork himself. However due to the COVID-19 pandemic restrictions, he was unable to travel. A COVID-safe process was developed to conduct the interviews and focus group discussions. Two local research assistants (a female and a male) were recruited to help with the data collection. The research assistants were graduates of the Department of Population and Health, University of Cape Coast, where the candidate also undertook his bachelor's degree. One of the research assistants was a classmate of the candidate while the other was a year behind the candidate. They both studied courses related to adolescent sexual and reproductive health and have experience in qualitative and quantitative data collection among adolescent girls. They assisted the candidate in his data collection for his master's degree which explored risk factors for pregnancy among adolescent girls in one of the districts of the Central Region of Ghana. Apart from this, the research assistants and the candidate had been involved data collection for several projects at the Department of Population and Health, including surveys and interviews with in-school adolescents in Ghana on comprehensive sexuality education in senior secondary schools. The research assistants had lived in the Central region for more five years during their studies and had some idea about some of the context-specific factors that might contribute to adolescent pregnancy. They were aged between 30 and 35 years at the time of the data collection.

3.8.1 Training the research assistants

The candidate organised an initial training session for each of the research assistants delivered via the electronic communication platforms WhatsApp™ and Zoom between July 30, 2020 and August 3, 2020. The training was on the data collection instruments, ethical considerations, recruitment processes and the actual data collection. This training, which was done in three days, lasted for one hour each day. Following this initial session, the candidate organised a second session via Zoom with the two research assistants and his primary supervisor on August 5, 2020. The purpose of this session was to receive inputs from the primary supervisor on the data collection instruments and the data collection and recruitment processes, and to introduce the research assistants to her. This meeting was successfully concluded. The training lasted for one hour. After the second training session meeting, the candidate organised another session with the two research assistants to get their feedback on the meeting they had with his primary supervisor, go through the data collection instruments, consent forms and information sheets with them, and discuss the recruitment process for the mock interviews. This was done on August 6, 2020 via WhatsApp™ and it lasted for one hour.

3.8.2 Pilot interviews

Two mock interviews with two health professionals were conducted. These were conducted via WhatsApp™/telephone by the trained research assistants. The interviews were digitally audio recorded, with permission. This was considered an important step towards the actual data collection, as it was intended to get the research assistants familiarised with the data collection instruments and processes and make changes to questions in the instruments if need be. By August 17, 2020, the two mock interviews had been conducted and sent to a professional transcriber to transcribe the audio recordings.

3.8.3 Debriefing meeting

After the mock interviews, the candidate had a debriefing meeting via WhatsApp™ call with the two research assistants on August 17, 2020. The purpose of the meeting was to get updates on how the mock interviews were conducted, challenges encountered with the data collection instruments and the interview processes, and the way forward. The candidate received the audio recordings and the transcripts on August 18, 2020, carefully listened to the audios and read the transcripts thoroughly, and made minor edits to the transcripts, where necessary. The corrected transcripts were sent to the primary supervisor on August, 18, 2020. On August 19, 2020, the candidate held a meeting with the two research assistants and the primary supervisor to discuss the mock interviews, challenges encountered with the data collection instruments and the interview processes, and the way forward. As part of this meeting, all issues that came up during the mock interviews were discussed and suggestions were made for the actual data collection.

3.9 Data collection interviews

The interviews were conducted between August 20, 2020 and December 1, 2020. In all, 15 interviews with health and education professionals, 15 interviews with grassroots workers, and six focus group discussions (three with pregnant and parenting adolescents and three with non-pregnant adolescents) were conducted. Permission was sought from the participants to record the interviews using a digital audio recorder and notes on the socio-demographic characteristics of the participants were handwritten as well for confidentiality purposes. The two research assistants conducted all the interviews, except one of the interviews with a health professional which was conducted on WhatsApp™ by the candidate. The candidate could not conduct any more interviews with the health and education professionals directly via Zoom/ WhatsApp™ because of poor internet in the study area. The candidate attempted to conduct one interview with a health and education professional via Zoom during the pilot interviews

but this was not successful due to poor internet. Moreover, not all the health and education professionals used Zoom or WhatsApp™. Six interviews with health and education professionals were conducted on telephone and the rest were done face-to-face. All the 15 interviews with the grassroots workers were done face-to-face. All audio recordings were transcribed by a professional transcriber. Interviews that were conducted in 'Twi' and 'Fanti' were translated into English during the transcription. The candidate who also speaks 'Twi' and 'Fanti' had a debriefing meeting with the research assistants after each interview. He also listened to each audio file and read each transcript to ensure the accuracy of the data collected. After that, he provided feedback to the research assistants and the professional transcriber. Six transcripts (two from each participant group) were sent to the primary supervisor for review and feedback.

3.9.1 Interviews with health and education professionals and grassroots workers

The research assistants conducted the face-to-face interviews with health and education professionals at locations deemed appropriate by the researcher and the participants, such as offices or public spaces. The interviews, which were conducted in English, lasted between 45 and 120 minutes. The interviews with the grassroots workers were conducted in 'Twi' and 'Fanti'. These interviews were conducted in participants' homes and in public spaces that were deemed convenient for the research assistants and the participants. Each interview lasted between 45 and 120 minutes.

3.9.2 Interviews with adolescents

For this research, six focus group discussions were conducted. With permission from the queen mothers, assembly members, elders, and leaders of the community, focus group discussions were conducted at community centres or other convenient places in the homes of some of the community leaders. The research assistants were the interviewers and moderators in the focus group discussion. Six steps were followed in organising the focus group discussion:

the interviewer welcomed the focus group discussion participants; the interviewer asked the participants to introduce themselves; the interviewer and the moderator established some ground rules for the group (for example, mentioning of the numbers of each participant before speaking, not interrupting other participants when they are speaking, asking for clarity when questions are not clear); the interviewer asked the interview questions; the interviewer and the moderator wrapped up their final thoughts and asked the participants for their final questions or suggestions. Interviews were conducted in 'Twi' and 'Fante'. Each focus group discussion lasted between 90 minutes and 120 minutes.

3.10 Data Analysis

Thematic analysis, which has been defined as the process of identifying patterns or themes within qualitative data (Maguire & Delahunt, 2017), was employed in this study and was guided by Braun and Clarke (2006) step-by-step guide for thematic analysis. The steps involved were: becoming familiar with the data, generating initial codes, searching for themes, reviewing the themes, defining the themes, and writing up.

3.10.1 Becoming familiar with the data

After all interview and focus group discussions recordings were transcribed by a professional transcriber into English, transcribed texts were then cleaned and quality reviewed against the original audio-files by the candidate and saved as Microsoft Word files. The transcripts were read several times to get the candidate familiarised with the data.

3.10.2 Generating initial codes

In all, fifteen transcripts from the interviews with health and education professionals, fifteen transcripts from the interviews with the grassroots workers, and six transcripts from the focus group discussions with the adolescent girls were coded. An initial coding was done manually without the use of software. The candidate read through each transcript and inserted

codes identified as comments in the word file. The manual coding was done in two rounds to ensure accuracy of the codes generated from the data.

The first round of the manual coding was done independently by the candidate and his primary supervisor for three transcripts from the interviews with the health and education professionals, three transcripts from the interviews with the grassroots workers, and two transcripts from the focus group discussions with the adolescent girls. The codes for these eight transcripts were discussed in a series of meetings. After reaching consensus on the first set of codes with the primary supervisor, the candidate completed the first round of manual coding by coding the remaining twenty-eight transcripts. After the first round of coding was completed, a second round of coding was done for all the transcripts. This was considered important as reading through the transcripts again, there might be some codes needing modification or some parts of the transcripts needing different codes. After the manual coding, the word files were imported into Nvivo version 12 to assist with data organisation and analysis. In Nvivo, all thirty-six transcripts were coded once again in a third round of coding. The coding was guided by the codes which had already been generated from the two rounds of manual coding. Here, the codes from the manual coding were reduced further by grouping them into main codes and sub-codes.

3.10.3 Searching for themes

After coding was completed, the generation of themes began. This was done systematically by the candidate and his supervisors. Themes were generated deductively based on the structure of realist evaluation theory (context, mechanisms and outcomes) and the Ecological Framework for Understanding Effective Implementation. The themes were first generated under three major headings (context, barriers and facilitators) and were generated from the codes that were assigned to the data from the three different samples of this study (health and education professionals, grassroots workers, and adolescent girls). Next, we

grouped the themes under the constructs of the Ecological Framework for Understanding Effective Implementation: community factors, provider characteristics, innovation characteristics, prevention delivery system, and prevention support system.

3.10.4 Reviewing the themes

After searching for the themes, the candidate and his primary supervisor met to review the themes and decided whether their groupings under the Ecological Framework for Understanding Effective Implementation needed modification. Some themes were combined based on this review. After this, the candidate and all three supervisors met to discuss and reach consensus on the coding and themes.

3.10.5 Defining the themes

In all, eighteen themes were identified. There were six themes under community factors, two themes under provider characteristics, four themes under innovation characteristics, three themes under prevention delivery system and three themes under prevention support system. Five other themes on barriers and facilitators to accessing pregnancy prevention information and services were generated from the data from the adolescent girls.

3.11 Ethical Considerations

To ensure that the research complies with all ethical principles, ethical approval for the study was sought from the Ghana Health Service (GHS) Ethics Review Committee in Ghana (GHS-ERC009/01/20). This was ratified by the Human Research Ethics Committee at the University of Technology Sydney, in Australia (ETH20-4779). Permission to conduct the study was sought from and granted by the Central Regional Health Directorate, District/Municipal Health Directorates of all included Districts/Municipals and heads of all included government and NGOs.

Informed consent was obtained from all participants after they had been fully informed about the aim of the study, its procedures, and all possible risks. In the case of minors (girls under 18 years), their adult partners (if married) or parents/guardians were contacted as part of the consenting process. In Ghana, this is part of the requirement for ethics approval from the GHS. First, each minor was given a participant information sheet which contained information on the nature of the research, what the research involved, risks and benefits associated with the study, and an assent form. Secondly, partners/parents/guardians were given consent forms to complete for the minors. For participants who could not read, the research assistants translated the content of the English versions of the information sheet, consent, and assent forms to them using either 'Twi' or 'Fante'. The consent and assent of the participants were witnessed by independent third parties. Where they agreed, the participants, witnesses and the research assistants signed the consent form either by thumbprint or signature. All participants were informed that they had the right to refuse without any consequences and without supplying a reason.

Participants were also assured of confidentiality and privacy and these rights were protected throughout the study. The consent and assent forms were kept separate from the data the participants provided. Participants were informed and assured that the information given by them would solely be used for the purpose of the study. Furthermore, participants were informed that the information they give would not be disclosed to third parties. Given that the adolescent girls lived in the same communities and knew each other, it was possible that they could feel unsafe discussing personal issues in front of others. Hence, at the beginning of the focus group discussions, they were informed that whatever was discussed would be kept confidential by the participants and the research assistants. They were also assured of security in the management of their data. Pseudonyms were used in reporting the findings to conceal the identities of the key informants and adolescents who participated in the study.

Participants were given assurances of the importance of their information and were encouraged to open up to provide all the information they can. The candidate and research assistants were conscious of the position power they held over the participants. This influenced the decision to recruit research assistants with experience and awareness of the need to make participants feel as comfortable and trusting as possible about their agency, their right to confidentiality and privacy.

To reduce potential for distress or harm such as girls experiencing potentially coercive control situations if they reveal information not favourable to their employers, all ethical guidelines such as obtaining informed consent from participants, protecting the anonymity and confidentiality of participants, and providing participants with the right to withdraw from the research at any time were strictly adhered to. To manage distress, disclosure, and harm during the focus group discussions, the research assistants were trained on all ethical issues around the research where there was potential for distress or harm. This included changes in the way a participant spoke or noted in her body language such as crying or shaking, stopping answering the questions, or limiting the detail they gave in answering questions. In such events, the research assistants were trained to pause the discussion immediately in a way that did not feel abrupt to the other participants and to ask the participant in distress or harm to take a break in a way that may not be noticed by the other participants. During the break, one of the research assistants would take some time to discuss what is causing distress to the participant. If the participant was to display signs of emotional, mental, or physical distress, she would be referred to the queen mother who would then refer her to relevant support services available in the community. Immediately after the focus group discussions, all participants were given information on further support services that they could contact should they wish to speak about issues raised during the focus group discussions with a trained professional in their

communities. However, in this study, there was no distress, disclosure, and issues of harm during the focus group discussions.

3.12 Rigour of the Research

3.12.1 Credibility

Credibility establishes whether the research findings represent plausible information drawn from the participants' original data and is a correct interpretation of the participants' original views (Korstjens & Moser, 2018). To ensure credibility, peer debriefing was ensured through constant dialogue with the candidate's supervisors via e-mail and Microsoft Teams. De-identified transcripts of interviews were sent to the candidate's supervisors on a secured server so they can read and comment on them. The primary supervisor assisted the candidate with the discussion of coding, development of conceptual categories and generating themes, and the other two supervisors provided further external review of the processes undertaken, codes and themes generated.

3.12.2 Dependability

Dependability entails the participants' assessment of the study's conclusions, interpretation, and recommendations in light of available data (Anney, 2014). The dependability of the research covers the methods used for gaining access, handling errors and surprises, gathering and recording data, coding, analysis, and interpretation of results. Enhancing dependability also involved asking the same questions to several participants and looking for uniformity in speech and behaviour. During the phases of data collection and analysis, links and relationships between categories, concepts, and themes were mapped. Also, detailed notes reflecting the procedure and justification for modifications were preserved.

3.12.3 Trustworthiness

Trustworthiness is concerned with proving that the data and interpretations of the findings are based on the information the study has found and not just the researcher's imagination (Korstjens & Moser, 2018). The trustworthiness of the data was increased by taking field notes, preserving recorded data and interview notes, and recording judgements made in relation to data analysis, such as coding, themes, and categories. The conclusions drawn from the data also helped to establish its trustworthiness. Supervisors were also involved, providing for a variety of analyses and viewpoints on the data.

3.12.4 Transferability

The term translatability describes how easily findings from qualitative research may be applied to different situations or settings with different respondents. Detailed descriptions of the individuals and the research procedure aid this (Korstjens & Moser, 2018). To ensure transferability, the candidate has provided detailed information about the study participants and the research process. Again, in this study, the health and education professionals were individuals who had worked across districts within the Central Region, and grassroots workers and the adolescent girls were also selected from districts which had similar characteristics to other districts in the Central Region and Ghana as a whole. Furthermore, the experience of the candidate in adolescent sexual and reproductive health (ASRH) in Ghana enhances the transferability of the findings. The experience he has developed after many years of research in ASRH in Ghana provides both the expertise and the intuitive ability to assess the research findings and their applicability elsewhere.

3.13 Challenges to fieldwork methods

Several challenges needed to be managed during the fieldwork.

- First, the candidate could not travel to Ghana to collect the data due to travel restrictions from COVID-19 so an alternative procedure which involved the recruitment of research assistants to help with the data collection was developed.
- The COVID management plan entailed using research assistants in Ghana but available staff had limited research experience so a training and monitoring programme had to be developed and delivered.
- COVID-19 made it difficult for all the interviews to be conducted face-to-face so the research assistants had to conduct some of the interviews by phone. This was a challenge because some of the phone interviews were disrupted by unstable phone network which distorted the flow of the interviews and, to some extent, prolonged the duration of the interviews when both the research assistants and the participants had to repeat some words, phrases and sentences to ensure clarity.
- The research assistants depended on public transportation, and, in some instances, there were delays in getting vehicles from one study site to the other.
- The data collection period was prolonged because some participants had to be contacted several times before they were available for interview.
- Finally, two participants had to be excluded from the study because the approval from their supervisors for their participation was not received on time.

3.14 Researcher reflexivity

Growing up in a village in Ghana where adolescent pregnancy was very common, I began developing interest in adolescent pregnancy as early as 15 years. As I walked around my village, I always met adolescent girls who were either pregnant or had begun childbearing. I saw this as a problem because from high school, I understood the effects of adolescent

pregnancy. Apart from what I learnt in high school, I also observed the impacts of adolescent pregnancy on adolescent girls particularly through disruption to their education. Some also experienced extreme poverty and this also impacted their children. I also saw adolescent girls forced into marriages after pregnancy and heard of others who committed unsafe induced abortions. There were times messages spread in the village about adolescent girls who died while terminating pregnancies or during delivery. With this knowledge, I read more about the causes, effects, and prevention of adolescent pregnancy in high school and aimed to gain a deeper understanding of the phenomenon when I go to the university to do my bachelor's degree. This influenced the choice of my bachelor's degree programme (Population and Health), which focused mainly on sexual and reproductive health issues. The courses I took throughout the four-year university education enlightened me on issues of adolescent pregnancy and increased my passion to research into adolescent pregnancy in the future.

After my first degree, I had the opportunity to work as a Teaching Assistant for a year and assisted with research activities on ASRH, including adolescent pregnancy. The findings from one of the research activities I was involved showed that adolescent pregnancy is highest in the Central Region of Ghana. I, therefore, decided to research this during my master's studies. True to my passion and desire, I conducted a study on risk factors for pregnancy among adolescent girls in one of the districts of the Central Region of Ghana during my master's studies. In this study, I conducted a survey among pregnant and non-pregnant adolescent girls. Findings from my study showed numerous demographic, socio-economic, cultural, and healthcare-related factors that serve as risk factors for adolescent pregnancy. These findings motivated me to explore the interventions that have been implemented to address adolescent pregnancy. This influenced the current doctoral research. Having involved the two research assistants in data collection for my master's thesis, my relationship with them throughout the data collection process enhanced their understanding of adolescent pregnancy. It also helped

the research assistants and I to develop a deeper knowledge of the factors that influence adolescent pregnancy in the Central region. The research assistants and I shared similar positions on adolescent pregnancy in the Central region. Considering our knowledge and awareness of gender inequality and other factors as contributing to adolescent pregnancy, we all had the appreciation of and wish to address the situation and the ongoing disadvantage in the Central region and Ghana as a whole. Since I and one of the research assistants were males, we were aware of the lack of agency among the adolescents and how our gender contributes to power and agency over them. However, we ensured neutrality throughout the data collection period and did not allow our gender to influence the focus group discussions with the adolescents.

Throughout my research career, I have been able to reflect on my position within the community I grew up in. I am conscious of the advantages brought about by my education, social standing, and gender. I have discovered that a variety of factors, many of which are beyond the control of individual adolescent girls or their families, combine to foster environments that are favourable to adolescent pregnancy.

CHAPTER FOUR: Knowledge and awareness of policies and programmes to reduce adolescent pregnancy in Ghana: a qualitative study among key stakeholders

4.1 Introductory text

Chapter Four presents findings that address the third aim of this doctoral research: to explore the knowledge and awareness of policies and programmes among healthcare professionals and grassroots workers in Ghana. This chapter is based on a manuscript which has been submitted and is under review for publication in the journal *Reproductive Health* and may be cited as follows:

Ahinkorah BO, Kang M, Perry L, Brooks F. Knowledge and awareness of policies and programmes to reduce adolescent pregnancy in sub-Saharan Africa: a qualitative study among key stakeholders in Ghana. *Reproductive Health* (Under Review).

4.2 Abstract

4.2.1 Introduction

Adolescent sexual and reproductive health continues to be a major public health issue in low- and middle-income countries. While many countries have policies aimed at reducing adolescent pregnancy, evidence of their impact is unclear. This study sought to explore the knowledge and awareness of policies and programmes aimed at reducing adolescent pregnancy among health and education professionals and grassroots workers in Ghana.

4.2.2 Methods

We employed a cross-sectional, qualitative study design involving semi-structured interviews with 30 key informants in Ghana. We also conducted a desk review of policies aimed at reducing adolescent pregnancy in Ghana. We used content analysis to analyse the data.

4.2.3 Results

Eight of 30 participants demonstrated awareness of policies aimed at reducing adolescent pregnancy but only two could elaborate on the key contents and the strategies of the policies. By contrast, 19 of 30 participants were aware of relevant programmes and provided detailed description of their implementation and activities carried out under each programme. Despite participants' low policy awareness and knowledge, their descriptions of the activities carried out under each programme aligned with the strategies and activities of the policies mentioned, as evident from desktop review of the policies.

4.2.4 Conclusion

Greater engagement of stakeholders in future policy development should increase policy awareness. Dissemination of policy content through community-based media channels and in local languages should promote and facilitate stakeholder engagement, which in turn should increase effective policy implementation with subsequent reduction of adolescent pregnancy.

Keywords: policy; adolescents; sexual and reproductive health; programmes; pregnancy; Ghana

4.3 Plain English Summary

Adolescent pregnancy is a major public health issue in low-and middle-income countries. Efforts to reduce adolescent pregnancy have become major health priorities globally. Several international organisations, including the United Nations, have adopted strategies such as those featured under Sustainable Development Goal (SDG) 3.7. These strategies seek to ensure universal access to sexual and reproductive healthcare services, including family planning, information and education, and the integration of reproductive health into national strategies and programmes by 2030. Many countries have policies and programmes with implementation strategies aimed at reducing adolescent pregnancy; however, evidence of their impact is unclear. We explored the knowledge and awareness of policies and programmes aimed at

reducing adolescent pregnancy among health and education professionals and grassroots workers in Ghana. We conducted interviews among 30 key informants in Ghana. Few of the participants demonstrated awareness of policies aimed at reducing adolescent pregnancy and only two could elaborate on this. By contrast, most participants were aware of relevant programmes and provided detailed description of their implementation and activities carried out under them. Greater engagement of stakeholders in future policy development should increase policy awareness. Dissemination of policy content through community-based media channels and in local languages should promote and facilitate stakeholder engagement, which in turn should increase effective policy implementation with subsequent reduction of adolescent pregnancy.

4.4 Introduction

Sexual and reproductive health (SRH) has been regarded as a key issue for young people since the 1994 International Conference on Population and Development (United Nations, 1995). Improvement in Adolescent Sexual and Reproductive Health (ASRH) subsequently became a major health priority globally (WHO, 1998), with a number of international organisations including the United Nations adopting strategies for its enhancement. These strategies include SDG 3.7 which seeks to ensure universal access to sexual and reproductive healthcare services, including family planning, information and education, and the integration of reproductive health into national strategies and programmes by 2030 (United Nations, 2015). Nonetheless, adolescents in Low-and-Middle-Income Countries (LMICs) continue to experience poor SRH outcomes, including early pregnancy and childbearing (Bearak et al., 2018; Neal et al., 2012).

Adolescent pregnancy is usually associated with serious risks for both the mother and the foetus and can lead to intergenerational cycles of underemployment, low educational attainment, and poverty (Ahinkorah et al., 2021). It remains a major public health issue in LMICs (Asnong et al., 2018; Nguyen et al., 2016; Wado et al., 2019b), where 95% of the 16

million global adolescent pregnancies occur (WHO, 2015a). Many countries within sub-Saharan Africa lead global rankings for rates of adolescent pregnancy (World Atlas, 2017). In Ghana in 2015, 14.2% of adolescent girls had begun childbearing: 11.3% had experienced a live birth, and 2.9% were pregnant with a first child (Ghana Statistical Service et al., 2015). These rates are higher than the global estimate of adolescent birth rates which have decreased from 64.5 births per 1000 women in 2000 to 42.5 births per 1000 women in 2021 (WHO, 2015a), reflecting ongoing challenges associated with the achievement of SDG 3.7 in LMICs such as Ghana.

There is strong international empirical evidence for the impact of high quality, comprehensive sex and relationships education linked to improved use of contraception for reducing rates of adolescent pregnancy (Hadley, 2018). Public health professionals, policymakers, and government and non-governmental organisations have implemented programmes focused on reducing adolescent pregnancy and promoting SRH policies (Brindis et al., 2020). To improve and enhance use of contraception, the services need to be easily accessible and youth-friendly to encourage timely uptake of advice (Hadley, 2018).

In Ghana, national policies have aimed at reducing adolescent pregnancy (Ahinkorah et al., 2021; Awusabo-Asare et al., 2004). These policies have been useful in reducing adolescent pregnancy through mainstreaming SRH information and gender-sensitive and responsive health services (Ahinkorah et al., 2022). Notable among these is the Adolescent Health Service Policy and Strategy which seeks to enhance the health status and quality of life of adolescents and young people in Ghana (Republic of Ghana, 2016a). This policy, current at the time of writing, comprehensively addresses significant determinants of adolescent pregnancy such as access to family planning services, coerced sex, concurrent partners, child marriage, contraceptive use, early sexual initiation, multiple sexual partners and sexual violence (Ahinkorah, Kang, et al., 2020; Republic of Ghana, 2016a). Other policies include the

2000 Adolescent Reproductive Health Policy, 2010 National Youth Policy, 2014 Child and Family Welfare Policy, and the National Gender Policy (Ahinkorah et al., 2021; Awusabo-Asare et al., 2004).

In addition to national policies, Non-Governmental Organisations (NGOs) in the country have also implemented programmes aimed at reducing adolescent pregnancy (Awusabo-Asare et al., 2004). For instance, a child rights organization (Afrikids) in collaboration with the Ghana health service and other stakeholders in the Upper East Region commenced a project to promote sex education in seven districts to reduce high teenage pregnancy and unsafe abortion rates in the region in 2016. The GOSANET Foundation also implemented a project in the Adaklu District of the Volta region of Ghana with an overall goal of improving and advancing the SRH rights of in- and out-of-school adolescents through the provision of appropriate education and linkage to access services. These programmes promote access to SRH services, including family planning. The implementation of these programmes began in 1994 when the Population Policy of Ghana was revised and there was a recognised requirement for programmes to address the specific reproductive health needs of young people in line with the revised policy (Awusabo-Asare et al., 2004).

Knowledge and awareness are essential prerequisites and precursors of action and there is evidence that increased knowledge and awareness can lead to better implementation of policies and programmes(Jepson et al., 2006), which may ultimately make these policies and programmes more effective and lead to improved SRH among adolescents (Hughes et al., 2021). However, to date, no study in sub-Saharan Africa has explored the awareness and knowledge of these policies and programmes among those responsible for implementing their related strategies and activities. We, therefore, sought to explore the knowledge and awareness of policies and programmes aimed at reducing adolescent pregnancy in country among health and education professionals and grassroots workers, using Ghana as an example.

4.5 Methods

4.5.1 Design

With approval of the Ghana Health Service Ethics Review Committee and the Human Research Ethics Committee of University of Technology Sydney, we employed a qualitative study involving semi-structured interviews with 30 key informants. Specifically, the realist approach to implementation, which focuses on examining what interventions work, with whom and in what contexts, was considered in this study. We also conducted a desk review of policies aimed at reducing adolescent pregnancy in Ghana in order to verify information provided by interview participants as well as to map the policies named by participants as relevant current national policies.

4.5.2 Study setting

The study setting was communities, government and non-government organisations within three districts in the Central Region of Ghana: Komenda-Edina-Eguafo-Abrem municipality, Cape Coast municipality, and Assin South district. This region has higher rates of adolescent pregnancy (7.0%) compared to the national average (2.9%) (Ahinkorah, Hagan Jr, Seidu, Budu, et al., 2019; Ahinkorah, Hagan Jr, Seidu, Mintah, et al., 2019; Ghana Statistical Service et al., 2004, 2009, 2015). The districts share similar demographics: fishing and farming are the major economic activities, Fante and Twi are the dominant languages and the majority of people are Christian. The districts are relatively rural and most residents are of low socio-economic status (Ghana Statistical Service, 2013).

4.5.3 Study sample and sampling technique

Our study sample was made up 15 health and education professionals and 15 grassroots workers. All the fifteen health and education professionals work across the three districts in the region. Five grassroots workers were selected from each of the three districts. To develop the sampling frame for the health and education professionals, we consulted the heads of the

regional health and education directorate and the directorate for gender. The health and education professionals included the coordinators and heads of the United Nations agencies, local NGOs, international NGOs, relevant governmental departments that offer ASRH services in the region. We also retrieved some names of health and education professionals from the internet and through recommendations from other health and education professionals. The regional Director of Gender, who oversees the government's women's rights and empowerment portfolio under which adolescent sexual and reproductive health sits, helped us locate some of the health and education professionals. The grassroots workers included chiefs, queen mothers (traditional female leaders, drawn from the relevant royal lineages, who are mostly responsible for women's and children's issues), youth leaders and community health volunteers. They played roles such as that of assembly members, queen mothers, facilitators of NGOs, chief's linguists, parent-teacher association chairs, youth leaders, committee members and secretaries. A list of these individuals was obtained from the three districts in the region through consultation with heads of NGOs and health and education professionals who were involved in the implementation of programmes aimed at reducing adolescent pregnancy in the districts.

4.5.4 Data collection procedure

Instrument: An interview guide was the data collection instrument. This was developed by the authors, based on international literature about sexual and reproductive health policies and programmes (Ahinkorah, Kang, et al., 2020). Interview prompts included awareness, knowledge, and descriptions of national and/ or district level policies and programmes as well as the participant's role in implementation. For this study, where a participant mentioned a policy or programme, this was taken to indicate they were aware of and had some knowledge of it. The instrument was piloted with two health and education professionals.

Interviews: Individual interviews were conducted face-to-face and via WhatsApp™ using mobile phones by two trained research assistants. Face-to-face interviews took place in community buildings, private offices or homes of participants, based on participant preference. Interviews with health and education professionals were conducted in English while those with grassroots workers were conducted in either Fante and Twi. The interviews lasted between 45 and 120 minutes. Interviews were audio-recorded and professionally transcribed; those conducted in Fante and Twi were professionally translated. Field notes were taken in addition to the recordings. Informed consent was obtained from all participants after they had been fully informed about the aim of the study, its procedures and all possible risks.

4.5.5 Data analysis

English language transcripts were the units of analysis. We used NVivo version 12 to assist with data organisation and analysis. The first author read and coded all transcripts and a second author read and independently coded 20% of the transcripts; all authors read and commented. First, codes were inserted as comments in a MS Word file. These files were then imported into NVivo version 12 to assist with data organisation and analysis. In NVivo, all thirty transcripts were coded again by the first author. Coding was done inductively. Content analysis was used to enumerate policies and programmes mentioned by participants, and to create text descriptions based on what the participants actually said.

4.5.5.1 Desktop Review

To ensure accuracy of the policies mentioned by the participants, we carried out a desktop review of ARSH policies in Ghana, seeking to identify those mentioned by participants. This verified the currency of the policies and provided detailed description of their goals and strategies. A similar approach was taken for the programmes. A Google™ search of policies aimed at reducing adolescent pregnancy in Ghana was conducted and relevant policies

retrieved. The content of the policies was reviewed and the key strategies focused on reducing adolescent pregnancy were enumerated in a table.

4.5.6 Research credibility and trustworthiness

To ensure credibility, debriefing was ensured through constant dialogue with supervisors via e-mail and Microsoft Teams. De-identified transcripts of interviews were sent to the candidate's supervisors on a secured server so they could read and make comment. Making field notes, keeping recorded data and interview notes and documenting decisions related to data analysis such as coding, themes and categories enhanced the trustworthiness of the data. The findings that emerged from the data further contributed to the trustworthiness of the data. The engagement of the supervisors allowed for multiple perspectives of the data and analysis.

4.6 Results

4.6.1 Description of study participants

Thirty key informants were interviewed between 20th August and 9th November 2020. Seventeen health and education professionals were invited, but two were not included because their supervisors did not return approvals in time. Of the fifteen health and education professional participants, eight were female, seven male and their ages ranged from 21 to 50 years. They worked across the three districts in the central region for government and non-governmental organisations including United Nations agencies, local NGOs, international NGOs, relevant governmental departments .

All invited grassroots workers consented to participate and were interviewed. They comprised ten males and five females, aged between 28 and 55 years. Five grassroots workers were selected from each of the three districts. The grassroots workers included queen mothers, chiefs, linguists, assemblymen and other community members who served as key contact persons in implementation of sexual and reproductive health programmes.

4.6.2 Policies

Eight of the fifteen health and education professionals demonstrated awareness of a total of seven current population health policies which were verified by desktop review. Two of the eight health and education professionals (with 16 and 20 years of work experience) provided details about specific strategies such as access to reproductive health for adolescents, sex education for adolescent girls; and advocacy among stakeholder organisations within policies. These eight participants had an average of 11 years of experience compared to eight years for those who did not demonstrate awareness of any policies. Two other policies (described as related to provision of free senior high school education and educational re-entry for girls after teenage pregnancy) were mentioned by the health and education professionals and six of the grassroots workers but these could not be verified from the desktop review and hence were excluded from further consideration. The seven policies referred to by the participants are listed in Table 1, with information from the desktop review and the number of participants who demonstrated awareness of each. These are set out using illustrative quotations from participants to describe the purpose, strategies and/or activities within each policy, as they understood this.

Table 4.1: Policies aimed at reducing adolescent pregnancy in Ghana identified by health and education professionals

Policies	Key strategies as stated in the policy	Number of participants naming each policy; n=15
Adolescent Health Service Policy and Strategy, (2016-2020) (Republic of Ghana, 2016a)	• Using social and behavioural change communication strategies to enhance adolescent sexual and reproductive health. • Improving access to family planning services among adolescents. • Reducing school drop-out rates. • Preventing and responding to harmful practices such as forced marriages and sexual violence against adolescents.	1
Adolescent Reproductive Health Policy, 2000 (Republic of Ghana, 2000)	• Adolescent sexual and reproductive health education using mass media, counselling, symposia and club activities. • Strengthening the teaching and learning of reproductive health issues in schools and organizing reproductive health programmes for out of school adolescents. • Promoting pre-marital sexual abstinence as an acceptable way of life. • Establishment of youth centres/libraries to provide adolescents with sexual and reproductive health services. • Enhancing youth involvement in the formulation and implementation of sexual and reproductive health services	4

	• Involving youth in the formulation and implementation of sexual and reproductive health services • Increasing availability of and accessibility to adolescent reproductive health services, including family planning.	
Child and Family Welfare Policy, 2014 (Republic of Ghana, 2014)	• Economic empowerment through Livelihood Empowerment Against Poverty (LEAP), capitation grants, the National Health Insurance Scheme and free maternal care, school uniforms or school feeding programme. • Youth involvement in decision making processes. • Research, monitoring and assessments of child protection issues.	2
Five Year Strategic Plan to Address Adolescent Pregnancy in Ghana, (2018-2022) (Republic of Ghana, 2017)	• Empowering adolescents to make choices regarding their sexual debut and enabling them to prevent early and unplanned pregnancies. • Promoting institutional and community engagement to prevent adolescent pregnancy. • Ensuring that adolescents, especially those who are sexually active have access to youth-friendly and gender-responsive sexual and reproductive health information and services. • Expanding adolescents' access to education and retention beyond Junior High School level especially for girls.	2

National Gender Policy, 2015 (Republic of Ghana, 2015)	• Promoting educational and issue–related programmes for total elimination of harmful practices including child marriages. • Enforcing the teaching of age-appropriate education to girls and boys on sexuality and reproductive health and rights in school curricula, including issues of gender relations and responsible sexual behaviour, focused on preventing teenage pregnancies. • Developing and implementing scholarship schemes for girl children and ensuring girls are retained in school to complete and move on to the next levels to avoid being victims of child and early marriage and motherhood situations that disempower them.	2
National Strategic Framework to end Child Marriage, (2017-2026) (Republic of Ghana, 2016b)	• Empowering girls and boys to be better able to prevent and respond to child marriage. • Influencing positive change in communities' beliefs and attitudes and social norms that drive child marriage. • Accelerating access to quality education, sexual and reproductive health information and services and other opportunities. • Ensuring national laws, policy frameworks and mechanisms related to ending child marriage are in place, effectively enforced and implemented.	2

National Youth Policy, 2010 (Republic of Ghana, 2010)	• Improving the knowledge of youth about preventive health care and assisting them avoid practices such as engaging in early and irresponsible sexual activities. • Developing programmes that will keep pupils and students in school to reduce school drop-outs. • Providing apprenticeship training for out -of -school youth. • Mentoring youth through the use of role models.	3

'Adolescent health service policy and strategy'

Of the 15 health and education professionals (HEPs), only one mentioned this as a policy aimed at reducing adolescent pregnancy in Ghana. This participant only mentioned that the country has this policy but could not elaborate on it.

