

The role of digital media in motivating teenage pregnancy prevention among teenagers in Ghana

by

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Abstract

This thesis investigates the role of digital media in shaping knowledge, information-seeking behaviors, and preventive health actions related to teenage pregnancy among adolescents in Ghana. With the growing reliance on digital platforms for sexual and reproductive health information, this study examines how digital media influence adolescent engagement with pregnancy prevention in a context where cultural stigma and limited access to services persist.

Grounded in Protection Motivation Theory (PMT) (Rogers, 1983), the research evaluates the effects of perceived severity, vulnerability, response efficacy, self-efficacy, and response costs on pregnancy-related knowledge, digital media engagement, online health information-seeking, and preventive behaviors. Additional variables include demographic characteristics and media-related factors that shape adolescent reproductive health decisions.

A quantitative cross-sectional survey was conducted with adolescents aged 18–19 ($n = 429$). Descriptive statistics, including means, standard deviations, and Cronbach's α , were computed to assess reliability of the constructs. Correlation and hierarchical regression analyses were performed to test the hypotheses and answer the research questions.

Findings indicate that self-efficacy ($\beta = .337$, $t = 4.01$, $p < .001$) and response costs ($\beta = .235$, $t = 3.26$, $p < .01$) significantly predicted digital media engagement, while perceived severity ($\beta = -.303$, $t = -3.48$, $p < .01$) was negatively associated. Protective behaviors were significantly predicted by response efficacy ($\beta = .324$, $t = 5.30$, $p < .001$), self-efficacy ($\beta = .166$, $t = 2.62$, $p < .05$), online information-seeking ($\beta = .305$, $t = 5.45$, $p < .001$), and digital media use ($\beta = .087$, $t = 2.63$, $p < .05$). Correlation analyses further confirmed strong positive relationships

between online health information-seeking, response efficacy ($r = .769$, $p < .001$), and self-efficacy ($r = .792$, $p < .001$).

Regression models explained significant variance across outcomes, demonstrating that efficacy beliefs and digital engagement, rather than threat perceptions, are key drivers of preventive behavior. These findings underscore the explanatory power of PMT while extending it into a digital health context.

This study highlights the potential of digital media to serve as an effective platform for motivating adolescent pregnancy prevention in Ghana. It emphasizes the importance of designing culturally relevant, accessible, and empowering digital interventions that build self-efficacy, enhance trust in digital health tools, and address barriers that limit sustained engagement.

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Dedication

This thesis is dedicated first and foremost to Allah (SWT), whose guidance, mercy, and blessings have sustained me through every step of this journey. I dedicate this work to my family, especially my parents and siblings, whose sacrifices, prayers, and love made it possible for me to pursue my dreams. Your encouragement has been my greatest source of strength.

I dedicate it to my loved ones in Ghana and abroad. Thank you for your support and sacrifices too. This accomplishment is as much yours as it is mine. I also dedicate this thesis to the young women and adolescents in Ghana and beyond who face the challenges of teenage pregnancy. May this research contribute in some small way to amplifying your voices, supporting your futures, and opening doors to better opportunities.

Finally, I dedicate this work to every first-generation student who has dared to dream beyond limitations. This accomplishment is proof that persistence, faith, and hard work can break barriers.

Chapter 1 - Introduction

Background

Adolescence is a critical stage of human development, characterized by rapid physical, emotional, and cognitive changes. Despite these developments, cognitive maturity remains incomplete, often leading to limited decision-making abilities among young people. Research highlights that girls typically experience menarche around ages 12 to 13, while boys reach reproductive milestones such as first ejaculation at around 13 (Anthony, 2011; Kar et al., 2015). With this early biological maturity but incomplete cognitive development, adolescents are uniquely vulnerable to risks associated with early sexual activity. Globally, the World Health Organization (WHO) reports that approximately 16 million girls aged 15–19 give birth each year—an alarming statistic that underscores the urgent need to address adolescent reproductive health issues (Gutaka et al., 2023). This public health issue poses significant challenges not only for the individuals directly involved but also for society at large.

Adolescent health concerns, particularly teenage pregnancy and sexual reproductive health (SRH) are critical global issues. Teenage pregnancy is often influenced by cultural, social, and economic factors. It is especially prevalent in low- and middle-income countries where barriers such as cultural norms, financial limitations, and limited access to comprehensive sexual health education exacerbate the problem (Morris & Rushwan, 2015). Beyond individual health impacts, teenage pregnancy has broader social repercussions, including exacerbation of poverty, maternal mortality, and the perpetuation of gender inequality (Astarani, 2023). For young women, early pregnancies can impose life-altering limitations, often resulting in restricted educational and economic opportunities and trapping them in cycles of poverty. Research shows that teenage pregnancies significantly increase the risk of adverse maternal and child health

outcomes, including mental health issues and complications during childbirth, thus further perpetuating socioeconomic disadvantage (Febrianti & Astuti, 2022; Indarti et al., 2020; Salam et al., 2016).

The health implications of adolescent pregnancies extend beyond the individual level, affecting both young mothers and their children. Studies report higher incidences of complications such as pre-eclampsia, anaemia, and maternal mortality among teenage mothers, while their children are at increased risk of low birth weight, prematurity, and stillbirth (Febrianti & Astuti, 2022; Shrestha et al., 2022). These outcomes contribute to intergenerational cycles of poverty and disadvantage, as young mothers often face obstacles in completing their education and securing stable employment, which in turn limits future opportunities for themselves and their families (Cruz et al., 2021; Gunes & Tsaneva, 2020).

Consequently, addressing teenage pregnancy requires a holistic approach that considers not only the health needs of young mothers but also the broader social and economic context. Teenage pregnancies can be categorized into planned and unplanned types, each presenting distinct risks and challenges that significantly impact the health and well-being of both the mother and child. Planned teenage pregnancies, while relatively rare, may occur due to cultural or familial pressures that encourage early childbearing. Such pregnancies often lead to inadequate prenatal care, primarily due to limited resources or a lack of knowledge regarding available healthcare options (Kassa et al., 2018). This scenario is compounded by the fact that many adolescents lack the necessary support systems and resources to navigate the complexities of pregnancy and childbirth effectively. In contrast, unplanned pregnancies, which represent the majority of cases, are frequently linked to a lack of access to contraceptives, insufficient sexual education, and coercive circumstances, including sexual abuse (Ochen et al., 2019).

In Ghana, the prevalence of teenage pregnancy presents a particular challenge, with studies indicating that around 14.2% of adolescents aged 15–19 have experienced pregnancy (Hernandez et al., 2022). This statistic highlights the urgent need for targeted interventions that address the socio-economic and cultural factors underlying adolescent pregnancy. Teenage pregnancy in Ghana disrupts educational pathways, limits economic prospects, and exacerbates cycles of poverty, thus affecting both community health and national economic stability (Kassa et al., 2018; Saani, 2022; Yussif et al., 2017). In rural regions, social norms often support early childbirth, while limited access to healthcare and educational resources further restricts adolescents' ability to make informed reproductive health decisions (Ahinkorah et al., 2019; Amoadu et al., 2022). The social stigma surrounding unmarried adolescent mothers compounds these challenges, as they may face isolation and rejection from their families and communities (Ntini, 2023).

A significant barrier to reducing teenage pregnancy is the lack of comprehensive sexual education and reproductive health services, especially in rural and underserved areas. Research indicates that adolescents frequently lack fundamental knowledge of contraception and SRH, which leads to high rates of unintended pregnancies (Mbachu et al., 2020; Meena et al., 2016). In Ghana, these challenges are exacerbated by limited resources for comprehensive SRH education, which remains sparse in rural communities where cultural stigmas often prevent open discussions on sexual health (Nyande et al., 2022; Seidu et al., 2019). The persistence of misinformation, particularly in areas with restricted access to reliable health information, increases adolescents' vulnerability to both unintended pregnancies and sexually transmitted infections (STIs) (Solihah et al., 2022). Studies suggest that comprehensive sexual education programs, particularly those adapted to local cultural contexts, can promote responsible sexual

behavior and reduce rates of adolescent pregnancy (Omoyeni, 2024). The psychological and social dimensions of teenage pregnancy add further complexity to the issue. Adolescents from lower socioeconomic backgrounds often face additional barriers, such as limited access to healthcare and educational resources, which increase their risk of early pregnancy (Ndahimana, 2023). Cultural expectations and social norms also influence adolescent girls' decisions, with some young women feeling pressure to prioritize traditional roles over educational and career aspirations (Shema, 2019). Many teenage mothers report experiencing feelings of isolation, depression, and anxiety, which can hinder their ability to pursue educational and career opportunities, perpetuating a cycle of disadvantage (Trichal, 2023). Addressing these psychosocial factors necessitates a comprehensive approach that includes access to healthcare, educational resources, and community support networks, empowering young women to make informed decisions about their reproductive health (Meena et al., 2016).

Digital media has emerged as a feasible tool for addressing these concerns, serving as both a venue for peer learning and interaction among youth and a platform for information distribution. According to studies, young people are more likely to connect with content that feels real and is provided in familiar formats, such as interactive tests and quick movies (Souza et al., 2021). This is consistent with global studies emphasizing the importance of relatable content and peer-to-peer education in health communication, particularly in contexts where cultural stigmas may render traditional approaches ineffective (Acire, 2023). Digital platforms have the potential to boost young people's knowledge and understanding of sexual health in Ghana by providing a safe and anonymous setting in which they may ask questions and seek information without fear of being criticized.

There are several challenges to solve before digital media can be used effectively for health communication. Digital literacy is a significant barrier; while many Ghanaian youth have access to cell phones and the internet, not all of them can use these technologies or critically evaluate the information they find online. This puts into doubt their ability to receive reliable information and distinguish misleading information from trustworthy sources. According to research, increasing digital literacy is critical to reaching the intended population for digital health therapies (Pot, 2019; Souza et al., 2021).

Finally, the persistent gaps in SRH knowledge and access to reproductive health services in Ghana highlight the need for effective, culturally sensitive health communication strategies. Many adolescents report a lack of comprehensive SRH education, leading to misconceptions and limited awareness of contraception (Amoadu et al., 2022; Seidu et al., 2019). Integrating digital media into health education presents a promising strategy to bridge these gaps, offering timely and relevant information to help adolescents make informed reproductive health choices. For digital interventions to be effective, however, they must be culturally tailored to resonate with the values and beliefs of the target audience (Abdullah et al., 2023; Sychareun et al., 2018). This thesis seeks to contribute to this ongoing discourse by examining how digital media can support adolescent SRH education and motivate teenage pregnancy prevention in Ghana

Statement of Problem

Ghana has achieved notable progress in enacting communication policies designed to lower teen pregnancy rates, encompassing sexual education programs, enhanced access to contraceptives, and community-focused health initiatives. The importance of these efforts is highlighted by the understanding that comprehensive sexuality education (CSE) plays a vital role in equipping adolescents with the knowledge needed to make informed choices about their

sexual health (Gbagbo, 2020). Additionally, the implementation of subsidized contraceptive services through the National Health Insurance Scheme has significantly improved access to contraceptives, especially for young people (Asaolu et al., 2019).

However, the success of policies is influenced by key stakeholders' understanding and awareness of their execution. According to research, the mere presence of policies may not be sufficient since a lack of understanding and awareness among community members and healthcare practitioners might undermine their effectiveness (Ahinkorah, 2023). The lack of comprehensive sexual health education in schools exacerbates the problem since young people may not receive the knowledge required to make informed sexual health decisions (Rabbitte & Enriquez, 2018). What is the level of people's knowledge about teenage pregnancy prevention, and what are their primary sources of information? The current study will examine people's knowledge of teenage pregnancy. It will explore their awareness of key concepts of teenage pregnancy, contraception, and sources of information.

Research has shown that the availability of reproductive health facilities that cater to adolescents has demonstrated a positive impact on the utilization of contraceptive services among youth (Oppong et al., 2021). Despite these initiatives, the effectiveness of such interventions has varied across different regions of the country (Gbagbo & Ameyaw, 2023). Nonetheless, this advancement is not consistently evident in rural regions, where cultural opposition to open conversations about sexuality and the stigma associated with contraceptive use remain substantial obstacles (Mukherjee et al., 2021). The current study will examine perceptions of teenage pregnancy in Ghana, focusing on understanding its risks and seriousness.

The persistence of high teen pregnancy rates in Ghana implies that many attempts to lower these rates have not been entirely successful. The World Health Organization has identified

complications from childbirth as leading cause of death among girls aged 15 to 19 in developing countries, including Ghana (Ngoda et al., 2021). According to research, young females face significant barriers when seeking sexual and reproductive health care, particularly in rural locations. The prevalence of adolescent pregnancy in Ghana is estimated to be 15.4%, with higher rates in rural areas (19.5%) compared to urban areas (10.6%). How do people perceive the risks and severity of teenage pregnancy, and how do these perceptions influence their motivation to adopt preventive behaviors? The current study will examine people's understanding of the risk and seriousness of teenage pregnancy. Significant determinants over the last three decades include age, literacy, household size, income, employment status, contraceptive knowledge, and menstrual cycle knowledge, with notable shifts in the factors influencing pregnancy over time (Mohammed, 2023).

Cultural taboos around sexuality discussions, the shame associated with using contraception, and a lack of comprehensive sexual education in schools are all barriers to avoiding teen pregnancy. Ghana's cultural background usually limits open conversations about sexual health, leaving teens confused and unaware of their reproductive health options (Ivanova et al., 2018; Mezmur et al., 2021). The stigma surrounding contraceptive use is especially evident in communities where traditional beliefs such as early birth frequently hinder conversations about sexual health, resulting in limited awareness and acceptance of contraceptive methods. Contraceptive use is also viewed as socially unacceptable in some communities and can prevent adolescents from accessing essential health services (Mukherjee et al., 2021). This undermines efforts to encourage delayed conception until educational or job milestones are met (Amrutha et al., 2021; Krugu et al., 2016; Perry et al., 2022). This study will explore how

adolescents perceive the availability and accessibility of contraceptives, particularly in relation to barriers, and their confidence in using these methods to prevent pregnancy.

Even though Ghana's political landscape, cultural, and socioeconomic considerations influence the implementation and success of teenage pregnancy prevention initiatives. A lack of political commitment, sometimes motivated by party considerations, can lead to insufficient funding and support for sexual and reproductive health efforts. The deficiency is especially visible in the aftermath of the COVID-19 epidemic, which has strained resources and diverted attention away from adolescent health programs. As a result, many projects aimed at reducing teen pregnancy may lack the necessary financial assistance to be effective, particularly in rural areas with the highest demand (Perry et al., 2022). Additionally, a lack of faith and trust in healthcare services may lead to complete avoidance of healthcare services, so weakening the effectiveness of any strategy aimed at reducing teen pregnancy. Many adolescents may feel uncomfortable or unwelcome in healthcare settings, particularly if they believe that healthcare providers do not understand or respect their cultural beliefs (Perry et al., 2022).

In recent years, the rapid expansion of digital media has introduced new opportunities for enhancing health communication and SRH education among Ghanaian adolescents. With the widespread use of mobile phones and social media platforms, digital media can serve as an innovative and accessible way to reach young people with critical information on SRH (Harding et al., 2020; Yakubu et al., 2019). However, numerous adolescents in Ghana encounter difficulties concerning digital literacy, which further hinders their capacity to access and comprehend sexual health information provided on digital platforms. Studies indicate that a considerable number of young individuals do not possess the essential skills to effectively utilize online health resources (Nyarko, 2015). This digital divide prompts important inquiries regarding

teenagers' ability to participate in digital health interventions, which are being increasingly advocated as a way to share sexual health information (Nyarko, 2015). This study will examine how confident people are in using digital tools to seek health information online. Although preliminary research suggests that digital platforms can increase teenage pregnancy awareness, the extent to which they influence behavior change, particularly in preventing teenage pregnancies, remains underexplored (Wado et al., 2019). Little is known about how effective these platforms are in Ghana in encouraging behavior change and preventing teen pregnancy. More research is needed to determine how digital health interventions influence adolescent behavior and pregnancy rates. To what extent do digital platforms contribute to teenage pregnancy awareness and behavior change among adolescents in Ghana? What are the costs of accessing and effectively using digital platforms for teenage pregnancy education, and how do these barriers impact their behavior?

To answer these questions, the study will be grounded in the Protection Motivation Theory (PMT). In reaction to perceived threats, the theory posits that people are compelled to adopt protective actions. According to the theory, a person's assessment of the seriousness of a threat, their susceptibility to that threat, the effectiveness of the suggested reaction (response efficacy), and their self-efficacy which is the belief in their own ability to carry out the suggested conduct, are the main factors that influence behavior change. Adolescents' beliefs about the risk of early pregnancy, their belief in their capacity to prevent it, and the influence of digital media on these perceptions are all explained by PMT in the context of teen pregnancy (Chung et al., 2018; Rogers, 1983).

The focus of this study is on adolescents aged 18 and 19, including those who have previously experienced pregnancy. This focus is both a practical and ethical consideration, as

individuals aged 18 and 19 can legally provide consent to participate in research. By focusing on this age group, the study ensures adherence to ethical guidelines regarding informed consent, autonomy, and privacy, especially given the sensitive nature of topics related to reproductive health and adolescent pregnancy.

Additionally, adolescents who have already experienced pregnancy offer unique insights into the effects of early parenthood. This subgroup faces distinct challenges as young mothers, including the psychological, social, and economic consequences of early motherhood. By studying this specific demographic, the research can explore how early parenthood impacts educational and career prospects, health outcomes, and social dynamics within their communities. Insights from this group can also illuminate the long-term effects of adolescent pregnancy on individual life trajectories, offering valuable perspectives on the support and interventions that may be necessary for young mothers. This focus also allows the study to investigate recurring pregnancies within this demographic, exploring factors that may contribute to repeated teen pregnancies. Understanding these patterns can inform strategies for effective, targeted prevention programs tailored to adolescents who are already parents. By applying the PMT, this research will uncover knowledge, perceptions, efficacy beliefs, and barriers to motivating the prevention of teenage pregnancy.

This study will address the following broad research questions:

1. What role does digital media play in motivating the prevention of teen pregnancy in Ghana?
2. Do young people in Ghana perceive teen pregnancy as a serious issue requiring preventive action?

3. What are the barriers or costs that prevent adolescents from fully engaging with preventive measures, despite existing interventions?
4. How can digital media enhance adolescents' perceptions of self-efficacy and response efficacy concerning the prevention of teen pregnancy?

The Purpose of Study

The purpose of this study is to explore how digital media platforms can be leveraged to prevent teenage pregnancies in Ghana. Using the framework of the Protection Motivation Theory (PMT), the study investigates whether digital messages can motivate behavior change by addressing adolescents' perceptions of threats and coping mechanisms related to teenage pregnancy. Specifically, the study focuses on the constructs of PMT, including perceived severity, susceptibility, response efficacy, and self-efficacy, to assess how digital health interventions shape adolescents' attitudes and behaviors toward pregnancy prevention. Furthermore, the research seeks to examine adolescents' understanding of the risks and seriousness of teenage pregnancy, the barriers they face in engaging with preventive measures, and the effectiveness of digital platforms in enhancing self-efficacy and response efficacy. By addressing these questions, this study aims to contribute to the development of culturally tailored, technology-based strategies that resonate with Ghana's adolescent population and improve reproductive health outcomes.