> *When you look at Ghana, we have developed the health policy strategy for adolescent and youth health from 2016-2020. That was the policy document that was being used (HEP 9, Male, 36 years).*

A review of this policy showed a number of strategies aimed at reducing adolescent pregnancy. The policy lists four specific strategies for reducing adolescent pregnancy (Table 4.1). The participants did not mention any of these strategies.

'Adolescent Reproductive Health Policy'

Four health and education professionals demonstrated awareness of this policy. They described it as a policy that focuses on the reproductive health issues of adolescents and aims to provide adolescents, especially girls, with the information they need to make informed choices. The policy focused on SRH education in schools, including making adolescents aware of access to family planning services. One participant provided further detail about this policy, emphasising the role of access to contraceptives:

> *One of the key things in that policy to me is the fact that a woman can access contraceptives without necessarily the consent or permission of the husband or partner. Again, in that same policy, for adolescents who are sexually active, the policy allows them to access contraceptives* (HEP 4, Male, 30-35 years).

A desktop review of this policy listed seven specific strategies for reducing adolescent pregnancy (Table 4.1). Two of these were mentioned by HEP 4 (increasing availability of and accessibility to adolescent reproductive health services, including family planning).

'Child and Family Welfare Policy'

Two professionals cited the Child and Family Welfare Policy, with one able to provide a brief description of one goal:

> *We also have Child and Family Welfare Policy, which seeks to protect young people, particularly girls from some of the ills of society* (HEP 13, Female, 40-45 years).

Desktop review showed three specific strategies aimed at reducing adolescent pregnancy in Ghana (Table 4.1). None of these strategies were mentioned by the participants.

'Five Year Strategic Plan to Address Adolescent Pregnancy in Ghana'

Two participants mentioned this policy. Only one was able to elaborate on detail:

> *When you take the adolescent pregnancy strategic plan for instance, it is looking at issues such as access to reproductive health for adolescents, sex education for adolescent girls, and advocacy among stakeholder organisations and individuals like the traditional authorities, state institutions and all these people. So all these go into it* (HEP 13, Female, 40-45 years).

Desktop review showed four strategies to reduce adolescent pregnancy (Table 1). The detailed description of the policy by HEP 13 aligns with three of the policy's strategies: empowering adolescents to make choices regarding their sexual debut and enable them to prevent early and unplanned pregnancies; promoting institutional and community engagement to prevent adolescent pregnancy; and ensuring that adolescents especially those who are sexually active have access to youth-friendly and gender-responsive sexual and reproductive health information and services.

'National Gender Policy'

Two of the participants demonstrated awareness of this policy. However, only one provided further details.

First of all, as a country we have a National Gender Policy. The policy is about gender equality and the empowerment of girls. So, it is gender equality and empowerment of women and girls, and of course, adolescent reproductive health and rights are a part of our activities (HEP 13, Female, 40-45 years).

Desktop review showed three key strategies to reduce adolescent pregnancy (Table 4.1). HEP 13 mentioned two of these strategies (empowerment and gender equality).

'National Strategic Framework to End Child Marriage'

Two of the health and education professionals also mentioned this policy. The participants described it as an ongoing national strategic framework which has been implemented to deal with child marriage in the country.

We also have the National Strategic Framework to End Child Marriage. It is something which is ongoing at the national level and aims at reducing child marriage (HEP 3, Female, 25-29 years).

'National Youth Policy'

Three health and education professionals demonstrated awareness of the National Youth Policy. One described it as a multi-faceted policy:

"The national youth policy has a number of thematic areas for organizing programmes for the youth." (HEP 4, Male, 38 years).

Another participant elaborated on health, wellbeing and education:

Health and wellbeing; education are the thematic areas of the National Youth Policy. Under the health and wellbeing, it is aimed at promoting universal health coverage, increase health delivery, healthy lifestyle and physical wellbeing of the youth (HEP 14, Female, 25-29 years).

The National Youth Policy lists four key strategies aimed at reducing adolescent pregnancy (Table 4.1) and the description of the policy by HEP 14 aligned with the strategy on preventive

health care. Desktop review described four key strategies to reduce adolescent pregnancy (Table 4.1). The participants did not mention any of the strategies.

4.6.3 Programmes

Health and education professionals and grassroots workers mentioned twelve programmes which aim to reduce adolescent pregnancy (see Table 4.2).

Table 4.2: Awareness of programmes aimed at reducing adolescent pregnancy in Ghana among health and education professionals and grassroots workers

Programmes	Number of health and education professionals who mentioned each programme	Number of grassroots workers who mentioned each programme
Community Breaking the Silence	3	0
Community Parents Network Advocacy Group (COPNAG)	2	3
Community Sexual and Reproductive Health Outreach Programmes	5	0
Comprehensive Sexuality Education Programme	6	0
Livelihood Empowerment against Poverty (LEAP) programme	0	2
Livelihood or Vocational Training for Adolescent Girls	12	7
Promoting Safe Space for Adolescents (PASS) programme	1	4
Promotion, Empowerment and Community Action against Child Marriage	3	1
Safety Net Programme	2	0
School Feeding Programme	0	2
Time with Grandma	4	2
Youth Mentorship Programmes	7	2

Community Breaking the Silence

Three health and education professionals but none of the grassroots workers mentioned the Community Breaking the Silence programme. This programme is organised by the Planned Parenthood Association of Ghana (PPAG) in collaboration with other stakeholders and is aimed at identifying sexual and reproductive health challenges within communities through a meeting with community leaders, parents and adolescents. One health and education professional described the programme as follows:

> *We are working hand-in-hand with* Domestic Violence and Victims Support Unit (*DOVVSU), Ghana Health Service and social welfare. These people come and educate the youth, parents, and opinion leaders in the community on adolescent pregnancy. After that, the youth, parents, and opinion leaders bring out bye-laws that can help prevent adolescent pregnancy* (HEP 2, Female, 21 years).

Another health and education professional also confirmed the Community Breaking the Silence programme as one of the programmes organised by the PPAG with the aim of bringing together community leaders and adolescents to identify sexual and reproductive health challenges within communities and find solutions. He explained the programme as follows:

> *Last week, I went to PPAG and they had this programme, where they will bring the opinion leaders and the youth together to find a way to solve their problems, then the chiefs and opinion leaders will know how best they will solve the problems* (HEP 5, Male, 38 years).

Community Parents Network Advocacy Group (COPNAG)

Two health and education professionals and three grassroots workers mentioned COPNAG. This was described as a programme implemented by the Department of Gender, aimed at empowering parents through sexual and reproductive health education so they can educate their children. COPNAG was described as educating both parents and adolescents on adolescent

pregnancy and how they can work together to reduce it in their communities. Through the programme, parents are able to support adolescents to make informed decisions about their sexual health.

> *We stand for the education of adolescent girls so as to reduce teenage pregnancy and also the education of parents so that they can perform their duties by educating the girls to help reduce teenage pregnancy* (GW 12, Male).
>
> *We started the Community Parent Networking Advocacy Group so that parents would understand issues of adolescents, the challenges of adolescents, how to provide education for their children and even how to support their girl child so that they don't even get into that situation* (HEP 13, Female, 40-45 years).

Community Sexual and Reproductive Health Outreach Programmes

Six health and education professionals described these as programmes organised by some non-governmental organisations, especially the PPAG, to make sexual and reproductive health services such as contraceptives accessible to adolescents through outreach. In most instances, these services were provided free. The Community Sexual and Reproductive Health Outreach Programmes were described as follows:

> *The next strategy we employ is community outreach. For us, when we go for outreaches, our services are given for free so that people will be motivated to come because cost is another impediment aside distance and access* (HEP 4, Male, 30-40 years).
>
> *Yes, especially PPAG. You know, they have a mobile van. Sometimes, they even come to our programmes and talk about contraceptives. They even provide free contraceptives to the youth who are interested* (HEP 5, Male, 38 years).

Comprehensive Sexuality Education (CSE) programme

Five health and education professionals but none of the grassroots workers mentioned the CSE programme, which has been modified as Reproductive Health and Education Services for Youth or young people (RHESY). Those who mentioned it described it as a programme to provide comprehensive sexuality education including sexual and gender-based violence, pregnancy and pregnancy-related issues, substance abuse, contraceptives, comprehensive abortion, sexually transmitted infections.

> *Currently, what we seek to do is to make sexuality education comprehensive. We have sexual and gender-based violence, pregnancy and pregnancy-related issues, substance abuse, contraceptives, comprehensive abortion, sexually transmitted infections and so on* (HEP 4, Male, 30-40 years).

One of the participants mentioned that major elements of the programme included education on personal hygiene and all other issues that are peculiar to girl children.

> *We have RHESY sessions. They meet the young people, educate them from basic knowledge to personal hygiene and anything related to the female child.* (HEP 2, Female, 21 years).

Livelihood Empowerment against Poverty (LEAP) programme

Two grassroots workers but no health and education professional mentioned the LEAP programme. LEAP was described as providing financial support to children and orphans in need. Through the programme, adolescent girls, who hitherto would have had sex with males because of financial challenges, have stopped that practice.

> *... prior to the LEAP, parents could become so financially constrained that when the child goes to the parent for money, the mother (does not have it). So the child will find a guy who has money and then have sex with them for money* (GW 2, Male, 42 years).

When they pay the money to you, then you must work with it so that you can earn more to take care of the orphans and their daily upkeep. So, that is what the LEAP does (GW 7, Male, 55 years).

Livelihood or Vocational Training for Adolescent Girls

Mentioned by twelve of the fifteen health and education professionals and seven of the fifteen grassroots workers, this programme was described as providing skills for girls to generate income through self-employment. Examples provided included teaching girls to make soap, detergents, cosmetics and beads; training them in baking and hairdressing. They also learned business skills and were able to be self-employed. The income earned empowered them and enabled them to avoid financial dependence on men:

Some of these girls have been able to start something for themselves. So they are now ending their relationships. So we are using those things to reduce teenage pregnancy (HEP 1, Male, 49 years).

Also, they train the girls on vocational skills so that the girls will be empowered and not be lured into going to have sex with a man since he is the one taking care of you. (GW 6, Male).

Promoting Safe Space for Adolescents (PASS) programme

One health and education professional and four grassroots workers described the PASS project, which was implemented by the NGO International Needs Ghana. The aim is to enable adolescent girls to live freely and be empowered to notice and identify threats to their sexual and reproductive health. These include their ability to discuss sexual and reproductive health issues freely in their homes, ability to refuse their partners sex and ability to detect the likelihood of sexual violence situations. The programme was described as follows:

PASS –... educates girls about the best ways to protect themselves and also how they can read the intentions of men or boys who come to propose to them. (GW 2, Male, 48 years).

...provide(s) a safe space where adolescent girls in particular can meet to discuss issues to have a solution to it (HEP 13, Female, 40-45 years).

Promotion, Empowerment and Community Action against Child Marriage (PECACEM)

Only one health and education professional mentioned PECACEM by name but other health and education professionals and grassroots workers described similar programmes. One participant explained that PECACEM has led to the implementation of community guidelines on ending child marriage in several communities within the Central region of Ghana. These guidelines contain practical approaches in dealing with child marriage. These include sex education and dealing with sexual abuse in communities. She described these community guidelines as follows:

In the Central region specifically, we have the community guidelines on ending child marriage, sexual and domestic violence and promoting sex education. It gives information on how to provide sex education. Then also, it also gives information on what to do when there is sexual abuse. Apart from that, it also provides information on state institutions that a community leader can contact in the event of some of these issues (HEP 13, Female, 40-45 years).

Safety Net Programme

Two health and education professionals but no grassroots workers mentioned this programme which was described as targeting pregnant adolescents to assist them during pregnancy, in the antenatal, delivery and postnatal periods. They also provide family planning services after

delivery to prevent subsequent pregnancies. One of the participants described the Safety Net Programme as follows:

> *The Safety Net Programme is tailored to meet the needs of pregnant adolescents. During their pregnancy and during our contact with them, we start education on family planning for them so that by the time they are ready to deliver, they would have decided on which family planning commodity they will go in for. Immediately they deliver, we do the family planning for them so that they don't go and get pregnant again but rather focus on their after-pregnancy plan like focusing on their education and returning to school or learning a trade* (HEP 9, Male, 29 years).

School Feeding Programme

Two grassroots workers but no health and education professional mentioned the school feeding programme. The programme was described as helping to reduce adolescent pregnancy through poverty reduction. Poverty was described as contributing to adolescent pregnancy. Hence, adolescents who are fed in school through the school feeding programme will not go hungry and have sex with men to get money to buy food. They described the programme as follows:

> *Through the programme, children are given free food in school and this has reduced the financial burden on parents. Also, it has helped girls to stop asking for money from men and that has helped to reduce the chances of them having sex for money and end up pregnant* (GW 2, Male, 42 years).
>
> *Also at school, they are given free meals so that the adolescents cannot say that it was because of such constraints that they engaged in sexual activities and got pregnant* (GW 5, Female, 34 years).

Time with Grandma

Four health and education professionals and two grassroots workers mentioned this programme. These participants described it as a mentorship programme initiated by the Ghana Health Service, where adults in communities took on discussion of previously taboo sexual health issues, mentoring children/adolescents through story telling. Another participant, who worked with the Ghana Health Service, described its purpose as to instil morality in girls, enhancing their sexual and reproductive health and their ability to take control of this for themselves.

> *They select an adult from the community with good character who mentors the children through story telling. So based on that, the children are able to go to school and attain what they want to attain. Now we have grandpas and grandmas who are used as models who use storytelling to educate the adolescents* (HEP 1, Male, 49 years).
>
> *We reach young people in the community and engage them so that they can be assertive, have confidence and then be able to take control over their life so that they can be able to navigate through this transition* (HEP 9, Male, 36 years).

Youth mentorship programmes

Seven health and education professionals and two grassroots workers mentioned youth mentorship programmes. These are organised through youth groups, adolescent community clubs, adolescent health clubs and annual conferences for adolescents. Hence, adolescents or youth who belong to these groups and those who attend the conferences are empowered through education on sexual and reproductive health and this makes it possible for them to make informed decisions about their sexual and reproductive health. They described the youth mentorship as follows:

> *We have formed adolescent groups in majority of our communities so that young people are educated on a daily basis on the dangers of early initiation of sex and having*

multiple sexual partners so that they can prevent some of these things (HEP 9, Male, 36 years).

Now, there is annual conference for adolescents which is organized by Ghana Health Service and Population Council. So they have formed adolescent groups in districts and they meet at the national level. They also have a board which is made up of adolescents where they discuss issues about themselves. Now, adolescents are being engaged at all levels (HEP 4, Male, 30-40 years).

4.7 Discussion

To our knowledge, this is the first study to have explored the awareness and knowledge of health and education professionals and grassroots workers in Ghana on policies and programmes aimed at reducing adolescent pregnancy. We found that few participants could demonstrate awareness of relevant policies and only two professionals identified and described the content of two relevant polices. By contrast, most participants were able to demonstrate awareness of several programmes. Despite participants' low policy awareness and knowledge, their descriptions of the activities carried out under each programme aligned with the strategies and activities of the policies mentioned, as evident from desktop review of the policies. This suggests that the programmes being implemented were aligned with policy, at least to some extent.

Several factors might account for the reported low policy awareness and knowledge despite that we purposively sampling professionals who were considered to have in-depth knowledge on the implementation of policies and programmes on adolescent pregnancy in Ghana. First, in most instances, policy development and implementation have been considered distinct and separate stages within policy cycles in Ghana (Agyepong & Adjei, 2008; Mohammed, 2020). In this regard, not all key stakeholders for the implementation of policies are involved in policy formulation (Christmals & Aidam, 2020; Omar et al., 2010). Moreover,

there is often inadequate policy dissemination among the key stakeholders for policy implementation. For instance, a study of the experiences of key national and sub-national health stakeholders to implement a national non-communicable diseases policy in Ghana showed that most reported low awareness of the non-communicable diseases policy, which was attributed to its poor dissemination (Nyaaba et al., 2020). The dissemination of policies should target all stakeholders, including grassroots workers, who are seldom directly involved in policy formulation, including in LMICs such as Ghana (Abiiro et al., 2021).

Seven policies were mentioned by the health professionals, and perhaps their awareness was because these professionals were either involved in their development or implementation. To ensure the effectiveness of policies in addressing adolescent pregnancy, it is essential that these and other key stakeholders have knowledge and awareness of the policies which they have responsibility to implement. Such knowledge and awareness can be acquired through involvement in the development of the policies. Simultaneously, policy-making processes and the policies produced benefit by the input of people with in-depth experience of the situation and issues addressed, and who understand and will be responsible for policy implementation.

Lack of grassroots worker involvement in policy formulation likely reflects a top-down approach to policy development and implementation (Imurana et al., 2014; Nudzor, 2014), and Ghana's experience would be no different to that of many countries in this regard (Ali & Ariffin, 2017). Politicians and government officials are directly involved in decisions regarding the development of policies at the national level. Government officials of various government and non-governmental organisations are responsible for the implementation of policies' strategies and activities at the regional and district levels. At the operational level, grassroots workers are responsible for policy implementation through community-based programmes and activities (Nudzor, 2014). Hence, grassroots workers may only be aware of activities they are delivering through training and workshops provided to support this, and may not know what

policies guide these activities, as evidenced in a study conducted in Malaysia and Zanzibar (Ali & Ariffin, 2017). Notwithstanding, it is essential that grassroots workers are aware and have knowledge of the policies that are driving programmes since their involvement is likely to strengthen policies and ultimately improve the reproductive health of adolescents in Ghana through improved programming. These grassroots workers mostly live in communities with adolescent girls and their understanding of context-specific factors could enhance the targeting and effectiveness of policies.

Most participants were aware of and had adequate knowledge about several programmes aimed at reducing adolescent pregnancy in Ghana. The detailed description of the activities for each of the programmes support available evidence on the implementation of a number of these programmes. For example, a number of studies also confirmed the implementation of Community Sexual and Reproductive Health Outreach Programmes in Ghana (Awusabo-Asare et al., 2006; Kyilleh et al., 2018). Similarly, various studies show evidence of the implementation of programmes for reducing adolescent pregnancy in LMICs (Abdul Latif Jameel Poverty Action Lab (J-PAL), 2019; Akwara & Elnakib, 2021). The World Health Organisation provides comprehensive guidelines upon which these programmes are implemented (Chandra-Mouli et al., 2013). An evaluation of 58 programmes in India by the United Nations concluded that the integration of the topic of pregnancy in life skills or sexuality education is critical in pregnancy prevention and plays a key in achieving SDG 1, 3, and 5 that aim at eliminating poverty, promoting healthier lives, and achieving gender equality respectively (United Nations, 2017). One of the possible reasons for this level of policy knowledge and awareness in our study could be due to the purposive sampling of participants who were directly responsible for, and had experience in, the delivery of programmes aimed to reduce adolescent pregnancy.

As part of the detailed description of the programmes, the participants also described the effectiveness of some of the programmes in reducing adolescent pregnancy in Ghana. This aligns with other literature from Ghana. For instance, between 2004 and 2011, the Time with Grandma programme was reported to have contributed to a reduction of teenage pregnancy from 15.2% to 14.3% in the central region of Ghana (UNFPA, 2012). An assessment of components of Ghana's CSE on the timing of sexual debut among in-school youth showed that CSE helped to delay sexual debut among in-school adolescent girls (Tenkorang et al., 2020). Such programmes are not only relevant in Ghana but can also play major roles in reducing the high prevalence of adolescent pregnancy across sub-Saharan Africa (Ahinkorah et al., 2021). However, the paucity of available data, and the brevity of even anecdotal knowledge of policy and programme outcomes, is noteworthy. Results of a systematic review of programme implementation for adolescent girls in LMICs identified gaps in terms of the evaluation of some of these programmes (Haberland et al., 2018). Similar gaps in the evaluation of policies was also found in a scoping review of policies aimed at reducing adolescent pregnancy in Anglophone sub-Saharan Africa (Ahinkorah, Kang, et al., 2020).

4.7.1 Strengths and limitations

Our sampling methods allowed us to compare and contrast the knowledge and awareness of the two different groups of stakeholders who are directly involved in policy and/or programme implementation. Purposive sampling ensured that information was obtained from those who were known to have in-depth knowledge or experience about the subject and included stakeholders across three districts and eleven government and non-government organisations. Moreover, cross-checking the policies described by the health and education professionals with desk review of these policy documents supports the credibility of the information provided by participants.

Study limitations include that some of the participants were located through the help of the Director for Gender for the Central region, which may have meant that potential participants not known to this individual were missed. These participants may also have represented a better-informed sub-set of the population. Content analysis reported in this paper is purely descriptive but more detailed findings conceptually based on implementation science are reported elsewhere (Ahinkorah et al., 2022).

4.8 Conclusion

Our study has implications for those responsible both for the development and delivery of policy interventions in LMICs. The knowledge and awareness deficits revealed in these interviews represent opportunities to promote the delivery and uptake of interventions to enhance the sexual and reproductive health and reduce rates of adolescent pregnancy. The study has identified many gaps in stakeholders' knowledge and their limited awareness of policies. Increased stakeholder engagement is required to enhance their awareness and knowledge and hence to promote implementation of these policies and programmes. Finally, the inclusion of evaluation strategies may enable estimation of return on investment and motivate engagement at all levels of policy and programme delivery where benefits can be demonstrated.

List of Abbreviations

ASRH: Adolescent sexual and reproductive health

COPNAG: Community Parents Network Advocacy Group

CSE: Comprehensive sexuality education

GW: Grassroots workers

HEP: Health education professionals

LEAP: Livelihood Empowerment against Poverty

LMICs: Low-and middle-income countries

NGOs: Non-governmental organisations

PASS: Promoting Safe Space for Adolescents

PECACEM: Promotion, Empowerment and Community Action against Child Marriage

PPAG: Planned Parenthood Association of Ghana

RHESY: Reproductive health and education services for youth or young people

UNFPA: United Nations Population Fund

Declarations

Ethics approval and consent to participate

Ethics approval for the study was given by the Ghana Health Service Ethics Review Committee (GHS-ERC009/01/20) and ratified by the UTS Human Research Ethics Expedited Review Committee (ETH20-4779). The participant information sheets explained the study's aim and scope and the participants' rights to informed consent before the interviews. The information sheets were read to participants who could not read or write. Written informed consent was obtained from all participants involved in the study by signing or thumb printing the consent form. We sought participant approval to tape-record the interviews and publish the findings. Participants were also assured of confidentiality and privacy and these rights were protected throughout the study. The consent and assent forms were kept separate from the data the participants provided. Participants were informed and assured that the information given by them would solely be used for the purpose of the study. Furthermore, participants were informed that the information they give would not be disclosed to third parties. They were also assured of security in the management of their data. Pseudonyms were used in reporting the findings in order to conceal the identities of the key informants and adolescents who participated in the study.

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4.9 Chapter summary

This chapter presented study findings in relation to the third aim. The purpose was to explore the knowledge and awareness of policies and programmes on adolescent pregnancy among key stakeholders who are involved in their implementation. The idea was to understand if the policies identified in the scoping review for Ghana were known to those who implement them. The focus on health and education professionals and grassroots workers was necessary because understanding their knowledge and awareness is important and will help identify and understand their involvement in the design and development of policies and programmes. In summary, interviews with health and education professionals and grassroots workers showed that eight of the 15 professionals could demonstrate awareness of relevant policies by naming seven of them but only two of the eight could describe two named policies. It is important to add that the most well-known policy (Adolescent Reproductive Health Policy) was over 20 years old and likely far removed from current programming. None of the grassroots workers could name any relevant policy. By contrast, most participants were able to demonstrate awareness of several programmes.

Findings from this aspect of the thesis share some similarities with what was found in the scoping review as the two Ghanaian policies identified in the scoping review (National Gender Policy and Adolescent Health Service Policy and Strategy) were also named by the professionals. However, only a few of the professionals were aware of these policies and two of them provided detailed description about the National Gender Policy. This has implications on the implementation of policies because for these policies to be effective, those involved in

their implementation need to have knowledge of details about the policies. These details such as policy objectives, strategies, scope of activities, cooperation and collaboration, and youth involvement were identified in the scoping review, but the professionals could describe only the strategies.

The low knowledge and awareness among the professionals and the lack of awareness and knowledge among the grassroots workers has implications for the implementation of policies and programmes on adolescent pregnancy in Ghana. Considering their better awareness of some programmes rather than policies, this flags an important knowledge gap and opportunity to improve implementation. It is critical that grassroots workers are aware of and understand the policies guiding the programmes because their involvement is likely to reinforce policies, which will ultimately improve the reproductive health of adolescents in Ghana through improved programming. Findings from this study can also be useful in understanding the factors that influence the implementation of policies and programmes on adolescent pregnancy in Ghana. These factors include child marriage, low level of education, early sexual initiation, poverty, gender-based violence, unemployment, and illiteracy, which were found in the findings of Chapter Two as both factors associated with first adolescent pregnancy and adolescent pregnancy issues addressed by policies.

CHAPTER FIVE: Barriers and facilitators towards the implementation of policies and programmes aimed at reducing adolescent pregnancy in Ghana: an exploratory study

5.1 Introductory text

Chapter Five presents findings that address the fourth aim: to explore the facilitators and barriers to the implementation, adoption, uptake and effectiveness of policies and programmes among healthcare professionals, grassroots workers, and adolescent girls in Ghana. To achieve this aim, 15 interviews were conducted with healthcare professionals, 15 interviews with grassroots workers, and six focus group discussions with adolescent girls. This chapter is an expanded manuscript of an original manuscript which has been published in *BMJ Open* (https://bmjopen.bmj.com/content/bmjopen/12/7/e060576.full.pdf), and may be cited as follows:

Ahinkorah, B. O., Perry, L., Brooks, F., & Kang, M. (2022). Barriers and facilitators regarding the implementation of policies and programmes aimed at reducing adolescent pregnancy in Ghana: an exploratory qualitative study. BMJ open, 12(7), e060576.

5.2 Abstract

5.2.1 Objectives

This study explored the perceived barriers and facilitators towards the implementation of policies and programmes aimed at reducing adolescent pregnancy among health and education professionals ('professionals'), grassroots workers, and adolescent girls in Ghana.

5.2.2 Design and setting

We employed a qualitative exploratory study design involving interviews with professionals, and grassroots workers, and six focus group discussions with female adolescents in the Central Region of Ghana.

5.2.3 Participants

This study involved 15 professionals employed in government or non-governmental organisations, 15 grassroots workers, and 51 pregnant/parenting and non-pregnant adolescent girls.

5.2.4 Data analysis

Thematic analysis was conducted deductively using the ecological framework for understanding effective implementation.

5.2.5 Results

Eighteen themes mapped to the five domains of the ecological framework for understanding effective implementation identified perceived barriers and facilitators to policy and programme implementation for adolescent girls. Perceived barriers included gender inequality, stigma around access and use of SRH information and services and late childbearing, and lack of collaboration between stakeholders. Effective implementation of community by-laws, youth involvement, and collaboration and effective coordination between stakeholders were the perceived facilitators. Focus group discussions with the adolescents also revealed some perceived barriers and facilitators towards accessing pregnancy prevention information and

services. Fear of side effects and misconceptions about family planning and incorrect information on family planning were the perceived barriers to access and use of pregnancy prevention information and services. The key perceived facilitator was the empowerment of girls through SRH education and vocational skills and training.

5.2.6 Conclusion

Political leaders and community members should be engaged actively in the implementation of adolescent sexual and reproductive health policies and programmes. Gender empowerment programmes such as education and training of adolescent girls should be implemented and strengthened at both the community and national levels. Community members should be sensitised on the negative effects of norms that support child marriage, gender-based violence and early childbearing.

Keywords: Adolescent pregnancy; Barriers; Facilitators; Ghana; Implementation science; Policies; Programmes

Strengths and limitations

- Strengths include the triangulation of data collected from three different samples.
- Purposive sampling of professionals and grassroots workers increased the likelihood of hearing the views of individuals with in-depth knowledge or experience about the subject.
- The use of snowballing and convenience sampling of some participants may have led to the exclusion of potential participants who were not recommended by others or were not available at the time of the data collection.
- Some of the adolescents may not have provided accurate information due to fear of stigma from their peers after the interviews. It is also possible that grassroots workers and professionals may have constrained expression of their views due to concern at negative responses from their employers. Adolescents are not the only participants who may have censored their responses.
- Not including male adolescents from the study might have led to missing some crucial data that would have been useful in this study. The inclusion of male adolescents as part of the study participants would have helped address this limitation.

5.3 Introduction

The world's attention was first focused on the sexual and reproductive health and rights of women, including adolescents, at the 1994 International Conference on Population and Development (United Nations, 1995). Since then, a number of countries, especially those in sub-Saharan Africa, have developed and implemented national policies and programmes aimed at dealing with adverse adolescent sexual and reproductive health (ASRH) outcomes, including adolescent pregnancy (Ahinkorah, Kang, et al., 2020). In Ghana, one of the key national policies for reducing adolescent pregnancy is the Adolescent Health Service Policy and Strategy, which focuses on mainstreaming ASRH information and gender-sensitive and

responsive health services (Republic of Ghana, 2016a). These national policies co-exist with programmes which are developed and implemented by both governmental and non-governmental organisations (Awuni, 2016). The effectiveness of these policies and programmes depends on a suitable context, the experience and expertise of the implementers, and the support of beneficiaries ('consumers') (Durlak & DuPre, 2008).

A systematic review of qualitative evidence linked the effectiveness of interventions to reduce adolescent pregnancy in low-and middle-income countries (LMICs) with a number of local characteristics (Enuameh et al., 2012). For example, interventions aimed at reducing unintended pregnancies in LMICs were shown to be more effective when adolescent girls have positive attitudes towards family planning and are assertive to protect themselves from unplanned pregnancies, care providers address the needs of adolescents, and family and community members support adolescents in ASRH decision-making. Implementation was deterred where adolescents felt alienated from health and educational programmes, parental supervision was ineffective, and there was societal and religious abhorrence of open sexual discourse and adolescents' use of family planning services. Barriers were also posed where social norms subordinated adolescent females to males and the community supported early childbearing. These findings highlight the significance of the influence of local context and culture in the implementation of ASRH policies and programmes aimed at reducing adolescent pregnancy (Svanemyr et al., 2015).

In Ghana, few studies have explored the implementation of ASRH policies and programmes (Awusabo-Asare, Stillman, Keogh, Doku, Kumi-Kyereme, Esia-Donkoh, Leong, et al., 2017; Keogh et al., 2018; Panchaud et al., 2019). These studies have mainly focused on the implementation of sexuality education and its associated challenges in Ghana. None of these studies have explored the perceived barriers and facilitators to the implementation of policies and programmes on adolescent pregnancy in Ghana. This represents an important gap

that needs to be explored. The exploration of the barriers and facilitators to policy and programme implementation among those who deliver them and adolescents who are their beneficiaries is important to provide information to support the implementation of current policies and programmes and to obtain baseline data to enhance the uptake of future policies and programmes. This study, therefore, aimed to explore perceived barriers and facilitators towards the implementation of these policies and programmes among health and education professionals ('professionals'), grassroots workers, and adolescent girls in Ghana.

Conceptual framework

We used the ecological framework for understanding effective implementation (Durlak & DuPre, 2008) (hereafter 'the ecological framework') and a realist approach (Pawson et al., 1997) to guide this study. The ecological framework describes a system of interconnected variables that influence implementation: communities, providers, innovations, the prevention delivery and support systems (e.g., features related to organisational capacity and to training and technical assistance) (see Figure 5.1). The realist approach to implementation is based on the premise that social programmes only ever work for certain people in certain circumstances and the central task is to understand and explain these patterns of success and failure (Pawson et al., 1997). Such an explanation can be achieved by employing an ecological framework to seek understanding of the contexts, mechanisms and outcomes of the programmes (Hewitt et al., 2012).

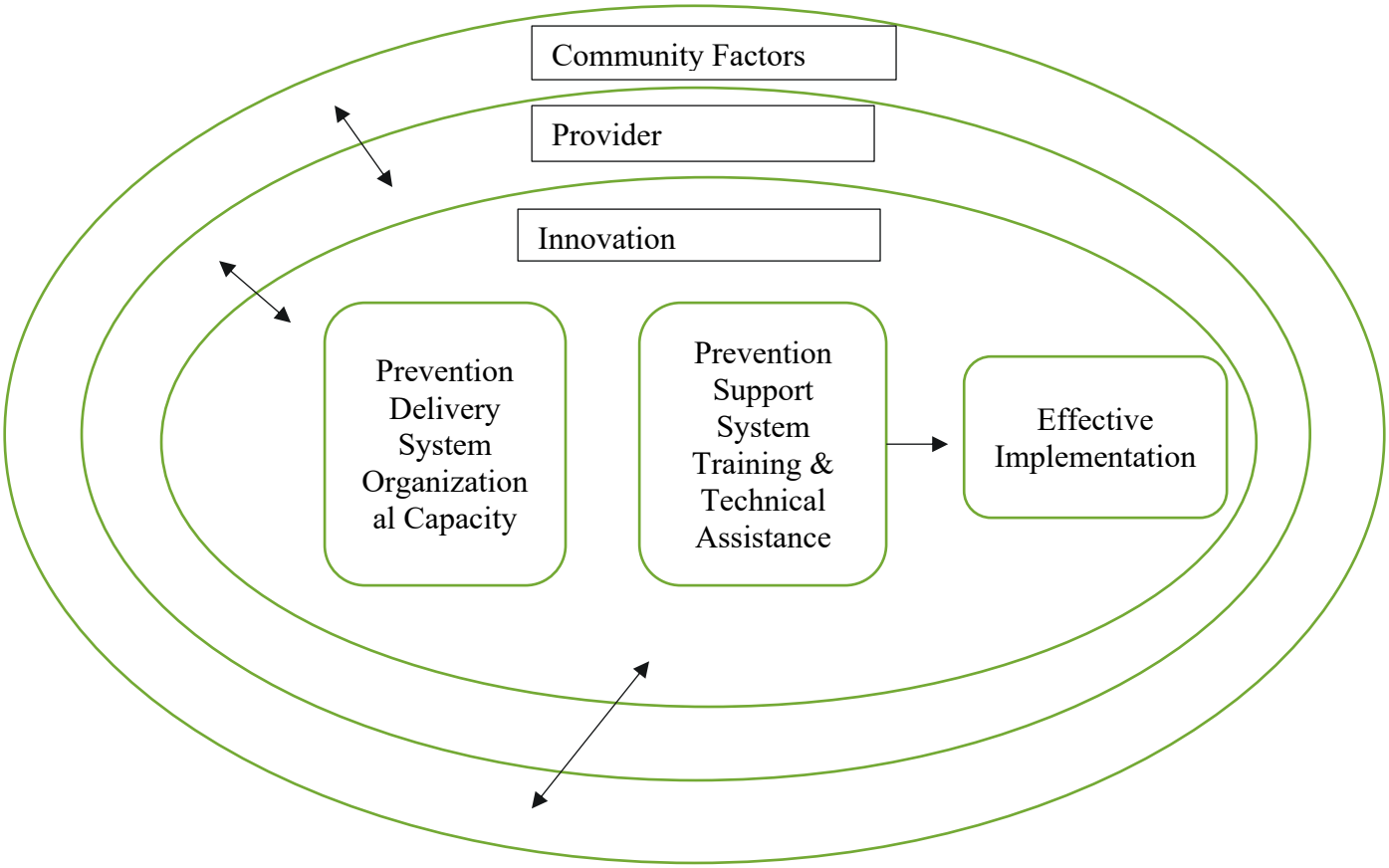

Figure 5.1: Ecological Framework for Understanding Effective Implementation

Source: Adapted from Durlak and DuPre (2008)

5.4 Methods

5.4.1 Design

We employed a qualitative exploratory study design involving semi-structured interviews with professionals and grassroots workers and focus group discussions with female adolescents. An exploratory qualitative study design enabled an in-depth examination of the topic to gain new insights and increase knowledge of the phenomenon from the research participants' perspectives (Brink, 1998). The manuscript was prepared in line with the COREQ (Consolidated criteria for Reporting Qualitative research) Checklist.

5.4.2 Study setting

The study was conducted in three districts in the Central Region of Ghana: Komenda-Edina-Eguafo-Abrem (KEEA) Municipality, Cape Coast Municipality and Assin South District. These districts have higher reported rates of adolescent pregnancy compared to the national average (Ahinkorah, Hagan Jr, Seidu, Budu, et al., 2019). They are all relatively rural and of low socio-economic status with fishing and farming as the main industries. 'Twi' and 'Fante' are the major languages and Christianity the dominant religion (Ghana Statistical Service, 2013).

5.4.3 Sample

We had three sampling frames:

1. Professionals employed in government or non-governmental organisations
2. Grassroots workers in communities with the highest adolescent pregnancy rates in each of the three districts
3. Pregnant/parenting and non-pregnant adolescent girls from the same communities as the grassroots workers.

We decided only to interview adolescent girls (both pregnant/parenting and non-pregnant) to privilege and prioritise their perspectives. Adolescent girls are those with direct and in-depth experiences of barriers to accessing ASRH interventions. We could have conducted separate/ additional interviews with adolescent boys (as well as men who are fathers of children born to adolescent girls). However this would have added considerable resourcing needs to the study which was already impacted significantly by COVID-19.

5.4.4 Participants

This study involved 15 professionals employed in government or non-governmental organisations, 15 grassroots workers and 51 pregnant/parenting and non-pregnant adolescent girls. The number of professionals and grassroots workers considered were those who were

available and were willing to participate in the study and those of the adolescent girls were determined from the number of focus group discussions conducted. Hence, reference to data saturation was removed as sampling was governed by the principles of the sampling strategies: convenience and snowballing.

5.4.5 Sampling techniques

Professionals were purposively sampled using key informant contacts. Purposive and snowball sampling were used to recruit the grassroots workers. Sampling of the professionals and grassroots workers was done with the help of the Director of the Department of Gender for the region.

Convenience and snowball sampling techniques were used to recruit the adolescent girls. The grassroots workers assisted with generating a sampling frame for adolescent girls.

5.4.6 Data collection procedure

Instrument: We developed semi-structured and focus group interview guides based on international literature about sexual and reproductive health policies and programmes (Ahinkorah, Kang, et al., 2020; Desrosiers et al., 2020), the authors' expertise in SRH and through consultation with local SRH experts in Ghana. Interview prompts for professionals and grassroots workers included questions about their professional/work background and role in policy or programme implementation, general awareness of current national or local policies and programmes, and their perspectives on the barriers and facilitators to implementation (see Appendices 11 and 12). In contrast to the interview guide for professionals and grassroots workers, adolescents were not asked about their awareness of, or to name, specific policies and programmes. They were also not asked about barriers and facilitators towards the implementation of policies and programmes. Rather, focus group interview prompts included socio-demographic characteristics and sought information about access to pregnancy prevention information and services, facilitators and barriers towards access to pregnancy

prevention information and services, and recommendations to improve access to pregnancy prevention information and services (see Appendix 13). When developing the focus group discussion questions, the adolescents were considered beneficiaries of policies and programmes, not implementers. The assumption was that barriers and facilitators to accessing pregnancy prevention information and services could be implied and indirectly related to barriers and facilitators to implementation of policies and programmes.

Interviews: Interviews with professionals and grassroots workers were conducted by two professional research assistants either face-to-face or using WhatsApp™ /telephone. Seven interviews were conducted using WhatsApp™ /telephone and the rest were done face-to-face. The face-to-face interviews took place in community buildings, private offices and homes of participants, based on the participants' preference. These were places where the participants felt free to talk and provide information. Six focus group discussions were conducted face-to-face at community centres or other convenient places such as the homes of community leaders. All COVID-19 protocols, including physical distancing, face mask wearing and use of hand sanitisers were observed for interviews and focus groups. Interviews with professionals were conducted in English while those with grassroots workers and the focus group discussions with adolescent girls were conducted in either 'Twi' or 'Fante'. Interviews lasted between 45 and 120 minutes. All interviews were digitally audio-recorded and professionally transcribed while those conducted in 'Twi' or 'Fante' were professionally translated into English during transcription. The first author listened to each audio file and debriefed with the research assistants immediately after each interview. The first author, who is fluent in English, 'Twi' and 'Fante', also checked all transcripts against the audio files. Pseudonymisation was done by replacing all personally identifiable information.

5.4.7 Data Analysis

The English language transcripts for each interview were the units of analysis. Transcripts were entered into NVivo version 12 to assist with data organisation and analysis. Thematic analysis was conducted deductively using the ecological framework to map the emergent themes into the five domains (Durlak & DuPre, 2008). The Braun and Clarke (2006) step-by-step guide for doing a thematic analysis was followed in conducting the analysis. BOA coded all transcripts and MK independently coded 20% of the transcripts. Coding was done inductively. BOA and MK met on three occasions to compare and discuss codes and resolved any discrepancies through discussions to reach consensus. Initial themes were deduced by analysing data from each of the three samples separately. Themes were then compared across the three samples, allowing triangulation of data for greater depth of analysis. However, data obtained from the adolescent girls yielded other findings which specifically focused on barriers and facilitators to accessing adolescent pregnancy prevention information and services. These findings were not directly aligned with the themes on barriers and facilitators to implementation of policies and programmes. This is partly because the questions asked were mainly on access to pregnancy prevention information and services and the barriers and facilitators to accessing these information and services. However, the findings could potentially be linked to the implementation and policies and programmes. These findings have been presented in a separate sub-section of this paper. BOA and MK conducted thematic analysis independently and together, meeting on six occasions to discuss resultant themes and subthemes, which were subsequently discussed in two further meetings of all four authors.

5.4.8 Ethical considerations

Ethics approval for the study was given by the Ghana Health Service Ethics Review Committee (GHS-ERC009/01/20) and ratified by the UTS Human Research Ethics Expedited Review Committee (ETH20-4779). The participant information sheets explained the study's aim and

scope and the participants' rights to informed consent before the interviews. The information sheets were read to participants who could not read or write. Written informed consent was obtained from all participants involved in the study by signing or thumb printing the consent form. We sought participant approval to audio-record the interviews and publish the findings.

Patient and public involvement

There was no patient or public involvement in the development of this study.

5.5 Results

5.5.1 Study participants

In this study, 15 professionals, 15 grassroots workers and 51 female adolescents were interviewed between 20th August and 9th November, 2020. The professionals included eight females and seven males, aged between 21 and 50 years, who worked across all three districts in the Central Region for a range of government and non-governmental organisations. The grassroots workers consisted of ten males and five females aged between 27 and 54 years. They had various roles within their communities and were directly involved in activities and programmes aimed at reducing adolescent pregnancy. Table 1 provides detailed information on professionals and grassroots workers. The adolescent girls included 21 pregnant adolescents and 30 non-pregnant adolescents aged 15-19 years. Sixteen were from the Cape Coast Municipality, 19 from the KEEA Municipality and 16 from the Assin South District.

Table 5.1: Description of study participants

Professionals	**Number**	**Grassroots workers**	**Number**
Gender		**Gender**	
Male	8	Male	10
Female	7	Female	5
Age		**Age**	
20-24	2	20-24	0
25-29	1	25-29	2
30-34	2	30-34	1
35-39	3	35-39	2
40-44	4	40-44	1
45-49	1	45-49	4
50-54	1	50-54	2
		55-59	1

5.5.2 Findings of thematic analysis

Using a realist approach, we mapped eighteen themes to the five domains of the ecological framework (Figure 5.2). This gave a rich picture of the context and mechanisms within which policy implementation was occurring. We classified six of the themes as community factors, two as provider characteristics and four as innovation characteristics. We further classified three of the themes under prevention delivery system and three under prevention support system. The mapped themes are presented below, with a description of each followed by illustrative quotations. Five other themes, which focused on barriers and facilitators to accessing pregnancy prevention information and services emerged from the focus group discussions with adolescent girls. These barriers and facilitators may potentially affect the implementation of policies and programmes. Findings on these themes have been discussed in separate sub-sections.

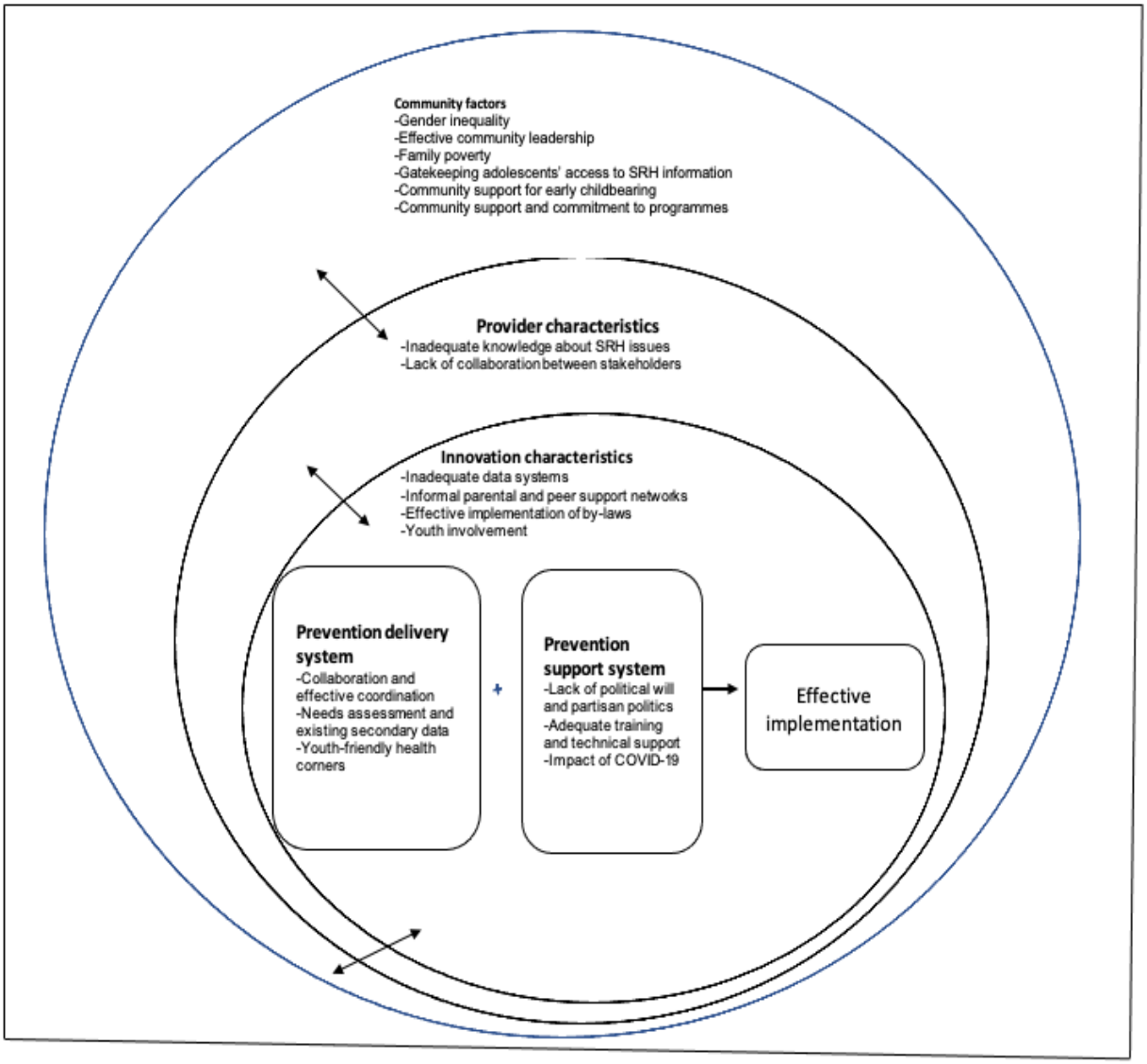

Figure 5.2: Ecological Framework for Understanding Effective Implementation showing barriers and facilitators

Perceived Barriers

Community factors

1. Gender inequality is a pervasive influence in the community and is expressed by gender-based violence and male spousal dominance in ASRH decision-making which impacts programme implementation.

Participants across all three samples described the way patriarchal structures and processes operate to perpetuate gender inequality and the role of men as decision-makers when it came

to adolescent reproductive health. This was evident in the many examples given of gender-based violence, which often led directly to adolescent pregnancy. Gender-based violence was so prevalent as to be seen by many participants as normative. Participants also showed how men's consent was sought when adolescent girls were assessing reproductive health services.

> *When you go to some of our communities, they will tell you that they don't see it as violence but as a cultural practice where the girl child should not decide when to have sex, for example, when these girls are forced to marry (IDI 7).*
>
> *When you want to go and do family planning, they will tell you to come with your partner. They will ask both of you whether you agree to space out your pregnancies. I discussed with my partner and he rejected the idea of family planning (FGD_1_EP_1).*

2. Family poverty is a major determinant of risky sexual behaviour mediated by child neglect, lack of financial support for adolescent girls and lack of sexual agency.

Participants described family poverty as pervasive in their communities. One of the consequences of this was parents having to leave adolescent children unsupervised while they worked. A common strategy used by parents to generate family income or to defray costs of living involved allowing or actively encouraging adolescent female children to engage in sex for money or other necessities. Female adolescents were left with little sexual agency.

> *When I was in school, my parents were not giving me money. When I started menstruating, I met a boy and he told me that the blood I see is menses so he took me out to get some sanitary pads and then my sister here showed me how to use it. It was then that I fell in love with the boy. So we had sex and I got pregnant (FGD 1 K_P_4).*
>
> *In terms of causes of adolescent pregnancy, it is clear that there are some parents who are directly involved in their child's pregnancy. They ask the adolescents to go and have sex and bring money home (IDI_4).*

3. Gatekeeping adolescents' access to SRH information and services through stigma

The participants considered pre-marital sex as a sin and a taboo within communities which unequally stigmatised females. Sexually active adolescent females, particularly if unmarried, were socially ostracised and denied care and access to SRH information. Community leaders, members, and parents placed high emphasis on abstinence-only education.

> *Our argument is that, if you are a girl and you have done family planning, then you would want to go and have sex. If you don't do the family planning and you have sex you know you will get pregnant. That is why we want to prevent them from using family planning so that they will be scared to have sex (IDI_E1).*
>
> *For my science teacher, when we got to some aspects of the teaching, he refused to teach us. When we were talking about the menstrual cycle and how to calculate the safe period, he said he wouldn't teach us because if he does, we would go and practice it (FGD 1 N_NP_3).*

4. Community support for early childbearing and cohabitation allows adolescent girls the freedom to engage in sexual activities.

The participants explained that in some of the communities, early childbearing was considered an achievement and women with no children after adolescence were stigmatised. This meant that cohabitation was desirable and provided adolescents the opportunity to engage in sexual activities.

> *In some communities, it is a norm for you to get pregnant as a child. When you get to the adolescent age and you don't have a child, they see you as infecund and not a woman. They don't see anything wrong with the young girls getting pregnant (IDI_9).*
>
> *Meanwhile if you are about 35 or 40 years and you get pregnant and you go to the hospital, the nurses will be laughing at you that you are old and you are now going to give birth (FGD_E_P).*

Provider characteristics

1. Community leaders and parents have inadequate knowledge about SRH issues and resist and/ or withhold SRH information and services.

Due to illiteracy, community leaders and parents were described as feeling uncomfortable educating adolescents about SRH issues and at the same time hinder programme implementers from providing such information and services to adolescents.

> *Most community leaders or teachers do not have the right information or knowledge on adolescent sexual and reproductive health issues and therefore, do not find it comfortable discussing it with the adolescents (IDI 7).*
>
> *Sometimes when the child is going to seek information about family planning, the parents will be shouting and saying that the girl is going to fornicate. Sometimes, if there is a programme on SRH and you attend, some parents will sack you and say that you went to fornicate so leave the house (FGD_1_ENP_3).*

2. Lack of collaboration between stakeholders and poor community engagements results in duplication of programmes and lack of community support for programmes.

The participants explained that providers of SRH education and services found it difficult implementing collective programmes that bring on board all stakeholders. This led to the implementation of similar programmes by different stakeholders and affected the inter-agency commitment needed for the effective implementation of programmes.

> *Our collaboration with other stakeholders is a challenge. I will say that the HIV alert got to its peak but dropped at a point because other NGOs here were also working on similar issues. That is what brings about the duplication (IDI 6).*
>
> *We have situations where you have conflicts between the Ghana Health Service and the Ghana Education Service, where the Ghana Education Service thinks that once you are*

inviting a nurse to come and take up a task in a school then it means that person is going to take their job. So they do not allow the nurse access to the school (IDI 14).

Innovation characteristics

1. Inadequate data systems impede the development of innovative programs and SRH service delivery.

Participants described low reporting of gender-based violence, child marriage and adolescent pregnancy. Without formal records and ongoing data collection, gender inequality persisted and SRH service and program delivery could be made vulnerable.

One of the areas that we have serious problem is child marriage because they are not reported. It happens within the homes and it is not reported. For that one, until someone sees and report, there is a challenge (IDI_13).

You know, things about gender-based violence are secret so if the person does not come out to talk about it, then you will not know about it. So there is some incidence of rape but it will be about 1% or 2% because only a small number of girls report them (IDI_N1).

Prevention support system

1. Lack of political will and partisan politics lead to inadequate financial, logistic and technical support for adolescent SRH programmes and policies.

Participants described how the government of Ghana accorded less priority to adolescent SRH issues and insufficient budgetary allocation. Other participants also explained that differences between affiliates of political parties hindered support for SRH programmes.

The government doesn't even have budget lines for adolescent health and that can affect organisational capacity. Because if the government or agency cannot support those programmes, then it is a barrier. They want results but how to support the programmes

to get results is not their problem. So if the government is not funding, it becomes very difficult to implement (IDI 12).

At the community level, one thing that affects the programmes is partisan politics. When the National Democratic Congress (NDC) organises a programme for adolescents, the New Patriotic Party (NPP) will not come; likewise, if the NPP organises a programme for the adolescents, the NDC will not come (IDI N3).

2. COVID-19 hindered external financial support for SRH programmes and access to SRH services due to lockdown.

COVID-19 was reported as challenging government and non-governmental organisations to get external funding to organise programmes.

During the lockdown, I spoke to a number of people about this issue and it even came to the airwaves that people are not having access to contraceptives and so there was adolescent pregnancy (IDI 7).

Well, over the years, for some time now, funding is dwindling not only for Ghana but all over the world, and with the coronavirus, things are going to get worse. Even the donors are struggling over there because demand has shifted to other areas (IDI_15).

Perceived Facilitators

Community factors

1. Effective community leadership is required to enforce relevant community by-laws and yield community participation and support for programs

Social structures within communities were described by the participants as hierarchical, which entailed delegation of decision-making authority and by-law enforcement predominantly to the chiefs. Assemblymen also had authority to make by-laws. Chiefs had a powerful influence over community attitudes towards, and support for, a range of programmes. Given the entrenched nature of gender inequality and lack of agency of adolescent girls in managing their

reproductive health, community leadership played an important role in engaging the whole community in the implementation of programmes. This theme cut both ways, as communities without chiefs found it difficult to enforce relevant by-laws, and this affected the commitment and support of community members towards programmes.

> *When you engage communities that have a stable leadership and opinion leaders in some of these programmes and they understand the broader issues, I believe that they tend to support their implementation (IDI 9).*
>
> *The challenge is that we don't have a chief in this community. Therefore, when we set such rules, the enforcement doesn't work. So even if you get someone who has breached the law, you cannot do anything because there is no chief (ID1_E2).*

2. Community commitment to and support for programs can be achieved through engagement, sensitisation and information sharing.

The participants explained that when community members are involved in the implementation of programmes and have access to adequate information about programmes, they become committed and support the programmes. For the participants, making communities aware of a programme and how it will be implemented was an effective means of ensuring the effective implementation and sustainability of programmes.

> *The community has become aware of some of these issues through community sensitization and information sharing sessions. So all these things are helping to make the implementation process a success (IDI_13).*
>
> *Honestly, the interaction between the NGOs and us is good. The moment they give us information that there is a programme they want to do, all we need to do is to coordinate with each other for about a week and the programme becomes effective (IDI_KI).*

3. Effective implementation of by-laws around community norms was perceived as having a positive impact on risky adolescent sexual activity.

Participants reported that by-laws reflect community norms and are introduced by community leaders. They described examples such as punishment for parents whose daughters are given into child marriages, punishment for girls who get pregnant during adolescence, and evening curfews for adolescents. When implemented by community leaders, by laws are believed to reduce risky adolescent sexual activity.

> *Some communities have laws that say that for any young person who gets pregnant, their parents are named and shamed. There are other by-laws that young people are not supposed to be out at certain time in the night. So, these community laws and practices have helped to reduce adolescent pregnancy in some communities (IDI_9).*
>
> *Over here, we do not accept child marriage. When the queen mother finds out that a girl who got pregnant has been forced into marriage, she will be forced to return to her family because it is not something that is accepted in our community (IDI_K1).*
>
> *They said that if you are not 20 years old then you shouldn't get pregnant or give birth (FGD 1 KNP).*

Innovation characteristics

1. Informal parental and peer support networks are effective mechanisms for facilitating health literacy, SRH access and sexual agency.

The participants described how parents and friends provide adolescents with essential information on sexual and reproductive health, which helps them to easily access sexual and reproductive health services and empowers them to decline sexual relationships.

> *There is an association called Community Parents Network Advocacy Group. They educate adolescents about adolescent pregnancy. Their aim is to stop early/child marriage and adolescent pregnancy (IDI_N5).*

Some of the parents will take their children to the health facility for them to put them on a family planning commodity when they realise that the girls are sexually active (FGD1 E_NP_3).

2. Youth involvement helps in the implementation of policies and programmes that address the specific needs of adolescents, and increases their acceptability.

The participants described the establishment of girls' clubs and youth groups as effective means of enhancing the participation of adolescents in the implementation of policies and programmes. These also led to the implementation of youth-focused policies and programmes.

There is annual conference for adolescents, which is organized by the Ghana Health Service and Population Council. They have also formed adolescent groups in districts and they meet at the national level. They also have a board, which is made up of adolescents where they discuss issues about themselves. Now, adolescents are being engaged at all levels (IDI_4).

I heard about adolescent pregnancy from Girls-Child. It is a group in school that talks to the adolescent girls about a number of things like menstrual hygiene and other things. They told us that, if you are not of age and you have sex, you will get pregnant and that is adolescent pregnancy (FGD_1_NP_1).

Prevention delivery system

1. Stakeholder engagement yields information sharing and creates supportive systems that enhance innovative policies and programmes.

Participants described how government and non-governmental organisations worked with each other and with communities to implement policies and programmes. Such collaboration and teamwork enhanced judicious use of resources and ensured the sustainability and effectiveness of policies and programmes.

We collaborate with other stakeholders who are partners and collaborators. Like the Ghana Education Service is a collaborator. We use their school for our programmes. We also have Marie Stope International Ghana, PPAG, Curious Minds and other minor and major collaborators (IDI 12).

Our coordination with other groups is good because the judicial service and the community play their role effectively. Now, when we have a case and we report to DOVVSU, they will ensure that they follow up the case until it is successfully dealt with (IDI N4).

2. Needs assessments and secondary data provide reliable information on prevalence and determinants of adolescent pregnancy and serve as benchmarks for the development and implementation of policies and programmes.

Governmental organisations, non-governmental organisations, and community leaders were described as conducting interviews and literature searches to obtain the information needed to guide the policies and programmes they implement. The information obtained served as a benchmark for identifying the regional prevalence of adolescent pregnancy and its determinants. This helped programme implementers in delivering policies and programmes where adolescent pregnancy is more prevalent and in addressing the key risk factors.

We rely a lot on data. We use especially the Demographic and Health Survey (DHS) data, population and housing census and the Maternal Health Survey as well as data collected by our organization. The DHS will give you the demographic dynamics; it will give you the population dynamics, the rate of adolescent pregnancy and unsafe abortion (IDI 14).

Sometimes we do research first to know what the situation is. We have fisher folks here so sometimes we interview them. You know how social work is. We need to go there and then interview them. In some of these places, there is high rates of adolescent

pregnancy. So we try to find out what is going on there so that, based on that, we can organise programmes based on their needs (IDI 5).

3. Youth-friendly health corners (departments within health facilities that provide sexual and reproductive services designed to meet the specific needs of adolescents/youth) increase utilisation of adolescent sexual and reproductive health services.

Adolescents were reported as able to access and use SRH services, including family planning, because they are provided the information needed to access these services and most of the services are accessible, free and provided with high levels of confidentiality.

Adolescents can have access to the adolescent reproductive health services across the country. That is why we have the adolescent health corners in all our facilities. So they are not denied of any service. Whatever health service they need you need to provide it to them (IDI 12).

Sometimes when the nurses come here, they educate the adolescents about family planning. They tell them that if you cannot abstain from sex, then come for family planning at the health facility. They also tell them that it is free. So some of them go for the family planning (IDI_K4).

Prevention support system

3. Adequate training and technical support for stakeholders of policies and programmes

Respondents reported that, where providers of SRH services receive the information and assistance they need to organise programmes within organisations and communities, this enhances the sustainability of programmes by creating an enabling environment for implementation, supervision, monitoring, and evaluation.

Currently, a lot of the health providers have been trained to man adolescent corners where they provide services (IDI 13).

We are confident because we have been trained and have handouts that we can refer to any time we are in doubts. We have been trained on how to go about the education of the girls and we are enthused about it (IDI E2).

5.5.3 Additional findings from adolescent participants' perspectives

Perceived barriers to accessing pregnancy prevention information and services

1. Fear of side effects about family planning hinder utilization of family planning services

The adolescent participants described how information about the side effects of family planning received from friends hinder their access and use and of family planning services. For some of them, their own personal experience of the side effects of some family planning methods results on fear to access these methods.

I told a friend that I wanted to go for family planning but when I told her, she said that she did one and she suffered a lot of complications. So that scared me and I didn't go for it anymore (FGD1_KNP_1).

I personally went for the family planning but after a while, I grew lean, so I stopped using it. So now, I don't do anything to prevent pregnancy neither do I do family planning (FGD1_KNP_2).

2. Misconceptions about family planning reduces the confidence to access and use family planning information and services

The adolescents explained how individuals, including parents and friends provided them with inaccurate information family planning and reduced their confidence to access and use family planning services. Some of these information related to the idea that family planning is for only married people and that the use of family planning by adolescents results in complications which can lead to infertility.

Some people say that family planning is for married people. Besides, sometimes it is not compatible with the body of the girl. So, when you take it, you will feel nauseous.

Sometimes too, it can mix up with your blood stream. When that happens, you will not be able to conceive (FGD1_EP_1).

I wanted to do the family planning, but my friends told me that if you not married and you do it, it can be harmful to you. When you get to a stage, you will not be able to get pregnant (FGD1_KNP_9).

3. Inaccurate information provided by friends and parents lead to the use of ineffective means of contraception and put adolescent girls at risk of pregnancy

   Adolescent participants described the role parents and friends play in their use of ineffective means of contraception. They explained that some parents and friends recommend some ineffective methods of contraception to them which put them at risk of pregnancy.

   I heard from my mother that if you don't want to get pregnant, you can use a medicine to protect yourself. She said that after having sex with a man, you can swallow some paracetamol (Panadol). I used it and I still got pregnant (FGD1_KNP_10).

   One of my friends said that before you have sex with a boy, you can drink a lot of water. When that happens, the boy's sperms will come out from your vagina. Also, when you sit, not all the sperms will be able to move into your vagina (FGD1_KNP_2).

Perceived facilitators to accessing pregnancy prevention information and services

1. Knowledge of sexual and reproductive health services enhances access and use of effective contraceptives.

   Adolescent respondents described obtaining accurate information on family planning from various sources which helps them to access and use effective means of contraception. Parents, friends, health workers, and NGOs provided this information to adolescents. Media sources such as radio and television also provided adolescents with information about family planning.

We were taught at the PASS association that there are many ways to protect yourself from pregnancy like family planning. They said that there is the IUD, the injectable and they can also remove the womb so that if you have sex, you will not get pregnant (FGD1_ENP_4).

Please, I heard about it from Radio Sharma. They were talking about teenage pregnancy and the use of contraceptives like Lydia to prevent pregnancy. So, I started taking Lydia contraceptive and didn't get pregnant. The programme was done a long time ago (FGD1_KP_7).

2. Empowerment of girls through vocational skills and training enhance their sexual agency. Adolescent participants reported that NGOs offer them vocational skills and training which empower them and increase their sexual agency.

Thanks to Red Cross, I am now learning a vocation. So, I will focus on that and become a master of it so that I can work with it (FGD1_KNP_1).

I have learnt that I should not engage in sex. We were taught in our group (PASS) that a lot of boys will have sex with you and not take care of you. They can make your life so miserable. They have provided us with vocational training. So, I have abstained from sex for now. Now, I am focused on my vocation that I am learning so that I can become independent (FDG1_ENP_3).

5.6 Discussion

This study explored the perceived barriers and facilitators to the implementation of policies and programmes intended to reduce adolescent pregnancy in Ghana. We identified and mapped barriers and facilitators to the domains of the ecological framework (Durlak & DuPre, 2008). We found this an effective way to analyse our data, aligning well with implementation science and a realist approach to developing understanding of the barriers and facilitators to policy and programme implementation (Zolfaghari et al., 2022). The key perceived barriers identified were gender inequality, stigma around access and use of SRH information and services and late childbearing, and lack of collaboration between stakeholders. Gender inequality was reinforced by family poverty and inadequate data systems. The main perceived facilitators included effective implementation of community by-laws, youth involvement, and collaboration and effective coordination between stakeholders. Informal parental and peer support networks enhanced the implementation of community by-laws. These were the main themes identified from the data. The focus group discussions with adolescent girls found some main themes. Fear of side effects and misconceptions about family planning were barriers to access and use of pregnancy prevention information and services. These barriers are reinforced by inaccurate information about family planning methods. The key facilitator was the empowerment of girls through SRH education and vocational skills and training. These barriers and facilitators could potentially inform strategies to increase the effectiveness of the implementation of policies and programmes.

Barriers towards the implementation of policies and programmes

Findings illustrated the important influence of the culture and context within which policies and programmes were implemented. This aligns with the role of community factors in understanding effective implementation of interventions (Durlak & DuPre, 2008). In Ghana, pervasive gender inequality was commonly reported as manifesting in gender-based violence,

child marriage, and the requirement for male spousal approval when accessing SRH services. Globally, gender inequality plays a major role in violence against women and girls, and weakens their right to decide whether, when or whom to marry (United Nations, 2018). In Ghana, as in most LMICs, gender inequality was also mediated through social norms that subordinate adolescent females to males and limits their ability to make independent SRH decisions (Enuameh et al., 2012). Gender inequality was also reinforced by family poverty, a phenomenon that led some parents to force their daughters into early marriage while others encouraged their daughters to engage in sex for money to support the family. Family poverty has been shown to exacerbate gender inequalities in other LMICs (Jayachandran, 2015; Kennedy et al., 2020). Child marriage, gender-based violence and poverty were identified as predictors of first adolescent pregnancy in a study on predictors of first adolescent pregnancy and its associated factors in sub-Saharan Africa (Ahinkorah et al., 2021) and as key determinants of adolescent pregnancy addressed by the policies in a scoping review of national policies in Anglophone sub-Saharan Africa (Ahinkorah, Kang, et al., 2020).

Lack of data due to under-reporting, particularly on gender-based violence, enabled the perpetuation of gender inequality. In this, our findings resonated with studies in other LMICs which have identified that stigma, shame, financial challenges, fear of revenge, absent or ineffective laws to deal with gender based violence, and lack of awareness of services for victims all contribute to low reporting and, in turn, to lack of data (Hindin et al., 2008; Palermo et al., 2014).

The participants reported that cultural norms stigmatised adolescent sexual activity, particularly for females. This contextual factor, described in the ecological framework as an important community factor (Durlak & DuPre, 2008), created community resistance to SRH programmes and service provision, based on the misconception that they would predispose adolescent girls to sexual activity. In contrast, there is scientific consensus that access to SRH

information and services does not predispose adolescents to sexual activity (Goldfarb & Lieberman, 2021). Other research has demonstrated that in most Ghanaian communities, adolescents who access SRH services are seen as "bad" boys and girls because society frowns on premarital sex (Abuosi & Anaba, 2019; Akazili et al., 2020). This creates shyness and shame in adolescents, especially females, who then become reluctant to access SRH services, as they are afraid of being seen accessing such services by community members. As in Ghana, a deeply embedded sense of disapproval of adolescent sexual activity has been reported in other LMICs (Enuameh et al., 2012; Morris & Rushwan, 2015). Conversely, some community members and adolescent girls themselves stigmatised late childbearing as a sign of infertility. These community members and adolescent girls consider early childbearing as beneficial to adolescent girls. Studies conducted in other LMICs have identified factors such as a sense of meaning and purpose, support from parents and romantic partners, a loving relationship with the child and high social status and acceptance as some of the reasons why some adolescents want children early (England & Edin, 2007; Kendall et al., 2005). Moreover, some adolescents have the belief that that later childbearing could result in medical complications or difficulty getting pregnant, and others report that younger parents have more energy and recover better from childbirth (Hayford et al., 2016). The stigma of late childbearing was thought to create an environment which influenced some adolescent girls to engage in sexual activity despite prohibitionary social norms.