Justification of Study

Teenage pregnancy remains a significant public health and socio-economic issue in Ghana, with a prevalence rate of 15.4%, particularly high in regions where access to reproductive health services and education is limited (Hernandez et al., 2022; Gbagbo & Ameyaw, 2023). Despite efforts to reduce teenage pregnancies through comprehensive sexuality

education and improved contraceptive access, cultural norms, stigmatization, and misinformation continue to hinder progress (Mukherjee et al., 2021; Seidu et al., 2019). While digital media is increasingly recognized as a promising tool for health communication, little is known about its specific impact on adolescent health behaviors in Ghana, especially regarding teenage pregnancy prevention (Harding et al., 2020; Souza et al., 2021)

This study is justified by the gap in the literature concerning how digital platforms influence adolescents' perceptions and motivations for preventing teenage pregnancy. Traditional health communication approaches have struggled to effectively engage adolescents, particularly in rural areas where cultural sensitivities often limit open discussions about reproductive health (Amoadu et al., 2022; Nyarko, 2015). By utilizing PMT, this research provides a theoretical lens to examine the potential of digital media to address perceived threats and enhance coping appraisals, offering a novel approach to reducing teenage pregnancy rates. The findings will not only inform the design of targeted digital interventions but also contribute to the broader understanding of digital health communication in low- and middle-income countries.

Significance of Study

The findings of this study are expected to have far-reaching implications for various stakeholders involved in adolescent health and reproductive education in Ghana. For adolescents, the study will directly address their need for accurate, accessible, and culturally relevant information on sexual and reproductive health. By leveraging digital media, the research aims to empower young people with the knowledge and confidence necessary to make informed decisions about their reproductive health, ultimately reducing the incidence of teenage

pregnancies and improving life outcomes for adolescents in Ghana (Cruz et al., 2021; Shrestha et al., 2022).

For healthcare providers, the study will highlight practical ways to engage adolescents in preventive health behaviors using digital tools. Insights into adolescents' perceptions of risk, barriers to accessing healthcare, and self-efficacy will guide providers in tailoring services and communication strategies to meet the unique needs of this demographic (Oppong et al., 2021; Seidu et al., 2019). For non-governmental organizations (**NGOs**) working in adolescent sexual and reproductive health will benefit from a deeper understanding of the socio-cultural and economic barriers adolescents face in accessing contraceptive methods and health information. The study's findings will inform the development of targeted programs that use digital media to overcome these challenges and enhance the effectiveness of community outreach efforts (Amoadu et al., 2022; Mukherjee et al., 2021). And then finally, for policymakers, the study will offer evidence-based insights into the integration of digital media into national and regional public health strategies. Policymakers will gain a better understanding of how digital platforms can be harnessed to address teenage pregnancy through cost-effective, culturally appropriate, and scalable interventions, particularly in underserved communities where traditional methods have failed to yield desired outcomes (Asaolu et al., 2019; Gbagbo, 2020).

Beyond its practical implications, this study will also contribute theoretically to the field of health communication by extending the application of the Protection Motivation Theory (PMT) into a digital and culturally contextualized environment. While PMT has been widely used to explain preventive health behaviors, this research will demonstrate its relevance within digitally mediated reproductive health communication among Ghanaian adolescents. This will suggest that digital engagement can function as a modern pathway of protection motivation,

thereby expanding PMT's explanatory scope to include online information-seeking and media use as critical components of health behavior change.

Chapter 2 - Literature Review

Introduction

This chapter seeks to review available and relevant literature that informs the study. First, it discusses the types of pregnancy and incidence of adolescent pregnancy. Secondly, this segment describes factors that influence the level of teenage pregnancy globally, and more specifically, in Ghana. In addition, this chapter reviews the accessibility of e-health information to teenagers and the role of health communication and digital media in preventing teenage pregnancy. The chapter also discusses the literature on the Protection Motivation theory, its main constructs, and how it is applied in this study. Finally, the research questions and hypotheses are examined and included in this chapter.

Types of Pregnancy

There are many different types of pregnancy, each with unique health concerns for both the mother and the fetus. Normal pregnancies, ectopic pregnancies, and molar pregnancies are among the most prevalent categories of pregnancy types. Comprehending these kinds is essential for handling possible issues and guaranteeing the best results for moms and babies (Tang et al., 2022)

Generally speaking, a normal pregnancy is one in which the embryo implants and develops normally inside the uterus. On the other hand, ectopic pregnancies happen when the fertilized egg implants outside the uterus. Tubal pregnancies are the most common type, making up about 95% of ectopic pregnancies. Ovarian pregnancies, which account for 0.5% to 3% of ectopic cases and have an incidence rate ranging from 1 in 7,000 to 1 in 40,000 live births, are another type of ectopic pregnancy (Tang et al., 2022). Because ectopic pregnancies can result in serious consequences, such as internal bleeding and the need for surgery, they have important

clinical implications. Apart from ectopic pregnancies, molar pregnancies are another important type of pregnancy. There are two types of molar pregnancies: complete and partial. The former may coexist with a normal fetus, while the latter may include an aberrant fertilization process that leaves fetal tissue absent (Alkateeb & Alkhalidy, 2019; Ghadeer et al., 2022). A full mole is frequently linked to an increased risk of problems, such as prenatal trophoblastic illness, which may require treatment and close monitoring (Senior & Consultant, 2018).

Despite being uncommon, the cohabitation of a normal fetus with a molar pregnancy presents special prenatal treatment issues and calls for close monitoring of both the mother's and the fetus's health (Chhetry et al., 2019). Specialized treatment is also necessary for high-risk pregnancies, which can result from a number of circumstances, including advanced mother age, pre-existing medical disorders, or pregnancy difficulties. According to studies, women who have high-risk pregnancies frequently have different outcomes than those who have normal pregnancies. For example, a comparison study found that neonates born to mothers with high-risk pregnancies were far more likely to have low birth weight, with 8% of these children being categorized as such (Faraidoon, 2024).

Another issue that might impact pregnancy outcomes, especially in high-risk groups, is gestational hypertension. Studies have indicated that the incidence of prenatal hypertension can differ depending on the type of pregnancy (natural versus frozen embryo transfer), maternal age, and body mass index (BMI) (Moramezi, 2023). Developing focused measures to control and reduce the risks associated with hypertension during pregnancy requires an understanding of these factors. Maternal health is also significantly impacted by the physiological changes that take place during pregnancy. For instance, elevated plasma levels of progesterone and estrogen during a typical pregnancy might result in a relative state of growth hormone (GH) resistance,

which in turn can impact the concentrations of insulin-like growth factor 1 (IGF-1) (Hannon et al., 2019). Maintaining a healthy pregnancy and guaranteeing appropriate fetal development depend on this hormone interaction.

Pregnancy can still be safe in cases of acromegaly, a disorder marked by an excess of growth hormone, and there may even be improvements in IGF-1 levels during the gestational period (Hannon et al., 2019). Furthermore, it is impossible to overestimate the influence of prenatal circumstances on pregnancy outcomes. For example, oligohydramnios or polyhydramnios, which are aberrant amniotic fluid quantities, have been associated with negative perinatal outcomes, such as increased birth weights and fetal growth limits (Simmons et al., 2020).

Teenagers are a special group when it comes to pregnancy since they frequently deal with extra difficulties that can make their health outcomes more difficult. Numerous studies that draw attention to the particular vulnerabilities of this demographic emphasize the complexity of adolescent pregnancy. For example, emotional stress and the responsibilities of juggling adolescence and motherhood at the same time are just two of the many psychosocial problems that teenage moms commonly face and which make pregnancy-related difficulties worse (Olajubu et al., 2021). Lack of access to quality prenatal care, which is essential for guaranteeing successful pregnancies, is a common characteristic of this group. According to research, teen moms' access to prenatal care clinics is severely hampered by socioeconomic hurdles, which results in worse outcomes for both the mother and the newborn than for adult women (Nam et al., 2022; Rexhepi et al., 2019).

Preterm birth, low birth weight, and maternal morbidity are among the issues that are more likely to occur in adolescent pregnancies. Due to biological immaturity and socioeconomic

conditions, young moms are more likely to experience unfavorable pregnancy outcomes, as the literature consistently shows (Abebe et al., 2020; Kagawa, 2024). Teenage moms, for instance, are more likely to have problems like preterm delivery and low birth weight babies, which are frequently connected to poor prenatal care and nutritional status (Mezmur et al., 2021; Singh, 2024). Furthermore, because young women may find it difficult to cope with the emotional and physical demands of pregnancy, the psychological stress linked to early parenthood might result in a rise in maternal morbidity (Muthelo, 2024). The therapeutic landscape is further complicated by the convergence of crisis pregnancies, such as ectopic or molar pregnancies, with teenage pregnancy, which calls for a comprehensive strategy to care that attends to both medical and emotional requirements. Adolescent crisis pregnancies necessitate prompt, specialized action to reduce risks and protect the mother's and the unborn child's health (Mekuriaw et al., 2019). Such pregnancies can have significant emotional and psychological effects, frequently resulting in depressive, anxious, and lonely sentiments (Muthelo, 2024).

For adolescent women dealing with crisis pregnancies, it is imperative that healthcare providers take a comprehensive strategy that includes not just medical management but also psychological support and counseling. Young moms experiencing the challenges of unplanned pregnancies might benefit greatly from a multimodal approach that incorporates mental health care in order to improve outcomes and build resilience (Muthelo, 2024). Research has demonstrated that offering comprehensive treatment, including mental health resources, can enhance mother and newborn health outcomes overall and lessen the negative impacts of crisis pregnancies (Almeida et al., 2019; Mekuriaw et al., 2019). Additionally, lowering the risks connected to adolescent pregnancies requires addressing the social determinants of health, such as socioeconomic position and educational access (Kim et al., 2018).

Overview of Sexual Reproductive Health Issues and Teenage Pregnancy

The global landscape of adolescent pregnancy is complicated and multidimensional, with significant variations in occurrence and consequences depending on geography, culture, and socioeconomic status. For example, a comparative study in Sri Lanka discovered that adolescent pregnancies are becoming recognized as a significant public health concern, demanding specialized interventions to meet the unique challenges that young mothers confront (Mohnchimbare, 2023).

In the United States, the adolescent pregnancy rate in 2020 was roughly 15.4 per 1,000 girls aged 15 to 19, with a considerable number of these births happening outside of marriage (Njim et al., 2020). This phenomenon is not unique to the United States; it follows larger global patterns in which age, race, geographical region, and socioeconomic level all contribute to variations in teenage birth rates (Ngoda et al., 2021). For example, in 2018, Black and Hispanic teenagers in the United States had more than double the birth rate of their White counterparts, highlighting the interconnectedness of race and reproductive health (Onuzo, 2024). Adolescent pregnancy rates in Latin America and the Caribbean (LAC) are also disturbingly high, with around 59 pregnancies per 1,000 young women aged 15 to 19 (Bedzo & Manortey, 2019; Ojukwu, 2023).

Adolescent pregnancy is reported to be 4.6% in Turkey, with immigrant adolescents facing even higher rates due to socioeconomic challenges and limited access to healthcare (Azizan et al., 2023). This number starkly contrasts with Western Europe, Eastern Europe, and North America, where birth rates are much lower at 8, 19, and 14 per 1,000 adolescent girls, respectively (Arias et al., 2022). Ecuador, for example, has 64 pregnancies per 1,000 adolescent women, with indigenous communities being especially vulnerable due to historical and

systematic socioeconomic difficulties (Ahinkorah et al., 2021). Globally, adolescent pregnancies are divided into three categories: early adolescents (10-14 years), middle adolescents (15-17 years), and late adolescents (18-19 years). Each cohort faces distinct problems and hazards, with early teens frequently suffering the most severe health complications due to their biological immaturity (Birge et al., 2021).

In many countries, a lack of proper sexual and reproductive health care and education contributes to the high rate of teen pregnancy (Caira-Chuquineyra, 2023). Adolescents suffer increased risks during pregnancy and childbirth, with problems such as eclampsia, postpartum infections, and maternal mortality more common among younger moms than those aged 20 to 24 (Mohammed, 2023). In India, problems connected to pregnancy and childbirth are the most significant cause of death among adolescents aged 15 to 19, showing the need for enhanced maternal health services (Masonbrink, 2020). Similarly, studies in Brazil have also found that early pregnancies increase the risk of subsequent pregnancies during adolescence, worsening the young mothers' health and socioeconomic results (Patel, 2024).

Furthermore, neonates born to adolescent moms are more likely to have low birth weight and other premature delivery issues (Wirsiy, 2019). A Canadian study found that adolescent moms had a 1.5 times higher risk of premature death by age 31 than those who had their first baby later in life. This shows the long-term health repercussions of early parenthood. Adolescent pregnancies have far-reaching consequences on educational attainment, economic stability, and social well-being (Ajayi et al., 2021).

Global attempts to reduce the effects of teen pregnancy have resulted in the application of several intervention plans and collaborative strategies involving healthcare professionals, educators, families, and communities. These comprise community-based initiatives offer young

parents support services, access to contraceptive techniques, and thorough sexual health education (Barfield et al., 2017; Shema, 2019). Comprehensive sexual health assessments with proactive guidance on sexual development and safe relationships can help reduce adverse health outcomes associated with teenage sexual activity (Johnson, 2020). For example, in Peru, a multisectoral plan to prevent adolescent pregnancy has been developed, emphasizing the importance of comprehensive measures that address the multiple characteristics of this issue (Worku et al., 2021). Studies point to evidence that such initiatives can significantly lower rates of teen pregnancy and enhance the general welfare of young mothers and their children (Salam et al., 2016). Projects focusing on long-acting reversible contraceptives (LARCs) have successfully reduced adolescent unwanted births (Enwerem et al., 2022).

Moreover, peer education initiatives have been shown to enhance teenagers' willingness to discuss sexual health issues and access reproductive health services, thereby fostering a more supportive environment for young people to address their sexual and reproductive health needs (Cunha, 2022). Furthermore, the significance of parents and caregivers in facilitating open discussions about sexual health cannot be overstated, as these discussions greatly influence teenagers' understanding and attitudes toward reproductive health (Mbachu et al., 2020). Using digital tools and resources, including mobile apps, shows promise in improving teenagers' access to accurate reproductive health information (Manlove et al., 2021).

Teenagers who get thorough sexual health education are more likely to delay sexual initiation and use contraception effectively (Omoyeni, 2024). This is especially important in areas where open conversations about sexual health could be discouraged by cultural standards, therefore spreading false information and raising unplanned pregnancy risk (Masterson, 2021). Reducing these risks and allowing adolescents to make educated reproductive health decisions

calls for effective sexual education and access to reproductive health services (Thirukumar et al., 2020).

Factors Related to Teenage Pregnancy in Africa

Teenage pregnancy is one of the major health problems affecting most countries in Africa, especially the developing ones. Several studies have examined the prevalence and causes of adolescent pregnancies, focusing on the socioeconomic, cultural, and educational aspects that contribute to this phenomenon. According to UNICEF (2022), over 13 million children are born to women under 20 each year, with approximately 90% of these births occurring in developing nations. Niger has the highest teenage pregnancy rate globally, with 170 out of 1,000 teenage girls affected. Contributing factors to these high rates include peer pressure, inadequate parental care, lack of sex education, low educational attainment, and poverty, which often leads to early marriage. Mozambique follows closely with a rate of 166 per 1,000 teenage girls, where similar socio-economic factors contribute to the high incidence of adolescent pregnancies (Davis, 2024; Febrianti & Astuti, 2022). In addition to these countries, Gabon has been recognized as having one of the highest rates of intimate partner violence (IPV) among adolescent girls and young women in Sub-Saharan Africa, which is strongly associated with pregnancy outcomes and termination among young women. Ahinkorah (2021) highlights the link between violence and reproductive health.

Socio-economic Factors and Education

In order to understand the prevalence of teenage pregnancies in African countries, it is important to review the socio-economic context in which these pregnancies occur. In many developing countries, including Niger and Mozambique, poverty plays a pivotal role in perpetuating cycles of early marriage and childbearing.

Studies have shown that girls from low-income families are more likely to marry early and have children at a young age, often due to economic pressures and cultural norms. For instance, Weah et al. (2022) highlight that young girls who marry early typically lack education and come from low-income backgrounds, which increases their vulnerability to early pregnancies. Socioeconomic gaps in healthcare access enhance the obstacles that young women in Uganda experience, leading to an increase in unplanned births (Wado et al., 2019). Furthermore, Kenya has also been dealing with high rates of teen pregnancy, with many research indicating that socioeconomic considerations play a significant part in this problem (Petroni et al., 2017).

Similarly, research from Shrestha et al. (2022) indicates that living in rural areas, where educational opportunities are limited, further exacerbates the risk of teenage pregnancies. The International Center for Research on Women (ICRW) in Kenya has said that inequitable gender norms and insufficient investments in girls' education contribute to Kenya's high rates of child marriage and early pregnancy (Petroni et al., 2017).

Education is a protective factor against teenage pregnancy. Numerous studies have established a clear link between educational attainment and the likelihood of early pregnancies. Girls who remain in school longer are generally less likely to experience teenage pregnancies compared to their peers who drop out of school (Ali et al., 2021; Tabei et al., 2021). For instance, research shows that higher educational levels among teenage girls correlate with lower rates of early pregnancy, as education empowers them with knowledge about reproductive health and access to contraceptive methods (Ali et al., 2021).

Conversely, girls with little to no education are at a significantly higher risk of early marriage and subsequent pregnancies, as evidenced by findings from studies conducted in

Indonesia and Ghana (Rohmah et al., 2020; Nang-Bayi et al., 2021). In Nigeria, the issue is more complicated, with significant rates of adolescent pregnancies reported. According to Onukwugha et al.'s (2020) multi-level investigation, socioeconomic variables such as poverty and a lack of education have a substantial impact on the country's teenage pregnancy rate. The study found that populations with better access to reproductive health services have lower rates of unplanned pregnancies, implying that increasing service availability could help to alleviate the problem.

In addition to education, the availability and quality of sexual and reproductive health education play a key role in preventing teenage pregnancies. A lack of comprehensive sex education often leads to misinformation and inadequate knowledge about reproductive health among adolescents (Esan et al., 2022). For example, Esan et al. (2022) emphasize the necessity of proper sex education to reduce unwanted pregnancies, noting that many adolescents lack essential knowledge regarding sexual health. This education gap is particularly pronounced in rural areas, where access to information and resources is often limited (Niza et al., 2022; Shrestha et al., 2022). Mozambique, like many other African countries, faces severe issues when it comes to teenage pregnancy. Poverty and poor access to education and healthcare services contribute to Mozambique's high rate of adolescent pregnancy. According to a comprehensive review by Kassa et al. (2018), the lack of access to contraception services and widespread sexual violence contribute to Mozambique's high rates of adolescent pregnancy.

Furthermore, a lack of comprehensive sexual education leaves many young people unprepared to make informed decisions about their reproductive health, making them more vulnerable to unwanted pregnancies. On the other hand, Ethiopia has made significant progress in lowering teenage pregnancy rates thanks to increasing contraception use and greater access to sexual and reproductive health services. Kassa et al. (2019) found that the prevalence of

adolescent pregnancy in Ethiopia has declined over time, with a reported incidence of 19.3%. This drop is symbolic compared to previous data, implying that focused efforts could be beneficial in addressing the problem. However, obstacles persist, particularly in rural areas where access to education and healthcare facilities is limited, leading to high rates of early childbearing (Kassa et al., 2018).