Participants described the lack of collaboration with, and community support for, the engagement of local stakeholders as mechanisms that led to disapproval of programmes by parents and community members. Collaboration and community engagement are important provider characteristics in the ecological framework as they help to maximise the potential benefits of the intervention and the self-efficacy of the providers (Durlak & DuPre, 2008). This was evidenced in the findings of the scoping review of national policies on adolescent

pregnancy in Anglophone sub-Saharan Africa, where the policies generally stressed the need for collaboration between government and non-governmental actors (Ahinkorah, Kang, et al., 2020). This finding is consistent with studies in other LMICs (Chandra-Mouli, Chatterjee, et al., 2015; Kennedy et al., 2013). At the regional and national levels, ASRH has been considered a low priority among politicians and government, which reflects attitudes among political leaders and decision-makers in sub-Saharan Africa more broadly (May, 2017; May & Turbat, 2017). This lack of political will, fuelled by partisan politics, often has its roots in traditional socio-cultural norms that hinder family planning and other pregnancy prevention interventions for adolescents (Onono et al., 2019; Onono et al., 2020). The lack of political will led to inadequate government financial support for SRH programmes. This is a major gap in the implementation of policies as political recognition has been found to be a key issue in the design and development of policies in the scoping review of national policies on adolescent pregnancy in Anglophone sub-Saharan Africa. This is reflected in aspirational statements by political leaders that reflect their will to improve ASRH through collaboration with other major stakeholders (Ahinkorah, Kang, et al., 2020). The inadequacy of financial support worsened with the impact of COVID-19, which affected support from donor agencies that otherwise might have supported SRH programmes.

Facilitators towards the implementation of policies and programmes

The participants described effective community leadership as a factor likely to ensure the implementation of community by-laws which were designed to regulate risky sexual behaviour of adolescents and prevent child marriages. Although there is inadequate evidence of the effectiveness of these by-laws, those that put restrictions on child marriages can be considered effective in reducing adolescent based on available evidence that reduction in child marriages helps to reduce adolescent pregnancy (Godha et al., 2013; Lee-Rife et al., 2012; Santhya, 2011). Studies in other LMICs have also found that by-laws against child marriage

have enabled adolescent girls to make important decisions regarding their sexual behaviour (Santelli et al., 2019; UNICEF, 2018). Apart from by-laws on child marriages, there is no evidence that by-laws such as punishment of girls who get pregnant or curfews for young people are effective in reducing adolescent pregnancy. However, for community members, these may be considered good ideas for reducing risky sexual behaviours in their communities. Studies in LMICs have demonstrated that community leaders play key roles in the implementation of community by-laws because they are regarded as holding the traditional power and authority in the community within which these by-laws are implemented (Martiskainen, 2017). However, in situations where community by-laws hindered access to ASRH services, participants explained that parents and peers found ways to work around the challenges without breaching by-laws. Informal support, such as parent-adolescent communication and peer-peer communication on SRH issues, was described by the participants as helping adolescents make informed decisions when accessing SRH services. Parental and peer support networks have been found to be very important in the adoption and use of ASRH programmes and services in LMICs (Ahinkorah, Hagan Jr, Seidu, Budu, et al., 2019; Svanemyr et al., 2015).

Another facilitator described by participants was collaboration and coordination between stakeholders, which enhanced access to SRH services, community support and commitment towards the implementation of policies and programmes. The effectiveness of stakeholder collaboration and coordination was facilitated through adequate training and technical support. Stakeholder collaboration and coordination have been found to play major roles in the implementation of ASRH policies and programmes in LMICs (Ahinkorah, Kang, et al., 2020). Participants explained that stakeholder collaboration and coordination were strengthened through mechanisms such as community engagement, sensitisation, and information sharing. Similar findings in other LMICs also suggest that community engagement

ensures the sustainability of programmes and policies (Chandra-Mouli, Lane, et al., 2015; Denno et al., 2015).

Youth involvement was described as helping the implementation of policies and programmes that focus on the specific needs of adolescents by facilitating their acceptability and utilisation. Within the ecological framework, youth involvement is considered an essential prevention delivery system that can enhance the effectiveness of interventions (Durlak & DuPre, 2008). In the context of policies and programmes, youth involvement includes the engagement of young people in formulation, implementation, monitoring and evaluation processes (Ahinkorah, Kang, et al., 2020; Calves, 2002; Schaaf et al., 2020). Findings from a scoping review of national policies in Anglophone sub-Saharan Africa indicated that youth involvement can be either direct or indirect. With direct youth involvement, young people are considered as collaboration partners of the policies and programmes. Indirect youth involvement includes involving young people as participants in data collection and getting their feedback on implemented policies and programmes (Ahinkorah, Kang, et al., 2020). The participants explained that one of the means of ensuring youth involvement was the establishment of "youth-friendly health corners". These are units within health facilities that offer reproductive health services including contraceptive counselling, family planning, pregnancy testing, antenatal and postnatal care, and STIs screening and treatment to young people (Asare et al., 2020). Youth-friendly health corners are considered important interventions for ensuring accessibility, acceptability and utilisation of ASRH services in other LMICs (Ainul et al., 2017). They also help in providing ASRH without stigma and discrimination and in an environment that ensures confidentiality (World Health Organization, 2012).

Barriers and facilitators to accessing pregnancy prevention information and services

The adolescent participants described fear of side effects and misconceptions about family planning and incorrect information on family planning as key barriers to access and use of family planning. Studies in other LMICs have also identified fear of side effects and misconceptions as barriers to access and use of family planning (Bhatt et al., 2021; Ochako et al., 2015; Silumbwe et al., 2018). The side effects and misconceptions arise from the experience of adverse health consequences after using contraceptives such as weight gain, lack of sexual desire, headaches and raised blood pressure, and fear of potential infertility in the future (Bhatt et al., 2021). The fear of side effects and misconceptions reveal knowledge gaps that may be attributable to unreliable information sources. Most of the time, adolescents do not acquire information from reliable sources such knowledgeable adults, parents, and healthcare professionals. While communication on SRH issues, including contraceptives, seldom ever occurs in many African homes due to limits imposed by religion and culture, young people are most likely to acquire and believe information they obtain from social media and friends (Mbachu, Agu, et al., 2020; Mbachu et al., 2021). The incorrect information also leads to the use of inaccurate methods of contraception, which often puts the adolescents at risk of pregnancy. The fear of side effects and misconceptions have been found to be responsible for the inconsistent and incorrect condom use, which was a key determinant of adolescent pregnancy in the findings of the scoping review of national policies on adolescent pregnancy in Anglophone sub-Saharan Africa (Ahinkorah, Kang, et al., 2020).

Girls' empowerment was found to be a key facilitator to accessing pregnancy prevention information and services. This was manifested through SRH education which helps adolescent girls to gain knowledge of SRH services and vocational skills training which provide adolescents with the skills and financial support needed to enhance their sexual agency. Both SRH education and vocational skills training have been found to be influence the

implementation of policies and programmes on adolescent pregnancy in other LMICs (Haberland & Rogow, 2015; Mueller et al., 2017). By giving them the appropriate knowledge, attitudes, and abilities, SRH education equips young people to defend and promote their health, well-being, and dignity. It is a requirement for engaging in complete bodily autonomy, which calls for both the legal right to make decisions about one's body and the knowledge necessary to do so in a meaningful manner. These programmes also improve gender equality, young people's rights, and empowerment because they are based on human rights concepts (Chavula et al., 2022; Mark & Wu, 2022). Apart from SRH education, adolescent girls' possibilities to generate income and gain social empowerment are enhanced by a combination of occupational and life skill training, while early pregnancy and childbirth rates are decreased (Bandiera et al., 2020; Stavropoulou, 2018). Both SRH education and vocational skills training empowerment of girls were among the scope of activities of the policies in the scoping review of national policies in Anglophone sub-Saharan Africa (Ahinkorah, Kang, et al., 2020). They were meant to deal with factors such illiteracy, poverty, and unemployment which were identified in both the study on prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa and the scoping review of national policies on adolescent pregnancy in Anglophone sub-Saharan Africa (Ahinkorah, Kang, et al., 2020; Ahinkorah et al., 2021).

5.6.1 Policy and practice implications

To address the barriers identified, political leaders need to be actively engaged in the implementation of ASRH policies and programmes. Existing legal frameworks on ASRH in LMICs need to be strengthened to address existing ASRH issues such as child marriage and gender-based violence that put adolescent girls at risk of pregnancy. Policy and programme implementers need to be encouraged to involve community members in the development of policies and programmes in order to enhance their support for their implementation. Gender empowerment programmes such as education and training of adolescent girls should be

implemented and strengthened at both the community and national levels. Community members should be educated on the negative effects of norms that support child marriage, gender-based violence and early childbearing. Governments in LMICs should make the establishment of youth friendly health corners (or the equivalent) part of the healthcare systems of their countries. With poverty identified as a key driver of adolescent pregnancy, government and non-governmental organisations in LMICs should offer training for adolescent girls and engage them in income generation activities that will enhance their economic power and that of their families. Existing economic empowerment initiatives in Ghana such as the Livelihood Empowerment Against Poverty (LEAP) and the School Feeding Programme should be strengthened to reduce the financial burden on parents of socio-economically disadvantaged adolescents.

5.6.2 Strengths and limitations

One strength of our study is the triangulation of data collected from three different samples. Involving adolescent girls, professionals and grassroots workers helped us understand the perceived barriers and facilitators from the perspectives of implementers and beneficiaries of the policies and programmes. Purposive sampling of professionals and grassroots workers increased the likelihood of hearing the views of individuals with in-depth knowledge or experience about the subject. However, the study has some limitations. The use of snowballing and convenience sampling of some participants may have led to the exclusion of potential participants who were not recommended or not available at the time of the data collection. Two professionals who could have given different views on the subject were excluded from this study because approval from their supervisors was not available in time. Adolescents may have self-censored their responses due to fear of stigma from their peers. Despite assurances of confidentiality, health professionals and grassroots workers may have constrained expression of their views due to concern at negative responses from their employers. Also, not including

male adolescents from the study might have led to missing some crucial data that would have been useful in this study. The inclusion of male adolescents as part of the study participants would have helped address this limitation. Future research should include adolescent boys and fathers of children born to adolescent girls and women.

5.7 Conclusion

This study concludes that several perceived barriers and facilitators play roles in the implementation of policies and programmes on adolescent pregnancy in Ghana. These barriers and facilitators exist with some barriers and facilitators to accessing pregnancy prevention information and services by adolescent girls. Given the local, national and international significance of this issue, to ensure the effective implementation of such policies and programmes, measures are needed to remove these perceived barriers and enhance perceived facilitators. For the future, implementation of policies and programmes should be recognised as distinct and essential elements of policy-setting. Policy and programme implementation must be conducted as a structured, planned process, taking account of these barriers and facilitators, and with systematic monitoring and rigorous evaluation. This will then enable successful approaches to be identified and publicised.

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5.8 Chapter summary

This chapter presented study findings in relation to the fourth aim. In summary, from interviews with healthcare professionals, grassroots workers and focus group discussions with adolescent girls, analyses using an ecological framework and a realist approach revealed that gender inequality, stigma around access and use of SRH information and services and late childbearing, and lack of collaboration between stakeholders as the main perceived barriers towards the implementation of policies and programmes. The main perceived facilitators included effective implementation of community by-laws, youth involvement, and collaboration and effective coordination between stakeholders. The focus group discussions with adolescent girls also showed that fear of side effects and misconceptions about family planning were the main barriers to access and use of pregnancy prevention information and services. The key facilitator was the empowerment of girls through SRH education and vocational skills and training. These findings have shown the roles that context-specific community level factors, provider characteristics, innovation characteristics, prevention delivery system and prevention support system play in the implementation of policies and programmes on adolescent pregnancy. They also indicate the extent to which policies and programmes can have impact on adolescent pregnancy. They further show the role of barriers and facilitators to accessing pregnancy prevention information and services in the implementation of policies and programmes on adolescent pregnancy. The use of the ecological framework confirms the utility of the framework as a way to ensure a comprehensive and theoretically-based investigation of barriers and facilitators.

These findings can be understood within the context of the findings in Chapter Two of this doctoral thesis. For instance, in Chapter Two, the secondary analysis of DHS data gave a quantitative picture of adolescent pregnancy and its associated factors. Some of the associated factors were found in the scoping review as determinants of adolescent pregnancy. The scoping

review further provided detailed qualitative data on the components of policies, including the objectives, strategies, monitoring and evaluation, and cooperation and collaboration. Chapter five, which is part of the main study investigates these findings further by looking at how the implementation of policies and programmes address the determinants of adolescent pregnancy and consider all the necessary components of policies. The breadth and depth of the findings on the barriers and facilitators to the implementation of policies and programmes and access to pregnancy prevention information and services map well to the quantitative data from the secondary analysis of DHS data. They also provide more richness to the findings on the components of policies identified in the scoping review of policies.

For instance, the finding that child marriage, gender-based violence and poverty are key barriers to the implementation of policies and programmes aligns with findings of the first aspect of Chapter Two of this thesis, where child marriage and poverty were identified as factors associated with first adolescent pregnancy across SSA. Moreover, in the findings from the scoping review, it was evidenced that most of the policies addressed key determinants of adolescent pregnancy which include child marriage, gender-based violence and poverty. Therefore, consideration of both the determinants of adolescent pregnancy and the barriers to the implementation of policies and programmes would help enhance the effectiveness of policies and programmes on adolescent pregnancy in Ghana. The finding that lack of collaboration, community support and engagement leads to disapproval of programmes shares some similarity with the emphasis on collaboration and coordination by the various policies identified in the scoping review. The lack of collaboration, community support, and engagement was reinforced by the absence of political will, a key consideration in the scoping review. Findings on the fear of side effects and misconceptions, and incorrect information on family planning can explain the inconsistent and incorrect condom use as well as inaccurate means of family planning, which were key determinants of adolescent pregnancy in the

findings of the scoping review. It may also be associated with illiteracy which was found in both the secondary analysis of DHS data and the scoping review to be determinant of adolescent pregnancy.

In terms of the facilitators, findings from this study stressed the importance of youth involvement by emphasizing the role of youth-friendly health corners. The scoping review of policies also emphasised the important role of youth involvement in policies. However, interviews with the adolescents did not really reveal any theme on the importance youth involvement. This could be an indication of an overall disempowerment of adolescents, both pregnant and non-pregnant. The finding of girls empowerment through comprehensive education and vocational skills training aligns with the findings of the scoping review, where comprehensive sexuality education and vocational skills training were among the key scope of activities of the policies. Girls empowerment is likely to help reduce illiteracy, poverty, and unemployment which were identified as key findings in the secondary analysis of DHS data and the scoping review. Despite the finding of lack of data on gender-based violence, one of the health professionals referred to the DHS data as a major source of data on determinants of adolescent pregnancy, a finding which is evidenced in the secondary analysis of DHS data in Chapter Two of this thesis. Overall, these findings provide the basis for recommendations to improve the implementation of such policies and programmes.

CHAPTER SIX: DISCUSSION

6.1 Introduction

This doctoral research sought to gain a deeper understanding of the potential impact of policies and programmes for reducing adolescent pregnancy in Ghana. The specific aims of identifying current policies and programmes and their alignment with predictors of adolescent pregnancy were addressed through a wider policy scoping review in Anglophone sub-Saharan Africa (SSA) and secondary data analysis of DHS data across most of the sub-Saharan African countries. To gain a deeper understanding of barriers and facilitators for policy and programme implementation in Ghana, the primary study of this body of work used implementation science theory and the realist approach to evaluation to collect and triangulate data through in-depth qualitative interviews with key stakeholders: health and education professionals, responsible for policy and programme implementation, grassroots workers, responsible for programme delivery within communities, and adolescent girls, the direct beneficiaries of policies and programmes.

The analysis of secondary data on the prevalence of first adolescent pregnancy and its associated factors in SSA showed a high prevalence of adolescent pregnancy in Ghana and in SSA generally. Marital status, age at first sex, place of residence, wealth quintile, level of education, knowledge of contraceptives and unmet need for contraception were factors associated with adolescent pregnancy. The scoping review of national policies on the prevention of adolescent pregnancy in Anglophone SSA identified two relevant policies in Ghana - the 2015 National Gender Policy and the 2016 Adolescent Health Service Policy. The findings showed that in Ghana, these national policies were backed by political recognition, were government and public initiatives, and acknowledged a range of determinants of adolescent pregnancy such as early marriage, gender-based violence, early initiation of sex,

multiple sexual partnership, coerced sex, poverty, illiteracy, unemployment, school dropouts and lack of access to contraceptive commodities and information.

Findings from the data collected for the primary study were broadly grouped into two main sections based on the third and fourth aims of the doctoral research. The key findings were that professionals and grassroots workers had low level awareness and knowledge of policies but high level awareness and knowledge of relevant programmes aimed at reducing adolescent pregnancy. The barriers and facilitators identified were broadly grouped under contextual factors, provider characteristics, innovation characteristics, prevention delivery system and prevention support system, based on the Conceptual Framework for Understanding Effective Implementation and realist approach to evaluation. Focus group discussions with adolescents also revealed three further barriers and two facilitators to accessing pregnancy prevention information and services, which could potentially affect the implementation of policies and programmes.

This chapter synthesises the key findings across the three studies to inform the fifth and final aim of the doctoral research, which is to make recommendations for policy and programme implementation. The chapter discusses the significance of the research findings in relation to the study's strengths and limitations.

6.2 The role of policy and programmes in social determinants of adolescent pregnancy

Since the mid-1990s, relevant policies and programmes have been implemented globally due to the recognition of the urgent need to address negative SRH outcomes, including adolescent pregnancy (UNFPA, 2004). This has been facilitated by the international commitment to improving SRH, reflected in the 1994 International Conference on Population and Development, the 2000 Millennium Development Goals (Buse et al., 2006) and the 2015 Sustainable Development Goals (United Nations, 2015).

Findings from the scoping review and the knowledge and awareness of policies and programmes provide useful insights into policy implementation within communities. A range of government policies and strategies, including those that do not explicitly target adolescent pregnancy, co-exist to inform or guide the work of professionals/ policy implementers. This may also imply that the professionals are quite of touch with relevant policies on adolescent pregnancy in the country. Thus, there is the need to ensure that critical policy actors are well informed about existing policies and their role in the implementation of these policies.

The health and education professionals could not provide detailed information and description of these policies. Ghana is not alone in this situation. Other countries in SSA also have policies that target reduction of adolescent pregnancy, whilst those workers responsible for their implementation appear uninformed of their existence. Interviews with policy implementers in Burkina Faso, Cameroon, and Togo and other LMICs also showed that few of such post-holders have high levels of awareness of policies on adolescent pregnancy (Calves, 2002; Khanh Chi et al., 2021).

The policies were intended to address the high prevalence of adolescent pregnancy in Ghana, which was identified in the analysis of secondary data on prevalence of first adolescent pregnancy and its associated factors in SSA (Ahinkorah et al., 2021). As in Ghana, policies have been instrumental in addressing the high prevalence of adolescent pregnancy in Africa (Odejimi & Young, 2014; Yakubu & Salisu, 2018). Findings from the scoping review showed a range of determinants of adolescent pregnancy targeted by the policies in Ghana. These include early marriage, gender-based violence, coerced sex, early initiation of sex, multiple sexual partnership, poverty, illiteracy, unemployment, school drop-outs, and lack of access to contraceptive commodities and information (Ahinkorah, Kang, et al., 2020).

To reduce adolescent pregnancy, all the policies identified in the scoping review of national policies (Ahinkorah, Kang, et al., 2020) as well as the interviews with health and education professionals proposed interventions such as information, education and communication; advocacy; provision of adolescent reproductive health services; CSE; youth empowerment; the training of healthcare providers, parents and community members, and political and legal actions that support adolescent reproductive health. The health and education professionals and grassroots workers also mentioned these interventions as key components of the school and community-based programmes. Focus group discussions with the adolescents also indicated that CSE and vocational skills training play important roles in the empowerment of girls. When girls are empowered, they can access pregnancy prevention information and services, which are part of the policies and programmes implemented to reduce adolescent pregnancy. Similar interventions have been found to be effective for preventing adolescent pregnancy in other LMICs (Meherali et al., 2021; Rose-Clarke et al., 2019).

6.3. Role of the Ecological Framework for Understanding Effective Implementation in policy and programme

Implementation science theory was used to help understand how the policies and programmes were applied, what factors might affect their implementation and how the implementation process might impact adolescent pregnancy rates (Durlak & DuPre, 2008). In this doctoral research, a variety of factors were identified that influenced policy and programme implementation. These were mapped against the five components of the Ecological Framework for Understanding Effective Implementation and are discussed below.

6.3.1 Community factors

6.3.1.1 Gender inequality

Gender inequality was a dominant community factor, evident across all studies in this doctoral research. In these three studies, gender inequality in Ghana manifested in gender-based

violence, child/early/forced marriage, and male spousal dominance in accessing SRH services. The role of gender inequality in the implementation of policies and programmes constitutes a key barrier to the effective implementation of policies and programmes. While interview with health and education professionals stressed gender-based violence and child marriage as key components of gender inequality, male spousal dominance in accessing SRH services was emphasised by the adolescent girls.

Gender-based violence

The studies of this doctoral research all affirm the importance of gender-based violence in the implementation of policies and programmes on adolescent pregnancy. Gender-based violence was identified in the scoping review of national policies as one of the determinants of adolescent pregnancy that various policies in numerous countries of SSA seek to address. This was affirmed in the primary study as a key barrier to policy or programme implementation in Ghana.

Violence against women and girls is one of the most common human rights violations. Worldwide, approximately one in three women will experience physical or sexual abuse in their lifetime (UNFPA, 2021). Gender-based violence is a form of violence that involves harmful acts directed at an individual based on their gender (Perrin et al., 2019). Gender-based violence has its roots in gender inequality, the abuse of power and harmful social norms which undermine the health, dignity, security and autonomy of its victims (UNFPA, 2021).

Among women and girls, adolescents are at a higher risk and are uniquely impacted by gender-based violence. This risk has been attributed to their young age and relative inexperience with relationships (Decker et al., 2015). This is particularly common among adolescents who are married to older men or married at a very young age (Akintola et al., 2012). Among adolescents, forced and coerced sexual initiation is linked with non-use of contraceptives which often results in unintended pregnancy (Decker et al., 2015).

In Ghana, in 2021, more than one in five adolescent girls reported experiencing sexual violence within the past 12 months, including rape and sexual coercion. Sexual violence in the domestic environment was rare but it almost always involved rape and sexual coercion (UNICEF, 2021). Sexual abuse has been found to be a key determinant of adolescent pregnancy in Ghana. A study on pregnant adolescents' lived experiences and coping strategies in peri-urban district in Southern Ghana revealed that the majority of pregnant adolescents were sexually abused either by their uncles, school mates or acquaintances (Kotoh et al., 2022).

Essential services such as counselling, justice and police response are important for girls subjected to gender-based violence. These services are implemented as part of policies and programmes aimed at reducing gender-based violence. However, the implementation of these interventions are hindered by the lack of data due to under-reporting that prevent adolescents from seeking help through formal and informal channels, such as fear of stigma, the poor quality of services, lack of financial means, lack of laws, and lack of agency (Hindin et al., 2008; Palermo et al., 2014). Formal reporting of gender-based violence to authorities, such as law enforcement, judges, or local leaders, enables precise quantification of the violence's prevalence. This enables effective budget allocation for interventions to lower gender-based violence and offer survivors the care they need. However, a study in 24 LMICs, shows that just 7% of the women who had suffered gender-based violence reported their experiences to a formal source (Palermo et al., 2014). Although interview with the adolescents yielded no data on gender-based violence, the health and education professionals and grassroots workers explained that in some communities, gender-based violence is considered a cultural practice and not violence per say. This may partly also explain why there is no reporting of gender-based violence and adolescent girls were silent on this in the focus group discussion.

Child marriage

Child marriage was found in the studies of this thesis as a significant contributor to the implementation of policies and programmes on adolescent pregnancy. The findings of the analysis of secondary data showed, unsurprisingly, that adolescents who were married were more likely to experience adolescent pregnancy than those who were unmarried. Child marriage was also acknowledged as a determinant of adolescent pregnancy in the scoping review of national policies. The findings of the primary study also recognised child marriage as a barrier to policies and programmes that aim to reduce this in Ghana.

Child marriage, also known as early marriage, has been commonly defined as marriage that takes place under the age of 18—the upper age limit for protection under the 1989 Convention on the Rights of the Child (UNICEF, 2020). Such relationships may be recognised in statutory or customary law as marriages, or may constitute informal unions (cohabitation). Since a child cannot provide informed consent to a marriage under international human rights law, marriages that occur under the age of 18 are also considered as forced marriages (Sarfo et al., 2020). A forced marriage has been defined as one that "lacks the free and valid consent of at least one of the parties." (United Nations General Assembly, 2012b).

In Ghana, evidence from the 2014 Ghana Demographic and Health Survey (DHS) shows that on average, of every five girls in the country, one is married before age 18. Child marriage in Ghana is predominant in the three Northern Regions of Ghana (Northern, Upper East and Upper West Regions), where one in three girls is married before 18 years. There are also rural-urban and wealth-related inequalities in the prevalence of child marriage, with more girl brides in rural compared to urban areas and among girls from poor compared to rich households (Ghana Statistical Service et al., 2015). Policies on adolescent pregnancy in Ghana have considered child marriage a major target because evidence associates child marriage with adolescent pregnancy in this country (de Groot et al., 2018; Sarfo et al., 2022).

Child marriage influences the implementation of policies and programmes through the lack of evidence on the effectiveness of laws that prohibit child marriage. Although several nations have laws that forbid child marriage, there is not enough data to prove that these rules are effective deterrents, in part because they are rarely adequately implemented. Even in nations where the practise is forbidden by law, child marriage is still very common. Laws prohibiting child marriage are seen to be ineffectual due to a lack of enforcement by national and regional governments, conflicts with customary and religious norms, and parents' and children's ignorance of the laws (Psaki, 2016a, 2016b). A review of 23 programmes seeking to address child marriage found a notable increase in interventions addressing child marriage between 2000 and 2010. The authors identified five key strategies used by these programmes: equipping girls with knowledge, abilities, and support networks; educating and enlisting the help of parents and community members; improving the availability and standard of formal education for girls; providing financial assistance and incentives to girls and their families; and fostering an enabling legal and policy environment. They concluded that the strongest programmes were those that worked directly with girls to develop information, skills, and resources, whereas the weakest programmes were those that worked only at the community level (Lee-Rife et al., 2012).

Male spousal dominance in accessing SRH services

Male spousal dominance was found to play a significant role in the implementation of policies and programmes on adolescent pregnancy in the studies of this thesis. Findings from the primary study highlighted the dominance of male spouses in SRH decision-making as a major barrier to the implementation of policies and programmes. This was evidenced in the requirement for male spousal approval when accessing SRH services, particularly family planning. Although the focus group discussion with adolescents revealed male spousal dominance as a barrier to the implementation of policies and programmes, none of the

professionals and grassroots workers mentioned this. This is an indication that adolescent girls, who are beneficiaries of the policies and programmes may be facing some barriers which are unknown to the policy and programme implementers. In Ghana, studies have shown a high prevalence of male spousal approval of family planning services (Sarfo et al., 2022), with some women considering spousal approval as still relevant for women in the use of contraceptives (Adongo et al., 2013; Kwawukume et al., 2022). However, male dominance in decisions regarding access to family planning is regarded a major barrier to accessing family planning, especially among adolescent girls (Adongo et al., 2013). These findings are consistent with the findings of studies in other LMICs, where males were found to be involved in access to family planning services (Gray et al., 2021; Sharma et al., 2018).

In other LMICs, unmarried young women have been shown to often be hindered from accessing contraceptives by healthcare providers, while those who are married often require permission of their husbands to access contraceptives (Bender & Fulbright, 2013; Yarrow et al., 2014). This may be due to socio-cultural gendered norms around masculinity in SSA and other LMICs. In SSA, hegemonic masculinities often express men's power and dominance over women (Sikweyiya et al., 2020). Hegemonic masculinity has been described as a societal pattern in which stereotypically male traits are considered as the masculine cultural ideal, explaining how and why men maintain dominant social roles over women (Jewkes, Morrell, et al., 2015). In Ghana, male spousal dominance in access to SRH services is more predominant in marriages involving adolescent girls, reflecting their relative disempowerment in reproductive health decision making (Ahinkorah, Hagan Jr, et al., 2020).

6.3.1.2 Family poverty

Family poverty was found to be a key driver of adolescent pregnancy. This was evidenced in the findings of the scoping review of national policies where poverty was identified as one of the determinants of adolescent pregnancy which policies sought to address (Ahinkorah, Kang, et al., 2020). The analysis of secondary data also identified poverty, which was synonymous with poor household wealth index, as a risk factor for adolescent pregnancy (Ahinkorah et al., 2021). The primary study of this thesis found that family poverty led some parents to force their daughters into early marriages while others encouraged their daughters to engage in sex for money to support the family. This was identified as a key barrier to the implementation of policies and programmes on adolescent pregnancy from the interviews with the professionals and grassroots workers. Family poverty on its own may not directly affect the implementation of policies and programmes but can affect access to information and services that are produced by the policies and programmes. This means that adolescent girls who are not economically empowered will not be able to access and use pregnancy prevention information and services even when they are available. Such girls will also not have the agency to make positive decisions related to their sexual life. This is where economic empowerment plays a major role. Focus group discussions with adolescent girls revealed the importance of economic empowerment in the effectiveness of policies and programmes through increase in decision-making power structure in relationships and access to contraceptives (Nkhoma et al., 2020).

6.3.1.3 Lack of political will and partisan politics

Political will and partisan politics have been shown to be key determinants of adolescent pregnancy and to play major roles in the implementation of policies and programmes. Findings from the scoping review of national policies showed that, other than the Adolescent Health Service Policy and Strategy of Ghana, 2016-2020 (Republic of Ghana, 2016a), all policies included statements that showed political recognition and will to address adolescent pregnancy

(Ahinkorah, Kang, et al., 2020). This affirmed findings from the primary study that showed lack of political will as a contextual factor that served as a barrier to the implementation of policies and programmes. The lack of political will was evidenced by insufficient budgetary allocation demonstrating the government of Ghana accorded low priority to adolescent SRH issues (Mayhew & Adjei, 2004). This finding could be a reflection of an attitude of political leaders and decision makers reported from SSA more broadly (May, 2017; May & Turbat, 2017). Political recognition of a problem and having the will to address it are important steps in the process of national policy and programme development and implementation. The existence of clear national guidelines and statements by political leaders may demonstrate political will to address health issues (Calves, 2002). Lack of political will can hinder development and implementation of policies and programmes (Cerna, 2013).

In addition, the primary study also found that partisan politics, manifesting in differences between affiliates of political parties, hindered support for the implementation of SRH programmes in Ghana. Partisan politics in Ghana are attributed to the two main political parties - the New Patriotic Party and the National Democratic Congress - which have dominated the political scene since 1992. Ruling power has tended to see-saw between the parties every eight years (Akwei et al., 2020). Many citizens, including stakeholders of policies and programmes, are affiliated to political parties and in most instances, individuals who play major roles in the implementation of policies and programmes in the country are appointed by the ruling political party (Bob-Milliar, 2012). Government appointees are expected to be loyal to the ruling political party and this creates institutional bottlenecks in administration that hinder the implementation of policies and programmes (Amoako & Lyon, 2014). This mostly occurs when the government is not interested in the implementation of a particular policy or programme, particularly where it may have been initiated by the previous government. More importantly, the interest of political parties in Ghana more often lies with building roads,

hospitals and other tangible materials that can be seen by the citizens, and hence attract political votes (Akwei et al., 2020); less attention is paid to issues such as adolescent pregnancy which are less visible to citizens and more likely to be socially challenging.

6.3.1.4 Effective community leadership

Effective community leadership was identified as a community factor that enhanced the implementation of policies and programmes in the primary study. This was manifested using by-laws to enhance the uptake and effectiveness of policies and programmes at the community level. Leadership plays a crucial role in the implementation of innovation in health and allied health care settings (Aarons et al., 2015). In the context of implementation science, leadership is crucial because leaders foster the capacity to engender change and innovation (Damanpour & Schneider, 2006). In Ghana, effective community leadership operates through chiefs and opinion leaders who understand the dynamics within communities and offer support to ensure the sustainability of locally implemented policies and programmes (Adomah-Afari & Chandler, 2018). Community leadership also ensures effective implementation of policies and programmes in Ghana through regular counselling of adolescents against sex by community leaders, typically emphasising its consequences and moral repercussions (Challa et al., 2018).

The effectiveness of leadership can determine the implementation and effectiveness of innovations (Williams et al., 2020). In line with the realist approach to implementation, enactment of by-laws acts as a mechanism through which effective community leadership influences the implementation of policies and programmes (Pawson et al., 1997). In LMICs, community leaders play significant roles in determining implementation of policies and programmes since they hold the traditional power and authority in the community within which by-laws are implemented (Martiskainen, 2017).

6.3.2 Provider characteristics

6.3.2.1 Lack of engagement and collaboration between stakeholders

Stakeholder engagement and collaboration were found to be key considerations for national policies in the scoping review of policies. This was evidenced in the roles as well as the number of partners involved in public and private efforts (Ahinkorah, Kang, et al., 2020). However, in the primary study, whereas there was familiarity with local programmes, knowledge and awareness of national policies was found to be low and attributed to the lack of stakeholder engagement. Moreover, lack of stakeholder engagement and collaboration was found to be a barrier to the implementation of policies and programmes aimed at reducing adolescent pregnancy in Ghana.

A stakeholder is broadly defined as a person, group or organisation involved in or affected by a course of action (Lemke & Harris-Wai, 2015). Stakeholder engagement and collaboration are important components of implementation (Drahota et al., 2016; Miller et al., 2019). Stakeholder engagement and collaboration play significant roles in understanding the needs of different groups and communities, and for increasing equity in policy (Helbig et al., 2015).

In Ghana, multiple stakeholders are involved in the implementation of SRH policies and programmes. These stakeholders are from within and external to the government sector. Most of the stakeholders outside the government sector provide mainly financial and logistical resources which those within the government sector implement. Hence, engagement and collaboration between these stakeholders are key for the effective implementation of programmes (Koduah et al., 2016). Lack of engagement and collaboration between stakeholders is considered a major barrier to the implementation of SRH programmes in the country (Akazili et al., 2020).

Lack of engagement and collaboration between stakeholders were mechanisms shown to lead to disapproval of programmes by parents and community members in Ghana. This is consistent with the findings of other studies in LMICs, where the lack of engagement and collaboration between stakeholders have been found to be barriers to the effective implementation of health interventions (Chandra-Mouli, Chatterjee, et al., 2015; Kennedy et al., 2013).

6.3.3 Innovation characteristics

6.3.3.1 Inadequate data

Inadequate data was found to be an important factor in adolescent pregnancy in this doctoral research. The scoping review found that few policies had information on the determinants of adolescent pregnancy (Ahinkorah, Kang, et al., 2020). Similarly, the primary study found data on gender-based violence was lacking and this was attributed to under-reporting. This under-reporting rationale for lack of data on gender-based violence in Ghana confirms the findings of previous studies in this country, where low reporting of the gender-based violence predominant among adolescent girls and young women also posed barriers to interventions (Heslop et al., 2019; Proulx, 2012). Other barriers such as poverty and male dominance may explain the inadequate data. Other studies in LMICs have similarly identified that the low reporting of gender-based violence is attributed to stigma, shame, financial challenges, fear of revenge, absent or ineffective laws to deal with it, and lack of awareness of services for its victims (Hindin et al., 2008; Palermo et al., 2014).

The importance of accurate data to support effective change and the inadequate data systems to enhance the implementation of interventions has been widely acknowledged, featuring in both the realist approach to evaluation and the Ecological Framework of Understanding Effective Implementation (Durlak & DuPre, 2008). Under-reporting of data is widely recognised in SSA as creating a context which is lacking in the objective evidence that

data can provide, which in turn has been shown to affect the outcome of effective implementation of policies and programmes on SRH, including adolescent pregnancy (Chandra-Mouli et al., 2021).

6.3.3.2 Youth involvement

Youth involvement was found to be a key factor that impacts the implementation of policies and programmes on adolescent pregnancy in Ghana. Youth involvement entails the engagement of young people in the formulation, implementation, monitoring and evaluation processes of policies and programmes (Ahinkorah, Kang, et al., 2020; Calves, 2002). The scoping review of national policies found that few policies mentioned youth involvement in their formulation, implementation, monitoring or evaluation (Ahinkorah, Kang, et al., 2020). One of Ghana's two policies (the Adolescent Health Service Policy and Strategy, 2016-2020) (Republic of Ghana, 2016a) mentioned youth involvement in its formulation, implementation plan, monitoring and evaluation. This finding is consistent with that of previous studies in Ghana, where young people's engagement in the policy development and implementation process was found to be key to ensuring their needs were taken into account (Awusabo-Asare et al., 2004; Panchaud et al., 2019).

Findings from the primary study showed the presence of youth involvement in the implementation of policies and programmes through the establishment of girls' clubs and youth groups in Ghana. These led to the implementation of youth-focused policies and programmes and enhanced the participation of adolescents in the implementation of policies and programmes as evidenced in other LMICs (Rose-Clarke et al., 2019). The findings also showed that the establishment of "youth-friendly health corners" was a mechanism through which youth involvement affected the implementation of policies and programmes in Ghana. Despite these findings, there is evidence that adolescent girls are generally disempowered as none of the health professionals and the grassroots workers mentioned youth involvement in their

formulation, implementation, monitoring or evaluation, which was found in the scoping review as key in the development of policies (Ahinkorah, Kang, et al., 2020). Moreover, the focus group discussion revealed major gaps in the empowerment of girls. This was evidenced in the high illiteracy which resulted in the fear of side effects and misconceptions towards family planning. This affected access and use of family planning as evidenced in the findings of studies in other LMICs (Bhatt et al., 2021; Ochako et al., 2015; Silumbwe et al., 2018) and ultimately the implementation of policies and programmes on adolescent pregnancy. Focus group discussions with the adolescents further revealed the importance of SRH education and vocational skills training in the empowerment of girls. SRH education equips adolescents to defend and promote their health, wellbeing, and dignity. It also improves their gender equality and rights (Chavula et al., 2022; Mark & Wu, 2022). Apart from SRH education, vocational skills training empowers adolescent girls economically and improves their access and use of pregnancy prevention information and services through the removal of the cost barrier. Economic empowerment also enhances the sexual agency of adolescent girls (Bandiera et al., 2020; Stavropoulou, 2018).

6.3.4 Prevention delivery system factors

6.3.4.1 Collaboration and effective coordination

Collaboration and coordination between stakeholders were identified as key factors in the implementation of policies and programmes on adolescent pregnancy. This was evidenced in the findings of the scoping review of national policies, where both of Ghana's included policies stressed the importance of coordination and collaboration between government and non-governmental actors in the country (Ahinkorah, Kang, et al., 2020). In the primary study, collaboration and effective coordination between health and education professionals and community leaders and members were identified as key prevention delivery system facilitators for the implementation of policies and programmes in Ghana. Adequate training and technical

support were mechanisms that enhanced stakeholder collaboration and coordination, thereby facilitating community support and commitment to policy and programme implementation. Collaboration and coordination are recognised as important elements by implementation science. They play key roles in the development of novel and generalisable approaches, and foster understanding of the peculiar challenges to implementation in particular settings (Aarons et al., 2019). Such strategies have resulted in the implementation of health policies and programmes, wherein collaboration and coordination have been considered important elements (Calves, 2002). In other LMICs, collaboration and coordination between stakeholders have been considered essential for the effective implementation of policies and programmes (Ahinkorah, Kang, et al., 2020; Mbachu, Clara Agu, et al., 2020; Tabong et al., 2018).

6.3.5 Prevention support system factors

6.3.5.1 Lack of funding

Funding for policies and programmes has been widely acknowledged as essential in the implementation of policies and programmes, with the scoping review demonstrating that the majority of national policies, including those of Ghana, mentioned financial resources and sources of funding (Ahinkorah, Kang, et al., 2020). However, findings from the primary study showed inadequate funding of implementation of policies and programmes on adolescent pregnancy in Ghana at the time of data collection. This lack of funding was attributed, at least in part, to the reduction in donor support due to the impact of COVID-19. The impact of COVID-19 on donor support is not only peculiar to Ghana but other LMICs as well, that have also experienced low external financial support due to COVID-19 (Micah et al., 2021).

Funding is a key consideration for the implementation of policies and programmes (Peckham et al., 2021). Factors include not just the sources of funding but also the perceived stability of financial resources (Calves, 2002). Within the Ecological Framework for

Understanding Effective Implementation, funding constitutes a key element of the prevention support system for the implementation of policies and programmes (Durlak & DuPre, 2008).

6.4 Conclusion

In line with the ecological framework and the realist approach to evaluation, the factors discussed above provide a comprehensive understanding of the context and mechanisms that play important roles in the implementation of policies and programmes in Ghana. This study has demonstrated that contextual factors such as gender-based violence, child marriage, male dominance in accessing SRH services and family poverty, exist alongside mechanisms such as lack of political will and partisan politics, lack of engagement and collaboration between stakeholders, lack of funding, inadequate data, youth involvement, collaboration and effective coordination, and effective community leadership to impact the implementation of policies and programmes on adolescent pregnancy. Together, these factors clearly demonstrate the barriers and facilitators to the implementation of policies and programmes on adolescent pregnancy as well as emphasise some of the key determinants of adolescent pregnancy. Addressing the barriers such as poverty, male dominance in accessing SRH services and gender inequality will help achieve the SDGs 1, 3.7 and 5.

6.5 Strengths and limitations

One of the strengths of this doctoral research is the use of established implementation science theory and a realist evaluation approach to examining policy and programme impact in Ghana. The theory-driven conceptual framework for evaluating program and policy design on adolescent sexual and reproductive health provided a systematic process for exploring barriers and facilitators to policy implementation, ensuring that the findings were both evidence-informed and comprehensive. This also enhanced the understanding of the findings within the field of implementation science. More specifically, the implementation science framework

adopted in this study made it possible to effectively explore the barriers and facilitators to the implementation of policies and programmes on adolescent pregnancy.

Applying the realist approach to this study enabled the identification of the contexts and mechanisms that influence the implementation of policies and programmes on adolescent pregnancy in Ghana. This approach can inform effective implementation by elucidating how, for example, resources and stakeholder attitudes and beliefs (ie mechanisms) work within the broader social and cultural contexts where implementation is occurring. The scoping review and analysis of secondary data provided a broad contextual picture of the determinants of adolescent pregnancy in SSA, while the primary study examined contexts, mechanisms and outcomes specific to a region of Ghana with the highest prevalence of adolescent pregnancy. By synthesising evidence across all three studies, broader and deeper insights into contextual factors were reached, and the value of considering multiple sources of data and perspectives of multiple stakeholders was highlighted.

Despite these strengths, this study has a number of limitations, which have been acknowledged in Chapters Two, Four and Five. However, one of the key limitations that needs to be emphasised is that COVID-19 posed difficulties for the work as a whole and for the relevance of the work to a post-COVID world.

6.6 Chapter Summary

This chapter has synthesised and discussed the key findings of the primary study with health and education professionals, grassroots workers, and adolescent girls in Ghana in relation to those obtained from the scoping review of national policies on the prevention of adolescent pregnancy in Anglophone SSA, including Ghana, and the prevalence study of first adolescent pregnancy and its associated factors in SSA, including Ghana. The chapter has identified and discussed the strengths and limitations of the work as a whole.

CHAPTER SEVEN: CONCLUSION

7.1 Introduction

The final chapter of this thesis addresses the fifth and final aim which sought to use the synthesis of the study's findings to make recommendations about ways to improve policies and programmes and their implementation, with the aim of reducing adolescent pregnancy in Ghana. It focuses on the significance and implications of the findings obtained from this doctoral research. The importance of the key findings obtained from each component of the doctoral thesis is highlighted and recommendations are provided for improving policies and programmes and their implementation for reducing adolescent pregnancy in Ghana and other LMICs. Directions for future research are indicated.

7.2 Significance of the Research Findings

This doctoral research contributes new knowledge to understand how policies and programmes may impact adolescent pregnancy rates in Ghana. It achieves this by identifying the prevalence of adolescent pregnancy, its associated factors and the policies and programmes that have been implemented to reduce this in Ghana; and determining what facilitates and hinders the implementation and effectiveness of such policies and programmes. This has enabled provision of recommendations about ways to improve future policies and programmes, their implementation and effectiveness to reduce adolescent pregnancy in Ghana. This doctoral research also highlights similarities and disparities between Ghana and other sub-Saharan African countries which may be useful for policy makers and implementers, providing context-specific data.

The thesis findings call out the need for policy developers to incorporate realistic timelines, explicit goals, and measurable outcomes in the policy development process so they can serve as benchmarks for formal evaluation of outcomes and assessing the impact of the policies.

Further, this work flags that policy developers and implementers should ensure that young people are involved in all aspects of the policy development and implementation processes so that they can own the policies and make their adoption and implementation easier. This can be done through youth commissions, advisory bodies, youth groups, youth conferences, peer support, etc. This was considered important by the Lancet Commission on adolescent health and wellbeing, which pointed out that to be effective, adolescent health programmes require youth involvement at local, national and international levels (Patton et al., 2016).

Also, this doctoral research has highlighted the inadequate knowledge and awareness of policies among the key policy implementers in Ghana and systematically identified a range of barriers and facilitators to implementation of policies and programmes on adolescent pregnancy in Ghana using the ecological framework. Hence, the framework can be adopted to understand the barriers and facilitators to the implementation of policies and programmes on adolescent pregnancy in other contexts.

Finally, focus group discussions with adolescents identified fear of side effects and misconceptions that result from inaccurate information and illiteracy as barriers to accessing pregnancy prevention information and services. Girls empowerment through SRH education and vocational skills training was found to be a key barrier to accessing pregnancy prevention information and services.

7.3 Recommendations

Findings from this doctoral research have implications for public health policy and practice, education, and further research.

7.3.1 Public health policy

The analysis of secondary data provides population level data to support improvement in social policy development. This is important because adolescent pregnancy is intimately

linked with the social context and policy to reduce it cannot stand alone but must be integrated with social policies addressing the factors within the wider social fabric that predispose towards it. However, as evidenced in the primary study, the success of policies will depend on cultural and social change, coupled with engagement of all stakeholders including adolescents. Policy makers and implementers should ensure that policies address entrenched gender inequality and family poverty, providing well-resourced interventions with explicit, measurable targets to eradicate child marriage, gender-based violence, family poverty and male spousal dominance in accessing SRH services.

Policy makers in Ghana should revise existing national policies which lack quantifiable objectives, financial resources, and youth involvement to include these essential components of the policies and ensure that these are considered in the implementation of the policies.

Governments and policy makers are encouraged to be transparent and realistic about the necessary financial resourcing and identify funding sources. Quantifiable policy objectives should be set to provide a basis for assessing the implementation and outcomes of policies: their adoption, uptake, and effectiveness in relation to objectives. Governments, policy makers and grassroots workers require education on the roles, function, and importance of youth involvement in policy formulation, implementation and monitoring and evaluation.

Policy and programme implementers in Ghana should engage all stakeholders at all levels, including those involved with grassroots action, in all stages of development, planning and implementation. They should ensure that existing legal frameworks on ASRH are strengthened to address existing ASRH issues such as child marriages and gender-based violence that put adolescent girls at risk of pregnancy.

Policy makers in Ghana should ensure that existing national policies align with national and local strategic frameworks/plans. This can help reduce the barriers to effectiveness of

policies overall which can occur when one national policy has opposing actions to the national and local strategic frameworks/plans.

The government of Ghana should ensure that critical policy actors are well informed about existing policies and their role in the implementation of these policies.

7.3.2 Public health practice

Youth advocate groups should be established, and members trained to contribute towards the prevention of adolescent pregnancy. This should be done with the support of other major stakeholders in youth health.

To ensure community involvement in the implementation of policies and programmes, policy and programme implementers are encouraged to involve community members in the development of policies and programmes in order to engage and enhance their support for their implementation.

The government of Ghana should make the establishment of youth-friendly health corners part of the healthcare systems of the country.

Considering that poverty was identified as a key driver of adolescent pregnancy, government and NGOs in Ghana need to offer adolescent girls training and engage them in income generation activities that will enhance their economic power and that of their families.

7.3.3 Education

To ensure the effective implementation of policies, policy makers and implementers should combine feasible and effective approaches such as ASRH information and education in schools, communities and media in future development and implementation of policies. They should also enhance access to SRH services by removing cost-related barriers and supporting health workers to provide counselling services. They should also mobilise the wider policy environment to encompass responses to the social determinants of adolescent pregnancy.

Gender empowerment programmes such as education and training of adolescent girls should be implemented and strengthened at both the community and national levels. Community members should be educated on the negative effects of norms that support child marriage, gender-based violence and early childbearing.

Existing economic empowerment initiatives in Ghana that have been shown to be effective, such as the Livelihood Empowerment Against Poverty (LEAP) and the School Feeding Programme should be reinvigorated to reduce the financial burden on parents of socio-economically disadvantaged adolescents.

7.3.4 Future Research Directions

There needs to be ongoing population data surveillance, such as the DHS, to ensure that population-level trends are monitored. The use of qualitative research to complement ongoing quantitative surveys will help obtain deeper understandings of adolescent pregnancy. This could occur within specific contexts, such as individual countries or regions.

In assessing national policies on adolescent pregnancy, future studies should seek to include sub-national policy documents where countries have devolved local governments and also include policies from Francophone SSA. This will provide useful information with which to compare the findings of the current study, and to deepen understanding of the content, context and mechanisms of policies implemented in Francophone as well as Anglophone SSA.

Future research on barriers and facilitators to the implementation of policies and programmes on adolescent pregnancy should consider the inclusion of male adolescents. This will help to obtain further useful information to facilitate appreciation of the perspectives of female adolescents and of the policy context in Ghana. Moreover, given the importance of context in understanding adolescent pregnancy, future studies should focus on obtaining locally-relevant data on adolescent pregnancy.

Finally, when future policies are launched, policy-making bodies could employ realist approaches and implementation science principles to develop evidence-based strategies for their planning, implementation, and evaluation in order to obtain best values from the resources dedicated to policy development.

7.4 Concluding remarks

This doctoral research has comprehensively examined the impact of policies and programmes for reducing adolescent pregnancy in Ghana through a series of studies. Each of the studies presented in this doctoral research provides findings that deepen understanding and, for the future, the work of this thesis will facilitate development, implementation and uptake of locally-relevant policies and programmes to address adolescent pregnancy in Ghana. By locating the work in Ghana within the wider policy and outcomes context, findings may offer potential learning of relevance for other countries and SSA and for other LMICs. This doctoral research has demonstrated the linkages between adolescent pregnancy and some of the major social issues of the world, targeted by the SDGs. It has identified the crucial role of gender inequality and lack of girls' empowerment in adolescent pregnancy. Findings from this research can help to achieve SDG 5, which seeks to achieve gender inequality and empower all women and girls. Findings from this doctoral research support the importance of access to SRH services in adolescent pregnancy. At the global level, these can help achieve SDG 3.7, which seeks to ensure universal access to sexual and reproductive healthcare services, including family planning, information and education, and the integration of reproductive health into national strategies and programmes by 2030. Finally, the findings indicate that policies and programmes that target poverty are required to impact on adolescent pregnancy rates. This can also help achieve SDG 1, which seeks to end poverty in all its forms everywhere by 2030.

REFERENCES

Aarons, G. A., Ehrhart, M. G., Farahnak, L. R., & Hurlburt, M. S. (2015). Leadership and organizational change for implementation (LOCI): a randomized mixed method pilot study of a leadership and organization development intervention for evidence-based practice implementation. *Implementation science*, *10*(1), 1-12.

Aarons, G. A., Seijo, C., Green, A. E., Moullin, J. C., Hasson, H., von Thiele Schwarz, U., James, S., Ehrhart, M. G., Ducarroz, S., & Sevdalis, N. (2019). Fostering international collaboration in implementation science and research: a concept mapping exploratory study. *BMC research notes*, *12*(1), 1-6.

Abdul Latif Jameel Poverty Action Lab (J-PAL). (2019). Reducing adolescent pregnancy by increasing educational and economic opportunities in low- and middle-income countries.

Abiiro, G. A., Alatinga, K. A., & Yamey, G. (2021). Why did Ghana's national health insurance capitation payment model fall off the policy agenda? A regional level policy analysis. *Health policy and planning*, *0*(0), 1-12.

Abuosi, A. A., & Anaba, E. A. (2019). Barriers on access to and use of adolescent health services in Ghana. *Journal of Health Research*, *33*(3), 197-207.

Acharya, D. R., Bhattarai, R., Poobalan, A., Teijlingen, v. E., & Chapman, G. (2014). Factors associated with teenage pregnancy in South Asia. *Health Science Journal*, *4*(1), 1-14.

Adamchak, S., Bond, K., MacLaren, L., Magnani, R., & Nelson, K. (2000). *A guide to monitoring and evaluating adolescent reproductive health programs*. Citeseer.

Adedokun, O., Adeyemi, O., & Dauda, C. (2016). Child marriage and maternal health risks among young mothers in Gombi, Adamawa State, Nigeria: implications for mortality, entitlements and freedoms. *African health sciences*, *16*(4), 986-999.

Adomah-Afari, A., & Chandler, J. A. (2018). The role of government and community in the scaling up and sustainability of mutual health organisations: An exploratory study in Ghana. *Social science & medicine*, *207*, 25-37.

Adongo, P. B., Tapsoba, P., Phillips, J. F., Tabong, P. T.-N., Stone, A., Kuffour, E., Esantsi, S. F., & Akweongo, P. (2013). The role of community-based health planning and services strategy in involving males in the provision of family planning services: a qualitative study in Southern Ghana. *Reproductive Health*, *10*(1), 1-15.

Adu-Gyamfi, E. (2014). Assessing the effect of teenage pregnancy on achieving universal basic education in Ghana: A case study of Upper Denkyira West District. *Journal of Education and Practice*, *5*(17), 46-60.

Agyepong, I. A., & Adjei, S. (2008). Public social policy development and implementation: a case study of the Ghana National Health Insurance scheme. *Health policy and planning*, *23*(2), 150-160.

Ahinkorah, B. O. (2019). Topic: prevalence and determinants of adolescent pregnancy among sexually active adolescent girls in Niger. *Journal of Public Health*, 1-5.

Ahinkorah, B. O. (2020). Predictors of unmet need for contraception among adolescent girls and young women in selected high fertility countries in sub-Saharan Africa: A multilevel mixed effects analysis. *PLoS ONE*, *15*(8), e0236352.

Ahinkorah, B. O., Dickson, K. S., & Seidu, A.-A. (2018). Women decision-making capacity and intimate partner violence among women in sub-Saharan Africa. *Archives of Public Health*, *76*(1), 5.

Ahinkorah, B. O., Hagan Jr, J. E., Seidu, A.-A., Budu, E., Hormenu, T., Mintah, J. K., Sambah, F., & Schack, T. (2019). Access to adolescent pregnancy prevention information and services in Ghana: a community-based case-control study. *Frontiers in public health*, *7*, 382.

Ahinkorah, B. O., Hagan Jr, J. E., Seidu, A.-A., Mintah, J. K., Sambah, F., Schack, T., & Hormenu, T. (2019). Examining pregnancy related socio-cultural factors among adolescent girls in the Komenda-Edina-Eguafo-Abrem municipality in the central region of Ghana: a case-control study. *Frontiers in public health*, *7*, 93.

Ahinkorah, B. O., Hagan Jr, J. E., Seidu, A.-A., Sambah, F., Adoboi, F., Schack, T., & Budu, E. (2020). Female adolescents' reproductive health decision-making capacity and contraceptive use in sub-Saharan Africa: What does the future hold? *PLoS ONE*, *15*(7), e0235601.

Ahinkorah, B. O., Hagan Junior, J. E., Seidu, A.-A., Mintah, J. K., Sambah, F., Schack, T., & Hormenu, T. (2019). Examining Pregnancy Related Socio-Cultural Factors Among Adolescent Girls in the Komenda-Edina-Eguafo-Abrem Municipality in the Central Region of Ghana: A Case-Control Study. *Frontiers in public health*, *7*, 93.

Ahinkorah, B. O., Kang, M., Perry, L., & Brooks, F. (2020). Prevention of adolescent pregnancy in Anglophone sub-Saharan Africa: a scoping review of national policies. *International journal of health policy and management*.

Ahinkorah, B. O., Kang, M., Perry, L., Brooks, F., & Hayen, A. (2021). Prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa: A multi-country analysis. *PLoS One*, *16*(2), e0246308.

Ahinkorah, B. O., Perry, L., Brooks, F., & Kang, M. (2022). Barriers and facilitators regarding the implementation of policies and programmes aimed at reducing adolescent pregnancy in Ghana: an exploratory qualitative study. *BMJ open*, *12*(7), e060576.

Aikins, A. D. G., & Koram, K. (2017). Health and healthcare in Ghana, 1957–2017. *The Economy of Ghana Sixty Years after Independence*, *365*.

Ainul, S., Ehsan, I., Tanjeen, T., & Reichenbach, L. (2017). *Adolescent Friendly Health Corners (AFHCs) in selected government health facilities in Bangladesh: An early qualitative assessment*. Bangladesh: Population Council

Ajayi, A. I., Nwokocha, E. E., Akpan, W., & Adeniyi, O. V. (2016). Use of non-emergency contraceptive pills and concoctions as emergency contraception among Nigerian University students: results of a qualitative study. *BMC public health*, *16*(1), 1046.

Akanbi, F., Afolabi, K., & Aremu, A. (2016). Individual risk factors contributing to the prevalence of teenage pregnancy among teenagers at Naguru teenage center kampala, Uganda.

Akazili, J., Kanmiki, E. W., Anaseba, D., Govender, V., Danhoundo, G., & Koduah, A. (2020). Challenges and facilitators to the provision of sexual, reproductive health and rights services in Ghana. *Sexual and reproductive health matters*, *28*(2), 1846247.

Akella, D., & Jordan, M. (2014). Impact of social and cultural factors on teenage pregnancy. *Journal of Health Disparities Research and Practice*, *8*(1), 3.

Akers, R. L., & Sellers, C. S. (2004). *Criminological theories: Introduction, evaluation and application* (4th edition ed.). Roxbury Publishing. .

Akintola, O., Ngubane, L., & Makhaba, L. (2012). 'I did it for him, not for me': An exploratory study of factors influencing sexual debut among female university students in Durban, South Africa. *Journal of Health Psychology*, *17*(1), 143-153.

Akwara, E., & Elnakib, S. (2021). Taking stock of progress made in reducing adolescent motherhood in low-income and middle-income countries. *The Lancet Child & Adolescent Health*, *5*(1), 2-3.

Akwei, C., Damoah, I. S., & Amankwah-Amoah, J. (2020). The Effects of Politics on the Implementation of Government Programs/Projects: Insights from a Developing Economy. *Politics & Policy*, *48*(6), 1161-1201.

Alan Guttmacher Institute. (2010). *Teenage pregnancies, births and abortions: National and state trends and trends by race and ethnicity*. Alan Guttmacher Institute, .

Alhassan, R. K., Nketiah-Amponsah, E., & Arhinful, D. K. (2016). A review of the National Health Insurance Scheme in Ghana: what are the sustainability threats and prospects? *PLoS ONE*, *11*(11), e0165151.

Ali, M., Fjeldstad, O.-H., Jiang, B., & Shifa, A. B. (2019). Colonial legacy, state-building and the salience of ethnicity in Sub-Saharan Africa. *The Economic Journal*, *129*(619), 1048-1081.

Ali, S. S., & Ariffin, A. S. (2017). Grassroots participation in policy formulation: Gaps and challenges in the developing countries: Case of Malaysia and Zanzibar Grassroots. *Mediterranean Journal of Social Sciences*, *8*(2), 237-237.

Aliaga, A., & Ren, R. (2006). *Optimal sample sizes for two-stage cluster sampling in Demographic and Health Surveys*. ORC Macro MEASURE.

Aliaga, A., & Ruilin, R. (2006, 2006). Cluster optimal sample size for demographic and health surveys.

Amoako, I. O., & Lyon, F. (2014). 'We don't deal with courts': Cooperation and alternative institutions shaping exporting relationships of small and medium-sized enterprises in Ghana. *International Small Business Journal*, *32*(2), 117-139.

Anney, V. N. (2014). Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)*, *5*(2), 272-281.

Appiah, F., Seidu, A.-A., Ahinkorah, B. O., Baatiema, L., & Ameyaw, E. K. (2020). Trends and determinants of contraceptive use among female adolescents in Ghana: Analysis of 2003–2014 Demographic and Health Surveys. *SSM-population health*, *10*, 100554.

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International journal of social research methodology*, *8*(1), 19-32.

Arnett, J. J. (2006). G. Stanley Hall's Adolescence: Brilliance and nonsense. *History of psychology*, *9*(3), 186.

Aryeetey, E., & Kanbur, S. M. R. (2017). *The economy of Ghana sixty years after independence*. Oxford University Press.

Asamani, J. A., Chebere, M. M., Barton, P. M., D'Almeida, S. A., Odame, E. A., & Oppong, R. (2018). Forecast of healthcare facilities and health workforce requirements for the public sector in Ghana, 2016–2026. *International journal of health policy and management*, *7*(11), 1040.

Asare, B. Y.-A., Aryee, S. E., & Kotoh, A. M. (2020). Sexual behaviour and the utilization of youth friendly health Services: A cross-sectional study among urban youth in Ghana. *International Journal of Africa Nursing Sciences*, *13*, 100250.

Asare, B. Y.-A., Baafi, D., Dwumfour-Asare, B., & Adam, A.-R. (2019). Factors associated with adolescent pregnancy in the Sunyani Municipality of Ghana. *International Journal of Africa Nursing Sciences*, *10*, 87-91.

Asnong, C., Fellmeth, G., Plugge, E., San Wai, N., Pimanpanarak, M., Paw, M. K., Charunwatthana, P., Nosten, F., & McGready, R. (2018). Adolescents' perceptions and experiences of pregnancy in refugee and migrant communities on the Thailand-Myanmar border: a qualitative study. *Reproductive Health*, *15*(1), 1-13.

Atuoye, K. N., & Odame, F. S. (2013). 'Queenmother' concept in the upper west region of Ghana: is this advancement or an emerging conflict with tradition in a patriarchal society? *European Scientific Journal*, *9*(35).

Atuyambe, L. M., Kibira, S. P. S., Bukenya, J., Muhumuza, C., Apolot, R. R., & Mulogo, E. (2015). Understanding sexual and reproductive health needs of adolescents: evidence

from a formative evaluation in Wakiso district, Uganda. *Reproductive Health*, *12*(1), 35.

Awuni, A. (2016). *NGO rolls out project to combat teenage pregnancy in Upper East*.

Awusabo-Asare, K., Abane, A. M., & Kumi-Kyereme, A. (2004). *Adolescent sexual and reproductive health in Ghana: A synthesis of research evidence*. Alan Guttmacher Institute New York, NY.

Awusabo-Asare, K., Biddlecom, A., Kumi-Kyereme, A., & Patterson, K. (2006). *Adolescent Sexual and Reproductive Health in Ghana: Results From the 2004 National Survey of Adolescents.* Guttmacher Institute.

Awusabo-Asare, K., Stillman, M., Keogh, S., Doku, D. T., Kumi-Kyereme, A., Esia-Donkoh, K., & Bankole, A. (2017). From paper to practice: Sexuality education policies and their implementation in Ghana. *New York: Guttmacher Institute*.

Awusabo-Asare, K., Stillman, M., Keogh, S., Doku, D. T., Kumi-Kyereme, A., Esia-Donkoh, K., Leong, E., Amo-Adjei, J., & Bankole, A. (2017). From paper to practice: Sexuality education policies and their implementation in Ghana.

Ayanaw Habitu, Y., Yalew, A., & Azale Bisetegn, T. (2018). Prevalence and Factors Associated with Teenage Pregnancy, Northeast Ethiopia, 2017: A Cross-Sectional Study. *Journal of pregnancy*, *2018*, 1-7.

Ayele, B. G. k., Gebregzabher, T. G., Hailu, T. T., & Assefa, B. A. (2018). Determinants of teenage pregnancy in Degua Tembien District, Tigray, Northern Ethiopia: A community-based case-control study. *PLoS ONE*, *13*(7), e0200898.

Baatsen, P., Josaphat, J., Issa, R., Buwalda, A., & Juanola, L. (2018). Situation of teenage pregnancy and child marriage among in-school and out-of-school youth in Nampula and Rapale, Mozambique, 2017 study.

Bandiera, O., Buehren, N., Burgess, R., Goldstein, M., Gulesci, S., Rasul, I., & Sulaiman, M. (2020). Women's empowerment in action: evidence from a randomized control trial in Africa. *American Economic Journal: Applied Economics*, *12*(1), 210-259.

Bandura, A. (1977). *Social learning theory*. Prentice Hall.

Bantebya, G. K., Muhanguzi, F. K., & Watson, C. (2014). Adolescent girls in the balance: Changes and continuity in social norms and practices around marriage and education in Uganda. *Overseas Development Institute: London, UK*.

Barker, G., Ricardo, C., Nascimento, M., Olukoya, A., & Santos, C. (2010). Questioning gender norms with men to improve health outcomes: evidence of impact. *Global public health*, *5*(5), 539-553.

Barroy, H., Cortez, R., Le Jean, N., & Wang, H. (2016). *Addressing Adolescent Sexual and Reproductive Health in Niger*. World Bank.

Basedau, M., & Stroh, A. (2009). *Ethnicity and party systems in francophone sub-Saharan Africa*. GIGA German Institute of Global and Area Studies.

Bauer, M. S., & Kirchner, J. (2020). Implementation science: what is it and why should I care? *Psychiatry research*, *283*, 112376.

Baumgartner, J. N., Geary, C. W., Tucker, H., & Wedderburn, M. (2009). The influence of early sexual debut and sexual violence on adolescent pregnancy: a matched case-control study in Jamaica. *International perspectives on sexual and reproductive health*, 21-28.

Bearak, J., Popinchalk, A., Alkema, L., & Sedgh, G. (2018). Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model. *The Lancet Global Health*, *6*(4), e380-e389.

Bearak, J., Popinchalk, A., Ganatra, B., Moller, A.-B., Tunçalp, Ö., Beavin, C., Kwok, L., & Alkema, L. (2020). Unintended pregnancy and abortion by income, region, and the

legal status of abortion: estimates from a comprehensive model for 1990–2019. *The Lancet Global Health*, *8*(9), e1152-e1161.

Bender, S. S., & Fulbright, Y. K. (2013). Content analysis: a review of perceived barriers to sexual and reproductive health services by young people. *The European Journal of Contraception & Reproductive Health Care*, *18*(3), 159-167.

Berger, P. L., & Luckmann, T. (1991). *The social construction of reality: A treatise in the sociology of knowledge*. Penguin Uk.

Bhatt, N., Bhatt, B., Neupane, B., Karki, A., Bhatta, T., Thapa, J., Basnet, L. B., & Budhathoki, S. S. (2021). Perceptions of family planning services and its key barriers among adolescents and young people in Eastern Nepal: A qualitative study. *PLoS One*, *16*(5), e0252184.

Birdthistle, I., & Vince-Whitman, C. (1997). *Reproductive health programs for young adults: school-based programs*. Pathfinder International, Focus on Young Adults Project.

Blakemore, S.-J., & Mills, K. L. (2014). Is adolescence a sensitive period for sociocultural processing? *Annual review of psychology*, *65*, 187-207.

Blanchet, N. J., Fink, G., & Osei-Akoto, I. (2012). The effect of Ghana's National Health Insurance Scheme on health care utilisation. *Ghana Medical Journal*, *46*(2), 76-84.

Boamah, E. A., Asante, K. P., Mahama, E., Manu, G., Ayipah, E. K., Adeniji, E., & Owusu-Agyei, S. (2014). Use of contraceptives among adolescents in Kintampo, Ghana: a cross-sectional study. *Open Access Journal of Contraception*, *5*, 7-15.

Bob-Milliar, G. M. (2012). Political party activism in Ghana: factors influencing the decision of the politically active to join a political party. *Democratization*, *19*(4), 668-689.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Breuner, C. C., Mattson, G., Committee on Psychosocial Aspects of, C., & Family, H. (2016a). Sexuality education for children and adolescents. *Pediatrics*, *138*(2), 7-12.

Breuner, C. C., Mattson, G., Committee on Psychosocial Aspects of, C., & Family, H. (2016b). Sexuality education for children and adolescents. *Pediatrics*, *138*(2), e20161348.

Brien, M. J., Lillard, L. A., & Waite, L. J. (1999). Interrelated family-building behaviors: Cohabitation, marriage, and nonmarital conception. *Demography*, *36*(4), 535-551.

Brindis, C. D., Decker, M. J., Gutmann-Gonzalez, A., & Berglas, N. F. (2020). Perspectives on Adolescent Pregnancy Prevention Strategies in the United States: Looking Back, Looking Forward. *Adolescent health, medicine and therapeutics*, *11*, 135.