Cultural Factors

Cultural factors also influence the rates of teenage pregnancy in most African countries. In many societies, traditional gender roles and expectations can pressure young girls into early marriages and childbearing (Mawutor, 2023). The persistence of child marriage, despite legislative efforts to curb the practice, remains a barrier to reducing teenage pregnancies in Sub-Saharan Africa (Mezmur et al., 2021). Bitew et al. (2023) noted that communities with high rates of child marriage also exhibit higher incidences of teenage pregnancy, as early marriage often leads to early childbearing. This cultural context emphasizes the importance of addressing societal norms and values in efforts to combat teenage pregnancy. Moreover, the influence of socio-economic factors intertwined with cultural practices cannot be overlooked. Ochen et al. emphasize that low socio-economic status and cultural traditions, such as dowry payments, exacerbate the prevalence of early marriages in Uganda, which in turn contributes to higher rates of teenage pregnancy (Ochen et al., 2019). This is echoed in Mekonen's analysis, which reveals that economic disparities significantly affect teenage pregnancy rates, with adolescents from poorer households being more susceptible to early sexual initiation and marriage (Mekonen, 2024).

The intersection of cultural expectations and economic realities thus creates a challenging environment for young girls, often leaving them with limited options for education and personal

agency. The cultural dimensions of teenage pregnancy in countries such as Ethiopia, Nigeria, Tanzania, Mali, Chad, and DR Congo are further explored by Asmamaw et al., who found that household economic status significantly influences the likelihood of teenage pregnancy, with poorer adolescents facing greater risks (Asmamaw et al., 2023). This is compounded by cultural norms that may prioritize early marriage as a means of securing economic stability, thereby trapping young girls in cycles of poverty and early motherhood.

Similarly, Gunawardena et al. (2019) highlight that family history, including maternal teenage pregnancy, serves as a predictor for adolescent pregnancy, indicating that cultural and familial legacies play a role in shaping reproductive outcomes (Gunawardena et al., 2019). In South Africa, Mphatswe et al. (2016) explored the cultural context surrounding teenage pregnancy. They report a notable prevalence of repeat pregnancies among teenagers (Mphatswe et al., 2016). This phenomenon can be attributed to a combination of cultural expectations, lack of access to education, and inadequate reproductive health services. The findings of Madlala et al. (2018) further emphasize the cultural taboos surrounding discussions of sexuality and reproductive health, which often leave young people ill-prepared to navigate their sexual health (Madlala et al., 2018). The lack of open communication about sexual health within families and communities fosters an environment where teenage pregnancy can thrive.

Accordingly, cultural variables, such as the stigma associated with contraception usage and early marriage, complicate the landscape of adolescent reproductive health in Nigeria (Ahinkorah et al., 2021). Uganda has a similar scenario, with teen pregnancy still a major concern. Hailegebreal et al. (2022) discovered that the pooled prevalence of pregnancy termination among youth aged 15-24 years was high, with Uganda having the highest rates in East Africa. This high frequency is attributed to limited access to contraceptive treatments and a

lack of comprehensive sexual education, leaving many teenagers unaware of their reproductive health choices. According to research in countries such as Tanzania, teenagers who engage in sexual activity before the age of 15 are more likely to have multiple pregnancies, implying that early sexual initiation is key in the adolescent pregnancy cycle (Blanco et al., 2022).

Anayochukwu (2022) indicated that the need for culturally sensitive and age-appropriate sexual health education accentuates the importance of customizing treatments to fit the specific needs of different groups.

Peer Influence

Adolescents are often in a developmental stage where peer relationships significantly impact their decision-making processes. This influence can manifest in various ways, including direct peer pressure to engage in sexual activities or adopt risky sexual behaviors, which can lead to unintended pregnancies. Research indicates that adolescents frequently cite peer pressure as a significant factor in their decisions to become sexually active or to forgo contraceptive use, thereby increasing their vulnerability to unintended pregnancies (Chung et al., 2018; Yakubu & Salisu, 2018). The normalization of early sexual activity within peer groups can create an environment where early pregnancies are viewed as acceptable or even desirable. This phenomenon is particularly pronounced in social circles where teenage motherhood is prevalent, as it can perpetuate a cycle of early childbearing among adolescents. For instance, studies have shown that young women who have friends or siblings who are teenage mothers are more likely to internalize the notion that early motherhood is a normative life choice, which can lead to a higher likelihood of them becoming pregnant at a young age themselves (Hendrick et al., 2016; Wall-Wieler et al., 2016).

Willan et al. (2020) argue that normative pressures can influence young women's reproductive decisions, often leading to unintended pregnancies despite a desire to avoid them. This intergenerational transmission of attitudes towards early childbearing underscores the importance of addressing peer dynamics in interventions aimed at reducing teenage pregnancies. Adolescents from lower socioeconomic backgrounds may experience heightened peer pressure to conform to risky behaviors due to limited access to education and health resources. This can create a feedback loop where the lack of support and resources worsens the influence of peers, leading to higher rates of teenage pregnancies in these communities (Amjad et al., 2018).

Moreover, the influence of social networks extends beyond immediate peer relationships. Adolescents are also affected by broader social norms and expectations regarding sexuality and motherhood. For example, cultural and societal narratives surrounding teenage pregnancy can shape individual beliefs and behaviors. In many communities, the stigma associated with teenage pregnancy can coexist with social acceptance of early childbearing, creating a complex landscape for adolescents navigating their reproductive choices (Barker et al., 2019; Tanner et al., 2015). The importance of community engagement in deconstructing harmful societal norms is echoed by Moshi and Tilisho, who note that cultural influences significantly impact the risk of early pregnancy among unmarried girls in Tanzania (Moshi & Tilisho, 2023).

Peer influence is not solely negative; it can also serve as a protective factor against risky behaviors. Positive peer relationships and supportive social networks can encourage adolescents to delay sexual activity and promote the use of contraceptives. For instance, adolescents who perceive their peers as valuing education and future planning may be less likely to engage in early sexual activity and more likely to utilize contraceptive methods effectively (Ahorlu et al.,

2015; Pfeiffer et al., 2017). This highlights the dual nature of peer influence, where it can either exacerbate or mitigate the risks associated with teenage pregnancies.

Additionally, the role of technology and social media in shaping peer influence cannot be overlooked. Adolescents increasingly turn to social networking sites for social validation and information, which can impact their perceptions of sexual behavior and pregnancy. The portrayal of teenage pregnancy on social media can either glamorize early motherhood or reinforce negative stereotypes, both of which can influence adolescents' decisions regarding their sexual health (Harrington et al., 2021; Ying et al., 2022). Therefore, understanding the dynamics of peer influence in the context of digital interactions is crucial for developing effective interventions aimed at reducing teenage pregnancies. Furthermore, the intersectionality of peer influence with other factors, such as socioeconomic status, educational attainment, and access to reproductive health services, is essential in shaping adolescent pregnancy outcomes. Therefore, addressing these broader social determinants is key to creating an environment that supports healthy decision-making among adolescents.

Factors Associated with Teenage Pregnancy in Ghana

Adolescent pregnancy is a public health issue that Ghana is grappling with, and the issues, causes, risks, and influences are no different from the ones explored in other African countries. The prevalence of adolescent pregnancy in Ghana is estimated to be 15.4%, with higher rates in rural areas (19.5%) compared to urban areas (10.6%). Significant determinants over the last three decades include age, literacy, household size, income, employment status, contraceptive knowledge, and menstrual cycle knowledge, with notable shifts in the factors influencing pregnancy over time (Mohammed, 2023). Approximately 20% of girls experience pregnancy or give birth before the age of 18 years (Krug et al., 2016). This statistic emphasized

the urgent need for effective interventions to address the factors contributing to teenage pregnancies in the country. Despite the desire of many adolescent girls to avoid pregnancy, they face numerous challenges, including a lack of understanding about contraception, limited access to contraceptive methods, and inadequate sexual education. The stigma surrounding discussions of sexuality further complicates efforts to provide comprehensive sexual education, which is often limited to abstinence-only messages in schools (Hagan et al., 2019).

The prevalence of child marriage in Ghana further worsens the issue of adolescent pregnancy, as many young girls are forced into early marriages, which increases their risk of becoming pregnant (Weah et al., 2022). The unmet contraceptive needs of many adolescent females can be attributed to various factors, including misinformation, cultural taboos surrounding sexuality, and insufficient education regarding reproductive health (Kassa et al., 2018). In many Ghanaian communities, discussions about sexual health are considered taboo, leading to a lack of essential knowledge about contraception and reproductive rights (Kassa et al., 2018). Teenage mothers in Ghana face numerous health complications during pregnancy, including hypertensive disorders, urinary tract infections, and the risk of unsafe abortions. These complications can lead to severe outcomes, such as premature births and low birth weights, which are more common among infants born to adolescent mothers (Verma et al., 2019).

The economic and psychological ramifications of adolescent pregnancy are profound, particularly in low-resource settings like Ghana (Kassa et al., 2018). Teenage mothers often experience disruptions in their education, leading to limited job opportunities and economic instability (Hagan & Buxton, 2012). Research indicates that pregnant adolescents are more likely to suffer from mental health issues, such as depression and low self-esteem, compared to their older counterparts (Kumma, 2023). The stigma and discrimination faced by these young mothers

can deter them from seeking necessary healthcare services, worsening their health risks and further isolating them from supportive networks (Poudel et al., 2018). Usonwu et al. (2021) indicated that to address the challenges posed by adolescent pregnancy effectively, it is important to implement comprehensive strategies aimed at preventing unintended pregnancies among young females. Similarly, understanding the sociocultural factors that contribute to teenage pregnancy is essential for developing targeted interventions and policies that empower adolescents to make informed decisions about their sexual health (Emani & Shetty, 2018).

The literature highlights the importance of addressing socio-cultural determinants, such as family dynamics, peer influences, and community norms, to create a supportive adolescent environment (Dias et al., 2017). As stated earlier, research has consistently shown that adolescents with higher educational attainment are at a lower risk of becoming pregnant (Verma et al., 2019). This correlation emphasizes the need for young people in Ghana to have improved access to education and sexual health information (Brhane et al., 2018). Furthermore, addressing issues related to poverty and family dysfunction is vital, as these factors contribute to the likelihood of adolescent pregnancy (Abbas et al., 2017). Adolescents from impoverished backgrounds or dysfunctional families often lack the necessary support and resources to make informed choices about their reproductive health (McQueston et al., 2012).

The role of media influence cannot be overlooked in discussions about adolescent pregnancy. Research indicates that exposure to sexual content in the media can significantly influence young people's sexual behavior, increasing the likelihood of engaging in premarital sexual activity and, consequently, unintended pregnancies (Chandra et al., 2008; L'Engle et al., 2006). Young people are often exposed to risky behaviors through their social networks and media consumption, which can lead to early sexual debut and increased likelihood of unintended

pregnancies (Pradhan et al., 2018). Additionally, misconceptions about contraceptive methods and the stigma surrounding their use can further hinder adolescents from accessing necessary reproductive health services (Nepal et al., 2021).

Cultural beliefs and practices also significantly shape adolescents' understanding of sexuality and reproductive health (Agbenu et al., 2022; Usonwu et al., 2021). In communities where discussions about sex are taboo, young people are often left without the knowledge they need to make informed decisions about their sexual health. The decline of traditional practices, such as puberty rites, has also been linked to increased vulnerability to teenage pregnancy, as these rituals often serve as critical educational opportunities for young girls (Kassa et al., 2018).

International Policies Aimed at Preventing Teenage Pregnancy

Adolescents who encounter health hazards that harm their development are unable to use their SRH right to avoid unwanted births (McCleary-Sills et al., 2014). Preventive policies and interventions aimed at reducing teen pregnancy have gained attention on a global scale, particularly in light of the associated health and socioeconomic implications. Internationally, various policies have been implemented to address this pressing issue. For instance, comprehensive sex education programs have been recognized as effective in reducing teen pregnancy rates by improving knowledge and attitudes toward contraception and sexual health among adolescents (Mark & Wu, 2022). Furthermore, initiatives that promote parental involvement in discussions about sexual health have shown promise in reinforcing the messages conveyed through educational programs (Lantos et al., 2019). The Convention on the Rights of the Child (CRC) and the International Conference on Population and Development (ICPD) have made commitments to eliminate adolescent pregnancy and protect adolescents' rights, which

were reaffirmed in Beijing in 1995 (General Comment No. 4, 2003; Glasier et al., 2006; Greene et al., 2012).

Discussion Of Preventive Measures in Africa

In the African context, strategies to prevent teen pregnancy have been tailored to address the unique cultural and socioeconomic challenges faced by adolescents. For example, in many African countries, community-based interventions that involve local leaders and organizations have been pivotal in disseminating information about reproductive health and contraception. These initiatives often leverage existing social structures, such as faith-based organizations, to foster trust and facilitate open discussions about sexual health (Thompson-Robinson, 2018). Such strategies are crucial in a continent where the prevalence of teen pregnancy remains alarmingly high, often exacerbated by limited access to reproductive health services and education (Hakizimana et al., 2019). Additionally, studies have highlighted the importance of addressing gender norms and societal expectations that contribute to early pregnancies, emphasizing the need for culturally sensitive interventions that resonate with the target population (Sychareun et al., 2018).

Existing Preventive Policies in Ghana and Their Effectiveness

Focusing specifically on Ghana, the country has implemented several policies to curb teen pregnancy, reflecting a commitment to addressing this public health concern. The Sustainable Development Goals prioritize improving access to SRH (Water et al., 2015). International treaties, accords, and conventions have influenced policy revisions and advancements in Ghana. The government has revised the 1964 National Population Policy in 1994 and 2015, developed reproductive and adolescent health policies, and committed to improving access to health services and reducing reproductive health issues.

Community-Based Health Planning and Services (CHPS) and the Ghana Demographic and Health Survey (GDHS) were established in rural regions to provide health services, including contraception (GDHS, 2014; Awusabo-Asare et al., 2017). The Ghanaian government has introduced comprehensive sexual education programs in schools, which aim to equip young people with the knowledge and skills necessary to make informed decisions regarding their sexual health (Mediastuti, 2023). These programs have been complemented by community outreach initiatives that engage parents and guardians in discussions about sexual health, thereby fostering a supportive environment for adolescents (Uwizeye et al., 2020).

However, despite these efforts, challenges remain in terms of implementation and accessibility, particularly in rural areas where cultural stigmas and lack of resources hinder effective outreach (Stoner et al., 2019). Evaluations of these policies indicate that while there has been progress, the effectiveness of such interventions is often contingent upon community buy-in and the active participation of local stakeholders (Wright et al., 2019).

Ghana's legal marriage age is 18, making child marriage unlawful (ILO, 2017). Although the legal age for consent to sex is 16, it is not strictly enforced in some areas of the country, such as the Upper East Region (UER), where early marriage is common (Anarfi & Owusu, 2011). The adolescent health policy aims to reduce adolescent marriage and birth rates by 80% by 2020. The strategy was renamed "SRH policy for young people". According to Morhee and Morhee (2006), abortion can be performed for medical reasons, rape, incest, or defilement. In 2013, the national HIV and AIDS STI Policy called for age-appropriate sex education in schools (Awusabo-Asare et al., 2017). The Ghana Health Service (GHS) has developed an adolescent health service policy and strategy to improve the health and quality of life of young people in Ghana. The goal is to

help them realize their full potential in national development by mainstreaming information and gender-sensitive health services.

Moreover, the effectiveness of Ghana's preventive policies can be further analyzed through the lens of socioecological factors that influence teen pregnancy. Research indicates that socioeconomic status, family dynamics, and educational attainment significantly impact the likelihood of teen pregnancies (Smith et al., 2018). In Ghana, initiatives that address these underlying factors, such as providing educational support and resources for young mothers, have been shown to improve outcomes. For instance, programs offering childcare services to teen mothers have been linked to higher school retention rates, enabling them to pursue their education and reducing the likelihood of subsequent pregnancies (Assini-Meytin et al., 2018). This holistic approach shows the importance of integrating educational, social, and health services to create an environment conducive to reducing teen pregnancy rates.

Crisis Teenage Pregnancy

Teenage pregnancy, in most cases, can be termed as a crisis pregnancy, as it is mostly unintended. The implications of crisis pregnancy are profound, particularly among adolescents and vulnerable populations. Research indicates that unintended pregnancies are linked to adverse health outcomes, including increased maternal morbidity and mortality, particularly in developing countries where healthcare resources are limited (Febrianti & Astuti, 2022). Crisis pregnancy, which is neither planned nor desired by the woman concerned, represents a personal crisis for her” (O Keeffe, 2004). It is often accompanied by significant emotional, psychological, and socio-economic challenges. Teenage pregnancies, for instance, are associated with higher rates of complications such as pre-eclampsia, low birth weight, and stillbirths, which exacerbate the health risks for both the mother and child (Febrianti & Astuti, 2022). Moreover, the

psychological impact of crisis pregnancies can lead to heightened levels of anxiety and depression, which further complicate the situation and can result in poor health outcomes for both the mother and the child (Odette et al., 2023). The societal implications are equally severe, as unplanned pregnancies can disrupt educational and career trajectories, leading to long-term economic disadvantages for the mother and her family (Donatus et al., 2018).

Interventions and Strategies for Crisis Pregnancy

Addressing crisis pregnancy requires a robust approach that includes preventive interventions aimed at reducing the incidence of unintended pregnancies. Effective strategies include enhancing access to comprehensive sexual education and contraceptive services, particularly for adolescents and marginalized groups (Ivanova et al., 2018). Studies have shown that improving knowledge about reproductive health significantly correlates with increased contraceptive use and adherence, thereby reducing the likelihood of unintended pregnancies. Additionally, mental health support plays a vital part in pregnancy, as addressing underlying issues such as anxiety and depression can lead to better decision-making regarding contraception and pregnancy (Odette et al., 2023). Social support systems, including family and community networks, play a vital role in providing emotional and practical assistance to women facing crisis pregnancies, which can mitigate some of the adverse effects associated with these situations (Sutrisno et al., 2021). Furthermore, targeted interventions in high-risk populations, such as refugees and economically disadvantaged groups, are essential to address the unique challenges they face in accessing reproductive health services (Gebrecherkos et al., 2018).

What is Digital Media and its Impact on Teenage Pregnancy

The concept of digital media has been defined across both technical and social perspectives. From a technological standpoint, Yu (2022) describes digital media as a

revolutionary advancement in information storage and transmission, where all forms of data, including text, images, audio, and video, are converted into binary code to enable efficient storage, rapid copying, and high-speed communication across networks. This view emphasizes the operational foundation of digital media, highlighting its reliance on digitization and computer-network systems, as well as its capacity to support emerging technologies such as virtual and augmented reality.

In contrast, Bateman (2021) argues that the term “digital media” cannot be reduced to technological processes alone; rather, it should be understood as a social and material phenomenon shaped by interactions between producers, technologies, and modes of communication. From this perspective, digital media encompasses not only the technical conversion of information into digital form but also the broader cultural practices, material conditions, and communicative processes that define how media functions in society. Taken together, these perspectives suggest that digital media is best understood as both a technological infrastructure built on binary digitization and network systems (Yu, 2022) and a socially embedded construct that transforms meaning-making, distribution, and communication practices (Bateman, 2021).

Research indicates that access to digital media can influence teenagers' sexual behavior and, consequently, pregnancy rates. For instance, Sserwanja et al. (2022) found that adolescents with regular access to mass media were less likely to experience teenage pregnancy, suggesting the potential of media to convey effective health messaging (Sserwanja et al., 2022). Conversely, Bedzo and Manortey (2019) noted that social media can promote risky behaviors by glamorizing early sexual activity without adequately portraying the consequences, which may contribute to

increased rates of teenage pregnancy. Thus, while digital media can serve as a tool for education and prevention, it can also act as a risk factor for adolescent pregnancies when misused.

The nature of content consumed by teenagers significantly mediates these effects. Ahinkorah et al. (2019) emphasized the role of comprehensive communication networks in supplying adolescents with vital information regarding sexual and reproductive health, which is necessary for informed decision-making. Digital platforms can enhance awareness and motivation concerning safe practices, although there are complexities involved regarding the accuracy and adequacy of the shared information (Pepito et al., 2022).

Furthermore, digital media amplifies existing social influences. In the context of teenage pregnancy, cultural and social norms perpetuated through digital content can significantly impact adolescents' perceptions and behaviors regarding sex (Akpore & Thupayagale-Tshweneagae, 2019). Poudel et al. found that those with greater exposure to public health communications through mass media reported being better informed about family planning, resulting in lower incidences of teenage pregnancy. This supports the idea that positive, quality content can empower adolescents, while also raising concerns about content that minimizes sexual health risks.

Paradoxically, the impact of digital media is also shaped by socio-economic disparities and parental involvement. Worku et al. (2021) indicated that family structures and socioeconomic conditions significantly affect adolescent decision-making regarding sexual activity and pregnancy. While digital media presents pathways for informative outreach and community engagement, there is a pressing need for enhanced media literacy among adolescents. Media literacy can empower teenagers to navigate the vast range of information available online and discern beneficial messages regarding sexual health from harmful ones (Scull et al., 2022).

Role of Health Communication in Campaigns

Health communication influences public health outcomes by raising awareness, altering risk perceptions, and encouraging behavior change to reduce risks. Rice & Atkin (2013), in their book, *Public Communication Campaigns*, state that successful health campaigns utilize a range of strategies grounded in communication and behavioral theories to reach audiences and prompt meaningful change (p. 11). For example, the "It's Your Health" campaign in Canada utilized a multi-faceted approach that included mass media, community engagement, and partnerships with healthcare providers to promote awareness and understanding of health issues among diverse populations. This campaign effectively increased knowledge about health services and encouraged individuals to seek preventive care (Bazant et al., 2022). Similarly, the "Know Your Status" campaign in South Africa focused on HIV testing and awareness, employing community mobilization and peer education to reduce stigma and promote testing behaviors among young people (Reza-Paul et al., 2019). These campaigns illustrate the importance of tailored messaging and community involvement in achieving desired health outcomes.

In *Public Communication Campaigns*, Chapter 4 (pp. 102-113), Rice and Atkin (2013) detail how formative evaluation significantly impacts the success or failure of health and prosocial campaigns. Success frequently hinges on audience-centered preproduction research, which involves gathering specific insights on audience demographics, media habits, and behavioral predispositions to craft resonant messages. Campaigns lacking this tailored approach often fail, as generalized messaging fails to align with the target audience's cultural context and needs, leading to disengagement and limited impact (Rice & Atkin, 2013, p. 108). Formative evaluation also identifies potential audience resistance points, such as misconceptions and negative attitudes, that can derail a campaign if left unaddressed. By proactively understanding

these barriers, designers can adjust messaging to reduce resistance, counteract negative predispositions, and enhance message appeal and persuasiveness (Rice & Atkin, 2013, p. 103).

Success also relies on insights into cognitive and affective factors such as knowledge gaps, beliefs, and attitudes toward desired behaviors. Formative research highlights these elements, enabling campaigns to correct misconceptions, fill knowledge gaps, and reinforce positive values. Without this understanding, campaigns may inadvertently reinforce misbeliefs or fail to motivate change effectively (Rice & Atkin, 2013, pp. 110-111). A strategic, theory-based approach, drawing on models like the Health Belief Model or Social Cognitive Theory, strengthens campaigns by structuring messages around psychological drivers such as perceived risk, self-efficacy, and social norms, thereby enhancing the message's call to action. Channel selection based on formative evaluation is equally critical.

Campaigns are most successful when they reach audiences through trusted and frequently used media channels whether social media, television, or interpersonal networks. Missteps in channel selection, often due to insufficient formative research, lead to low visibility or ineffective reach, missing opportunities to engage audiences where they are most receptive (Rice & Atkin, 2013, pp. 112-113). Rice and Atkin (2013) highlight that collaboration among campaign designers, evaluators, and creative professionals is essential. This collaboration ensures that messages are research-informed and creatively engaging, maximizing potential impact. Campaigns that integrate empirical insights with compelling presentations are more likely to achieve sustainable behavior change, while those neglecting these components often fail to produce lasting outcomes.

Literature on sexual and reproductive health communication highlights both successes and failures in various contexts. For instance, Mekie et al. (2020) conducted a systematic review

revealing that open parent-adolescent communication about SRH significantly enhances adolescents' knowledge and attitudes toward reproductive health issues, leading to safer sexual practices. However, many studies also indicate that cultural norms and parental discomfort often hinder effective communication, resulting in gaps in adolescents' knowledge and increased risk behaviors (Ndugga et al., 2023; Usonwu et al., 2021). This perspective is particularly relevant in the context of SRH communication, where cultural sensitivities and individual perceptions significantly influence the effectiveness of messaging. For example, campaigns that incorporate community leaders and culturally relevant narratives have been shown to enhance engagement and acceptance of health messages (Ramalepa, 2024; Sood et al., 2014).

Conversely, campaigns that fail to consider these factors often experience limited impact and may even reinforce negative stereotypes or behaviors (Bazant et al., 2022). Moreover, the literature on SRH communication highlights the importance of addressing knowledge gaps and misconceptions among adolescents. Studies have shown that adolescents who receive comprehensive SRH education are more likely to engage in protective behaviors, such as using condoms and seeking regular health check-ups. A lack of accurate information can lead to risky behaviors and negative health outcomes, such as increased rates of STIs and unintended pregnancies (Dessie et al., 2015; Mekie et al., 2020).

Globally, the World Health Organization (WHO) has initiated the Global Strategy for Women's, Children's, and Adolescents' Health and emphasizes the need for comprehensive health education and access to services as critical components in improving health outcomes for these populations (Reza-Paul et al., 2019). This strategy aligns with the objectives of various campaigns that aim to enhance SRH communication and access to services, particularly in low- and middle-income countries. For example, the "She Decides" campaign advocates for the rights

of women and girls to make informed choices about their bodies and reproductive health, demonstrating the power of collective action in addressing SRH issues on a global scale (Reza-Paul et al., 2019).

In Nepal, the study by Bhatta et al. (2021) explored the relationship between parent-adolescent communication on SRH and the utilization of adolescent-friendly health services. The findings indicated that adolescents who communicated more openly with their parents about SRH issues were more likely to seek health services, highlighting the critical role of family communication in promoting health-seeking behaviors (Usonwu et al., 2021). This suggests that enhancing communication between parents and adolescents can improve health outcomes and greater utilization of available services.

In India, the DIFFER project aimed to deliver community-led integrated HIV and SRH services for sex workers, demonstrating the importance of targeted interventions for marginalized populations. The evaluation of this project revealed significant improvements in service uptake among sex workers, emphasizing the need for tailored approaches that address the unique challenges faced by specific groups within the community (Reza-Paul et al., 2019). This aligns with the broader goal of health communication campaigns to reach diverse populations and ensure equitable access to health services.

In Africa, several notable campaigns have focused on SRH communication. For instance, the "Know Your Status" campaign in South Africa aimed to increase awareness and testing for HIV among young people. This initiative utilized community mobilization and peer education strategies to reduce stigma and promote testing behaviors, demonstrating the effectiveness of localized approaches in addressing public health issues (Ndugga et al., 2023). Similarly, in Uganda, the qualitative study by Ndugga et al. (2023) highlighted the importance of parent-

adolescent communication on SRH, revealing that cultural norms often hinder effective discussions, which can lead to increased risks of STIs and unintended pregnancies.

In Ethiopia, campaigns have also been implemented to improve SRH communication. Research by Mekie et al. (2020) indicated that open parent-adolescent communication significantly enhances adolescents' knowledge and attitudes towards reproductive health issues, leading to safer sexual practices. However, the study also pointed out that many adolescents still lack adequate communication with their parents, which can result in gaps in knowledge and increased risk behaviors. This highlights the necessity for comprehensive educational programs that not only provide information but also empower adolescents to engage in discussions about their sexual health.

The Protection Motivation Theory (PMT) provides a useful lens for understanding how individuals perceive health risks and the motivations behind their health-related behaviors. PMT posits that individuals are more likely to engage in protective behaviors when they perceive a significant threat to their health, believe they are susceptible to that threat, and feel capable of taking action to mitigate the risk. In the context of SRH communication, campaigns that effectively convey the risks associated with unsafe sexual practices while simultaneously providing clear and accessible information about protective measures can foster a sense of agency among individuals, leading to healthier behaviors and motivating adolescents to engage in safer sexual behavior (Bhatta et al., 2021).

The Influence of Sources of Information

Adolescents are at a critical developmental stage where they are forming their understanding of sexual health, which is influenced by various sources, including parents, peers, schools, and media. Research indicates that the quality and credibility of these sources impact

adolescents' sexual health literacy and behaviors (Fleary et al., 2017; Usonwu et al., 2021). The complexity of adolescence marked by physical, emotional, and cognitive changes makes reliable sexual health information essential for informed decision-making (Fleary et al., 2017). However, the diverse range of information sources adolescents encounter, including interpersonal networks, traditional media, and social media, necessitates that health communication strategies be carefully designed to be both accessible and credible (Sondakh & Hiola, 2021).

Interpersonal sources, such as parents, peers, teachers, and healthcare providers, are often the first line of information for adolescents. Parents have a unique opportunity to instill values and initiate conversations on sexual health, providing guidance grounded in personal trust and cultural norms (Usonwu et al., 2021). However, various factors, including social stigma and parental discomfort, can limit these discussions, creating gaps in adolescents' understanding. Teachers and school counselors play a significant role in sexual education where policies permit, offering structured information on safe practices and reproductive health (Fleary et al., 2017). Healthcare providers, while trusted for their expertise, may not always be easily accessible due to adolescents' hesitations, geographic limitations, or a lack of youth-friendly services (Sanci et al., 2018; Garrett Wagner et al., 2018). When adolescents turn to peers, they often find relatable perspectives, but peers may also lack accurate knowledge, leading to the circulation of myths or misinformation about sexual health (Sondakh & Hiola, 2021).

Traditional media channels, such as television, radio, and print media, have long been used to broadcast public health messages, including campaigns focused on sexual health education. This form of media can effectively reach adolescents who have limited internet access, as it can reach wide audiences in both urban and rural areas. Additionally, public health campaigns using traditional media are often crafted with expert insights, giving them a degree of

authority and reliability (Fleary et al., 2017; Hendrana et al., 2015). However, the passive nature of traditional media makes it less interactive, meaning it may not address adolescents' specific questions or concerns. Without the interactive elements of newer media, traditional campaigns may also struggle to maintain engagement with young audiences who are accustomed to more dynamic forms of communication (Hendrana et al., 2015).

Social media and digital platforms like Instagram, TikTok, YouTube, and health-focused mobile applications have become crucial sources of sexual health information for adolescents. These platforms offer an array of interactive options—live Q&A sessions, influencer-led campaigns, video tutorials, and informational posts that use relatable language and visuals (McKinnon et al., 2020; Sondakh & Hiola, 2021). Digital media is not only more accessible for tech-savvy teens but also provides opportunities to engage with information that feels personal and relevant (McKinnon et al., 2020). Social media's reach allows for the inclusion of influencers, healthcare professionals, and organizations that provide culturally tailored information, resonating well with diverse adolescent audiences (Sondakh & Hiola, 2021). However, credibility is a persistent issue; without adequate regulation, adolescents can easily be exposed to misinformation or content from unreliable sources. The presence of both credible and non-credible sources on these platforms highlights the importance of teaching adolescents how to assess source reliability (Ampofo et al., 2024).

Source credibility is a factor affecting whether adolescents trust and act on the information they receive. Adolescents are more inclined to follow advice from sources they perceive as knowledgeable, relatable, and non-judgmental (Garrett Wagner et al., 2018). Healthcare providers and teachers, for instance, often hold high credibility due to their perceived expertise (Liu et al., 2020; Garrett Wagner et al., 2018). While not always scientifically

grounded, social media influencers and peer-led content can have a powerful influence due to their relatability and perceived authenticity (McKinnon et al., 2020; Sondakh & Hiola, 2021). Educating adolescents on evaluating source credibility, such as recognizing verified health organizations or cross-checking information with multiple sources can enhance their ability to make informed decisions (Ampofo et al., 2024; Garrett Wagner et al., 2018).

Accessibility is another determining factor in an adolescent's ability to obtain reliable sexual health information. Access may be limited by geographic location, socioeconomic status, and digital literacy, which influence whether an adolescent can reach credible information sources (Ampofo et al., 2024; Sanci et al., 2018). For instance, rural adolescents may have fewer encounters with digital platforms and healthcare services, relying more heavily on interpersonal sources. Conversely, adolescents in urban areas may have more access to healthcare facilities and online resources but still face barriers, like stigma, that prevent them from fully utilizing these services. Accessibility issues highlight the importance of diversified health communication strategies that are designed to reach adolescents across a variety of platforms and geographic locations (Sanci et al., 2018).

Interactive media increasingly allows adolescents to ask questions anonymously and receive immediate responses. Adolescents often seek privacy when it comes to sexual health inquiries, making interactive platforms especially valuable. Digital platforms that incorporate chatbots, online forums, or real-time expert Q&As cater to this need, providing a private, secure way for adolescents to learn and ask sensitive questions. However, while these platforms are accessible and engaging, they may still lack the rigor and oversight of traditional health education sources (McKinnon et al., 2020).

A holistic approach to information delivery that combines interpersonal, traditional, and digital sources could potentially address these various needs and limitations. For instance, incorporating credible, youth-friendly healthcare providers into digital media campaigns can lend authority to the content while maintaining accessibility. Traditional media can support these efforts by continuing to broadcast reliable public health messages that reach audiences without digital access. Meanwhile, school-based interventions that involve parents, teachers, and healthcare providers can reinforce the information adolescents encounter in other formats, creating a more cohesive learning environment (Hendrana et al., 2015).

The situation is no different in the context of Ghana, where cultural and societal factors influence information dissemination and reception. Identifying primary sources of information on sexual health for teens is essential for developing effective health communication strategies. In Ghana, traditional sources such as parents, peers, and community leaders are often supplemented by formal education and health services. However, there is a notable gap in the availability of reliable and accessible sexual health information, which can lead to misinformation and increased vulnerability among adolescents (Asare et al., 2020; Fasula et al., 2019). The Ghana Health Service, alongside various NGOs, has made strides in providing sexual health education, yet the effectiveness of these initiatives is often hampered by cultural stigmas surrounding discussions of sexual health (Chambers et al., 2021; Cygan et al., 2020).

Information-Seeking Behavior Related to Teenage Pregnancy

Wilson (2000) defines information seeking as the intentional search for information as a result of a desire to achieve some aim. During the search, the individual may engage with both manual information systems (such as a newspaper or a library) and computer-based systems (such as the World Wide Web). Warner and Procaccino (2004) define health information-

seeking behavior as the process of gathering information required for personal health and medical decision-making purposes. Similarly, Lambert and Loisel (2007) define health information-seeking behavior as the methods by which people receive information about their health, health promotion activities, and health risks and illnesses. Information-seeking behavior is a critical component of health literacy, impacting how people collect, interpret, and utilize health-related information to make sound decisions. Wilson (2000) further defines information-seeking as the purposeful pursuit of information as a result of a need to satisfy some aim, which highlights the intentional nature of this behavior. Individuals engage with various sources, including traditional media such as newspapers and libraries, as well as digital platforms like the Internet, to fulfill their information needs (Guo et al., 2021). In the context of sexual and reproductive health (SRH), this behavior is particularly crucial, especially among adolescents and young adults, who often possess limited knowledge about their reproductive health. This lack of knowledge can lead to increased risks for unintended pregnancies and sexually transmitted infections (STIs) (Guo, 2024).

Warner and Procaccino (2004) also emphasize the significance of health information-seeking behavior, describing it as a process through which individuals seek information necessary for personal decision-making regarding health and medical issues. Adolescents, navigating a transitional phase of physical and emotional development, are particularly vulnerable to health risks stemming from inadequate SRH knowledge. Their information-seeking behavior frequently focuses on critical areas such as contraception, pregnancy prevention, STIs, puberty, and safe sexual practices (Chen et al., 2020).

Research indicates that when young people are well-informed about SRH topics, they are better positioned to engage in preventive behaviors, such as utilizing contraception and attending

regular health check-ups (Park & Kwon, 2018). Lambert and Loiselle (2007) expand on the concept of health information-seeking by outlining the various ways individuals obtain information relevant to their health, including health promotion activities, risks to one's health, and illness. Adolescents may seek information on a wide range of topics, from basic anatomy to the risks associated with unprotected sex and the effectiveness of various contraceptive methods (Esmaeilzadeh et al., 2018). The motivation to seek such information is often influenced by personal health concerns, curiosity, peer influence, or specific life changes, such as the onset of sexual activity, which prompts a young person to seek information on birth control and STI prevention (Cheng et al., 2022).

The context in which adolescents seek SRH information is shaped by their awareness of SRH issues, their existing knowledge, risk perceptions, and access to credible resources. Awareness of SRH is foundational; adolescents who recognize potential risks associated with sexual activity are more likely to seek information on prevention methods and safe practices (Chiang et al., 2022). However, awareness is not uniform and can be significantly influenced by cultural and educational factors. For instance, adolescents in environments where discussions about sexual health are stigmatized may experience limited awareness, which in turn can diminish their motivation to seek information (Caldwell & Rosonet, 2021).

Knowledge about SRH is another factor that empowers adolescents to seek answers to specific questions and make informed choices. Unfortunately, the lack of access to comprehensive sex education often results in adolescents lacking a solid foundation of knowledge, leading them to rely on peers or digital sources that may not be reliable (Eyimaya et al., 2021). Research shows that in regions with limited SRH education, adolescents are more inclined to turn to the internet and social media for answers, where they encounter a mix of

credible and non-credible sources. This reliance on unverified information can perpetuate myths and misunderstandings, as adolescents are often ill-equipped to critically evaluate the quality and accuracy of the information they find (IIZUKA, 2023).

Risk perceptions also influence information-seeking behavior within the SRH context. Adolescents who perceive heightened risks associated with sexual activity, such as unintended pregnancies or STIs, are more likely to proactively seek information to mitigate these risks. According to the Protection Motivation Theory, individuals are motivated to seek and act on health information when they perceive a high level of risk, believe in the efficacy of preventive measures, and feel capable of implementing those measures (Bagaric et al., 2023). Adolescents who view SRH risks as personally relevant and severe are more inclined to seek information on contraception, safe sex practices, and local health services, underscoring the necessity of education that enhances awareness of the risks associated with unprotected sex (Divin et al., 2018).

In the digital age, the accessibility of SRH information has expanded dramatically due to the rise of internet access and social media. Adolescents today have unprecedented opportunities to find information online; however, the credibility of these sources remains a significant challenge. Studies indicate that while online platforms can provide a wealth of information, many adolescents lack the skills to differentiate between reliable and unreliable sources (Abo-Rass, 2024). Consequently, health information-seeking online can either promote informed decision-making or lead to harmful misconceptions, depending on the quality of the sources accessed (Karima, 2023).

Source credibility is vital in shaping effective information-seeking behaviors. Adolescents tend to trust information from healthcare professionals, educators, or verified digital

health platforms more than peer-provided information, which, while relatable, may lack accuracy (Seedaket et al., 2020). Trust in the source significantly influences whether adolescents act on the information they receive, such as adopting contraceptive methods or seeking further advice from health professionals. This means that to provide medically accurate and culturally relevant content, there is an urgent need for accessible, trustworthy SRH resources, including youth-friendly websites, interactive platforms, and mobile applications (Lubman et al., 2020).