Brink, H. L., Van der Walt, C., & Van Rensburg, G. (1996). *Fundamentals of research methodology for professionals*. Juta: Health Care, Cape Town.

Brink, P. J. (1998). Exploratory designs. *Advanced design in nursing research*, *2*, 141-160.

Buse, K., Martin-Hilber, A., Widyantoro, N., & Hawkes, S. J. (2006). Management of the politics of evidence-based sexual and reproductive health policy. *The Lancet*, *368*(9552), 2101-2103.

Busetto, L., Wick, W., & Gumbinger, C. (2020). How to use and assess qualitative research methods. *Neurological Research and practice*, *2*(1), 1-10.

Calves, A. (2002). Assessing adolescent reproductive health policies and programs. *POLICY Working Paper Series*(8), 1-33.

Card, J. J. (1999). Teen pregnancy prevention: do any programs work? *Annual review of public health*, *20*(1), 257-285.

Carter, D. (2012). Comprehensive sex education for teens is more effective than abstinence. *AJN The American Journal of Nursing*, *112*(3), 15.

Casey, S. E., Gallagher, M. C., Kakesa, J., Kalyanpur, A., Muselemu, J.-B., Rafanoharana, R. V., & Spilotros, N. (2020). Contraceptive use among adolescent and young women in

North and South Kivu, Democratic Republic of the Congo: a cross-sectional population-based survey. *PLoS medicine*, *17*(3), e1003086.

Centers for Disease Control and Prevention. (2015). Unintended pregnancy prevention. In.

Cerna, L. (2013). The nature of policy change and implementation: A review of different theoretical approaches. *Organisation for Economic Cooperation and Development (OECD) report*, 492-502.

Challa, S., Manu, A., Morhe, E., Dalton, V. K., Loll, D., Dozier, J., Zochowski, M. K., Boakye, A., Adanu, R., & Hall, K. S. (2018). Multiple levels of social influence on adolescent sexual and reproductive health decision-making and behaviors in Ghana. *Women & health*, *58*(4), 434-450.

Chambers, D. A., Glasgow, R. E., & Stange, K. C. (2013). The dynamic sustainability framework: addressing the paradox of sustainment amid ongoing change. *Implementation science*, *8*(1), 1-11.

Chandra-Mouli, V., & Akwara, E. (2020). Improving access to and use of contraception by adolescents: what progress has been made, what lessons have been learnt, and what are the implications for action? *Best Practice & Research Clinical Obstetrics & Gynaecology*, *66*, 107-118.

Chandra-Mouli, V., Camacho, A. V., & Michaud, P.-A. (2013). WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. *Journal of Adolescent Health*, *52*(5), 517-522.

Chandra-Mouli, V., Chatterjee, S., & Bose, K. (2015). Do efforts to standardize, assess and improve the quality of health service provision to adolescents by government-run health services in low and middle income countries, lead to improvements in service-quality and service-utilization by adolescents? *Reproductive Health*, *13*(1), 1-8.

Chandra-Mouli, V., Ferguson, B. J., Plesons, M., Paul, M., Chalasani, S., Amin, A., Pallitto, C., Sommers, M., Avila, R., & Biaukula, K. V. E. (2019). The political, research, programmatic, and social responses to adolescent sexual and reproductive health and rights in the 25 years since the International Conference on Population and Development. *Journal of Adolescent Health*, *65*(6), 16-40.

Chandra-Mouli, V., Lane, C., & Wong, S. (2015). What does not work in adolescent sexual and reproductive health: a review of evidence on interventions commonly accepted as best practices. *Global Health: Science and Practice*, *3*(3), 333-340.

Chandra-Mouli, V., Neal, S., & Moller, A.-B. (2021). Adolescent sexual and reproductive health for all in sub-Saharan Africa: a spotlight on inequalities. In (Vol. 18, pp. 1-4): Springer.

Chavula, M. P., Zulu, J. M., & Hurtig, A.-K. (2022). Factors influencing the integration of comprehensive sexuality education into educational systems in low-and middle-income countries: a systematic review. *Reproductive Health*, *19*(1), 1-25.

Cherry, A. L., & Dillon, M. E. (2014). *International handbook of adolescent pregnancy: Medical, psychosocial, and public health responses.* . Springer Science & Business Media.

Christie, D., & Viner, R. (2005). Adolescent development. *Bmj*, *330*(7486), 301-304.

Christmals, C. D., & Aidam, K. (2020). Implementation of the National Health Insurance Scheme (NHIS) in Ghana: Lessons for South Africa and Low-and Middle-Income Countries. *Risk Management and Healthcare Policy*, *13*, 1879.

Christofides, N. J., Jewkes, R. K., Dunkle, K. L., McCarty, F., Shai, N. J., Nduna, M., & Sterk, C. (2014). Risk factors for unplanned and unwanted teenage pregnancies occurring over two years of follow-up among a cohort of young South African women. *Global health action*, *7*(1), 23719.

Collins, R. L., Martino, S., & Shaw, R. (2010). *Influence of new media on adolescent sexual health*.

Connor, S., Edvardsson, K., & Spelten, E. (2018). Male adolescents' role in pregnancy prevention and unintended pregnancy in rural Victoria: health care Professional's and educators' perspectives. *BMC pregnancy and childbirth*, *18*(1), 1-10.

Corsi, D. J., Neuman, M., Finlay, J. E., & Subramanian, S. V. (2012). Demographic and health surveys: a profile. *International journal of epidemiology*, *41*(6), 1602-1613.

Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative*. Prentice Hall Upper Saddle River, NJ.

Crook, R. (2005). The role of traditional institutions in political change and development. *CDD/ODI Policy Brief*, *4*(4), 1-5.

Cunningham, K., Martinez, D. A., Scott-Sheldon, L. A., Carey, K. B., Carey, M. P. J. J. o. c., & abuse, a. s. (2017). Alcohol use and sexual risk behaviors among adolescents with psychiatric disorders: A systematic review and meta-analysis. *26*(5), 353-366.

Damanpour, F., & Schneider, M. (2006). Phases of the adoption of innovation in organizations: effects of environment, organization and top managers 1. *British journal of Management*, *17*(3), 215-236.

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implementation science*, *4*(1), 1-15.

Darroch, J. E., Woog, V., Bankole, A., & Ashford, L. S. (2016). Costs and benefits of meeting the contraceptive needs of adolescents. *Guttmacher İnstitute*.

Das, J. K., Salam, R. A., Thornburg, K. L., Prentice, A. M., Campisi, S., Lassi, Z. S., Koletzko, B., & Bhutta, Z. A. J. A. o. t. N. Y. A. o. S. (2017). Nutrition in adolescents: physiology, metabolism, and nutritional needs. *1393*(1), 21-33.

de Groot, R., Kuunyem, M. Y., & Palermo, T. (2018). Child marriage and associated outcomes in northern Ghana: a cross-sectional study. *BMC public health*, *18*(1), 1-12.

Decker, M. R., Latimore, A. D., Yasutake, S., Haviland, M., Ahmed, S., Blum, R. W., Sonenstein, F., & Astone, N. M. (2015). Gender-based violence against adolescent and young adult women in low-and middle-income countries. *Journal of Adolescent Health*, *56*(2), 188-196.

Defor, S., Kwamie, A., & Agyepong, I. A. (2017). Understanding the state of health policy and systems research in West Africa and capacity strengthening needs: scoping of peer-reviewed publications trends and patterns 1990–2015. *Health research policy and systems*, *15*(1), 101-111.

Delanty, G. (1997). *Social science: Beyond constructivism and realism*. U of Minnesota Press.

Denno, D. M., Hoopes, A. J., & Chandra-Mouli, V. (2015). Effective strategies to provide adolescent sexual and reproductive health services and to increase demand and community support. *Journal of Adolescent Health*, *56*(1), S22-S41.

Desrosiers, A., Betancourt, T., Kergoat, Y., Servilli, C., Say, L., & Kobeissi, L. (2020). A systematic review of sexual and reproductive health interventions for young people in humanitarian and lower-and-middle-income country settings. *BMC public health*, *20*, 1-21.

DeVito, J. (2010). How adolescent mothers feel about becoming a parent. *The Journal of Perinatal Education*, *19*(2), 25.

Dishion, T. J., Nelson, S. E., & Bullock, B. M. (2004). Premature adolescent autonomy: Parent disengagement and deviant peer process in the amplification of problem behaviour. *Journal of adolescence*, *27*(5), 515-530.

Donatus, L., Sama, D. J., Tsoka-Gwegweni, J. M., & Cumber, S. N. (2018). Factors associated with adolescent school girl's pregnancy in Kumbo East Health District North West region Cameroon. *The Pan African medical journal*, *31*.

Dornyei, Z. (2007). Research Methods in Applied Linguistics Oxford University Press. *New York*, *748*.

Drahota, A. M. Y., Meza, R. D., Brikho, B., Naaf, M., Estabillo, J. A., Gomez, E. D., Vejnoska, S. F., Dufek, S., Stahmer, A. C., & Aarons, G. A. (2016). Community-academic partnerships: A systematic review of the state of the literature and recommendations for future research. *The Milbank Quarterly*, *94*(1), 163-214.

Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American journal of community psychology*, *41*(3-4), 327-350.

Durowade, K. A., Babatunde, O. A., Omokanye, L. O., Elegbede, O. E., Ayodele, L. M., Adewoye, K. R., Adetokunbo, S., Olomofe, C. O., Fawole, A. A., & Adebola, O. E. (2017). Early sexual debut: prevalence and risk factors among secondary school students in Ido-ekiti, Ekiti state, South-West Nigeria. *African health sciences*, *17*(3), 614-622.

Dye, T. (1998). *Understanding Public Policy.* . Prentice Hall.

Eccles, M., & Mittman, B. (2006). Welcome to implementation science. *Implementation science*, *1*(1), 3.

Elfil, M., & Negida, A. (2017). Sampling methods in clinical research; an educational review. *Emergency*, *5*(1).

Engelbert Bain, L., Zweekhorst, M. B. M., Amoakoh-Coleman, M., Muftugil-Yalcin, S., Omolade, A. I.-O., Becquet, R., & de Cock Buning, T. (2019). To keep or not to keep? Decision making in adolescent pregnancies in Jamestown, Ghana. *PLoS One*, *14*(9), e0221789.

England, P., & Edin, K. (2007). *Unmarried couples with children*. Russell Sage Foundation.

Enuameh, Y., White, S., Adjei, G., Abokyi, L., Owusu-Agyei, S., & Pearson, A. (2012). Perceived Facilitators and Barriers to Interventions Aimed at Reducing Unintended Pregnancies among Adolescents in Low and Middle Income (Developing) Countries: a Systematic Review of Qualitative Evidence. *JBI Evidence Synthesis*, *10*(52), 3338-3413.

Femdal, I., & Solbjør, M. (2018). Equality and differences: group interaction in mixed focus groups of users and professionals discussing power. *Society, Health & Vulnerability*, *9*(1), 1447193.

Forsey, C. (2018). *The Top 7 Search Engines, Ranked by Popularity* https://blog.hubspot.com/marketing/top-search-engines

Foulkes, L., & Blakemore, S.-J. (2018). Studying individual differences in human adolescent brain development. *Nature neuroscience*, *21*(3), 315.

Franklin, C., & Corcoran, J. (2000). Preventing adolescent pregnancy: A review of programs and practices. *Social work*, *45*(1), 40-52.

Ganchimeg, T., Ota, E., Morisaki, N., Laopaiboon, M., Lumbiganon, P., Zhang, J., Yamdamsuren, B., Temmerman, M., Say, L., & Tunçalp, Ö. (2014). Pregnancy and childbirth outcomes among adolescent mothers: a W orld H ealth O rganization multicountry study. *BJOG: An International Journal of Obstetrics & Gynaecology*, *121*, 40-48.

Gardner, A. (2010). Therapeutic friendliness and the development of therapeutic leverage by mental health nurses in community rehabilitation settings. *Contemporary Nurse*, *34*(2), 140-148.

Geary, R. S., Gómez-Olivé, F. X., Kahn, K., Tollman, S., & Norris, S. A. (2014). Barriers to and facilitators of the provision of a youth-friendly health services programme in rural South Africa. *BMC health services research*, *14*(1), 1-8.

Gemzell-Danielsson, K., & Kallner, H. K. (2015). Post abortion contraception. *Women's Health*, *11*(6), 779-784.

Ghaljaie, F., Naderifar, M., & Goli, H. (2017). Snowball sampling: A purposeful method of sampling in qualitative research. *Strides in Development of Medical Education*, *14*(3).

Ghana Health Service. (2014). *Annual report*. Accra, Ghana

Ghana Health Service. (2017). *The health sector in Ghana: Facts and figures*. Accra, Ghana

Ghana Statistical Service. (2010). Population and housing census: national analytical report. *Accra-Ghana: Ghana Statistical Service*, 2013.

Ghana Statistical Service. (2013). *2010 Population and Housing Census: Regional analytical report (Central region)*.

Ghana Statistical Service. (2021). *Ghana 2021 Population and Housing Census: General Report*.

Ghana Statistical Service, Ghana Health Service, & ICF Macro. (2004). *Ghana Demographic and Health Survey 2003*.

Ghana Statistical Service, Ghana Health Service, & ICF Macro. (2009). *Ghana demographic and health survey 2008.* Rockville, Maryland, USA: Ghana Statistical Service,

Ghana Health Service,

ICF International,

Ghana Statistical Service, Ghana Health Service, & ICF Macro. (2015). *Ghana demographic and health survey 2014.* Rockville, Maryland, USA: Ghana Statistical Service,

Ghana Health Service,

ICF Macro,

Given, L. M. (2008). *The Sage encyclopedia of qualitative research methods*. Sage publications.

Glassman, A. L., Silverman, R., & McQueston, K. (2012). Adolescent Fertility in Low-and Middle-Income Countries: Effects and Solutions. *Center for Global Development Working Paper*(295).

Godha, D., Hotchkiss, D. R., & Gage, A. J. (2013). Association between child marriage and reproductive health outcomes and service utilization: a multi-country study from South Asia. *Journal of Adolescent Health*, *52*(5), 552-558.

Goldfarb, E. S., & Lieberman, L. D. (2021). Three decades of research: The case for comprehensive sex education. *Journal of Adolescent Health*, *68*(1), 13-27.

Gravetter, F., & Forzano, L. (2012). Selecting Research Participants, Res. *Methods Behav. Sci*, *125*, 139.

Gray, C., Crawford, G., Maycock, B., & Lobo, R. (2021). Socioecological Factors Influencing Sexual Health Experiences and Health Outcomes of Migrant Asian Women Living in 'Western'High-Income Countries: A Systematic Review. *International journal of environmental research and public health*, *18*(5), 2469.

Greenhalgh, T., Robert, G., Bate, P., Macfarlane, F., & Kyriakidou, O. (2008). *Diffusion of innovations in health service organisations: a systematic literature review*. John Wiley & Sons.

Greenhalgh, T., Toon, P., Russell, J., Wong, G., Plumb, L., & Macfarlane, F. (2003). Transferability of principles of evidence based medicine to improve educational

quality: systematic review and case study of an online course in primary health care. *Bmj*, *326*(7381), 142-145.

Grindlay, K., Dako-Gyeke, P., Ngo, T. D., Eva, G., Gobah, L., Reiger, S. T., Chandrasekaran, S., & Blanchard, K. (2018). Contraceptive use and unintended pregnancy among young women and men in Accra, Ghana. *PLoS ONE*, *13*(8).

Grønvik, T., & Fossgard Sandøy, I. (2018). Complications associated with adolescent childbearing in Sub-Saharan Africa: A systematic literature review and meta-analysis. *PLoS ONE*, *13*(9), e0204327.

Gunawardena, N., Fantaye, A. W., & Yaya, S. (2019). Predictors of pregnancy among young people in sub-Saharan Africa: a systematic review and narrative synthesis. *BMJ Global Health*, *4*(3), 1-8.

Guyatt, G. H. (1991). Evidence-based medicine. *ACP Journal Club*, A-16.

Guzzo, K. B., Hayford, S. R., & Lang, V. W. (2019). Adolescent fertility attitudes and childbearing in early adulthood. *Population Research and Policy Review*, *38*(1), 125-152.

Haberland, N., & Rogow, D. (2015). Sexuality education: emerging trends in evidence and practice. *Journal of adolescent health*, *56*(1), S15-S21.

Haberland, N. A., McCarthy, K. J., & Brady, M. (2018). A systematic review of adolescent girl program implementation in low-and middle-income countries: evidence gaps and insights. *Journal of Adolescent Health*, *63*(1), 18-31.

Habito, C. M., Vaughan, C., & Morgan, A. (2019). Adolescent sexual initiation and pregnancy: what more can be learned through further analysis of the demographic and health surveys in the Philippines? *BMC public health*, *19*(1), 1142.

Hadley, A. (2018). Teenage pregnancy: strategies for prevention. *Obstetrics, Gynaecology & Reproductive Medicine*, *28*(4), 99-104.

Hall, G. S. (1904). *Adolescence: Its psychology and its relations to physiology, anthropology, sociology, sex, crime, religion and education* (Vol. 2). D. Appleton.

Hayes, C. D. (1987). *Risking the future: Adolescent sexuality, pregnancy, and childbearing* (Vol. 1). National Academies.

Hayford, S. R., Guzzo, K. B., Kusunoki, Y., & Barber, J. S. (2016). Perceived costs and benefits of early childbearing: New dimensions and predictive power. *Perspectives on Sexual and Reproductive Health*, *48*(2), 83-91.

Helbig, N., Dawes, S., Dzhusupova, Z., Klievink, B., & Mkude, C. G. (2015). Stakeholder engagement in policy development: observations and lessons from international experience. In *Policy practice and digital science* (pp. 177-204). Springer.

Heslop, J., Parkes, J., Januario, F., & Sabaa, S. (2019). Making meaning from data on school-related gender-based violence by examining discourse and practice: insights from a mixed methodology study in Ghana and Mozambique. *Compare: a journal of comparative and international education*, *49*(1), 64-80.

Hewitt, G., Sims, S., & Harris, R. (2012). The realist approach to evaluation research: an introduction. *International Journal of Therapy and Rehabilitation*, *19*(5), 250-259.

Hindin, M. J., Kishor, S., & Ansara, D. L. (2008). *Intimate partner violence among couples in 10 DHS countries: Predictors and health outcomes*. Macro International Incorporated.

Hindin, M. J., Tunçalp, Ö., Gerdts, C., Gipson, J. D., & Say, L. (2016). Monitoring adolescent sexual and reproductive health. *Bulletin of the World Health Organization*, *94*(3), 159.

Hodgkinson, S., Beers, L., Southammakosane, C., & Lewin, A. (2014). Addressing the mental health needs of pregnant and parenting adolescents. *Pediatrics*, *133*(1), 114-122.

Houlihan, D., & Houlihan, M. (2014). Adolescents and the social media: the coming storm. *Journal of Child and Adolescent Behavior*, *2*(2).

Hughes, F. R. A., Botfield, J. R., & McGeechan, K. (2021). Sexual and reproductive health "Train The Trainer" programs in low-and middle-income countries: a scoping review. *Journal of Global Health Reports*, *5*, e2021027.

Hughes, J., & McCauley, A. P. (1998). Improving the fit: adolescents' needs and future programs for sexual and reproductive health in developing countries. *Studies in family planning*, 233-245.

Hughes, K. M., Kaiser, M. J., Jennings, S., McConnaughey, R. A., Pitcher, R., Hilborn, R., Amoroso, R. O., Collie, J., Hiddink, J. G., & Parma, A. M. (2014). Investigating the effects of mobile bottom fishing on benthic biota: a systematic review protocol. *Environmental Evidence*, *3*(1), 1-19.

ICF International. (2012). *Demographic and Health Survey Sampling and Household Listing Manual.* MEASURE DHS, Calverton, Maryland, U.S.A.: ICF International

Imurana, B., Kilu, R. H., & Kofi, A.-B. (2014). The politics of public policy and problems of implementation in Africa: an appraisal of Ghana's National Health Insurance Scheme in Ga East District. *International Journal of Humanities and Social Science*, *4*(4), 196-207.

Isa, A. I., & Gani, I. O. O. (2012). Socio-demographic determinants of teenage pregnancy in the Niger Delta of Nigeria. *Open Journal of Obstetrics and Gynecology*, *2*(03), 239.

Izugbara, C. (2015). Socio-demographic risk factors for unintended pregnancy among unmarried adolescent Nigerian girls. *South African Family Practice*, *57*(2), 121-125.

Jayachandran, S. (2015). The roots of gender inequality in developing countries. *economics*, *7*(1), 63-88.

Jeha, D., Usta, I., Ghulmiyyah, L., & Nassar, A. (2015). A review of the risks and consequences of adolescent pregnancy. *Journal of neonatal-perinatal medicine*, *8*(1), 1-8.

Jepson, R., Harris, F. M., MacGillivray, S., Kearney, N., & Rowa-Dewar, N. J. (2006). A review of the effectiveness of interventions, approaches and models at individual, community and population level that are aimed at changing health outcomes through changing knowledge attitudes and behaviour.

Jewkes, R., Flood, M., & Lang, J. (2015). From work with men and boys to changes of social norms and reduction of inequities in gender relations: a conceptual shift in prevention of violence against women and girls. *The Lancet*, *385*(9977), 1580-1589.

Jewkes, R., & Morrell, R. (2010). Gender and sexuality: emerging perspectives from the heterosexual epidemic in South Africa and implications for HIV risk and prevention. *Journal of the International AIDS Society*, *13*(1), 6.

Jewkes, R., Morrell, R., Hearn, J., Lundqvist, E., Blackbeard, D., Lindegger, G., Quayle, M., Sikweyiya, Y., & Gottzén, L. (2015). Hegemonic masculinity: combining theory and practice in gender interventions. *Culture, health & sexuality*, *17*(sup2), 112-127.

Johnson, S. B., Blum, R. W., & Giedd, J. N. (2009). Adolescent maturity and the brain: the promise and pitfalls of neuroscience research in adolescent health policy. *Journal of Adolescent Health*, *45*(3), 216-221.

Kassa, G. M., Arowojolu, A. O., Odukogbe, A. A., & Yalew, A. W. (2018). Prevalence and determinants of adolescent pregnancy in Africa: a systematic review and Meta-analysis. *Reproductive Health*, *15*(1), 1-17.

Kebede, A., Molla, B., & Gerensea, H. (2018). Assessment of risky sexual behavior and practice among Aksum University students, Shire Campus, Shire Town, Tigray, Ethiopia, 2017. *BMC research notes*, *11*(1), 88.

Kendall, C., Afable-Munsuz, A., Speizer, I., Avery, A., Schmidt, N., & Santelli, J. (2005). Understanding pregnancy in a population of inner-city women in New Orleans—results of qualitative research. *Social science & medicine*, *60*(2), 297-311.

Kennedy, E., Binder, G., Humphries-Waa, K., Tidhar, T., Cini, K., Comrie-Thomson, L., Vaughan, C., Francis, K., Scott, N., & Wulan, N. (2020). Gender inequalities in health and wellbeing across the first two decades of life: an analysis of 40 low-income and middle-income countries in the Asia-Pacific region. *The Lancet Global Health*, *8*(12), e1473-e1488.

Kennedy, E. C., Bulu, S., Harris, J., Humphreys, D., Malverus, J., & Gray, N. J. (2013). "Be kind to young people so they feel at home": a qualitative study of adolescents' and service providers' perceptions of youth-friendly sexual and reproductive health services in Vanuatu. *BMC health services research*, *13*(1), 1-12.

Keogh, S. C., Stillman, M., Awusabo-Asare, K., Sidze, E., Monzón, A. S., Motta, A., & Leong, E. (2018). Challenges to implementing national comprehensive sexuality education curricula in low-and middle-income countries: Case studies of Ghana, Kenya, Peru and Guatemala. *PLoS One*, *13*(7), e0200513.

Khanh Chi, H., Thanh Thuy, H., Thi Kim Oanh, L., Quynh Anh, T., Duc Vinh, N., Thi Xuan Hanh, N., & Thanh Huong, N. (2021). The Content and Implementation of Policies and Programs on Adolescent Sexual and Reproductive Health in Vietnam: Results and Challenges. *Health Services Insights*, *14*, 11786329211037500.

Kipping, R., Campbell, R. M., MacArthur, G., Gunnell, D., & Hickman, M. J. J. o. P. H. (2012). Multiple risk behaviour in adolescence. *34*(suppl_1), i1-i2.

Kirchengast, S. (2012). Teenage-pregnancies from a Human Life History Viewpoint–an Updated Review with Special Respect to Prevention Strategies. *Current Women's Health Reviews*, *8*(3), 248-255.

Kirchengast, S. (2016). Teenage Pregnancies: A Worldwide Social and Medical Problem. *An Analysis of Contemporary Social Welfare Issues*, 13.

Koduah, A., Agyepong, I. A., & van Dijk, H. (2016). 'The one with the purse makes policy': Power, problem definition, framing and maternal health policies and programmes evolution in national level institutionalised policy making processes in Ghana. *Social science & medicine*, *167*, 79-87.

Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: trustworthiness and publishing. *European Journal of General Practice*, *24*(1), 120-124.

Kotoh, A. M., Sena Amekudzie, B., Opoku-Mensah, K., Baku, E. A., & Glozah, F. N. (2022). Pregnant adolescents' lived experiences and coping strategies in peri-urban district in Southern Ghana. *BMC public health*, *22*(1), 1-10.

Kretchy, I. A., Owusu-Daaku, F., & Danquah, S. (2014). Patterns and determinants of the use of complementary and alternative medicine: a cross-sectional study of hypertensive patients in Ghana. *BMC Complementary and Alternative Medicine*, *14*(1), 1-7.

Krishnan, S., Dunbar, M. S., Minnis, A. M., Medlin, C. A., Gerdts, C. E., & Padian, N. S. (2008). Poverty, gender inequities, and women's risk of human immunodeficiency virus/AIDS. *Annals of the New York Academy of Sciences*, *1136*, 101.

Krugu, J. K., Mevissen, F., Münkel, M., & Ruiter, R. (2017). Beyond love: a qualitative analysis of factors associated with teenage pregnancy among young women with pregnancy experience in Bolgatanga, Ghana. *Culture, health & sexuality*, *19*(3), 293-307.

Krugu, J. K., Mevissen, F. E. F., Prinsen, A., & Ruiter, R. A. C. (2016). Who's that girl? A qualitative analysis of adolescent girls' views on factors associated with teenage pregnancies in Bolgatanga, Ghana. *Reproductive Health*, *13*(1), 39.

Kwawukume, S. A. K., Laar, A. S., & Abdulai, T. (2022). Assessment of men involvement in family planning services use and associated factors in rural Ghana. *Archives of Public Health*, *80*(1), 1-8.

Kyilleh, J. M., Tabong, P. T.-N., & Konlaan, B. B. (2018). Adolescents' reproductive health knowledge, choices and factors affecting reproductive health choices: a qualitative study in the west Gonja District in northern region, Ghana. *BMC international health and human rights*, *18*(1), 1-12.

Lamont, T., Barber, N., de Pury, J., Fulop, N., Garfield-Birkbeck, S., Lilford, R., Mear, L., Raine, R., & Fitzpatrick, R. (2016). New approaches to evaluating complex health and care systems. *Bmj*, *352*.

Landry, M., Gonzales, F. A., Wood, S., & Vyas, A. (2013). New media use and sexual behavior among Latino adolescents. *American Journal of Health Behavior*, *37*(3), 422-430.

Laski, L. J. b. (2015). Realising the health and wellbeing of adolescents. *351*, h4119.

LeBrun, S., & Omar, H. A. (2015). The Importance of Comprehensive Sexuality Education in Adolescents. *Dynamics of Human Health*, *2*(4), 1-4.

Lee-Rife, S., Malhotra, A., Warner, A., & Glinski, A. M. (2012). What works to prevent child marriage: a review of the evidence. *Studies in family planning*, *43*(4), 287-303.

Leerlooijer, J. N., Bos, A. E. R., Ruiter, R. A. C., Van Reeuwijk, M. A. J., Rijsdijk, L. E., Nshakira, N., & Kok, G. (2013). Qualitative evaluation of the Teenage Mothers Project in Uganda: a community-based empowerment intervention for unmarried teenage mothers. *BMC public health*, *13*(1), 1-15.

Lemke, A. A., & Harris-Wai, J. N. (2015). Stakeholder engagement in policy development: challenges and opportunities for human genomics. *Genetics in Medicine*, *17*(12), 949-957.

Li, S.-C., Lindenberger, U., Hommel, B., Aschersleben, G., Prinz, W., & Baltes, P. B. (2004). Transformations in the couplings among intellectual abilities and constituent cognitive processes across the life span. *Psychological science*, *15*(3), 155-163.

Loaiza, E., & Liang, M. (2013). *Adolescent pregnancy: A review of the evidence.* . UNFPA.

Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Higher Education*, *9*(3).

Makoba, J. W. (1999). Rethinking current explanations of political changes in Sub-Saharan Africa. *Journal of Third World Studies*, *16*(2), 61-73.

Maness, S. B., & Buhi, E. R. (2016). Associations between social determinants of health and pregnancy among young people: a systematic review of research published during the past 25 years. *Public Health Reports*, *131*(1), 86-99.

Mark, N. D. E., & Wu, L. L. (2022). More comprehensive sex education reduced teen births: Quasi-experimental evidence. *Proceedings of the National Academy of Sciences*, *119*(8), e2113144119.

Marston, M., Beguy, D., Kabiru, C., & Cleland, J. (2013). Predictors of sexual debut among young adolescents in Nairobi's informal settlements. *International perspectives on sexual and reproductive health*, *39*(1), 22.

Martiskainen, M. (2017). The role of community leadership in the development of grassroots innovations. *Environmental Innovation and Societal Transitions*, *22*, 78-89.

Masemola-Yende, J. P. F., & Mataboge, S. M. (2015). Access to information and decision making on teenage pregnancy prevention by females in Tshwane. *Curationis*, *38*(2), 1-9.

May, J. F. (2017). The politics of family planning policies and programs in sub-Saharan Africa. *Population and development review*, *43*, 308-329.

May, J. F., & Turbat, V. (2017). The demographic dividend in sub-Saharan Africa: two issues that need more attention. *Journal of Demographic Economics*, *83*(1), 77-84.

Mayhew, S. H., & Adjei, S. (2004). Sexual and reproductive health: challenges for priority-setting in Ghana's health reforms. *Health Policy and Planning*, *19*(suppl_1), i50-i61.

Mayring, P. (2015). Qualitative content analysis: Theoretical background and procedures. In *Approaches to qualitative research in mathematics education* (pp. 365-380). Springer.

Mbachu, C. O., Agu, I. C., Eze, I., Agu, C., Ezenwaka, U., Ezumah, N., & Onwujekwe, O. (2020). Exploring issues in caregivers and parent communication of sexual and reproductive health matters with adolescents in Ebonyi state, Nigeria. *BMC public health*, *20*(1), 1-10.

Mbachu, C. O., Agu, I. C., Obayi, C., Eze, I., Ezumah, N., & Onwujekwe, O. (2021). Beliefs and misconceptions about contraception and condom use among adolescents in south-east Nigeria. *Reproductive Health*, *18*, 1-8.

Mbachu, C. O., Clara Agu, I., & Onwujekwe, O. (2020). Collaborating to co-produce strategies for delivering adolescent sexual and reproductive health interventions: processes and experiences from an implementation research project in Nigeria. *Health Policy and Planning*, *35*(Supplement_2), ii84-ii97.

McCleary-Sills, J., Douglas, Z., Rwehumbiza, A., Hamisi, A., & Mabala, R. (2013). Gendered norms, sexual exploitation and adolescent pregnancy in rural Tanzania. *Reproductive health matters*, *21*(41), 97-105.

McEvoy, P., & Richards, D. (2003). Critical realism: a way forward for evaluation research in nursing? *Journal of advanced nursing*, *43*(4), 411-420.

McHunu, G., Peltzer, K., Tutshana, B., & Seutlwadi, L. (2012). Adolescent pregnancy and associated factors in South African youth. *African health sciences*, *12*(4), 426-434.

McIsaac, J.-L., Warner, G., Lawrence, L., Urquhart, R., Price, S., Gahagan, J., McNally, M., & Jackson, L. A. (2018). The application of implementation science theories for population health: A critical interpretive synthesis. *AIMS public health*, *5*(1), 13.

Meherali, S., Rehmani, M., Ali, S., & Lassi, Z. S. (2021). Interventions and Strategies to Improve Sexual and Reproductive Health Outcomes among Adolescents Living in

Low-and Middle-Income Countries: A Systematic Review and Meta-Analysis. *Adolescents*, *1*(3), 363-390.

Mehra, D., Sarkar, A., Sreenath, P., Behera, J., & Mehra, S. (2018). Effectiveness of a community based intervention to delay early marriage, early pregnancy and improve school retention among adolescents in India. *BMC public health*, *18*(1), 732.

Merdad, L., & Ali, M. M. (2018). Timing of maternal death: levels, trends, and ecological correlates using sibling data from 34 sub-Saharan African countries. *PLoS ONE*, *13*(1), e0189416.

Micah, A. E., Cogswell, I. E., Cunningham, B., Ezoe, S., Harle, A. C., Maddison, E. R., McCracken, D., Nomura, S., Simpson, K. E., & Stutzman, H. N. (2021). Tracking development assistance for health and for COVID-19: a review of development assistance, government, out-of-pocket, and other private spending on health for 204 countries and territories, 1990–2050. *The Lancet*.

Miller, W. L., Rubinstein, E. B., Howard, J., & Crabtree, B. F. (2019). Shifting implementation science theory to empower primary care practices. *The Annals of Family Medicine*, *17*(3), 250-256.

Mills, J., Bonner, A., & Francis, K. (2006). Adopting a constructivist approach to grounded theory: Implications for research design. *International journal of nursing practice*, *12*(1), 8-13.

Ministry of Health. (2015a). *Holistic Assessment of the Health Sector Programme of Work 2014*. Accra, Ghana: Ministry of Health

Ministry of Health. (2015b). *National Community-Based Health Planning and Services (CHPS) Policy: Accelerating attainment of Universal Health Coverage and bridging the access inequity gap*. Accra, Ghana. : Ministry of Health

Mkwananzi, S., & Odimegwu, C. (2015). Teen Pregnancy in Sub-Saharan Africa: The Application of Social Disorganisation Theory. San Diego, California,.

Mohammed, A. K. (2020). Does the policy cycle reflect the policymaking approach in Ghana? *Journal of Public Affairs*, *20*(3), e2078.

Mohammed, S., Abdulai, A.-M., & Iddrisu, O. A. (2019). Pre-service knowledge, perception, and use of emergency contraception among future healthcare providers in northern Ghana. *Contraception and reproductive medicine*, *4*, 1-7.

Moreau, C., Li, M., De Meyer, S., Manh, L. V., Guiella, G., Acharya, R., Bello, B., Maina, B., & Mmari, K. (2019). Measuring gender norms about relationships in early adolescence: Results from the global early adolescent study. *SSM-population health*, *7*, 100314.

Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social development*, *16*(2), 361-388.

Morris, J. L., & Rushwan, H. (2015). Adolescent sexual and reproductive health: The global challenges. *International Journal of Gynecology & Obstetrics*, *131*, S40-S42.

Mueller, T., Tevendale, H. D., Fuller, T. R., House, L. D., Romero, L. M., Brittain, A., & Varanasi, B. (2017). Teen pregnancy prevention: Implementation of a multicomponent, community-wide approach. *Journal of adolescent health*, *60*(3), S9-S17.

Munakampe, M. N., Zulu, J. M., & Michelo, C. (2018). Contraception and abortion knowledge, attitudes and practices among adolescents from low and middle-income countries: a systematic review. *BMC health services research*, *18*(1), 909.

Mushwana, L., Monareng, L., Richter, S., & Muller, H. (2015). Factors influencing the adolescent pregnancy rate in the greater Giyani Municipality, Limpopo Province–South Africa. *International Journal of Africa Nursing Sciences*, *2*, 10-18.

Mwisongo, A., Nabyonga-Orem, J., Yao, T., & Dovlo, D. (2016). The role of power in health policy dialogues: lessons from African countries. *BMC health services research*, *16*(4), 337-346.

Nabyonga-Orem, J., Ousman, K., Estrelli, Y., Rene, A. K. M., Yakouba, Z., Gebrikidane, M., Mamoud, D., & Kwamie, A. (2016). Perspectives on health policy dialogue: definition, perceived importance and coordination. *BMC health services research*, *16*(4), 274-286.

Nalwadda, G., Mirembe, F., Byamugisha, J., & Faxelid, E. (2010). Persistent high fertility in Uganda: young people recount obstacles and enabling factors to use of contraceptives. *BMC public health*, *10*(1), 530.

Namibia, R. o. (2010). *National Health Policy Framework (2010-2020)*. Ministry of Health and Social Services. https://extranet.who.int/countryplanningcycles/sites/default/files/country_docs/Namibia/namibia_national_health_policy_framework_2010-2020.pdf

Nancy Carter, R. N., Bryant-Lukosius, D., & Alba DiCenso, R. N. (2014). The use of triangulation in qualitative research.

National Health Insurance Authority. (2015). *Strategic Plan, 2015-2018*. Accra, Ghana: National Health Insurance Authority

Neal, S., Channon, A. A., Chandra-Mouli, V., & Madise, N. (2020). Trends in adolescent first births in sub-Saharan Africa: a tale of increasing inequity? *International Journal for Equity in Health*, *19*(1), 1-11.

Neal, S., Channon, A. A., & Chintsanya, J. (2018a). The impact of young maternal age at birth on neonatal mortality: Evidence from 45 low and middle income countries. *PLoS ONE*, *13*(5), 1-16.

Neal, S., Channon, A. A., & Chintsanya, J. (2018b). The impact of young maternal age at birth on neonatal mortality: Evidence from 45 low and middle income countries. *PLoS ONE*, *13*(5), e0195731.

Neal, S., Matthews, Z., Frost, M., Fogstad, H., Camacho, A. V., & Laski, L. (2012). Childbearing in adolescents aged 12–15 years in low resource countries: a neglected issue. New estimates from demographic and household surveys in 42 countries. *Acta obstetricia et gynecologica Scandinavica*, *91*(9), 1114-1118.

Nguyen, H., Shiu, C., & Farber, N. (2016). Prevalence and factors associated with teen pregnancy in vietnam: results from two national surveys. *Societies*, *6*(2), 1-16.

Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation science*, *10*(1), 53.

Nkhoma, D. E., Lin, C.-P., Katengeza, H. L., Soko, C. J., Estinfort, W., Wang, Y.-C., Juan, S.-H., Jian, W.-S., & Iqbal, U. (2020). Girls' empowerment and adolescent pregnancy: A systematic review. *International journal of environmental research and public health*, *17*(5), 1664.

Nudzor, H. P. (2014). An analytical review of education policy-making and implementation processes within the context of "decentralized system of administration" in Ghana. *SAGE Open*, *4*(2), 2158244014530885.

Nyaaba, G. N., Stronks, K., Masana, L., Larrea-Killinger, C., & Agyemang, C. (2020). Implementing a national non-communicable disease policy in sub-Saharan Africa: Experiences of key stakeholders in Ghana. *Health Policy OPEN*, *1*, 100009.

Nyarko, S. H. J. I. J. S. (2012). Determinants of adolescent fertility in Ghana. *5*(1), 21-32.

Nyumba, T. O., Wilson, K., Derrick, C. J., & Mukherjee, N. (2018). The use of focus group discussion methodology: Insights from two decades of application in conservation. *Methods in Ecology and evolution*, *9*(1), 20-32.

O'Connell, M. E., Boat, T., Warner, K. E., & National Research, C. (2009). Implementation and dissemination of prevention programs. In *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities*. National Academies Press (US).

O'Neill, K., Viswanathan, K., Celades, E., & Boerma, T. (2016). *Monitoring, evaluation and review of national health policies, strategies and plans*. World Health Organization.

Ochako, R., Mbondo, M., Aloo, S., Kaimenyi, S., Thompson, R., Temmerman, M., & Kays, M. (2015). Barriers to modern contraceptive methods uptake among young women in Kenya: a qualitative study. *BMC public health*, *15*(1), 1-9.

Odejimi, O., & Young, D. B. (2014). A policy pathway to reducing teenage pregnancy in Africa. *Journal of Human Growth and Development*, *24*(2), 135-141.

Odimegwu, C., & Mkwananzi, S. (2016). Factors associated with teen pregnancy in sub-Saharan Africa: a multi-country cross-sectional study. *African Journal of Reproductive Health*, *20*(3), 94-107.

Ogori, A. F., Shitu, F., & Yunusa, A. R. (2013). The cause and effect of teenage pregnancy: case of Kontagora Local Government Area in Niger state Northern part of Nigeria. *International open journal of educational research*, *1*(7), 1-15.

Okigbo, C. C., & Speizer, I. S. (2015). Determinants of sexual activity and pregnancy among unmarried young women in urban Kenya: a cross-sectional study. *PLoS ONE*, *10*(6), e0129286.

Olukoya, A. A., Kaya, A., Ferguson, B. J., & AbouZahr, C. (2001). Unsafe abortion in adolescents. *International Journal of Gynecology & Obstetrics*, *75*(2), 137-147.

Omar, M. A., Green, A. T., Bird, P. K., Mirzoev, T., Flisher, A. J., Kigozi, F., Lund, C., Mwanza, J., & Ofori-Atta, A. L. (2010). Mental health policy process: a comparative

study of Ghana, South Africa, Uganda and Zambia. *International journal of mental health systems*, *4*(1), 1-10.

Onono, M. A., Brindis, C. D., White, J. S., Goosby, E., Okoro, D. O., Bukusi, E. A., & Rutherford, G. W. (2019). Challenges to generating political prioritization for adolescent sexual and reproductive health in Kenya: A qualitative study. *PLoS ONE*, *14*(12), e0226426.

Onono, M. A., Rutherford, G. W., Bukusi, E. A., White, J. S., Goosby, E., & Brindis, C. D. (2020). Political prioritization and the competing definitions of adolescent pregnancy in Kenya: An application of the Public Arenas Model. *PLoS ONE*, *15*(9), e0238136.

Palermo, T., Bleck, J., & Peterman, A. (2014). Tip of the iceberg: reporting and gender-based violence in developing countries. *American journal of epidemiology*, *179*(5), 602-612.

Panchaud, C., Keogh, S. C., Stillman, M., Awusabo-Asare, K., Motta, A., Sidze, E., & Monzón, A. S. (2019). Towards comprehensive sexuality education: A comparative analysis of the policy environment surrounding school-based sexuality education in Ghana, Peru, Kenya and Guatemala. *Sex Education*, *19*(3), 277-296.

Parsons, J., Edmeades, J., Kes, A., Petroni, S., Sexton, M., & Wodon, Q. (2015). Economic impacts of child marriage: a review of the literature. *The Review of Faith & International Affairs*, *13*(3), 12-22.

Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., Arora, M., Azzopardi, P., Baldwin, W., & Bonell, C. (2016). Our future: a Lancet commission on adolescent health and wellbeing. *The Lancet*, *387*(10036), 2423-2478.

Pawson, R. (2002). Evidence-based policy: in search of a method. *Evaluation*, *8*(2), 157-181.

Pawson, R., Greenhalgh, T., Harvey, G., & Walshe, K. (2004). Realist synthesis: an introduction. *ESRC Res Methods Program*.

Pawson, R., & Tilley, N. (1997). Realistic evaluation: sage. *Los Angeles, London, New Delhi, Singapore*.

Pawson, R., Tilley, N., & Tilley, N. (1997). *Realistic evaluation*. sage.

Peckham, S., Hudson, B., Hunter, D., & Redgate, S. (2021). Policy success: What is the role of implementation support programmes? *Social Policy & Administration*.

Peprah, P., Agyemang-Duah, W., Arthur-Holmes, F., Budu, H. I., Abalo, E. M., Okwei, R., & Nyonyo, J. (2019). 'We are nothing without herbs': a story of herbal remedies use during pregnancy in rural Ghana. *BMC complementary and alternative medicine*, *19*(1), 1-12.

Perrin, N., Marsh, M., Clough, A., Desgroppes, A., Phanuel, C. Y., Abdi, A., Kaburu, F., Heitmann, S., Yamashina, M., & Ross, B. (2019). Social norms and beliefs about gender based violence scale: a measure for use with gender based violence prevention programs in low-resource and humanitarian settings. *Conflict and health*, *13*(1), 1-12.

Petroni, S., Steinhaus, M., Fenn, N. S., Stoebenau, K., & Gregowski, A. (2017). New findings on child marriage in sub-Saharan Africa. *Annals of global health*, *83*(5-6), 781-790.

Philipsen, H., & Vernooy-Dassen, M. (2004). Kwalitatief onderzoek: nuttig, onmisbaar en uitdagend. *Huisarts en wetenschap*, *47*(10), 288-292.

Phillips, S. J., & Mbizvo, M. T. (2016). Empowering adolescent girls in Sub-Saharan Africa to prevent unintended pregnancy and HIV: A critical research gap. *International Journal of Gynecology & Obstetrics*, *132*(1), 1-3.

Poudel, S., Upadhaya, N., Khatri, R. B., & Ghimire, P. R. (2018). Trends and factors associated with pregnancies among adolescent women in Nepal: Pooled analysis of Nepal Demographic and Health Surveys (2006, 2011 and 2016). *PLoS ONE*, *13*(8), e0202107.

Pradhan, R., Wynter, K., & Fisher, J. (2018). Factors Associated with Pregnancy among Married Adolescents in Nepal: Secondary Analysis of the National Demographic and

Health Surveys from 2001 to 2011. *International journal of environmental research and public health*, *15*(2), 229.

Proulx, G. (2012). *Male sexual and gender-based violence in schools: Barriers to community action and strategies for change the case of Awaso, Ghana*. University of Ottawa (Canada).

Psaki, S. (2016a). Addressing child marriage and adolescent pregnancy as barriers to gender parity and equality in education. *Prospects*, *46*(1), 109-129.

Psaki, S. (2016b). Addressing child marriage and adolescent pregnancy as barriers to gender parity and equality in education. *Prospects*, *46*, 109-129.

Reed, J., Deakin, L., & Sunderland, T. (2015). What are 'Integrated Landscape Approaches' and how effectively have they been implemented in the tropics: a systematic map protocol. *Environmental Evidence*, *4*(1), 1-7.

Republic of Botswana. (2010). *Revised National Youth Policy 2010* (S. a. C. Ministry of Youth, Ed.). Government of the Republic of Botswana. https://www.botswanalmo.org.bw/sites/default/files/National%20Youth%20Policy_revised_2010.pdf

Republic of Ghana. (2000). *Adolescent Reproductive Health Policy, 2000*. Accra, Ghana Retrieved from http://www.africanchildforum.org/clr/policy%20per%20country/ghana/ghana_reprodhealth_2000_en.pdf

Republic of Ghana. (2010). *National Youth Policy, 2010*. Accra, Ghana: https://www.youthpolicy.org/national/Ghana_2010_National_Youth_Policy.pdf

Republic of Ghana. (2014). *Child and Family Welfare Policy, 2014*. Accra, Ghana Retrieved from https://www.iamgaca.org/assets/resource/cmfile6.pdf

Republic of Ghana. (2015). *National Gender Policy, 2015* (C. a. S. P. Ministry of Gender, Ed.). The Republic of Ghana. http://www.mogcsp.gov.gh/index.php/mdocs-posts/national-gender-policy/

Republic of Ghana. (2016a). *Adolescent Health Service Policy and Strategy (2016-2020)* (G. H. Service, Ed.). The Republic of Ghana. https://www.afro.who.int/sites/default/files/2017-10/ADOLESCENT%20HEALTH%20SERVICE%20POLICY%20%20AND%20STRATEGY.pdf

Republic of Ghana. (2016b). *National strategic framework to end child marriage (2017-2026)*. Accra, Ghana Retrieved from https://www.unicef.org/ghana/media/1001/file/National%20Strategic%20Framework%20on%20Ending%20Child%20Marriage.pdf

Republic of Ghana. (2017). *Five Year Strategic Plan to Address Adolescent Pregnancy in Ghana, 2018-2022* Accra, Ghana Retrieved from https://ghana.unfpa.org/sites/default/files/pub-pdf/Adolescent%20Pregnancy%20Strategic%20Plan%202018.pdf

Republic of Kenya. (2015). *National Adolescent Sexual and Reproductive Health Policy* (M. o. Health, Ed.). The Republic of Kenya. https://www.popcouncil.org/uploads/pdfs/2015STEPUP_KenyaNationalAdolSRHPolicy.pdf

Republic of Malawi. (2013). *National Youth Policy* (T. M. o. Y. a. Sports, Ed.). The Republic of Malawi. https://cepa.rmportal.net/Library/government-publications/National%20Youth%20Policy%202013.pdf/view

Republic of Namibia. (2010). *Education Sector Policy for the Prevention and Management of Learner Pregnancy* (M. o. Education, Ed.). Ministry of Education.

https://www.moe.gov.na/files/downloads/99b_Learner%20Pregnancy%20policy%20final%202010-10-18.pdf

Republic of Seychelles. (2012). *Reproductive Health Policy* (M. o. Health, Ed.). Government of the Republic of Seychelles. http://www.health.gov.sc/wp-content/uploads/REPRODUCTIVE-HEALTH-POLICY-2012-last-version.pdf

Republic of Sierra Leone. (2017). *Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH) Policy* (M. o. H. a. Sanitation, Ed.). Ministry of Health and Sanitation. https://www.afro.who.int/sites/default/files/2017-11/Sierra%20Leone%20Reproductive%2C%20Maternal%2C%20Newborn%2C%20Child%20and%20Adolescent%20Health%20Policy.pdf

Republic of South Africa. (2012). *Integrated School Health Policy* (H. a. B. Education, Ed.). Government of the Republic of South Africa. https://serve.mg.co.za/content/documents/2017/06/14/integratedschoolhealthpolicydbeanddoh.pdf

Republic of South Africa. (2017). *National Adolescent and Youth Health Policy* (D. o. Health, Ed.). Government of the Republic of South Africa. adolescent and youth policy 4th sept.pdf

Republic of South Sudan. (2013). *National Reproductive Health Policy*. Republic of South Sudan: Government of the Republic of South Sudan Retrieved from https://www.southsudanhealth.info/PublicData/Library/Policy_Documents/South-Sudan%20Reprodutive%20Health%20Policy%202013.pdf

Republic of The Gambia. (2010a). *The Gambia National Gender Policy 2010- 2020* (M. o. W. s. Affairs, Ed.). Government of the Republic of The Gambia. https://www.ilo.org/dyn/travail/docs/1958/Gambia%20national%20gender%20policy.pdf

Republic of The Gambia. (2010b). *Gender and Women Empowerment Policy 2010-2020*. The Republic of The Gambia. http://extwprlegs1.fao.org/docs/pdf/gam170413.pdf

Richards, M., & Deary, I. J. (2005). A life course approach to cognitive reserve: a model for cognitive aging and development? *Annals of Neurology: Official Journal of the American Neurological Association and the Child Neurology Society*, *58*(4), 617-622.

Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (2013). *Qualitative research practice: A guide for social science students and researchers*. sage.

Ritchwood, T. D., Ford, H., DeCoster, J., Sutton, M., Lochman, J. E. J. C., & review, y. s. (2015). Risky sexual behavior and substance use among adolescents: A meta-analysis. *Child Youth Serv Rev*, *52*, 74-88.

Rose-Clarke, K., Bentley, A., Marston, C., & Prost, A. (2019). Peer-facilitated community-based interventions for adolescent health in low-and middle-income countries: a systematic review. *PLoS One*, *14*(1), e0210468.

Rycroft-Malone, J., McCormack, B., Hutchinson, A. M., DeCorby, K., Bucknall, T. K., Kent, B., Schultz, A., Snelgrove-Clarke, E., Stetler, C. B., & Titler, M. (2012). Realist synthesis: illustrating the method for implementation research. *Implementation science*, *7*(1), 33.

Sackett, D. L., Rosenberg, W. M. C., Gray, J. A. M., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: what it is and what it isn't. In: British Medical Journal Publishing Group.

Salami, K. K., Ayegboyin, M., & Adedeji, I. A. (2014). Unmet social needs and teenage pregnancy in Ogbomosho, South-western Nigeria. *African health sciences*, *14*(4), 959-966.

Saleh, K. (2013). *The Health Sector in Ghana: A Comprehensive Assessment*. World Bank.

Sama, C.-B., Ngasa, S. N., Dzekem, B. S., & Choukem, S.-P. (2017). Prevalence, predictors and adverse outcomes of adolescent pregnancy in sub-Saharan Africa: a protocol of a systematic review. *Systematic reviews*, *6*(1), 247.

Sánchez-Páez, D. A., & Ortega, J. A. (2019). Reported patterns of pregnancy termination from Demographic and Health Surveys. *PLoS ONE*, *14*(8), e0221178.

Santelli, J. S., Spindler, E., Moore, E., & McGovern, T. (2019). Criminalising sexuality or preventing child marriage: legal interventions and girls' empowerment. *The Lancet Child & Adolescent Health*, *3*(4), 206-208.

Santhya, K. G. (2011). Early marriage and sexual and reproductive health vulnerabilities of young women: a synthesis of recent evidence from developing countries. *Current opinion in obstetrics and gynecology*, *23*(5), 334-339.

Sarfo, E. A., Salifu Yendork, J., & Naidoo, A. V. (2020). Understanding Child Marriage in Ghana: The Constructions of Gender and Sexuality and Implications for Married Girls. *Child Care in Practice*, 1-14.

Sarfo, E. A., Salifu Yendork, J., & Naidoo, A. V. (2022). Understanding child marriage in Ghana: the constructions of gender and sexuality and implications for married girls. *Child Care in Practice*, *28*(2), 228-241.

Sawyer, S. M., Azzopardi, P. S., Wickremarathne, D., & Patton, G. C. (2018). The age of adolescence. *The Lancet Child & Adolescent Health*, *2*(3), 223-228.

Schaaf, M., Boydell, V., Sheff, M. C., Kay, C., Torabi, F., & Khosla, R. (2020). Accountability strategies for sexual and reproductive health and reproductive rights in humanitarian settings: a scoping review. *Conflict and health*, *14*(1), 1-18.

Sedgh, G., Finer, L. B., Bankole, A., Eilers, M. A., & Singh, S. (2015). Adolescent pregnancy, birth, and abortion rates across countries: levels and recent trends. *Journal of Adolescent Health*, *56*(2), 223-230.

Senderowitz, J. (1997). *Health facility programs on reproductive health for young adults*. Pathfinder International.

Sharma, S., Bhuvan, K. C., & Khatri, A. (2018). Factors influencing male participation in reproductive health: a qualitative study. *Journal of multidisciplinary healthcare*, *11*, 601.

Sheldon, T. (2018). Could Dutch style sex education reduce pregnancies among UK teenagers? *Bmj*, *360*.

Sidze, E. M., Stillman, M., Keogh, S., Mulupi, S., Egesa, C. P., Leong, E., Mutua, M., Muga, W., Bankole, A., & Izugbara, C. O. (2017). From paper to practice: sexuality education policies and their implementation in Kenya. *New York: Guttmacher Institute*.

Sikweyiya, Y., Addo-Lartey, A. A., Alangea, D. O., Dako-Gyeke, P., Chirwa, E. D., Coker-Appiah, D., Adanu, R. M. K., & Jewkes, R. (2020). Patriarchy and gender-inequitable attitudes as drivers of intimate partner violence against women in the central region of Ghana. *BMC public health*, *20*, 1-11.

Silumbwe, A., Nkole, T., Munakampe, M. N., Milford, C., Cordero, J. P., Kriel, Y., Zulu, J. M., & Steyn, P. S. (2018). Community and health systems barriers and enablers to family planning and contraceptive services provision and use in Kabwe District, Zambia. *BMC health services research*, *18*(1), 1-11.

Solanke, B. L., Oyinlola, F. F., Oyeleye, O. J., & Ilesanmi, B. B. (2019). Maternal and community factors associated with unmet contraceptive need among childbearing women in Northern Nigeria. *Contraception and reproductive medicine*, *4*(1), 11.

Stanger-Hall, K. F., & Hall, D. W. (2011). Abstinence-only education and teen pregnancy rates: why we need comprehensive sex education in the US. *PLoS ONE*, *6*(10), e24658.

Stavropoulou, M. (2018). *Interventions promoting adolescent girls' economic capabilities: what works? A rapid evidence review*. London: Overseas Development Institute (ODI).

Stith, S., Pruitt, I., Dees, J., Fronce, M., Green, N., Som, A., & Linkh, D. (2006). Implementing community-based prevention programming: A review of the literature. *Journal of Primary Prevention*, *27*(6), 599-617.

Stover, J., & Johnston, A. (1999). *The art of policy formulation: experiences from Africa in developing national HIV/AIDS policies.* The Futures Group International, POLICY Project.

Sudan, R. o. S. (2013). *National Family Planning Policy*. Government of the Republic of South Sudan. https://www.moh-rss.org/

Svanemyr, J., Amin, A., Robles, O. J., & Greene, M. E. (2015). Creating an enabling environment for adolescent sexual and reproductive health: a framework and promising approaches. *Journal of Adolescent Health*, *56*(1), S7-S14.

Sychareun, V., Vongxay, V., Houaboun, S., Thammavongsa, V., Phummavongsa, P., Chaleunvong, K., & Durham, J. (2018). Determinants of adolescent pregnancy and access to reproductive and sexual health services for married and unmarried adolescents in rural Lao PDR: a qualitative study. *BMC pregnancy and childbirth*, *18*(1), 219.

Tabak, R. G., Khoong, E. C., Chambers, D. A., & Brownson, R. C. (2012). Bridging research and practice: models for dissemination and implementation research. *American journal of preventive medicine*, *43*(3), 337-350.

Tabong, P. T.-N., Maya, E. T., Adda-Balinia, T., Kusi-Appouh, D., Birungi, H., Tabsoba, P., & Adongo, P. B. (2018). Acceptability and stakeholders perspectives on feasibility of using trained psychologists and health workers to deliver school-based sexual and reproductive health services to adolescents in urban Accra, Ghana. *Reproductive Health*, *15*(1), 1-16.

Tanzania, T. U. R. o. (2017). *The National Health Policy 2017* Ministry of Health, Community Development, Gender, Elderly and Children.

http://www.tzdpg.or.tz/fileadmin/documents/dpg_internal/dpg_working_groups_clusters/cluster_2/health/JAHSR_2017/8.The_Nat_Health_Policy_2017_6th__24_October__2017.pdf

Tenkorang, E. Y., Amo-Adjei, J., & Kumi-Kyereme, A. (2020). Assessing Components of Ghana's Comprehensive Sexuality Education on the Timing of Sexual Debut Among In-School Youth. *Youth & Society*, 0044118X20930891.

The Kingdom of Swaziland. (2013). *National Policy on Sexual and Reproductive Health* (M. o. Health, Ed.). Government of the Kingdom of Swaziland. http://www.integrainitiative.org/blog/wp-content/uploads/2013/10/NATIONAL-POLICY-ON-SEXUAL-AND-.pdf

Titiloye, M. A., & Ajuwon, A. J. (2017). Knowledge and quality of adolescents reproductive health communication between parents and their adolescents children in Ibadan, Nigeria. *Journal of Public Health in Africa*, *8*(1).

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., & Weeks, L. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Annals of internal medicine*, *169*(7), 467-473.

Ültanır, E. (2012). An epistemological glance at the constructivist approach: Constructivist learning in Dewey, Piaget, and Montessori. *International Journal of Instruction*, *5*(2).

UNESCO. (2017). *Early and unintended pregnancy & the education sector: Evidence review and recommendations,* . United Nations Educational, Scientific and Cultural Organization.

UNFPA. (2004). *Investing in people: National progress in implementing the ICPD programme of action 1994–2004.* . New York, USA

UNFPA. (2012). *Independent rapid assessment of Time with Grandma*. https://ghana.unfpa.org/sites/default/files/pub-pdf/TIME_WITH_GRANDMA.pdf

UNFPA. (2013a). *Adolescent pregnancy: A review of the evidence*. UNFPA.

UNFPA. (2013b). *Motherhood in Childhood: Facing the challenge of adolescent pregnancy*. UNFPA.

UNFPA. (2015). Girlhood, not motherhood: Preventing adolescent pregnancy.

UNFPA. (2021). *Gender-based violence* https://www.unfpa.org/gender-based-violence#readmore-expand

UNICEF. (2008). *Young people and family planning: Teenage pregnancy.* . UNICEF.

UNICEF. (2013). *The state of the world's children 2011: Adolescence an age of opportunity*. UNICEF.

UNICEF. (2014). Ending child marriage: Progress and prospects. New York. In.

UNICEF. (2015). *Child marriage, Adolescent pregnancy and Family formation in West and Central Africa: Patterns, trends and drivers of change*. UNICEF.

UNICEF. (2018). *A position paper on harmonizing the age of sexual consent and the age marriage in Ghana.* Accra: Department of Children, Ministry of Gender Children and Social Protection and UNICEF Ghana

UNICEF. (2020). Child marriage. Retrieved May 22, 2020. , from https://data.unicef.org/topic/child-protection/child-marriage/

UNICEF. (2021). *The situation of adolescents in Ghana*

United Nations. (1995). *United Nations International Conference on Population and Development, Cairo 5-13 September, 1994. Programme of Action.* . United Nations, Department for Economic and Social Information and Policy Analysis.

United Nations. (2015). *Sustainable Development Goals.* . United Nations.

United Nations. (2017). *Education critical in preventing adolescent pregnancy, underscores UN agency* https://www.un.org/sustainabledevelopment/blog/2017/07/education-critical-in-preventing-adolescent-pregnancy-underscores-un-agency/

United Nations. (2018). *Advancing gender equality and universal access to sexual and reproductive health and reproductive rights* Bangkok

United Nations, Department of Economic Social Affairs, & Population Division. (2015). World population prospects: The 2015 revision. *key findings and advance tables. New York, USA*.

United Nations General Assembly. (2012a). *Report of the Special Rapporteur on contemporary forms of slavery, including its causes and consequences, Gulnara Shahinian.* Retrieved from https://digitallibrary.un.org/record/685518?ln=en

United Nations General Assembly. (2012b). *Resolution (2012/1)* https://www.un.org/en/development/desa/population/pdf/commission/2012/country/Agenda%20item%208/Decisions%20and%20resolution/Resolution%202012_1_Adolescents%20and%20Youth.pdf

United Nations Population Fund. (2013). *Motherhood in childhood: Facing the challenge of adolescent pregnancy*. UNFPA.

United Republic of Tanzania. (2017). *The National Health Policy 2017*. The United Republic of Tanzania Retrieved from http://ghdx.healthdata.org/organizations/ministry-health-community-development-gender-elderly-and-children-mohcdec-tanzania

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences*, *15*(3), 398-405.

Van Andel, T., Myren, B., & Van Onselen, S. (2012). Ghana's herbal market. *Journal of ethnopharmacology*, *140*(2), 368-378.

Vogel, J. P., Pileggi-Castro, C., Chandra-Mouli, V., Pileggi, V. N., Souza, J. P., Chou, D., & Say, L. (2015). Millennium Development Goal 5 and adolescents: looking back, moving forward. *Archives of Disease in childhood*, *100*(Suppl 1), S43-S47.

W., T. (1993). *Introduction: African Politics since Independence. In: Government and Politics in Africa.* . Palgrave Macmillan. https://doi.org/10.1007/978-1-349-22342-8_1

Wado, Y. D., Sully, E. A., & Mumah, J. N. (2019a). Pregnancy and early motherhood among adolescents in five East African countries: a multi-level analysis of risk and protective factors. *BMC pregnancy and childbirth*, *19*(1), 1-11.

Wado, Y. D., Sully, E. A., & Mumah, J. N. (2019b). Pregnancy and early motherhood among adolescents in five East African countries: a multi-level analysis of risk and protective factors. *BMC pregnancy and childbirth*, *19*(1), 59.

Weed, K., & Nicholson, J. S. (2015). Differential social evaluation of pregnant teens, teen mothers and teen fathers by university students. *International journal of adolescence and youth*, *20*(1), 1-16.

Weisband, Y. L., Keder, L. M., Keim, S. A., & Gallo, M. F. (2017). Postpartum intentions on contraception use and method choice among breastfeeding women attending a university hospital in Ohio: a cross-sectional study. *Reproductive Health*, *14*(1), 45.

Wessells, M., Manyeh, M., & Lamin, D. (2014). Preliminary results of the community-driven intervention to reduce teenage pregnancy in two districts of Sierra Leone: Findings from participatory review workshops with children and adults. *London: Interagency Learning Initiative on Community-Based Child Protection Mechanisms and Child Protection Systems*.

WHO. (1998). *The World Health Report*. WHO.

WHO. (2003). *Early childhood development: A powerful equalizer.* . WHO.

WHO. (2011a). *Preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries*. WHO.

WHO. (2011b). *WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries.* . WHO

WHO. (2014a). *Adolescent Pregnancy: Factsheet No 364* http://www. who. int/mediacentre/factsheets/fs364/en.

WHO. (2014b). Adolescent Pregnancy. http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en

WHO. (2014c). *Global health estimates 2013 summary tables: DALYs, YLLs and YLDs by cause, age and sex by WHO regional group and World Bank income classification, 2000–2012 (provisional estimates).* World Health Organization.

WHO. (2015a). Adolescent pregnancy. Fact sheet No. 364 2014. Retrieved 9 August 2021, from www.who.int/mediacentre/factsheets/fs364/en/

WHO. (2015b). *The global strategy for women's, children's, and adolescents' health (2016–30).* http://www.who.int/life-course/partners/global-strategy/ewec-globalstrategyreport-200915.pdf?ua=1

WHO. (2016). *Global health estimates 2015: deaths by cause, age, sex, by country and by region, 2000–2015*

WHO. (2018a). Adolescent pregnancy. https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy

WHO. (2018b). Adolescent birth rate. https://www.who.int/gho/maternal_health/reproductive_health/adolescent_fertility/en/

WHO. (2020). *Adolescent pregnancy* https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy

Williams, N. J., Wolk, C. B., Becker-Haimes, E. M., & Beidas, R. S. (2020). Testing a theory of strategic implementation leadership, implementation climate, and clinicians' use of evidence-based practice: a 5-year panel analysis. *Implementation science*, *15*(1), 1-15.

Williamson, L. M., Parkes, A., Wight, D., Petticrew, M., & Hart, G. J. (2009). Limits to modern contraceptive use among young women in developing countries: a systematic review of qualitative research. *Reproductive Health*, *6*(1), 3.

Wilson, V., & McCormack, B. (2006). Critical realism as emancipatory action: the case for realistic evaluation in practice development. *Nursing Philosophy*, *7*(1), 45-57.

World Atlas. (2017). World Facts: Highest Teen Pregnancy Rates Worldwide 2015. Retrieved April 3, 2019, from http://www.worldatlas.com/articles/highest-teen-pregnancy-rates-worldwide.

World Bank. (2007). *World Development Report 2007: Development and the next generation.* . World Bank.

World Health Organization. (2010). *Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies*. World Health Organization.

World Health Organization. (2012). *Making health services adolescent friendly: developing national quality standards for adolescent friendly health services*. (9241503599). Geneva: World Health Organization

World Health Organization. (2016). *Equitable access to functional health workforce and community health workers in the Africa Region*. Windhoek, Namibia. : WHO Regional Forum on Strengthening Health Systems for the SDGs and UHC

Yakubu, I., & Salisu, W. J. (2018). Determinants of adolescent pregnancy in sub-Saharan Africa: a systematic review. *Reproductive Health*, *15*(1), 1-15.

Yarney, J., Donkor, A., Opoku, S. Y., Yarney, L., Agyeman-Duah, I., Abakah, A. C., & Asampong, E. (2013). Characteristics of users and implications for the use of

complementary and alternative medicine in Ghanaian cancer patients undergoing radiotherapy and chemotherapy: a cross-sectional study. *BMC Complementary and Alternative Medicine*, *13*(1), 1-9.

Yarrow, E., Anderson, K., Apland, K., & Watson, K. (2014). Can a restrictive law serve a protective purpose? The impact of age-restrictive laws on young people's access to sexual and reproductive health services. *Reproductive health matters*, *22*(44), 148-156.

Yaya, S., Odusina, E. K., & Bishwajit, G. (2019). Prevalence of child marriage and its impact on fertility outcomes in 34 sub-Saharan African countries. *BMC international health and human rights*, *19*(1), 33.

Yi, S., Poudel, K. C., Yasuoka, J., Palmer, P. H., Yi, S., & Jimba, M. (2010). Role of risk and protective factors in risky sexual behavior among high school students in Cambodia. *BMC public health*, *10*(1), 477.

Yidana, A., Ziblim, S.-D., Azongo, T. B., & Abass, Y. I. (2015). Socio-cultural determinants of contraceptives use among adolescents in northern Ghana.

Yussif, A.-S., Lassey, A., Ganyaglo, G. Y.-k., Kantelhardt, E. J., & Kielstein, H. (2017). The long-term effects of adolescent pregnancies in a community in Northern Ghana on subsequent pregnancies and births of the young mothers. *Reproductive Health*, *14*(1), 178.

Zaw, P. P. T., Liabsuetrakul, T., McNeil, E., & Htay, T. T. (2013). Gender differences in exposure to SRH information and risky sexual debut among poor Myanmar youths. *BMC public health*, *13*(1), 1122.

Zolfaghari, E., Armaghanian, N., Waller, D., Medlow, S., Hobbs, A., Perry, L., Nguyen, K., & Steinbeck, K. (2022). Implementation science in adolescent healthcare research: an integrative review. *BMC health services research*, *22*(1), 1-19.