Moreover, socioeconomic disparities can affect adolescents' health information-seeking behaviors (Guo et al., 2021). Age and socioeconomic status (SES) disparities in eHealth literacy reveal differences in the ability to locate, understand, and utilize web-based information (Meherali et al., 2021). This disparity can lead to unequal access to vital health information, further exacerbating the challenges faced by adolescents from lower socioeconomic backgrounds in making informed health decisions (Liang et al., 2020).

Cultural factors also play a significant role in shaping adolescents' information-seeking behaviors. For instance, in some cultures, discussing sexual health openly is stigmatized, which can inhibit adolescents from seeking necessary information (Donovan, 2024). This cultural context can lead to a reliance on less reliable sources, such as peers or social media, which may not provide accurate or comprehensive information about SRH (Abo-Rass & Abu-Kaf, 2023). Therefore, it is essential to create culturally sensitive educational programs that encourage open discussions about sexual health and provide adolescents with the tools to seek reliable information (Mustikawati & Ernawaty, 2021).

The role of educational institutions in promoting health literacy cannot be overstated. Schools are often a primary source of health education, and the quality of this education can significantly impact adolescents' knowledge and information-seeking behaviors (Lakhmudien et

al., 2019). Comprehensive sex education programs that include discussions about SRH topics can empower adolescents to seek information proactively and make informed decisions about their health (Hodge & Rush, 2022). Furthermore, integrating technology into these educational programs can enhance adolescents' ability to access credible information online (Olivari et al., 2021).

Exploring the information-seeking behavior of teens in Ghana reveals a relationship between cultural norms and the desire for accurate sexual health information. Many adolescents turn to their peers for advice, often leading to the perpetuation of myths and misconceptions about sexual health (Thompson-Robinson, 2018; Wright et al., 2019). Research indicates that while some teens are willing to seek information from health professionals, barriers such as fear of judgment and lack of confidentiality often deter them (Assini-Meytin et al., 2018; Shrestha et al., 2019). Additionally, the role of technology and social media has become increasingly significant, with many young people utilizing online platforms to access sexual health information. However, the reliability of such information is variable, and without proper guidance, teens may encounter harmful content (Tanner & Tanner, 2019; Wright et al., 2019).

Communication Campaigns in Ghana

Communication campaigns in Ghana aimed at preventing teen pregnancy have evolved over the years, reflecting both successes and challenges. Past campaigns have often relied on traditional media, such as radio and television, to reach a broad audience. However, these campaigns have sometimes failed to resonate with the youth due to a lack of relatable messaging and engagement strategies (Lantos et al., 2019; Singh & Tomar, 2020). Current initiatives increasingly incorporate youth voices and perspectives, recognizing that effective communication must be culturally relevant and context-specific (Garney et al., 2018; Stalgaitis et

al., 2022). For instance, campaigns that utilize storytelling and peer-led discussions have shown promise in engaging adolescents and fostering a supportive environment for discussing sexual health issues (Barker et al., 2019; Kenyon et al., 2019).

Moreover, the involvement of community stakeholders, including faith-based organizations, has been instrumental in implementing teen pregnancy prevention programs. These organizations often have established trust within communities, making them effective conduits for health communication (Holroyd et al., 2020; Wilson et al., 2018). Studies have shown that when faith leaders actively participate in health campaigns, there is a marked increase in community engagement and acceptance of sexual health messages (Hartzler et al., 2018; Kim et al., 2022). This collaboration not only enhances the reach of health communication efforts but also helps to address the stigma associated with discussing sexual health in many Ghanaian communities (Liu, 2023; Vuong et al., 2022).

Despite the progress made, there are some challenges in health communication regarding teen pregnancy prevention. Continuous evaluation of communication strategies is paramount to ensure they remain adequate and relevant to the target audience (Esquivel et al., 2022; Golman et al., 2020). Additionally, fostering an environment where parents and guardians feel equipped to discuss sexual health with their teens is important. Research indicates that open parent-teen communication is associated with healthier sexual behaviors among adolescents (Wright & Fore, 2021). Therefore, initiatives that empower parents with knowledge and resources are essential for creating a supportive framework for teens navigating sexual health issues.

E-Health Communication Initiatives

At the 7th International Congress on Telemedicine and Telecare in London, John Mitchell defined eHealth as telemedicine and telehealth, a combination of telecommunications

and information technology in the health industry (Mitchell, 2000). Della Mea (2001) used the term "eHealth" to describe the use of electronic communication and information technology in the health sector, including digital data transmission, storage, and retrieval. O'Donoghue and Herbert (2012) define eHealth as healthcare practices that rely on electronic or digital processes and communication, including the use of Internet and mobile applications.

Telemedicine, or "medicine at a distance," has a long history in Sweden, dating back to the 1920s. Telemedicine began in the 1960s with remote reading of electroencephalogram signals at Uppsala University. Radiology and pathology were later introduced in the 1970s (Olsson & Jarlman, 2004). In the 1990s, telemedicine initiatives expanded to include ophthalmology, odontology, transplantation, dermatology, and other areas of healthcare. In Sweden, the term "eHealth" refers to distance-bridging applications in public health and healthcare (Olsson & Jarlman, 2004). E-health communication has emerged as a pivotal tool in preventing teen pregnancy, mainly through integrating digital health initiatives. These initiatives leverage digital platforms to disseminate sexual health education and resources tailored for adolescents. The increasing reliance on digital media for health communication is highlighted by the findings of the effectiveness of self-reported ad recall as a measure of exposure to health messages delivered via digital platforms (Romberg et al., 2020). This method of engagement is particularly relevant for reaching teenagers, who are often more accessible through social media than traditional media channels. The ability to tailor messages to specific demographics enhances the potential for impactful communication, thereby reducing teen pregnancy rates.

E-Health in Ghana

Ghana's maternal healthcare system faces several challenges, including a lack of health workers, equipment, transportation, and ambulance services, insufficient data sets, structure, and

regulation, and a lack of district-level health services (Fenny et al., 2019; Ganle et al., 2014; Twum et al., 2018). Ghana has high-quality healthcare, a national health insurance system, and accredited medical education facilities (Ganle et al., 2014). Despite implementing the Community-Based Health Planning and Services (CHPS) plan two decades ago, the government continues to face challenges in providing services to rural communities. Logistics, supervisory issues, and resource constraints all have an impact on program coverage. (Bassoumah & Ling, 2017; Asamoah et al., 2014). The Ministry of Health aims to enhance health-care outcomes and minimize disparities between rural and urban areas. New policies have been implemented, such as free maternal health care and incentives for health workers working in distant areas (Dixon et al., 2013; Apanga & Awoonor-Williams, 2018).

In 2003, the country began exploring using ICTs to optimize resources and improve healthcare (Ansu-Mensah et al., 2020). E-Health can improve healthcare capacity in impoverished countries. E-health solutions provide qualified healthcare to underprivileged areas, including rural and understaffed places (Larbi et al., 2022; Luna et al., 2014). E-health solutions can lower health care delivery, maintenance, and support costs. This makes them a viable and economical option for improving health care in rural Ghana (Fenny et al., 2019). The Ghana National eHealth Strategy, published in 2010, aims to enhance the health of Ghanaians by leveraging information and communication technology (Larbi et al., 2022; Luna et al., 2014). The paper suggests that eHealth can address regional disparities in healthcare access, weak referral and emergency systems, rising noncommunicable disease rates, and a shortage of medical professionals. Several problems have been highlighted, including inadequate ICT infrastructure, limited IT literacy, and insufficient money. Local counterparts struggle to purchase eHealth solutions due to high costs (Kierkegaard, 2015).

Impact Of Digital Media in Ghana

According to a study conducted in Bolgatanga, Upper East Region (UER) of Ghana, adolescents rely on the media for sexual information (Van der Geugten et al., 2013). Research conducted in Ghana by Benefo and Takyi (2002) and Awusabo-Asare et al. (2006) supports this assertion. Adolescents' capacity to access the internet and read newspapers depends on their literacy level, as most information is in English (Awusabo-Asare et al., 2006). The media provides teenagers with confidential and easy access to sexual material, as parents and schools are hesitant to discuss sexual topics with them (Bankole et al., 2007; Brown, 2002; Gray et al., 2005). According to Fatusi and Blum's (2008) study in Nigeria, exposure to media increases the risk of premarital sex among adolescents. Early exposure to sexual content on video, music, television, and periodicals can lead to increased sexual behavior among teenagers. (Brown et al. 2006).

Access to these sources is limited in Ghana's UER due to poor internet service and newspaper availability, particularly in metropolitan areas. Adolescents' understanding of sexuality may be limited due to their weak search abilities and inability to evaluate information dependability. (Gray et al. 2005). Adolescents who struggle to grasp sexual content in movies, music, publications, and television may have limited access to reliable information due to unregulated sources (Brown et al., 2005). Proper regulation of sexual content in the media can positively impact adolescents' sexual behavior and intentions. Approximately 2.3% of UER residents have access to newspapers, 26.2% to television, and 52.4% to radio. According to Awusabo-Asare et al. (2017), 90% of Ghanaian adolescents learned about sexual and reproductive health (SRH) via various sources, including the internet, television, radio, social media, and pamphlets.

In recent times, the role of digital media in promoting sexual health education is gaining traction in Ghana. The country's media landscape has adapted to incorporate digital platforms, which are increasingly utilized to disseminate health information. This shift is supported by the findings of Gyekye-Jandoh (2023), who notes that the emergence of new media technologies has transformed the public sphere in Ghana, allowing for more dynamic engagement with health topics (Gyekye-Jandoh, 2023). Moreover, social media influencers and memes have been shown to enhance the reach and engagement of health campaigns, as discussed by (Kostygina et al. (2020). These strategies are particularly effective in capturing the attention of younger audiences, making them more receptive to messages about sexual health and pregnancy prevention.

The integration of health coaching interventions further illustrates the impact of digital media on teen pregnancy prevention in Ghana, which demonstrates that structured health coaching programs can significantly reduce the incidence of teen pregnancies by providing adolescents with the necessary knowledge and resources to make informed decisions (Kim et al., 2022). This approach not only addresses the immediate educational needs of teens but also fosters a supportive environment where they can discuss their concerns and experiences related to sexual health. Combining digital platforms and health coaching creates a comprehensive framework for addressing the multifaceted issues surrounding teen pregnancy.

Additionally, the acceptability and feasibility of single-session interventions (SSIs) delivered through platforms like Tumblr have been explored by Dobias et al. (2022), indicating that such interventions can effectively provide mental health resources for teenagers (Dobias et al., 2022). This is particularly pertinent in the context of teen pregnancy, as mental health plays a role in adolescents' decision-making processes regarding sexual activity and relationships. By embedding these interventions within familiar digital environments, health educators can reach

teens where they are most comfortable, thereby increasing the likelihood of engagement and positive outcomes. As discussed by Adorjan and Ricciardelli (2021), the challenges posed by social media addiction among teenagers also call for a balanced approach to digital health communication (Adorjan & Ricciardelli, 2021). While digital platforms offer opportunities for education and engagement, they can also contribute to unhealthy behaviors if not managed appropriately. Therefore, it is essential for health campaigns to not only focus on delivering information but also to promote healthy digital habits among adolescents. This dual approach can help mitigate the risks associated with excessive digital media use while maximizing the benefits of e-health communication.

Theoretical Framework

Protection Motivation Theory (PMT) is a psychological framework that explains how individuals are motivated to engage in protective behaviors in response to perceived threats. Developed by Ronald Rogers in 1983, PMT posits that the likelihood of an individual adopting protective behaviors is influenced by their perceptions of a threat's severity, susceptibility to that threat, and beliefs about the efficacy of the recommended protective behaviors. This theory has evolved over the years, integrating various constructs that contribute to understanding health-related behaviors and decision-making processes. The foundational elements of PMT include threat appraisal, which encompasses perceived severity and susceptibility, and coping appraisal, which includes self-efficacy, response efficacy, and response costs (Plotnikoff & Trinh, 2010; Sakhvidi et al., 2015). The purpose of the original development of the PMT was to explain the impact of fear appeals on health-related attitudes and behaviors (Rogers, 1975). Communications that induce fear have a significant effect on the behaviors that are selected. Studies of fear-inducing communications published between 1953 and 1980 were the subject of a meta-analysis

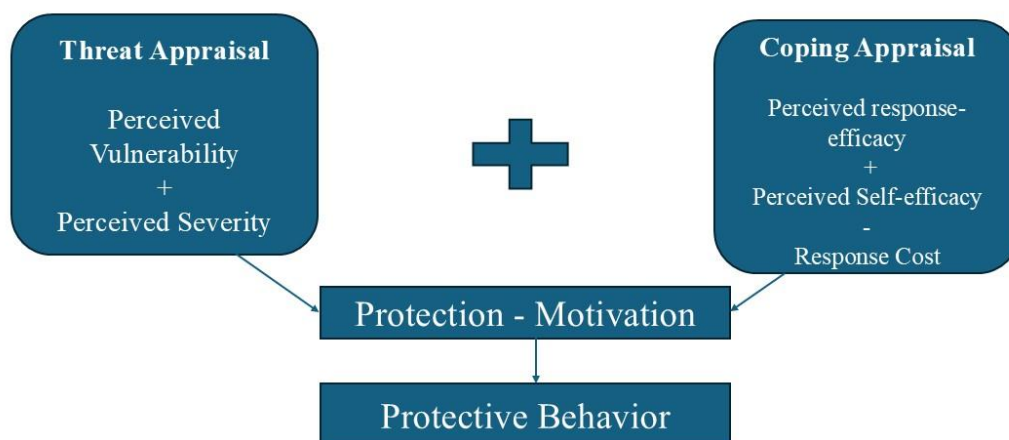
(Sutton, 1982), which revealed a continuous relationship between increased perceived fear and acceptance of the suggested adaptive behavior or intention.

Moreover, there was an increase in the intentions to choose the adaptive response with increases in perceived response efficacy. According to a thorough narrative overview of the literature and research on PMT (Rogers & Prentice-Dunn, 1997), PMT has been used to address various subjects, including interests outside of health-related fields. In addition to promoting health and preventing disease, PMT has been expanded to address political issues, environmental concerns, injury-prevention, and safeguarding others. Therefore, any threat for which an effective, personally implementable recommended reaction exists is included in the concept of protection motivation. Expectancy-value theory was the foundation for PMT's development (Rogers, 1975), which was later updated to incorporate reward and self-efficacy components (Maddux & Rogers, 1983; Rogers, 1983). As already stated, the threat-appraisal and coping-appraisal processes are the two cognitive mediating processes that make up PMT. Threat and coping factor assessments connect to create the intervening variable known as protection motivation.

Protection motivation resembles other forms of motivation in its ability to stimulate, maintain, and guide behavior. The threat appraisal process is addressed first, as a threat's perception or identification is necessary before evaluating coping options. Threat appraisal assesses maladaptive behavior. The threat-appraisal process includes maladaptive response rewards, both intrinsic and extrinsic, as well as the perception of threat, which encompasses severity and vulnerability. Rewards will enhance the likelihood of choosing the maladaptive response, which does not prioritize self or others' protection. Conversely, a threat will reduce the likelihood of choosing the maladaptive response. The coping appraisal process assesses the

capacity to manage and mitigate perceived threats. The coping appraisal process includes efficacy variables, specifically response efficacy and self-efficacy, as well as elements of Protection Motivation Theory. Response efficacy refers to the belief that an adaptive response will be effective, ensuring protection for oneself or others through the implementation of a protective action. Self-efficacy refers to an individual's belief in their capacity to execute the adaptive response effectively. Response costs refer to the various costs (e.g., monetary, personal, time, effort) incurred when engaging in adaptive coping responses. Response efficacy and self-efficacy are likely to enhance the likelihood of choosing the adaptive response, while response costs are expected to diminish this likelihood. The result of these appraisal-mediating processes is the decision or intention to initiate, continue, or inhibit the relevant adaptive responses or coping modes.

Figure 1.Theoretical Framework. (Source: [Rogers, 1975](#))



Consequently, the standard dependent variables in PMT research are indicators of behavioral intentions (Rogers & Prentice-Dunn, 1997). The objective of PMT research is typically to influence individuals to adhere to the communicator's recommendations; thus, intentions serve as indicators of the effectiveness of persuasion efforts. Rogers and Prentice-Dunn (1997) conducted a literature review on Protection Motivation Theory (PMT) and identified substantial support for PMT and its components. However, their conclusion was derived from a narrative review. A quantitative analysis of the model variables would enable an evaluation of the extent of the contribution of the PMT components. For instance, do certain variables exhibit a stronger correlation with behavioral intentions compared to others? A meta-analysis is a method used to evaluate the strength of relationships between variables and an outcome measure. A meta-analysis is a quantitative, statistically grounded method employed to assess the outcomes of multiple studies within a specific area of interest.

The theoretical background of PMT is rooted in the understanding that individuals are more likely to engage in protective behaviors when they perceive a significant threat to their health or well-being. For instance, Plotnikoff & Trinh (2010) emphasize that awareness of the severity of a threat can initiate protection motivation, which is further influenced by coping appraisals (Plotnikoff & Trinh, 2010). This highlights the dual nature of PMT, where both the perception of threat and the belief in one's ability to respond effectively is important in motivating behavior change. The constructs of PMT have been widely applied in various health promotion contexts, including campaigns aimed at preventing diseases such as skin cancer, where educational interventions based on PMT have shown effectiveness in enhancing protective behaviors among at-risk populations (Babazadeh et al., 2016; Taheri et al., 2019).

In addition to its application in health promotion, PMT has been compared with other behavioral theories, such as the Theory of Planned Behavior (TPB) and the Health Action Process Approach (HAPA). Research by Mullan et al. (2016) indicates that self-efficacy consistently predicts protection motivation across various contexts, underscoring the importance of individual beliefs in shaping health-related intentions and behaviors. Integrating PMT with other models has enriched the understanding of how social influences and past behaviors contribute to developing protective intentions, particularly in areas like food safety and hygiene practices (Chow & Mullan, 2010; Williams et al., 2015).

Moreover, PMT has been effectively utilized in educational programs to increase awareness and preventive behaviors among specific populations. For example, studies have demonstrated that applying PMT in educational interventions for farmers exposed to ultraviolet rays significantly improved their protective behaviors against skin cancer (Moeini et al., 2018; Taheri et al., 2019). Similarly, research focusing on prostate cancer screening behaviors among men over 50 years old has shown that perceived threat and efficacy beliefs are critical factors influencing individuals' intentions to engage in preventive health behaviors (Barati et al., 2016; Hosseini et al., 2022). These findings illustrate the versatility of PMT in addressing various health issues and its potential for guiding effective health communication strategies.

The relevance of PMT extends beyond health-related contexts, as it has also been applied to understand behaviors in response to environmental threats and online safety. For instance, PMT has been utilized to analyze how individuals respond to threats in the digital landscape, where perceived risks and efficacy beliefs drive protective behaviors such as privacy management and cybersecurity practices (Boss et al., 2015; Tsai et al., 2016). This broad applicability of PMT shows its significance and versatility as a theoretical framework for

understanding motivation across diverse domains, including occupational safety and health, where individual-level behavioral change theories are needed for promoting safe practices among workers (Guerin & Sleet, 2020; Nouri, 2024).