APPENDICES

Appendix 1: Ethics Approval letter from Ghana Health Service

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted

MyRef.ghs/rdd/erc/Admn amend/app/20
Your Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra.
Digital Address GA-050-3303
Mob: +233-50-3539896
Tel: +233-0302681109
Fax + 233-0302685424
Email:ethics.research@ghsmail.org
8th July, 2020

Bright Opoku Ahinkorah
University of Technology Sydney
P.O. Box 123, Broadway
Ultimo
NSW 2007, Australia

RE: Request for Ethical Approval to Amended Protocol

Reference is made to your letter dated 13th May 2020 on the above subject matter.

The Ghana Health Service Ethics Review Committee (GHS-ERC) has reviewed the documents submitted, and the rationale for the request for amendment. The GHS-ERC has given approval for the amendment to be implemented.

GHS-ERC Number	**GHSERC: 009/01/20**
Study Title	Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana
Effective Date for Approval of Amendment	8th July, 2020
Expiry Date	10th February, 2021
GHS-ERC Decision	**Amendment Version 1.0 dated July, 2020 Approved**

The approval covers the following only:

i. **Modification of face-to-face interviews to telephone interview via WhatsApp and phone calls.**
i. **Recruitment of two research assistants to help with the interviews instead of one**

The following applies:

- Submission of 6 monthly progress report of the study to the Ethics Review Committee (ERC).
- Renewal of ethical approval if the study lasts for more than 12 months.
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.

1

Appendix 2: UTS HREC Approval Granted – ETH20-4779

Dear Applicant

Re: ETH20-4779 -
"Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana"

[External Ratification: Ghana Health Service Ethics Review Committee (GHS-ERC), HREC approval GHS-ERC009/01/20 -
11th February 2020 to 10th February 2021]

The UTS Human Research Ethics Expedited Review Committee has reviewed your application
and agreed that the application meets the requirements of the NHMRC National Statement on Ethical Conduct In Human Research (2007). I am pleased to inform you that your external ethics approval has been ratified.

The following special condition applies to your approval:
1. The researcher is requested to provide the Letters of Support to the Ethics Secretariat, once they become available.

This ratification is subject to the standard conditions outlined in your original letter of approval.

You are reminded that this letter constitutes ethics approval only. This research project must also be undertaken in accordance with all UTS policies and guidelines including the Research Management Policy.

Your approval number is UTS HREC REF NO. ETH20-4779.

Approval will be for the period specified above and subject to the provision of annual reports and evidence of continued support from the above-named Committee.

Please note that the ethical conduct of research is an on-going process. The National Statement on Ethical Conduct in Research Involving Humans requires us to obtain a report about the progress of the research, and in particular about any changes to the research which may have ethical implications. This report form must be completed at least annually, and at the end of the project (if it takes more than a year). The Ethics Secretariat will contact you when it is time to complete your first report.

This research must be undertaken in compliance with the Australian Code for the Responsible Conduct of Research and National Statement on Ethical Conduct in Human Research.

You should consider this your official letter of approval. If you require a hardcopy please contact the Ethics Secretariat.

To access this application, please click here, a copy of your application has also been attached to this email.

We value your feedback on the online ethics process. If you would like to provide feedback please do so here.

If you have any queries about your ethics approval, or require any amendments to your research in the future, please don't hesitate to contact the Ethics Secretariat and quote the ethics application number (e.g. ETH20-xxxx) in all correspondence.

Yours sincerely,

A/Prof Beata Bajorek

Chairperson

UTS Human Research Ethics Committee

C/- Research Office

University of Technology Sydney

Research.Ethics@uts.edu.au | Website

PO Box 123 Broadway NSW 2007

Ref: E39

Appendix 3: Information sheet for professionals and grassroots

Title: **Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana**

Introduction: I am Bright Opoku Ahinkorah, a PhD student of the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia

Address: University of Technology Sydney

P.O. Box 123, Broadway

Ultimo

NSW 2007, Australia

Background and Purpose of research: The purpose of my research is to explore the **impact of policies and programmes for addressing adolescent pregnancy in Ghana.**

Nature of the study: As part of my academic work, I am conducting a cross-sectional qualitative study on the **impact of policies and programmes for addressing adolescent pregnancy in Ghana.** The aim of this study is to identify and explore the impact of policies and programmes on adolescent pregnancy in Ghana. Specifically, the study seeks to identify the policies and programmes that have been implemented with the aim of reducing adolescent pregnancy in Ghana; to determine the policies and programmes which have been effective or ineffective in reducing adolescent pregnancy in Ghana; to determine what helps and what hinders the uptake and success of planned policies and programmes that are intended to reduce adolescent pregnancy in Ghana; and to make recommendations to improve policies and programmes and their uptake in reducing adolescent pregnancy in Ghana. Participants will be asked questions about policies and programmes that have been implemented with the aim of reducing adolescent pregnancy in Ghana; policies and programmes which have been effective or ineffective in reducing adolescent pregnancy in Ghana; and barriers and facilitators to the implementation of policies and programmes aimed at reducing adolescent pregnancy in Ghana.

Participants' involvement:

Duration: I will like to seek your views on policies and programmes that are intended to reduce adolescent pregnancy in Ghana. The interview will take approximately 60 minutes.

Potential Risk: Some of the questions may bring to mind emotions since you may recall personal experiences.

Benefits: The results of the study will be shared with the participating facility. There is no direct financial benefit for you for participating in the study. However, there will be refreshment for all the participants after the interviews

Costs: The interview will cost approximately 60 minutes of your time.

Compensation: There is no financial or material compensation to be given to the participants in the study.

Confidentiality: The information you supply in the interview will be kept and used later in the study analysis. Findings will be pooled and no-one will be able to identify who took part from the results. Information about you will be protected to the best of our ability and you will not be named in any reports. The recordings and transcripts will be kept safe in a locked place or under password control to prevent unauthorized people from having access to the data.

Voluntary participation/withdrawal: Your participation is voluntary and you can opt not to answer any question or withdraw from this research at any point if you feel uncomfortable with the questions being asked without having to give a reason and without any consequences.

Outcome and Feedback: After the analysis, the data will be kept safe by the principal investigator. The pooled results of the study will be shared with the selected health facilities for the study, to be disseminated to participants and the country.

Funding: The study is entirely an academic work and has internal funding from the Faculty of Health and the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia.

Sharing of participants Information/Data: The principal investigator and his supervisors are the only people who own the data that will be generated from the study and data will not be shared to any other individual or organization.

Contacts for Additional Information: You may contact Bright Opoku Ahinkorah, the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia on +61 or bright.o.ahinkorah@student.uts.edu.au. You may also contact my principal supervisor A/Prof. Melissa Kang of the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia for any clarification on +61. You can also contact Nana Abena Apatu, the administrator of the Ghana Health Service Ethics Review Committee on +233503539896.

Provision of Information and Consent for participants: A copy of the Information sheet and Consent form will be given to you after it has been signed or thumb-printed to keep.

Permission to audio record interviews: I will ask for your permission to audio record the interviews and the information you provide will be kept confidential.

Appendix 4: Consent form for professionals and grassroots workers

STUDY TITLE: **Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana**

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and all questions satisfactorily explained to me in a language I understand (……*name of language*). I fully understand the contents and any potential

implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Participants' Signature ……...OR Thumb Print……

Date:…….

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the participant to the best of my ability in the (……*name of language*) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Signature of Interpreter…….. OR Thumb Print …….....

Date:……

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (….*name of language*)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Signature……... OR Thumb Print …….....

Date:……

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name…….

Signature …….

Date…….

PERMISSION TO RECORD INTERVIEWS

I request permission to audio record the interviews and assure you that the recorded interviews will be password protected and kept confidential. Do you agree that the interviews are recorded?

YES ☐ NO ☐

Appendix 5: Information sheet for adolescents 18-19 years

Title: **Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana**

Introduction: I am Bright Opoku Ahinkorah, a PhD student of the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia

Address: University of Technology Sydney

P.O. Box 123, Broadway

Ultimo

NSW 2007, Australia

Background and Purpose of research: The purpose of my research is to explore the **impact of policies and programmes for addressing adolescent pregnancy in Ghana.**

Nature of the study: As part of my academic work, I am conducting a cross-sectional qualitative study on the **impact of policies and programmes for addressing adolescent pregnancy in Ghana.** The aim of this study is to identify and explore the impact of policies and programmes on adolescent pregnancy in Ghana. Specifically, the study seeks to identify the policies and programmes that have been implemented with the aim of reducing adolescent pregnancy in Ghana; to determine what helps and what hinders the uptake and success of planned policies and programmes that are intended to reduce adolescent pregnancy in Ghana; and to make recommendations to improve policies and programmes and their uptake in reducing adolescent pregnancy in Ghana.

The interview will take about 90 minutes. Participants will be asked questions about access to pregnancy prevention information and services, and their experiences and views of what helps and hinders policies and programmes that are intended to reduce adolescent pregnancy in Ghana.

Participants' involvement:

Duration: I will like to seek your views on policies and programmes that are intended to reduce adolescent pregnancy in Ghana. The interview will take approximately 90 minutes.

Potential Risk: Some of the questions may bring to mind emotions since you may recall personal experiences.

Benefits: The results of the study will be shared with the participating facility. There is no direct financial benefit for you for participating in the study. However, there will be refreshment for all the participants after the interviews

Costs: The interview will cost approximately 90 minutes of your time. There is also the likelihood of cost of travel to the health facilities for the interviews.

Compensation: An amount GH₵5 will be given to you if you have to travel to the health facilities for the interviews as reimbursement of any travel costs. There will also be refreshment to compensate for their time

Confidentiality: The information you supply in the interview will be kept and used later in the study analysis. Findings will be pooled and no-one will be able to identify who took part from the results. Information about you will be protected to the best of our ability and you will not be named in any reports. The recordings and transcripts will be kept safe in a locked place or under password control to prevent unauthorized people from having access to the data.

Voluntary participation/withdrawal: Your participation is voluntary and you can opt not to answer any question or withdraw from this research at any point if you feel uncomfortable with the questions being asked without having to give a reason and without any consequences.

Outcome and Feedback: After the analysis, the data will be kept safe by the principal investigator. The pooled results of the study will be shared with the selected health facilities for the study, to be disseminated to participants and the country.

Funding: The study is entirely an academic work and has internal funding from the Faculty of Health and the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia.

Sharing of participants Information/Data: The principal investigator and his supervisors are the only people who own the data that will be generated from the study and data will not be shared with any other individual or organization.

Contacts for Additional Information: You may contact Bright Opoku Ahinkorah, the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia on +61 or bright.o.ahinkorah@student.uts.edu.au. You may also contact my principal supervisor A/Prof. Melissa Kang of the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia for any clarification on +61. You can also contact Nana Abena Apatu, the administrator of the Ghana Health Service Ethics Review Committee on +233503539896.

Provision of Information and Consent for participants: A copy of the Information sheet and Consent form will be given to you after it has been signed or thumb-printed to keep.

Permission to audio record interviews: I will ask for your permission to audio record the interviews and the information you provide will be kept confidential.

Appendix 6: Consent form for adolescents 18-19 years

STUDY TITLE: **Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana**

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and all questions satisfactorily explained to me in a language I understand (……*name of language*). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Participants' Signature ……...OR Thumb Print……

Date:…….

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the participant to the best of my ability in the (……*name of language*) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Signature of Interpreter…….. OR Thumb Print …….....

Date:……

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (….*name of language*)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Signature…….... OR Thumb Print …….....

Date:……

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name…….

Signature …….

Date…….

PERMISSION TO AUDIO RECORD INTERVIEWS

I request permission to audio record the interviews and assure you that the recorded interviews will be password protected and kept confidential. Do you agree that the interviews are audio recorded?

YES ☐ NO ☐

Appendix 7: Information sheet for parents/spouses of adolescents 15- 17 years

Title: **Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana**

Introduction: I am Bright Opoku Ahinkorah, a PhD student of the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia

Address: University of Technology Sydney

P.O. Box 123, Broadway

Ultimo

NSW 2007, Australia

Background and Purpose of research: The purpose of my research is to explore the **impact of policies and programmes for addressing adolescent pregnancy in Ghana.**

Nature of the study: As part of my academic work, I am conducting a cross-sectional qualitative study on the **impact of policies and programmes for addressing adolescent pregnancy in Ghana.** The aim of this study is to identify and explore the impact of policies and programmes on adolescent pregnancy in Ghana. Specifically, the study seeks to identify the policies and programmes that have been implemented with the aim of reducing adolescent pregnancy in Ghana; to determine what helps and what hinders the uptake and success of planned policies and programmes that are intended to reduce adolescent pregnancy in Ghana; and to make recommendations to improve policies and programmes and their uptake in reducing adolescent pregnancy in Ghana. The interview will take about 90 minutes. Participants will be asked questions about access to pregnancy prevention information and services, and their experiences and views of what helps and hinders policies and programmes that are intended to reduce adolescent pregnancy in Ghana.

Participants' involvement:

Duration: I will like to seek the views of your ward/spouse on policies and programmes that are intended to reduce adolescent pregnancy in Ghana. The interview will take approximately 90 minutes.

Potential Risk: Some of the questions may bring to mind emotions since your ward may recall personal experiences.

Benefits: The results of the study will be shared with the participating facility. There is no direct financial benefit for your wards/spouse for participating in the study. However, there will be refreshment for all the participants after the interviews

Cost: The interview will cost approximately 90 minutes of the time of your ward/spouse.

Compensation: There is no financial compensation to be given to the participants in the study but there is refreshment to compensate for their time.

Confidentiality: The information your ward/spouse supplies in the interview will be kept and used later in the study analysis. Findings will be pooled and no-one will be able to identify who took part from the results. Information about your ward/spouse will be protected to the best of our ability and you will not be named in any reports. The recordings and transcripts will be kept safe in a locked place or under password control to prevent unauthorized people from having access to the data.

Voluntary participation/withdrawal: The participation of your ward/spouse is voluntary and she can opt not to answer any question or withdraw from this research at any point if she feels uncomfortable with the questions being asked without having to give a reason and without any consequences.

Outcome and Feedback: After the analysis, the data will be kept safe by the principal investigator. The pooled results of the study will be shared with the selected health facilities for the study, to be disseminated to participants and the country.

Funding: The study is entirely an academic work and has internal funding from the Faculty of Health and the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia.

Sharing of participants Information/Data: The principal investigator and his supervisors are the only people who own the data that will be generated from the study and data will not be shared with any other individual or organization.

Contacts for Additional Information: You may contact Bright Opoku Ahinkorah, the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia on +61 or bright.o.ahinkorah@student.uts.edu.au. You may also contact my principal supervisor A/Prof. Melissa Kang of the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia for any clarification on +61 1. You can also contact Nana Abena Apatu, the administrator of the Ghana Health Service Ethics Review Committee on +233503539896

Provision of Information and Consent for participants: A copy of the Information sheet and Consent form will be given to your ward/spouse after it has been signed or thumb-printed to keep.

Permission to audio record interviews: I will ask for your permission to audio record the interviews with your ward/spouse and the information she provides will be kept confidential.

Appendix 8: Consent form for parents/spouses of adolescents 15- 17 years

STUDY TITLE: **Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana**

PARENT/GUARDIAN/PARTNER' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and all questions satisfactorily explained to me in a language I understand (……*name of language*) on behalf of my ward/spouse. I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree for my ward to participate in the study.

Parent/Guardian/Spouse Signature ……...OR Thumb Print……

Date:…….

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the Parent/Guardian/Spouse to the best of my ability in the (……*name of language*) language to his proper understanding.

All questions, appropriate clarifications sort by the Parent/Guardian/Spouse and answers were also duly interpreted to his/her satisfaction.

Signature of Interpreter…….. OR Thumb Print …….....

Date:……

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (….*name of language*)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Signature…….... OR Thumb Print …….....

Date:……

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name…….

Signature …….

Date…….

PERMISSION TO AUDIO RECORD INTERVIEWS

I request permission to audio record the interviews and assure you that the recorded interviews will be password protected and kept confidential. Do you agree that the interviews are audio recorded?

YES ☐ NO ☐

Appendix 9: **Information sheet for adolescents 15-17 years**

Title: **Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana**

Introduction: I am Bright Opoku Ahinkorah, a PhD student of the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia

Address: University of Technology Sydney

P.O. Box 123, Broadway

Ultimo

NSW 2007, Australia

Background and Purpose of research: The purpose of my research is to explore the **impact of policies and programmes for addressing adolescent pregnancy in Ghana.**

Nature of the study: As part of my academic work, I am conducting a cross-sectional qualitative study on the **impact of policies and programmes for addressing adolescent pregnancy in Ghana.** The aim of this study is to identify and explore the impact of policies and programmes on adolescent pregnancy in Ghana. Specifically, the study seeks to identify the policies and programmes that have been implemented with the aim of reducing adolescent pregnancy in Ghana; to determine what helps and what hinders the uptake and success of planned policies and programmes that are intended to reduce adolescent pregnancy in Ghana; and to make recommendations to improve policies and programmes and their uptake in reducing adolescent pregnancy in Ghana.

The interview will take about 90 minutes. Participants will be asked questions about access to pregnancy prevention information and services, and their experiences and views of what helps and hinders policies and programmes that are intended to reduce adolescent pregnancy in Ghana.

Participants' involvement:

Duration: I will like to seek your views on policies and programmes that are intended to reduce adolescent pregnancy in Ghana. The interview will take approximately 90 minutes.

Potential Risk: Some of the questions may bring to mind emotions since you may recall personal experiences.

Benefits: The results of the study will be shared with the participating facility. There is no direct financial benefit for you for participating in the study. However, there will be refreshment for all the participants after the interviews

Costs: The interview will cost approximately 90 minutes of your time. There is also the likelihood of cost of travel to the health facilities for the interviews.

Compensation: An amount GH₵5 will be given to you if you have to travel to the health facilities for the interviews as reimbursement of any travel costs. There will also be refreshment to compensate for their time

Confidentiality: The information you supply in the interview will be kept and used later in the study analysis. Findings will be pooled and no-one will be able to identify who took part from the results. Information about you will be protected to the best of our ability and you will not be named in any reports. The recordings and transcripts will be kept safe in a locked place or under password control to prevent unauthorized people from having access to the data.

Voluntary participation/withdrawal: Your participation is voluntary and you can opt not to answer any question or withdraw from this research at any point if you feel uncomfortable with the questions being asked without having to give a reason and without any consequences.

Outcome and Feedback: After the analysis, the data will be kept safe by the principal investigator. The pooled results of the study will be shared with the selected health facilities for the study, to be disseminated to participants and the country.

Funding: The study is entirely an academic work and has internal funding from the Faculty of Health and the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia.

Sharing of participants Information/Data: The principal investigator and his supervisors are the only people who own the data that will be generated from the study and data will not be shared with any other individual or organization.

Contacts for Additional Information: You may contact Bright Opoku Ahinkorah, the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia on +61 , or bright.o.ahinkorah@student.uts.edu.au. You may also contact my principal supervisor A/Prof. Melissa Kang of the Australian Centre for Public and Population Health Studies, University of Technology Sydney, Sydney, Australia for any clarification on +61 . You can also contact Nana Abena Apatu, the administrator of the Ghana Health Service Ethics Review Committee on +233503539896.

Provision of Information and Consent for participants: A copy of the Information sheet and Consent form will be given to you after it has been signed or thumb-printed to keep.

Permission to audio record interviews: I will ask for your permission to audio record the interviews and the information you provide will be kept confidential.

Appendix 10: Assent form adolescents 15-17 years

STUDY TITLE: **Impact of Policies and Programmes for Addressing Adolescent Pregnancy in Ghana**

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and all questions satisfactorily explained to me in a language I understand (……*name of language*). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Participants' Signature ……...OR Thumb Print……

Date:…….

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the participant to the best of my ability in the (……*name of language*) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Signature of Interpreter…….. OR Thumb Print …….....

Date:……

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (….*name of language*)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Signature…….... OR Thumb Print …….....

Date:……

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name…….

Signature …….

Date…….

PERMISSION TO AUDIO RECORD INTERVIEWS

I request permission to audio record the interviews and assure you that the recorded interviews will be password protected and kept confidential. Do you agree that the interviews are audio recorded?

YES ☐ NO ☐

Appendix 11: Indepth interview guide for health/education professionals

Section A: Socio-demographic characteristics

1. Age
2. Educational level
3. Years of experience
4. Role in the organisation

Section B: Policies/programmes that have been implemented with the aim of reducing adolescent pregnancy in Ghana

1. Policies (for policy implementers) or programmes (for programme coordinators) aimed of reducing adolescent pregnancy in Ghana?
2. Factors that influence the implementation of those policies/programmes (Probe for: child marriage, gender-based violence, early sexual initiation, multiple sexual partners, coerced sex, lack of contraceptive education, lack of affordable and adequate contraceptive commodities and inconsistent and incorrect condom use, poverty, illiteracy, unemployment and school drop-outs).
3. Activities that have been implemented to reduce adolescent pregnancy in Ghana? (Probe for: information, education and communication (IEC); advocacy; provision of adolescent reproductive health services; comprehensive sexuality education; youth empowerment; training of healthcare providers; education of parents and community members)

Section C: Policies and programmes which have been effective or ineffective in reducing adolescent pregnancy

1. Can you mention specific policies and programmes which you think have been effective or ineffective in reducing adolescent pregnancy in Ghana?
2. Why do you think those policies and programmes were effective or not?

Section D: Facilitators towards the implementation, adoption, uptake and effectiveness of policies and programmes aimed at reducing adolescent pregnancy in Ghana

1. Community factors (Probe for: knowledge of the causes of adolescent pregnancy; politics; funding)
2. Provider characteristics (Probe for: perception on the need for the policy/programme; perception on the benefits of the policy/programme; self-efficacy; skills)
3. Innovation characteristics (Probe for: adaptability and compatibility)
4. Government/organisational capacity (Probe for: government/organizational norms regarding change; integration of new policy/programme; shared vision; shared decision-making; coordination with other agencies; communication; formulation of tasks; leadership; managerial/supervisory/administrative support)
5. Training and technical assistance
6. Characteristics of adolescents (Probe for: their need for the innovation; their goals; their culture; their values).

Section E: Barriers towards the implementation, adoption, uptake and effectiveness of policies and programmes aimed at reducing adolescent pregnancy in Ghana

1. Community factors (Probe for: lack of knowledge of the causes of adolescent pregnancy; politics; lack of funding)
2. Provider characteristics (Probe for: perception on the need for the policy/programme; perception on the benefits of the policy/programme; self-efficacy; lack of the skills necessary for implementation)
3. Innovation characteristics (Probe for: adaptability and compatibility)
4. Government/organisational capacity (Probe for: government/organizational norms regarding change; integration of new policy/programme; shared vision; shared decision-making; coordination with other agencies; communication; formulation of tasks; leadership; managerial/supervisory/administrative support)
5. Lack of training and technical assistance
6. Characteristics of adolescents (Probe for: their need for the innovation; their goals; their culture; their values).

Section F: Recommendations to improve the implementation of policies and programmes aimed at reducing adolescent pregnancy in Ghana

1. What do you think can be done to improve policies and programmes and their implementation, aimed at reducing adolescent pregnancy in Ghana?

Appendix 12: Indepth interview guide for grassroots workers

Section A: Socio-demographic characteristics

5. Age
6. Educational level
7. Years of experience
8. Role in the community

Section B: Policies/programmes that have been implemented with the aim of reducing adolescent pregnancy in Ghana

4. Policies (for policy implementers) or programmes (for programme coordinators) aimed of reducing adolescent pregnancy in Ghana?
5. Factors that influence the implementation of those policies/programmes (Probe for: child marriage, gender-based violence, early sexual initiation, multiple sexual partners, coerced sex, lack of contraceptive education, lack of affordable and adequate contraceptive commodities and inconsistent and incorrect condom use, poverty, illiteracy, unemployment and school drop-outs).
6. Activities that have been implemented to reduce adolescent pregnancy in Ghana? (Probe for: information, education and communication (IEC); advocacy; provision of adolescent reproductive health services; comprehensive sexuality education; youth empowerment; training of healthcare providers; education of parents and community members)

Section C: Policies and programmes which have been effective or ineffective in reducing adolescent pregnancy

1. Can you mention specific programmes which you think have been effective or ineffective in reducing adolescent pregnancy in the central region or this community?
2. Why do you think those programmes were effective or not?

Section D: Facilitators towards the implementation, adoption, uptake and effectiveness of policies and programmes aimed at reducing adolescent pregnancy in Ghana

7. Community factors (Probe for: knowledge of the causes of adolescent pregnancy; politics; funding)
8. Provider characteristics (Probe for: perception on the need for the policy/programme; perception on the benefits of the policy/programme; self-efficacy; skills)
9. Innovation characteristics (Probe for: adaptability and compatibility)
10. Government/organisational capacity (Probe for: government/organizational norms regarding change; integration of new policy/programme; shared vision; shared decision-making; coordination with other agencies; communication; formulation of tasks; leadership; managerial/supervisory/administrative support)
11. Training and technical assistance
12. Characteristics of adolescents (Probe for: their need for the innovation; their goals; their culture; their values).

Section E: Barriers towards the implementation, adoption, uptake and effectiveness of policies and programmes aimed at reducing adolescent pregnancy in Ghana

7. Community factors (Probe for: lack of knowledge of the causes of adolescent pregnancy; politics; lack of funding)
8. Provider characteristics (Probe for: perception on the need for the policy/programme; perception on the benefits of the policy/programme; self-efficacy; lack of the skills necessary for implementation)
9. Innovation characteristics (Probe for: adaptability and compatibility)
10. Government/organisational capacity (Probe for: government/organizational norms regarding change; integration of new policy/programme; shared vision; shared

decision-making; coordination with other agencies; communication; formulation of tasks; leadership; managerial/supervisory/administrative support)

11. Lack of training and technical assistance
12. Characteristics of adolescents (Probe for: their need for the innovation; their goals; their culture; their values).

Section F: Recommendations to improve the implementation of policies and programmes aimed at reducing adolescent pregnancy in Ghana

2. What do you think can be done to improve policies and programmes and their implementation, aimed at reducing adolescent pregnancy in Ghana?

Appendix 13: Focus group discussion guide for adolescents

Section A: Socio-demographic characteristics

9. Age
10. Religion
11. Educational level
12. Marital status

Section B: Access to pregnancy prevention information and services

1. How do you find information about preventing pregnancy? (Probe: Where, How)
2. What type of contraceptives do you know/heard about?
3. Are you taught anything in school about how to avoid getting pregnant? What do you learn? (**For non-pregnant adolescents in school**) / Were you taught anything in school about how to avoid getting pregnant? What did you learn? (**For pregnant adolescents with some level of education**)
4. Are you taught anything at home about how to avoid getting pregnant? What do you learn? **(For non-pregnant adolescents)** / Were you taught anything at home about how to avoid getting pregnant? What did you learn? **(For pregnant adolescents)**
5. Is sexual and reproductive health something you discuss with your friends/peers? (give example of situations)

Section C: **Facilitators towards access to pregnancy prevention information and services**

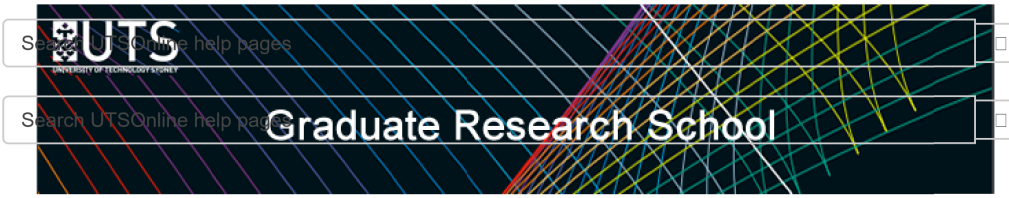
1. What, if anything, has been helpful for you in being able to make your own choices about sex and pregnancy? Is there anything that you have learned or been able use that has helped?
2. Has anything particularly got in your way, or pushed you towards a particular choice or decision?

Section D: Barriers towards access to pregnancy prevention information and services

1. What, if anything, was/is a barrier towards your access to pregnancy prevention information or services from your parents/teachers/health workers or any person who provides access to pregnancy prevention information or services?
2. Can you share your experience of a situation or situations where you had difficulties assessing pregnancy prevention information or services? Where and when and who served as a barrier?

Section E: Recommendations

1. What would you like to see happen in your community to help girls understand, learn more, or receive care when it comes to pregnancy or pregnancy prevention?
2. If you had to give your little sister some advice on sex and pregnancy choices, what would that be?



Research Integrity for Students

Certificate of Completion

This is to certify that

BRIGHT AHINKORAH

has successfully completed

Module 1: Research Integrity and Code of Conduct

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Professor Lori Lockyer,
Dean, Graduate Research School

University of Technology Sydney

Date: *05/04/2019*

Graduate Research School

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Module 3: Risk Assessment
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University of Technology Sydney

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GRSP – STAGE 3 Candidature time taken for this stage is normally 1-2 semesters for full-time study or 2-4 semesters for part-time study. Candidates must complete the activities in the study plan as agreed with the supervisory panel, have presented at least once at the Research Student Forum, successfully undertaken the Stage 2 Assessment and had Satisfactory progress over the preceding semester/s to complete this stage. Completion of this stage formally confirms readiness to submit the thesis for examination.		
ELEMENT AND OUTCOMES (Not to be altered) *Research practice, advanced disciplinary knowledge and skills, and research methodologies*	**DATES, ACTIVITIES AND THEIR CONTRIBUTION (examples only: modify, delete or add)**	**Completed (Date)**
Contributing to a research community and to advancing disciplinary knowledge Able to make critical contributions to improving local, institutional, scholarly and/or professional research communities; able to use the language, tools and concepts of a scholarly community; able to produce the knowledge and artefacts of the scholarly community.	• Sharing experiences and guiding other HDR students in qualitative data analysis. • Guided HDR students in ethics application and scoping review. • Led the development and completion of papers (with two published and one submitted to journal): - Ahinkorah, B. O., Kang, M., Perry, L., & Brooks, F. (2020). Prevention of adolescent pregnancy in Anglophone sub-Saharan Africa: a scoping review of national policies. *International journal of health policy and management*. - Ahinkorah, B. O., Kang, M., Perry, L., Brooks, F., & Hayen, A. (2021). Prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa: A multi-country analysis. *Plos one*, *16*(2), e0246308. - Ahinkorah, B. O., Kang, M., Perry, L., & Brooks, F. (2021). Knowledge and awareness of policies and programmes to reduce adolescent pregnancy in sub-Saharan Africa: a qualitative study among key stakeholders in Ghana. *BMC Health Services Research* (Submitted to Journal)	Ongoing Ongoing March 2021-date

GRSP – STAGE 3 Candidature time taken for this stage is normally 1-2 semesters for full-time study or 2-4 semesters for part-time study. Candidates must complete the activities in the study plan as agreed with the supervisory panel, have presented at least once at the Research Student Forum, successfully undertaken the Stage 2 Assessment and had Satisfactory progress over the preceding semester/s to complete this stage. Completion of this stage formally confirms readiness to submit the thesis for examination.		
ELEMENT AND OUTCOMES (Not to be altered) *Research practice, advanced disciplinary knowledge and skills, and research methodologies*	**DATES, ACTIVITIES AND THEIR CONTRIBUTION (examples only: modify, delete or add)**	**Completed (Date)**
Becoming a responsible and ethical researcher Able to evaluate ethical practices in research, as required by UTS or other approving bodies; able to demonstrate that research has been conducted to the highest standard of transparency and ethical behaviour.	• Followed ethical principles in data management and analysis • Demonstrates transparency and best practice in preparation of reports and chapters of my thesis.	December 2020-May 2021 Ongoing
Developing research skills and knowledge Able to demonstrate use of available digital and non-digital resources to continuously develop research skills and knowledge.	• Demonstrated high order skills in the use of Nvivo for qualitative data analysis.	December 2020-August 2021
Planning and organising Able to demonstrate near completion of thesis; able to plan next steps in research career, by establishing strong relationships with key people and creating links with others in order to, for example, plan future research projects and take up opportunities for the development/implementation of the research outcomes.	• Organised the various chapters of my thesis. • Started planning for future research or professional career. • Collaborating with key people and creating links with them for future career prospect	Ongoing Ongoing Ongoing

GRSP – STAGE 3 Candidature time taken for this stage is normally 1-2 semesters for full-time study or 2-4 semesters for part-time study. Candidates must complete the activities in the study plan as agreed with the supervisory panel, have presented at least once at the Research Student Forum, successfully undertaken the Stage 2 Assessment and had Satisfactory progress over the preceding semester/s to complete this stage. Completion of this stage formally confirms readiness to submit the thesis for examination.		
ELEMENT AND OUTCOMES (Not to be altered) *Research practice, advanced disciplinary knowledge and skills, and research methodologies*	**DATES, ACTIVITIES AND THEIR CONTRIBUTION (examples only: modify, delete or add)**	**Completed (Date)**
Communicating research Able to successfully argue for the nature and impact of their contribution to the field, based on experience, expertise and literature; able to contribute to and/or change the direction of the conversation within the discipline/field/profession through publicly available communication of new knowledge/insights.	• Presented part of my findings at the Faculty of Health Research Shark Tank • Will be presenting part of my findings at the Australian Association for Adolescent Health HDR student showcase.	July 2021 November 2021
STAGE 3 – Completion of Stage Assessment - Confirmation of Readiness to Submit		
SUPERVISORS TO COMPLETE Melissa Kang Comments: Excellent progress to Stage 3 assessment. Two publications in peer reviewed journals, one manuscript currently under review and one manuscript in preparation. Thesis is well developed.		
Comments	**Comments**	**Comments**
RESPONSIBLE ACADEMIC OFFICER (Director Research Students) TO COMPLETE **OUTCOME OF ASSESSMENT** ☐ **Confirm candidature** ☐ **Reassess candidature** ☐ **Discontinue candidature**		

GRSP – STAGE 3 Candidature time taken for this stage is normally 1-2 semesters for full-time study or 2-4 semesters for part-time study. Candidates must complete the activities in the study plan as agreed with the supervisory panel, have presented at least once at the Research Student Forum, successfully undertaken the Stage 2 Assessment and had Satisfactory progress over the preceding semester/s to complete this stage. Completion of this stage formally confirms readiness to submit the thesis for examination.		
ELEMENT AND OUTCOMES (Not to be altered) *Research practice, advanced disciplinary knowledge and skills, and research methodologies*	**DATES, ACTIVITIES AND THEIR CONTRIBUTION** **(examples only: modify, delete or add)**	**Completed (Date)**
Comments	**Signature**	**Date**

Study Timelines

Activity	**Year**													
	2019				**2020**				**2021**				**2022**	
Quarters	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Planning														
Scoping Review														
Framework Development														
Methods Development														
Stage One Assessment														
Ethics Applications														
Data Collection														
Data Analysis														
Manuscripts' Preparation														
Manuscripts' Submission														
Stage Two Assessment														
Thesis Compilation														
Stage Three Assessment														
Submission														