Related Studies

The Protection Motivation Theory (PMT) has been extensively applied in various health-related studies, particularly in contexts that require behavior modification for disease prevention. This theory posits that individuals are motivated to protect themselves based on their perceptions of vulnerability to a health threat, the severity of that threat, the efficacy of the recommended protective behavior, and their self-efficacy in performing that behavior. A review of recent studies illustrates the diverse applications of PMT in promoting preventive health behaviors across different populations and health issues. One notable application of PMT is in skin cancer prevention, as demonstrated by Maleki et al. (2022). Their study focused on male students and highlighted how constructs of PMT, such as perceived susceptibility and severity, influenced the adoption of skin cancer preventive behaviors. The findings emphasized the importance of tailoring educational interventions that enhance awareness of skin cancer risks and promote protective behaviors, such as regular skin examinations and sun protection measures. Similarly, Urban et al. (2021) provided a broader context by analyzing the global burden of skin cancer, calling for effective public health strategies incorporating psychological theories like PMT to mitigate this growing health concern.

In the context of respiratory diseases during the COVID-19 pandemic, Guan (2023) explored the efficacy of PMT-based nursing interventions. The study revealed that patients receiving PMT-informed care improved adherence to preventive measures, such as mask-wearing and social distancing. This aligns with the findings of Rad et al. (2021), who reported that perceived severity and self-efficacy were critical predictors of COVID-19 preventive

behaviors among participants in Iran. Both studies illustrate how PMT can effectively enhance health behaviors in response to emerging infectious diseases. However, a contrasting perspective is presented by Wu et al (2022), who examined the acceptance of COVID-19 booster vaccinations through the lens of PMT. Their findings indicated that while perceived severity and self-efficacy were significant predictors, response costs also determined individuals' willingness to adopt protective measures. This emphasizes the diverse character of health behavior decisions, implying that PMT may need to include more components to adequately reflect the varied nature of health-related decision-making.

Moreover, the application of PMT extends to chronic disease management, as evidenced by Morowatisharifabad et al. (2021). Their research demonstrated that an integrated intervention based on PMT significantly improved physical activity levels and physiological indicators among patients with type 2 diabetes. This highlights the versatility of PMT in addressing acute health threats and chronic conditions that require sustained behavior change. The effectiveness of PMT in promoting health behaviors is further supported by Sayed et al. (2022), who found that digital-based educational interventions significantly improved knowledge and self-protective behaviors regarding COVID-19 among non-health students. In contrast, Taheri-Kharameh et al. (2020) applied PMT to predict fall protective behaviors among older adults, emphasizing that self-efficacy and the efficacy of recommended actions were paramount in high-threat situations. This comparison highlights the adaptability of PMT across different health contexts while also indicating that specific constructs may hold varying levels of importance depending on the health issue at hand.

The role of PMT in cancer prevention is particularly noteworthy, as illustrated by Khodayarian (2023), who investigated the impact of tailored educational programs on

mammography adherence among Iranian women. The study found that enhancing women's knowledge and perceived susceptibility to breast cancer led to increased screening behaviors. This finding is consistent with the work of Conley et al. (2021), who employed a PMT-informed approach to evaluate intentions for breast cancer risk management. Their results indicated that women exposed to PMT-based interventions were more likely to consider risk-reducing options, demonstrating the theory's effectiveness in promoting proactive health behaviors. However, contrasting findings from Li et al. (2019) suggest that while PMT is effective in predicting cervical cancer screening participation, the integration of additional models, such as the Health Belief Model (HBM), may enhance understanding of the multifactorial influences on health behaviors. This indicates that while PMT provides a robust framework, it may benefit from integration with other theories to address the complexities of health behavior change.

In addition to cancer and infectious diseases, PMT has been applied to address mental health and behavioral issues. For instance, Salmani and Prapavessis (2023) utilized PMT to reduce vaping intentions among university students. Their randomized controlled trial highlighted the importance of addressing perceived threats and enhancing self-efficacy to modify risky behaviors. This approach is echoed in the findings of Pilch et al. (2021), who examined coping behaviors during the COVID-19 pandemic, revealing that PMT constructs were significant predictors of adaptive and maladaptive responses to health threats. In contrast, Valkengoed and Steg (2019) conducted a meta-analysis on climate change adaptation behaviors. They suggested that while PMT's key components were important predictors, additional factors, such as descriptive norms, which refer to individuals' perceptions of whether others are performing a particular behavior should be considered. This comparison illustrates the need for a

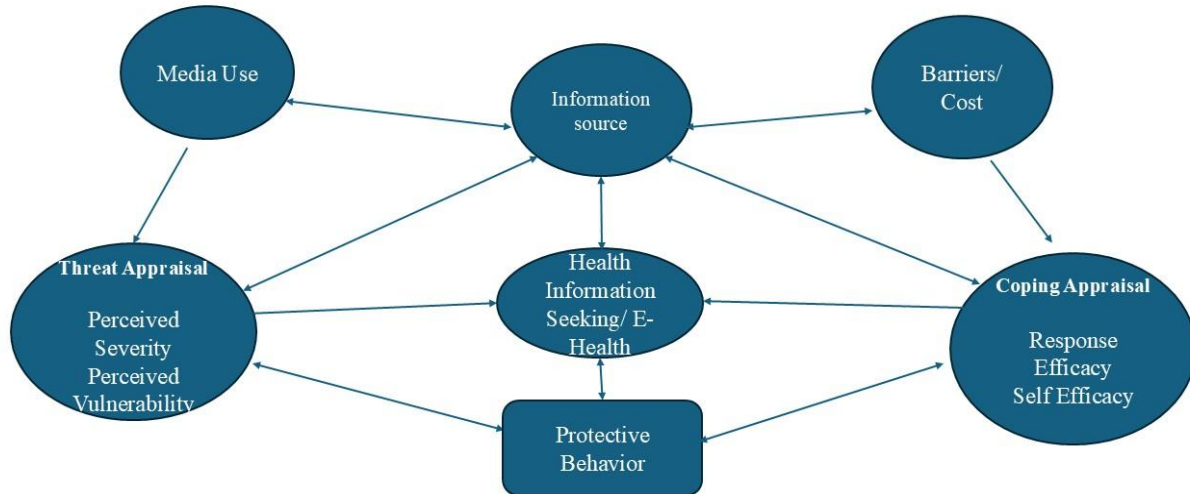
nuanced understanding of PMT's application across different contexts, as the relevance of specific constructs may vary depending on the targeted behavior.

Furthermore, the integration of PMT into public health strategies has been shown to enhance community engagement in preventive behaviors. Yeom et al. (2021) tested the efficacy of PMT in promoting social distancing during the early stages of the COVID-19 pandemic, demonstrating that effective communication of health risks could motivate individuals to adopt protective measures. This is particularly relevant in times of public health crises, where behavior change is crucial for controlling disease spread. However, Bubeck et al. (2023) indicated that despite stable perceived probabilities of risk, negative changes in coping appraisals could hinder risk-reducing behaviors. This finding suggests that while PMT can effectively motivate behavior change, ongoing assessment and adaptation of communication strategies are essential to maintain engagement and effectiveness.

The educational interventions based on PMT have also been validated in various cultural contexts. For example, through PMT-based educational programs, Elgzar et al. (2023) reported significant improvements in pregnant women's knowledge and self-protection regarding COVID-19. This highlights the adaptability of PMT across different populations and health issues, reinforcing its relevance in global health initiatives. However, contrasting evidence from Ding et al. (2022) indicates that while PMT effectively explains self-protective behaviors, the willingness to pay for protective measures, such as masks during the COVID-19 pandemic, is influenced by additional economic factors. This suggests that while PMT provides a valuable framework for understanding health behaviors, it must be contextualized within broader socio-economic factors to capture the determinants of health-related decision-making fully.

Conceptual Framework

Figure 2. Conceptual Framework of This Study.



Hypotheses and Research Questions

Digital Media Use

RQ 1: Which of the PMT factors influences teens' engagement with digital media content focused on teenage pregnancy prevention?

H1: Teens who perceive a higher level of severity (as measured by PMT) are more likely to engage with digital media information supporting teenage pregnancy prevention.

H2: Teens who perceive a higher level of vulnerability (as measured by PMT) are more likely to engage with digital media information supporting teenage pregnancy prevention.

Protective Behavior

RQ 2: In what ways do digital media strategies that enhance response efficacy and self-efficacy influence teens' motivation to adopt preventative behaviors against teen pregnancy?

RQ3: Which Protection Motivation Theory (PMT) factors, along with demographic and media-related variables, influence teens' adoption of protective behaviors to prevent teenage pregnancy?

Knowledge

RQ 4: How do perceived vulnerability, perceived severity, demographic factors, and media-related variables relate to teens' knowledge of teenage pregnancy prevention?

Online Health Information Seeking Behavior

RQ5: To what extent do age, educational level, knowledge, digital media use, and PMT threat appraisals (perceived vulnerability and perceived severity) predict teens' likelihood of seeking online health information?

H3: There is a positive correlation between online health information seeking and response efficacy.

H4: There is a positive correlation between online health information seeking and self-efficacy.

Chapter 3 - Methodology

Introduction

This methodology chapter outlines the research design, target population, sampling strategy, data collection procedures, survey instrument, and ethical considerations for this study on teenage pregnancy prevention through digital media engagement among Ghanaian adolescents. To address the research questions and hypothesis, this study adopts a relevant study design specifying the important methodologies applied (Polit & Beck, 2010) as espoused by Parahoo (2006), in selecting the best design is essential to achieving the study's objectives.

Research Design

This study employed a quantitative, cross-sectional survey design to investigate the relationship between digital media engagement and teenage pregnancy prevention among Ghanaian adolescents aged 18-19. Quantitative research involves the empirical examination and analysis of numerical data to ascertain the link between the independent and dependent variables (Schoonenboom & Johnson, 2017). The study used an online survey to test hypotheses grounded in the Protection Motivation Theory (PMT), examining how perceived severity, vulnerability, response efficacy, and self-efficacy influence adolescents' engagement with digital media content promoting teenage pregnancy prevention. The quantitative approach was used to provide statistical insights into these factors, while the cross-sectional nature allows for data collection at a single point in time, offering a snapshot of adolescent perceptions and behaviors. Consistent with the study's aim to generalize findings and identify emerging trends, this design facilitates the collection of data from a large sample within a specified timeframe (Creswell, 2017). Descriptives of the study variables, Pearson correlation coefficients, One-way ANOVA, and multiple linear regression analyses were done to test the research questions and hypotheses. Data

from the survey were analyzed statistically using Statistical Package for the Social Sciences (SPSS) software.

Target Population and Sampling

The target population consisted of adolescents aged 18-19 residing in Ghana, chosen due to ethical considerations allowing for informed consent without parental permission. This age group represents an optimal demographic for studying teenage pregnancy prevention as they are more likely to engage independently with digital media and are at a stage where reproductive health knowledge and decisions are critical. The sample was selected through convenience sampling with recruitment facilitated through social media platforms, educational institutions, and youth organizations, to reach participants with varied backgrounds, including urban and rural regions.

Sample Size Determination

To determine the appropriate sample size for this study, a systematic approach is employed to ensure representativeness and reliability. The target population for this research comprises adolescents aged 18 and 19 years residing in Ashaiman, a municipality located in the Greater Accra Region of Ghana with a total population of 208,060 (Ghana Statistical Service, 2021). The following steps were undertaken to calculate the required sample size:

Confidence Level and Margin of Error

A 95% confidence level is chosen for this study, representing the degree of certainty that the sample will accurately reflect the population. The margin of error was set at $\pm 5\%$, allowing for an acceptable level of variability between the sample statistics and the actual population parameter.

Population Proportion

Since there was no prior knowledge of the population proportion, a conservative estimate of $p=0.5$ was used. This value maximizes variability, ensuring the largest possible sample size and, therefore, the most robust results.

Calculation of Initial Sample Size

The initial sample size was calculated using the standard formula for estimating proportions, which multiplies the square of the z-value corresponding to the desired confidence level by the estimated population proportion and its complement (1 minus the proportion), and then divides the result by the square of the margin of error. This approach is based on a method described by Cochran (1977). Substituting the values, the initial sample size required is approximately 384. Since the total population of Ashaiman is finite (208,060), to ensure practical feasibility and account for potential non-responses, the sample size was rounded up to 400 participants. This sample size meets the minimum recommendations for quantitative research proposed by Guadagnoli and Velicer (1988) and is deemed sufficient to ensure adequate statistical power for analyzing the relationships among the study variables (Boateng et al., 2018).

Data Collection

Data collection was conducted through an online survey administered via a secure platform, Qualtrics, ensuring anonymity and ease of access for participants. This method leverages the widespread internet usage among Ghanaian adolescents and allows participants to respond in a comfortable, private setting. A survey offers a quick and adaptable way to collect information about current conditions in a given population (Polit & Beck, 2014).

Survey Instrument

The survey instrument was adapted from various validated instruments and modified to examine the current study's objectives. They were categorized according to PMT constructs (severity, vulnerability, response efficacy, and self-efficacy). The first part of the survey has sections on knowledge about teenage pregnancy. All survey questions were multiple-choice or Likert-scale-based, designed to maximize response rates and simplify data analysis. The instrument was divided into the following sections:

Demographics

The demographic data studied included age, gender, educational status, and geographic location (urban or rural).

Independent Variables (IV)

Primary Sources of Health Information

Additionally, primary sources of health information, which were adapted from Muturi (2022), such as family, friends, school, the internet, and health professionals, are assessed through a multiple-choice format to understand people's primary channels of health information access and coded from "1" to "5," respectively.

Knowledge about Teen Pregnancy and Reproductive Health

Knowledge about teenage pregnancy and reproductive health was assessed through ten-items factual statements (Atiglo & Biney, 2021; Ghana Statistical Service, 2023; Awusabo-Asare & Annim, 2015; United Nations Population Fund Ghana, 2021) designed to evaluate participants' awareness and understanding of key concepts related to teenage pregnancy, contraception, and preventive behaviors. The responses to these items are coded dichotomously, with correct answers scored as 1 and incorrect or "I don't know" responses scored as 0.

Examples of the scale include 1) "Teenage pregnancy can lead to severe health complications for both mother and child." 2) "The benefits of contraception for teens include prevention of pregnancy." 3) "The use of contraception can significantly increase academic focus." 4) "Unprotected sexual activity is the main cause of teen pregnancy," and 5th item, "All the following are methods of contraception: Condoms, birth control pills, emergency contraception, injectable contraceptives." The cumulative scores from these items create a composite knowledge score that reflects the participant's overall understanding of the subject matter. Since these knowledge items were factual questions with objectively correct answers, internal consistency reliability (e.g., Cronbach's alpha) was not a meaningful indicator and was thus not computed for the knowledge scale.

Perceived Vulnerability to Teen Pregnancy

Perceived vulnerability measures participants' subjective likelihood of experiencing an unplanned pregnancy. Adapted from Krawczyk et al. (2012) and validated by Khan and Muturi (2023), perceived vulnerability to teenage pregnancy was measured using a series of five Likert-scale items designed to assess participants' subjective evaluation of their likelihood or risk of experiencing an unplanned pregnancy. The items were adapted to reflect core aspects of vulnerability as conceptualized in the Protection Motivation Theory (PMT). Participants responded to each item on a 5-point scale ranging from "No chance at all" (1) to "Very high chance" (5). The responses to these items were averaged to create a composite perceived vulnerability score, with higher scores indicating a greater perceived risk of teenage pregnancy. The questions included: 1) "Teenagers could experience an unplanned pregnancy in my lifetime. 2) "If teenagers do not use contraception, they are at risk of getting pregnant." 3) "Teenagers' risk of getting pregnant increases if they do not actively seek preventive information." 4) "Teenagers

are at risk of an unplanned pregnancy due to a lack of reproductive health knowledge.” 5) “Teenagers’ chances of an unplanned pregnancy are high because they do not regularly practice safe sexual behaviors.” This perceived vulnerability scale demonstrated high internal consistency (Cronbach’s $\alpha = 0.910$), indicating that the items reliably measured the same underlying construct.

Perceived Severity of Teen Pregnancy

Perceived severity assesses the participants' beliefs about the seriousness of teenage pregnancy consequences. Adapted from Krawczyk et al. (2012) and validated by Khan & Muturi (2023) and Muturi (2020), the perceived severity of teenage pregnancy was operationalized through a series of five items that evaluate participants’ subjective beliefs about the seriousness of potential consequences associated with teenage pregnancy. Each item was rated on a 5-point Likert scale, ranging from "Not at all serious" (1) to "Extremely serious" (5). The questions asked include: 1) “How would teenage pregnancy impact career or educational goals?” 2) “How seriously do I consider the health impacts of teenage pregnancy on myself and a child?” 3) “Teenage pregnancy could create significant social and family challenges.” 4) “The financial impact of teenage pregnancy would be severe.” 5) “I consider the effects of teenage pregnancy on mental and emotional health serious.” The perceived severity scale had a Cronbach’s α of 0.901, indicating excellent internal consistency.

Response Efficacy of Digital Media in Preventing Teen Pregnancy

Response efficacy evaluated participants’ beliefs about the effectiveness of digital media as a means of delivering accurate information on pregnancy prevention. Adapted from Krawczyk et al. (2012) and validated by Tazrin & Muturi (2023), the construct of response efficacy is operationalized through a series of five items designed to assess participants' beliefs about the

effectiveness of digital media as a tool for providing accurate, actionable information on teenage pregnancy prevention. Each item was measured on a 5-point Likert scale, ranging from "Not at all agree" (1) to "Strongly agree" (5). The questions included: 1) "Digital media helps me understand pregnancy prevention measures better." 2) "Information from social media is reliable for pregnancy prevention guidance." 3) "Digital resources on pregnancy prevention encourage me to seek out additional health resources." 4) "Visuals and videos on social media make understanding reproductive health easier." The last question was 5) "I am confident that digital platforms can help reduce teenage pregnancy rates." The response efficacy scale proved to be highly reliable (Cronbach's $\alpha = 0.905$).

Self-Efficacy in Engaging with Digital Media for Pregnancy Prevention

Self-efficacy questions measured confidence in using digital media for reproductive health information. Adapted from Britt et al. (2015), Helmes (2002) and validated by Khan and Muturi (2023), the construct of self-efficacy was operationalized through five items designed to assess participants' confidence in their ability to effectively use digital media to access, comprehend, and share information on pregnancy prevention. Each item was measured on a 5-point Likert scale ranging from "Not at all confident" (1) to "Very confident" (5). Responses are averaged to compute a composite score for self-efficacy, with higher scores indicating greater confidence in participants' ability to engage with digital media for reproductive health information. The following items are: 1) "I am confident in finding accurate pregnancy prevention information online." 2) "I understand how to use digital media to improve my knowledge on pregnancy prevention." 3) "I feel confident in talking to friends about pregnancy prevention if I learn online tips." 4) "I am capable of evaluating the reliability of online sources on reproductive health." 5) "I believe I can independently learn about pregnancy prevention by

using digital tools.” The digital media self-efficacy scale had a Cronbach’s α of 0.866, reflecting good internal consistency.

Response Costs Associated with Pregnancy Prevention Information on Digital Media

Response costs assessed perceived barriers to using digital media for pregnancy prevention, such as privacy concerns or misinformation. Adapted from Helmes (2002) and validated by Abotchie and Shokar (2009) and Khan and Muturi (2023), the construct of response costs was operationalized through five items designed to assess participants’ perceived barriers and concerns associated with using digital media for accessing pregnancy prevention information. Each item was measured on a 5-point Likert scale ranging from "Not at all concerned" (1) to "Extremely concerned" (5). Responses were averaged to create a composite score, with higher scores indicating greater perceived response costs. These scores capture the extent to which concerns about privacy, misinformation, judgment, financial costs, and emotional impacts may deter participants from engaging with digital media for reproductive health information. 1) “I worry about the privacy of my search history on pregnancy prevention topics.” 2) “I am concerned about potential misinformation on reproductive health from digital media.” 3) “I feel that family or peers might judge me if they knew I accessed pregnancy prevention info online.” 4) “I am concerned about the cost of internet data required to access online health information.” 5) “I worry about digital media’s potential to increase fear or anxiety about pregnancy.” The response costs scale was found to be reliable, with Cronbach’s $\alpha = 0.870$.

Dependent variables (DV)

Online Health Information Seeking Behavior

Items in this section measure the frequency of digital media use for health-related information. Adapted from Kelly et al. (2015) and validated by Khan and Muturi (2023), the

construct of online health information-seeking behavior was operationalized through five items that assess participants' perceptions and usage of digital platforms for obtaining reproductive health information. Each item is measured on a 5-point Likert scale ranging from "Not at all agree" (1) to "Strongly agree" (5). The following items are: 1) "Online resources help me learn about reproductive health on my own terms." 2) "The internet provides me with health information not available in my community." 3) "I trust online platforms for gaining general knowledge on reproductive health." 4) "Social media posts on health topics motivate me to research further." 5) "The internet helps me feel more in control of my health decisions." The online information-seeking behavior scale showed high internal consistency (Cronbach's $\alpha = 0.908$).

Frequency of Digital Media Use for Health Information

The survey also captures participants' media usage frequency for health information, specifically for sources like social media, health websites, TV, and radio. Adapted from Wong and Sam (2010) and validated by Khan and Muturi (2023), the frequency of digital media use for health-related information was assessed through a set of items that measured how often participants used various digital platforms and media sources to access health information. This measure helps to understand the engagement levels with different sources of health information, particularly in the context of teenage pregnancy prevention. Each item was assessed on a 5-point scale, where participants indicated how often they used the specified source. The scale ranged from "Never" (1) to "Always" (5), with intermediate options such as "Rarely" (1-2 times), "Sometimes" (3-4 times), and "Often" (5-6 times). The items were social media, health websites, blogs, video platforms (YouTube, etc.), online forums (Reddit, Quora), TV, and radio. These individual items allowed the researchers to see which channels were most frequently used. To

get an overall sense of digital media engagement, an index was created by summing or averaging the frequency scores across the relevant items (with higher values indicating more frequent use of multiple media channels for health information). Even though the various media sources are conceptually distinct, an overall frequency index of digital media use for health info demonstrated acceptable internal consistency (Cronbach's $\alpha = 0.833$), suggesting that adolescents who used one source frequently tended to also use others frequently.

Preventive Protective Behaviors

Preventive protective behaviors were assessed as a key outcome variable in this study, focusing on participants' concern levels related to engaging in practices that reduce the risk of teenage pregnancy. This construct was measured using ten items adapted from Matejic et al. (2011), which evaluated the degree to which participants were motivated or discouraged to adopt preventive actions due to various personal, social, or structural influences.

Each item was rated on a 5-point Likert scale ranging from "Not at all concerned" (1) to "Extremely concerned" (5). Items included, (1) "My family history of early pregnancies influences my decision to use contraception or other pregnancy prevention methods," (2) "I am well informed about teenage pregnancy risks and prevention methods, which motivates me to adopt preventive behaviors," (3) "I consistently practice safe sexual behaviors (e.g., using contraception and avoiding unprotected sex) to prevent teenage pregnancy," and (4) "The cost of contraception or pregnancy prevention methods affects my ability to take preventive measures." Other items captured emotional, informational, and social factors influencing behavior, such as stigma, fear, peer influence, and access to services.

Participant responses to these ten items were averaged to create a composite preventive behavior score. A higher score indicated a stronger level of concern and engagement in adopting

protective measures against teenage pregnancy. The internal consistency of this scale was excellent, as indicated by a Cronbach's alpha of .935, suggesting that the items reliably measured a unified construct of behavioral intention and engagement in preventive actions.

Data Collection Procedure

Participants were recruited through a combination of online and community-based strategies to maximize reach and diversity. Social media platforms such as Facebook, and WhatsApp were used to share digital recruitment flyers and survey links, as these platforms are among the most popular among Ghanaian adolescents. In addition, educational institutions, including Tema Senior High School, Nurul Junior High School, and Accra Technical University, assisted in distributing the flyer and survey link through student groups. Collaborations were also established with youth-focused non-governmental organizations (NGOs) such as Fern house and the Ashaiman Youth Movement, which facilitated access to youth networks. Interested participants accessed the survey link, where they read an informed consent form detailing the study's purpose, voluntary participation, and anonymity.

The survey was opened for four weeks (February 21–March 21, 2025) with weekly reminders sent through recruitment channels to encourage participation. To ensure data validity, responses were monitored to prevent duplicates, and incomplete surveys were discarded from the final analysis.

Data Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated to summarize demographic characteristics and participants' responses across the

Protection Motivation Theory (PMT) constructs, knowledge of pregnancy prevention, digital media use, online health information-seeking behavior, and preventive behaviors.

Inferential analyses were employed to test the study's hypotheses and research questions. An independent-samples t-test was used to examine gender differences in knowledge. This procedure was appropriate because it compares mean scores between two independent groups (male and female). Correlation analyses were conducted to examine associations among the PMT constructs, knowledge, media use, online health information-seeking, and preventive behaviors, providing insight into the strength and direction of bivariate relationships.

Hierarchical multiple regression analyses were then performed to determine the predictive effects of demographic factors, PMT constructs, and digital media engagement on four outcome variables: digital media use, preventive behaviors, knowledge, and online health information-seeking. Hierarchical regression was chosen because it allows for the examination of how sets of predictors contribute incrementally to each outcome variable while controlling for background characteristics (Cohen et al., 2003).

Validity and Reliability

Validity of the survey instrument was established through expert review by scholars in health communication and digital media, ensuring that the items were conceptually appropriate and relevant. A pilot test with adolescents aged 18 to 19 helped refine item clarity and address ambiguities in wording. Reliability was assessed through internal consistency measures, with Cronbach's alpha values ranging from .83 to .94 across constructs, confirming strong reliability and scale appropriateness for the intended analyses.

Ethical Considerations

Ethical clearance for the study was obtained from the Institutional Review Board (IRB) at the researcher's institution to ensure adherence to ethical standards. Key ethical considerations included obtaining informed consent, where participants read an information sheet and provide electronic consent before accessing the survey. Confidentiality was maintained by ensuring that all responses remained anonymous and did not include any identifying information. Participation in the study was entirely voluntary, allowing participants to withdraw at any time without facing any consequences. Since the study involved adolescents aged 18 and 19, parental consent was not required; however, all data collection was conducted with sensitivity, given the personal nature of the topic. These measures aimed to prioritize participants' rights and well-being throughout the research process.

Chapter 4 - Results and Analysis

Introduction

This chapter presents the findings of the study, organized in line with the research questions and hypotheses. First, descriptive results are provided, including the demographic profile of respondents and summary statistics for the key variables. This is followed by the analysis addressing each hypothesis and research question using the correlation and regression statistical methods outlined in Chapter Three.

Sample Characteristics

A total of 429 respondents participated in the survey (after data cleaning for completeness). The majority of participants were female, 316 (73.7%), with males accounting for 113, or approximately 26.3% of the sample (roughly one-quarter).

Table 1. Demographic Characteristics of Participants

	Items	n	%
Gender	Male	113	26.3%
	Female	316	73.1%
Age Group	Mean	18yr	
	Range	1yr	
Education	Junior High School	108	25.0%
	High School	146	33.8%
	College/University	134	31.0%
	Vocational Training	39	9.0%
Employment Status	Employed (full-time)	35	8.1%
	Employed (part-time)	65	15.1%
	Self-employed	41	9.5%
	Unemployed/Student	289	67.2%
Marital Status	Single	240	55.6%
	Dating	167	38.7%
	Engaged	12	2.8%
	Married	9	2.1%

As shown in the table, respondents had varying levels of educational attainment, reflecting both secondary and post-secondary status. About 25.1% had completed junior high school and 34.0% had completed high school, making these the largest groups. Additionally, 31.2% were in college or had some college/university education, and a smaller segment (around 9.1%) had vocational training. This distribution indicates that while many participants were still in or just out of secondary school, a significant portion had pursued higher education. Although a notable proportion of participants reported being in college or university, this is consistent with the Ghanaian educational system, where most students complete high school and transition into tertiary institutions by age 18 or 19. Thus, the presence of college students in the sample aligns with the target age group and reflects typical academic progression in Ghana.

Regarding employment status, the vast majority of respondents were students or not employed full-time. Specifically, about 67.2% identified as unemployed or full-time students. Meanwhile, 15.1% were employed part-time and 8.1% employed full-time, with the remainder (9.5%) self-employed. This is expected given the young age of the sample; most are likely still in school and not yet in full-time careers.

For marital status, an overwhelming majority of the participants were not married. About 55.8% reported being single, and approximately 38.9% reported “dating” (in a relationship but not married or engaged) as their status. Only a very small minority were in more formally committed relationships. Around 2.8% were engaged, and about 2% were married. These figures reflect that the participants are predominantly unmarried adolescents or young adults, which aligns with expectations for the age group.

Participants were also asked about their primary source of health information, particularly concerning sexual and reproductive health. The responses indicate a strong reliance on digital

media: the most commonly cited primary source was “Internet/social media,” chosen by 40.5% of respondents (n = 174). The second most common source was school, reported by 32.8% of the sample (n = 141). Family was also an important source for some, with 13.7% (n = 59) saying they primarily get health information from family members. Notably, fewer adolescents relied on friends or health professionals as their main information source only about 4.7% (approximately n = 20) listed friends, and 8.4% (n = 36) listed health professionals as their go-to source.

Building on these patterns of information access, participants were also asked how frequently they used different media platforms for health-related content. Digital Media Use Frequency was measured with eight items and demonstrated good reliability ($\alpha = .833$). In contrast to the attitudinal measure of information seeking, this variable captured how often participants actually used various media platforms to consume health content.

Table 2. Frequency of Media Use for Pregnancy-Prevention Information

Medium	Never %	Rarely % (1 – 2x)	Sometimes % (3 – 4x)	Often % (5 – 6x)	Always % (More than 7x)
Social Media	12.8	9.3	16.5	26.7	34.7
Health Websites	7.7	24.2	36.0	17.4	14.7
Blogs	44.9	21.6	13.3	12.6	7.7
Video Platforms	8.6	18.8	40.5	18.4	13.7
Online Forums	37.0	25.8	12.1	14.2	10.9
Television	9.1	25.6	31.4	16.5	17.4
Radio	30.0	28.6	15.6	14.4	11.4

Note. Responses were scored on a five-point Likert scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always.

Overall, the mean score ($M = 2.77$, $SD = 0.87$) on a 1–5 scale (“never” to “always”) reflects moderate engagement on average, respondents reported using media sources for health information only “rarely” to “sometimes.” This suggests that while many adolescents value digital information (as seen in their high information-seeking scores), their habitual use of media for health-specific purposes remains occasional rather than routine.

However, not all media channels were used equally. As shown in Table 2, platform-level differences reveal meaningful variation. Social media (34.7% “always,” 26.7% “often”) and video platforms such as YouTube (18.4% “often,” 40.5% “sometimes”) were the most frequently used for pregnancy-prevention information, followed by health websites (36% “sometimes”). In contrast, traditional outlets such as television (25.6% “rarely,” 9.1% “never”) and radio (30% “never”) were far less common.

Taken together, these findings suggest that while Ghanaian adolescents overwhelmingly depend on digital sources for reproductive health information, the intensity and purpose of their engagement vary by platform. Social and visual media dominate because they offer privacy, relatability, and interactive access to peers and content creators factors that traditional media lack.

Descriptive Statistics of Key Variables

Before testing the hypotheses, descriptive statistics for all key psychological and behavioral variables were examined (see Table 3 for means and standard deviations). These results provide insight into the general tendencies of the participants in terms of knowledge, perceptions (PMT constructs), and behaviors relevant to teenage pregnancy prevention.

Table 3.Descriptive Statistics

Variable (items)	Mean	Std. D	Cronbach's α
Knowledge (sum)-(10)	6.97	1.31	—
Perceived Vulnerability (5)	4.00	1.01	.910
Perceived Severity (5)	4.13	1.03	.901
Response Efficacy (5)	4.04	1.01	.905
Self-Efficacy (5)	3.96	0.95	.866
Response Costs (5)	3.85	1.05	.870
Online Health Information Seeking Behavior (5)	4.14	0.97	.908
Digital Media Use (8)	2.77	0.87	.833
Preventive Protective Behaviors (10)	3.99	0.99	.935

The knowledge variable was assessed using a 10-item objective test (α = not applicable).

Participants demonstrated a relatively high level of knowledge about teenage pregnancy and reproductive health. The knowledge score (based on 10 true/false items) had a mean of 6.97 (SD = 1.32). Since correct answers were coded as 1 and incorrect or unknown as 0, this indicates that on average, respondents answered around 7 out of the knowledge questions correctly. In other words, most adolescents in the sample had substantial awareness of the factual aspects of teen pregnancy (such as its health risks and contraception methods). This high knowledge level suggests that lack of awareness may not be the primary issue for this group; however, it is noteworthy that knowledge was measured on a different scale (dichotomous items) than the perceptual variables, and as we will see later, knowledge did not necessarily correlate strongly with behavior or perceptions.

To examine whether there was a significant difference in knowledge scores between male and female participants, an independent-samples t-test was conducted. Males ($M = 6.60$, $SD = 1.28$) scored slightly lower than females ($M = 6.97$, $SD = 1.33$), with a mean difference of 0.37 points. The difference was statistically significant, $t(427) = 2.01$, $p < .05$, indicating that female participants scored significantly higher than their male counterparts on the knowledge measure.

Perceived Vulnerability to teen pregnancy was measured using a 5-item scale and demonstrated excellent internal consistency ($\alpha = .910$), and a mean of 4.0 ($SD=1.01$). This indicates that, overall, participants felt a high likelihood or risk of teenagers experiencing an unplanned pregnancy. A mean of 4.0 suggests that many respondents answered “Agree” to “Very high chance” on vulnerability items, reflecting a considerable perceived susceptibility. This makes sense in a context where teen pregnancy is a known issue; adolescents might generally acknowledge “it could happen” to people like them or their peers if precautions are not taken.

Perceived Severity was assessed with 5 items and showed strong reliability ($\alpha = .901$). Participants also rated the severity of the consequences of teenage pregnancy as high ($M = 4.14$, $SD = 1.03$) on the 5-point severity scale. This means most respondents viewed teen pregnancies as serious to extremely serious. They likely recognize that having a child at a young age can have serious health, social, and economic repercussions. High perceived severity, paired with high vulnerability, indicates a strong threat appraisal among the sample. They both feel at risk and believe the outcome would be severe, which, according to PMT, could motivate protective action, provided coping appraisals are also favorable.

Response Efficacy was measured with a 5-item scale ($\alpha = .905$). The belief in the effectiveness of digital media as a tool for pregnancy prevention information was also quite

positive. Response efficacy had a mean of 4.04 (SD = 1.01). Respondents generally agreed that consuming information via digital media (social networks, websites, etc.) is a useful way to learn about and prevent teen pregnancy. A mean just above suggests many chose responses like “agree” or “strongly agree” to statements about digital media helping them understand prevention better or being a reliable source. This bodes well for digital interventions meaning the target audience largely believes these tools can work.

Self-Efficacy was evaluated using 5 items and showed a high reliability of ($\alpha = .866$). The average self-efficacy in using digital media for prevention was 3.96 (SD = 0.95). This is slightly below the response efficacy but still relatively high, indicating that participants felt fairly confident in their own ability to find and use online information about pregnancy prevention. They tended to agree with statements about being able to learn from digital platforms and share that knowledge. Somewhat lower self-efficacy (3.96 vs. response efficacy 4.04) could imply that a few participants, while believing digital media is useful, were less sure about their personal skills or comfort in using it effectively. Nonetheless, an average of nearly 4 indicates overall confidence among the group in navigating digital health information.

Perceived Response Costs were measured on a 5-item scale and demonstrated acceptable reliability ($\alpha = .870$). The mean score for response costs (barriers/concerns about using digital media) was 3.85 (SD = 1.06). This suggests a moderate level of concern. Participants, on average, leaned toward “somewhat concerned” about various potential downsides – privacy issues, misinformation, judgment, data costs, or anxiety. A mean of 3.85 is notably above the scale midpoint of 3, so there is acknowledgment of barriers, but it’s not extremely high (not at the level of “very concerned” which would be closer to 5). This indicates

that while teens do see digital media as effective and feel capable of using it (as shown by high response efficacy and self-efficacy), they are also mindful of certain risks or costs involved.

Online Health Information-Seeking Behavior utilized 5 items, yielding strong internal consistency ($\alpha = .908$). The tendency to actively seek health information online was quite high among respondents. The composite measure for online information-seeking yielded $M = 4.15$ ($SD = 0.97$) on a 5-point agreement scale. This is a notable finding – with an average above 4, it implies that many participants agreed that they frequently use online resources to learn about health on their own terms, trust online health info, and feel empowered by it.

In fact, 4.15 is one of the highest means among the constructs, suggesting a strong positive orientation toward using the internet and social media for self-education on reproductive health. This aligns with the earlier finding that 40% said the internet is their primary information source; it appears many of these adolescents are indeed actively engaging with online content for health.

Protective Behaviors was assessed using 10 items and demonstrated excellent internal consistency ($\alpha = .935$). The outcome measure for protective behaviors related to pregnancy prevention showed a high average score of $M = 3.99$ ($SD = 0.997$) on a 5-point scale. This nearly 4.0 mean suggests that participants generally reported a strong inclination toward engaging in preventive behaviors. Whether this reflects actual current behaviors or a stated intention (the measure likely combined both aspects), the data indicates that most respondents claim to frequently or likely practice behaviors that would help avoid unintended pregnancy (such as using contraception consistently, seeking health advice, etc.). The high score is encouraging from a public health perspective, as it implies a motivated sample. However, it will be important to see how this self-reported behavior correlates with the other factors like threat and coping appraisals.

High motivation could be driven by high threat perception and coping confidence, as PMT would suggest.

Testing of Hypothesis and Research Questions

To test the study's hypotheses and research questions, Pearson correlation analyses were performed among the key variables.

Table 4. Correlations Among Key Variables

Variables	1	2	3	4	5	6	7	8	9
Knowledge	1								
Vulnerability	.395**	1							
Severity	.453**	.774**	1						
Response Efficacy	.434**	.763**	.792**	1					
Self-Efficacy	.354**	.670**	.712**	.815**	1				
Response Costs	.422**	.667**	.696**	.722**	.652**	1			
Online Health Info-Seeking	.411**	.684**	.707**	.769**	.792**	.703**	1		
Digital Media Use	-.154**	-.009	-.060	.005	.111*	.082	.100*	1	
Protective Behaviors	.449**	.659**	.699**	.699**	.686**	.691**	.697**	.129**	1

Note. $p < .05$ (*). $p < .01$ (**). Correlations are Pearson coefficients.

The first hypothesis (H1) stated that adolescents with higher perceived severity would be more likely to engage with digital media content on pregnancy prevention. The correlation analysis, however, showed no significant positive relationship between perceived severity and the frequency of digital media use for health info. This indicates that perceiving teen pregnancy as a very serious outcome did not translate into using social media, websites, or other digital channels more often for health information. Thus, H1 was not supported by the data.

Hypothesis 2 (H2) proposed that higher perceived vulnerability would correspond to greater engagement with digital media pregnancy prevention content. Similar to H1, the results did not show any significant association ($r = -.009$, $p > .05$). Teens who felt at a higher risk of

pregnancy were not markedly more active in using digital media for health information than those who felt a low risk. Therefore, H2 was not supported either.

These findings for (H1 and H2) suggest that threat perceptions alone, which are feeling susceptible to the threat and believing the threat is severe, do not drive adolescents to consume more digital health content. It is possible that nearly all participants, regardless of their personal risk perception, had similar (and relatively limited) habits of using digital media for health information. Such usage might be influenced more by access, habit, or general interest levels than by specific motivations like fear of pregnancy.

Hypothesis 3 (H3) stated that there is a positive correlation between online health information seeking and response efficacy. The correlation analysis showed a strong positive correlation between participants' online information-seeking behavior and their perceived response efficacy of digital media. Specifically, $r = .769, p < .001$, indicating a very robust association. This finding supports H3. Adolescents who are more inclined to seek out health information online also tend to strongly believe that digital media are effective in providing helpful prevention information. It makes intuitive sense that these two would go together. Those who trust the medium's effectiveness are likely to use it more for information, or conversely, by using it frequently, they have come to trust it.

Hypothesis 4 (H4) stated that there is a positive correlation between online health information seeking and self-efficacy. Likewise, the correlation between online information-seeking and self-efficacy was very high and significant ($r = .792, p < .001$). This was one of the highest correlations observed in the entire data set. It provides strong evidence for H4 which shows teens who more frequently leverage online resources for health information are the ones who feel most confident in their ability to do so (and perhaps vice versa). Essentially, being

comfortable with using the internet for health purposes (high self-efficacy) and actually doing it (high information-seeking behavior) go hand in hand.

After testing and analyzing the hypotheses, additional regression analyses were conducted to address the research questions further. The following sections present the findings from these analyses, clarifying how each PMT construct and relevant demographic variables influence specific teen behaviors and attitudes related to teenage pregnancy prevention.

Predictors of Digital Media Use

The first research question (RQ1) examined which of the Protection Motivation Theory (PMT) factors influence teens' engagement with digital media content focused on teenage pregnancy prevention. A hierarchical regression analysis was performed with teens' digital media use as the outcome variable. The regression analysis revealed that several PMT factors significantly predicted digital media engagement, while others did not.

Table 5. Predictors of Digital Media Use

	Predictor	β	t	R^2
M₁	Age	0.055	1.118	0.009
	Education	0.052	1.049	
M₂	Age	0.043	0.891	0.085
	Education	0.071	1.477	
	Perceived Vulnerability	-0.012	-0.145	
	Perceived Severity	-0.303**	-3.479**	
	Response Efficacy	-0.196	-1.927	
	Self-Efficacy	0.337***	4.007***	
	Response Costs	0.235**	3.260**	

Note. * $p < .05$. ** $p < .01$; *** $p < .001$. β = standardized regression coefficients. R^2 = model variance.

Model 1 (M₁) included only the control variables (age and education). This model was not statistically significant, $F(2, 423) = 2.062, p = .128$, and explained less than 1% of the variance in digital media use. Neither age ($\beta = 0.055, t = 1.118, p = .264$) nor education ($\beta = 0.052, t = 1.049, p = .295$) significantly predicted digital media use.

Model 2 (M₂) added the PMT components (perceived vulnerability, perceived severity, response efficacy, self-efficacy, and response costs). This model was statistically significant, $F(7, 418) = 5.507, p < .001$, and explained 8.5% of the variance in digital media use ($R^2 = 0.085$). Within this model, perceived severity was negatively associated with digital media use ($\beta = -0.303, t = -3.479, p < .01$), while self-efficacy ($\beta = 0.337, t = 4.007, p < .001$) and response costs ($\beta = 0.235, t = 3.260, p < .01$) were positively associated. Response efficacy and perceived vulnerability were non-significant ($p > .05$). Age and education also remained non-significant in this model ($p > .05$).

Overall, the findings indicate that teens who reported greater self-efficacy and higher response costs were more likely to engage with digital media content on pregnancy prevention, whereas those who perceived higher severity of threat were less likely to engage. Control variables did not play a meaningful role in predicting digital media use.

Efficacy & Digital Media Predictors of Protective Behavior

The second research question (RQ2) examined the extent to which digital media strategies that enhance response efficacy and self-efficacy influence teens' motivation to adopt preventive behaviors against teenage pregnancy. A hierarchical regression analysis was performed with protective behavior as the outcome variable and predictors including efficacy constructs, media variables, and demographic controls.

Table 6. Efficacy & Digital Media Predictors of Protective Behavior

Model	Predictor	β	t	R^2
M₁	Age	-0.022	-0.452	0.003
	Education	0.037	0.749	
M₂	Age	-0.038	-1.107	0.524
	Education	-0.015	-0.425	
	Perceived Vulnerability	0.110*	2.079*	
	Perceived Severity	0.209***	3.654***	
	Response Efficacy	0.415***	7.030***	
	Self-Efficacy	0.339***	5.742***	
	Response Costs	0.271***	5.721***	
M₃	Age	-0.046	-1.368	0.564
	Education	-0.015	-0.465	
	Perceived Vulnerability	0.098	1.923	
	Perceived Severity	0.202***	3.560***	
	Response Efficacy	0.324***	5.299***	
	Self-Efficacy	0.166**	2.624**	
	Response Costs	0.191***	3.973***	
	Knowledge	0.126***	3.588***	
	Online Health Information Seeking	0.305***	5.448***	
	Digital Media Use	0.087**	2.631**	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. β = standardized regression coefficients. R^2 = model variance.

In Model 1 (M₁), demographic variables (age and education) were entered but did not significantly predict preventive behavior ($R^2 = 0.003$, $p > .05$).

In Model 2 (M₂), the PMT constructs of response efficacy and self-efficacy were added. This model was statistically significant, $F(4, 421) = 115.74$, $p < .001$, explaining 52.4% of the variance in preventive behavior ($R^2 = 0.524$). Both predictors were strong positive contributors—response efficacy ($\beta = 0.415$, $t = 7.030$, $p < .001$) and self-efficacy ($\beta = 0.339$, $t = 5.742$, $p < .001$) indicating that adolescents who believe in their ability and in the effectiveness of preventive actions are more motivated to engage in preventive behaviors.

When digital engagement variables were added in Model 3 (M_3), the overall model remained significant ($R^2 = 0.564$, $\Delta R^2 = 0.041$, $p < .001$). Importantly, both response efficacy ($\beta = 0.324$, $p < .001$) and self-efficacy ($\beta = 0.166$, $p < .01$) continued to predict preventive behavior even after accounting for knowledge and digital media use.

Overall, these results confirm that efficacy beliefs play a central role in motivating adolescents to adopt preventive behaviors. Teens with stronger confidence in their own ability and in the effectiveness of preventive strategies reported higher motivation to act. (Other PMT and digital predictors are discussed under RQ3).

Building on the previous analysis, the third research question (RQ3) extended the model to examine how all Protection Motivation Theory (PMT) constructs, along with demographic and media-related variables, jointly predict adolescents' preventive behavior. While RQ2 focused on the influence of efficacy beliefs, RQ3 explored the broader combination of threat appraisal (perceived severity and vulnerability), coping appraisal (efficacy beliefs and response costs), and digital engagement factors on preventive motivation.

Model 1 (M_1) included demographic variables (age and education) and was not statistically significant, $F(2, 423) = 0.866$, $p > .05$, explaining less than 1% of the variance ($R^2 = 0.003$).

Model 2 (M_2) added the five PMT constructs: perceived vulnerability, perceived severity, response efficacy, self-efficacy, and response costs. The model was significant, $F(7, 418) = 91.84$, $p < .001$, explaining 52.4% of the variance in preventive behavior ($R^2 = 0.524$). Significant predictors included perceived severity ($\beta = 0.209$, $p < .001$), response efficacy ($\beta = 0.415$, $p < .001$), self-efficacy ($\beta = 0.339$, $p < .001$), and response costs ($\beta = 0.271$, $p < .001$), while perceived vulnerability had a weaker but notable contribution ($\beta = 0.110$, $p < .05$).

Model 3 (M_3) introduced knowledge, online health information seeking, and digital media use, leading to a statistically significant final model, $F(10, 415) = 72.09, p < .001$, that explained 56.4% of the variance ($R^2 = 0.564$). The addition of media-related predictors accounted for an additional 4% of explained variance ($\Delta R^2 = 0.041, p < .001$). In this model, perceived severity ($\beta = 0.202, p < .001$), response efficacy ($\beta = 0.324, p < .001$), self-efficacy ($\beta = 0.166, p < .01$), and response costs ($\beta = 0.191, p < .001$) remained significant. Among the digital factors, knowledge ($\beta = 0.126, p < .001$), online health information seeking ($\beta = 0.305, p < .001$), and digital media use ($\beta = 0.087, p < .01$) also showed positive relationships with preventive behavior.

Together, these findings highlight that protective behavior among adolescents is strongly shaped by coping appraisal variables within PMT, reinforced by digital media engagement and knowledge acquisition. The influence of perceived vulnerability was limited once cognitive and digital variables were introduced, suggesting that fear-based motivation is less sustainable than perceived ability and information access. Overall, the results indicate that adolescents' motivation to engage in preventive behaviors emerges from a combination of self-belief, response confidence, and meaningful interaction with online health resources.

Predictors of Knowledge (Threat Perceptions)

The fourth research question (RQ4) examined how perceived vulnerability and perceived severity, along with demographic and media-related factors, influence teens' knowledge about teenage pregnancy prevention. A hierarchical regression analysis was conducted with knowledge as the outcome variable and predictors including PMT threat appraisals, demographic controls, and media-related factors. The analysis revealed that perceived severity and online health

information seeking were positively associated with knowledge, while digital media use and age showed negative associations, and vulnerability and education were not significant predictors

Table 7. Predictors of Knowledge

	Predictor	β	t	R^2
M₁	Age	-0.162**	-3.308**	0.025
	Education	0.039	0.802	
M₂	Age	-0.163***	-3.708***	0.237
	Education	0.053	1.208	
	Perceived Vulnerability	0.076	1.131	
	Perceived Severity	0.400***	5.999***	
M₃	Age	-0.163***	-3.779***	0.276
	Education	0.063	1.447	
	Perceived Vulnerability	0.011	0.167	
	Perceived Severity	0.279***	3.916***	
	Online Health Info Seeking	0.229	3.658	
	Digital Media Use	-0.157***	-3.672***	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. β = standardized regression coefficients. R^2 = model variance.

Model 1 (M₁) included the demographic controls of age and education, as shown in Table 6. This model was significant, $F(2, 423) = 5.49$, $p < .01$, explaining 2.5% of the variance in knowledge. Age was a significant negative predictor ($\beta = -0.162$, $t = -3.308$, $p < .01$), while education did not significantly influence knowledge ($p > .05$).

Model 2 (M₂) added the threat appraisal variables of perceived vulnerability and perceived severity. This model was significant, $F(4, 421) = 32.74$, $p < .001$, explaining 23.7% of the variance in knowledge ($R^2 = 0.237$). In M₂, perceived severity was a strong positive predictor ($\beta = 0.400$, $t = 5.999$, $p < .001$), while perceived vulnerability remained non-significant ($\beta = 0.076$, $t = 1.131$, $p > .05$). Age continued to negatively predict knowledge ($\beta = -0.162$, $t = -3.308$, $p < .01$), and education showed no significant effect ($p > .05$).

Model 3 (M_3) introduced online health information seeking and digital media use. The final model was significant, $F(6, 419) = 26.65, p < .001$, explaining 27.6% of the variance in knowledge. The addition of media variables accounted for a modest but significant increase ($\Delta R^2 = 0.039, p < .001$). In M_3 , perceived severity remained a significant positive predictor ($\beta = 0.279, t = 3.916, p < .001$), online health information seeking was positively associated with knowledge ($\beta = 0.229, t = 3.658, p < .001$), and digital media use was negatively associated with knowledge ($\beta = -0.157, t = -3.672, p < .001$). Perceived vulnerability, education, and gender were all non-significant ($p > .05$).

RQ4 findings indicate that knowledge of pregnancy prevention among teens is driven by perceptions of severity and active online health information seeking. Interestingly, higher general digital media use was associated with lower knowledge, suggesting that not all digital engagement leads to accurate information acquisition. Age consistently showed a small negative association with knowledge, implying that younger participants in this sample demonstrated slightly higher knowledge levels.

Predictors of Online Health Information Seeking

The fifth research question (RQ5) examined the extent to which age, educational level, knowledge, digital media use, and PMT threat appraisals (perceived vulnerability and perceived severity) predict teens' likelihood of seeking online health information. A hierarchical regression analysis was performed with online health information seeking as the outcome variable. The regression analysis revealed that knowledge, digital media use, perceived vulnerability, and perceived severity were significant predictors, whereas age and education were not.

Table 8. Predictors of Online Health Information Seeking

	Predictor	β	t	R^2
M ₁	Age	.003	0.056	.000
	Education	.003	0.053	
M ₂	Age	.073	1.616	.205
	Education	-.029	-0.657	
	Knowledge	.453**	10.190	
	Digital Media Use	.168**	3.804	
M ₃	Age	.040	1.201	.569
	Education	-.004	-0.134	
	Knowledge	.136**	3.669	
	Digital Media Use	.148**	4.523	
	Perceived Vulnerability	.320**	6.341	
	Perceived Severity	.402**	7.674	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$ β = standardized regression coefficients. R^2 = model variance.

Model 1 included demographic variables (age and education) as shown in Table 7. This model was not significant, $F(2, 424) = 0.004$, $p > .05$, and explained no variance in online health information seeking ($R^2 = .000$). Neither age nor education significantly predicted online health information seeking ($p > .05$).

Model 2 added knowledge and digital media use. This model was significant, $F(4, 422) = 27.23$, $p < .001$, explaining 20% of the variance. Both knowledge ($\beta = 0.331$, $t = 6.701$, $p < .001$) and digital media use ($\beta = 0.168$, $t = 3.395$, $p < .001$) emerged as significant positive predictors, while age and education remained non-significant ($p > .05$).

Model 3 added PMT threat appraisals (perceived vulnerability and perceived severity). This final model was significant, $F(6, 420) = 92.28$, $p < .001$, accounting for 57% of the variance in online health information seeking. Within this model, knowledge ($\beta = 0.136$, $t = 4.332$, $p < .001$), digital media use ($\beta = 0.148$, $t = 3.952$, $p < .001$), perceived vulnerability ($\beta = 0.320$, $t =$

9.987, $p < .001$), and perceived severity ($\beta = 0.402$, $t = 12.515$, $p < .001$) were all significant positive predictors. Age and education remained non-significant ($p > .05$).

In summary, teens who reported higher knowledge, greater digital media use, and stronger perceptions of vulnerability and severity were more likely to seek online health information, while demographic factors (age and education) did not significantly influence this outcome.

Chapter 5 - Discussions, Implications and Conclusion

Introduction

This chapter discusses the findings of the study in relation to existing literature as presented in Chapter Two. The discussion is structured thematically around key elements of the Protection Motivation Theory (PMT) as well as variables including knowledge, online health-seeking behavior, digital media use, and sources of information. Each theme incorporates a discussion of relevant research questions and regression findings.

Discussion

Digital Media Use and Sources of Information

The first research question (RQ1) examined which Protection Motivation Theory (PMT) factors influence adolescents' engagement with digital-media content focused on teenage-pregnancy prevention, while hypotheses 1 and 2 proposed that higher perceived severity and vulnerability would increase such engagement.

Regression analysis (Table 5) showed that self-efficacy and response costs significantly and positively predicted digital-media use, whereas perceived severity had a negative association. Perceived vulnerability, age, and education were not significant predictors. These results indicate that H 1 and H 2 were not supported. A higher sense of threat alone did not encourage adolescents to engage more with preventive digital content. Instead, those who felt capable and perceived fewer barriers were more active online, highlighting the stronger influence of coping appraisal compared to threat appraisal.

To contextualize these findings, it is important to consider where adolescents actually obtain their information. In this study, the internet and social media were the most frequently cited sources (40.5 %), followed by school (32.8 %) and family (13.7 %). This distribution

mirrors national data showing that Ghanaian adolescents increasingly rely on digital and institutional sources for sexual and reproductive health (SRH) information (Awusabo-Asare et al., 2017). When parents or teachers avoid direct conversations about sex, teens naturally turn to online spaces and formal education for answers (Bankole et al., 2007; Gray et al., 2005). The very low reliance on peers (4.7 %) shows how cultural norms of silence limit peer discussion, pushing adolescents toward digital environments as safer, more private options.

However, identifying digital platforms as a primary source does not automatically translate into frequent or purposeful use for health content. The Digital Media Use Frequency scale (Table 2) revealed only moderate engagement ($M = 2.77$, $SD = 0.87$ on a 1–5 scale), suggesting that adolescents access digital media for health information only “rarely” to “sometimes.” This means that while they trust online spaces as credible sources, their habitual use of them for health content remains sporadic.

Platform-level differences clarify this pattern. Social media (34.7% “always,” 26.7% “often”) and video platforms such as YouTube (18.4% “often,” 40.5% “sometimes”) were the most common outlets for pregnancy-prevention information, followed by health websites (36 % “sometimes”). In contrast, television (25.6% “rarely,” 9.1% “never”) and radio (30 “never”) were much less used. This shift from traditional to interactive media reflects Ghana’s broader digital transformation, where adolescents find social and visual platforms more relatable, private, and participatory (Gyekye-Jandoh, 2023; Kostygina et al., 2020).

These patterns help explain why perceived self-efficacy rather than severity or vulnerability was the main predictor of digital engagement. Adolescents who feel confident navigating social and video platforms are more likely to consume preventive content, whereas fear-based messages alone fail to sustain attention. The literature similarly shows that traditional

media's risk-heavy framing can provoke avoidance rather than action (Fatusi & Blum, 2008; Brown et al., 2006), while empowering digital environments invite learning and dialogue (Awusabo-Asare et al., 2017; Gyekye-Jandoh, 2023).

Crucially, digital media use not only serves as an outcome but also functions as a predictor of other key outcomes in this study. Regression analyses demonstrated that higher digital media use significantly predicted online health information seeking (RQ5), suggesting that frequent engagement with media environments encourages proactive information behavior. It also predicted knowledge about pregnancy prevention (RQ4), where digital exposure helped strengthen understanding when paired with high perceived severity and protective behavior (RQ3), indicating that adolescents who use digital media more often are more likely to adopt or intend preventive practices.

Protective Behavior

Research Questions 2 and 3 examined the predictors of adolescents' preventive behavior. RQ 2 focused on the role of efficacy-based digital strategies, while RQ 5 incorporated all PMT constructs with demographic and media variables.

The hierarchical regression (Table 5) explained 56% of the variance in preventive behavior. Significant predictors included response efficacy, self-efficacy, response costs, knowledge, online health information seeking, and digital media use. Age and education were not significant. These results confirm that adolescents are more motivated to act when they (a) believe preventive measures are effective, (b) feel confident in applying them, and (c) experience low perceived barriers to action (Deswinda et al., 2020; Mwaria et al., 2016).

Once coping and digital variables were introduced, the effects of perceived vulnerability and severity diminished indicating that while fear may trigger awareness, coping mechanisms

sustain behavior. Adolescents who use digital media to learn and validate their beliefs are more likely to internalize and practice preventive actions. Prior Ghanaian evidence also highlights that digital education campaigns combining relatable messaging with practical knowledge effectively shape sexual health behaviors (Awusabo-Asare et al., 2017; Gyekye-Jandoh, 2023).

Overall, RQ 2 and RQ 3 reinforce that coping appraisal, strengthened by digital engagement, is a more powerful driver of preventive behavior than perceived threat alone.

Knowledge about Teenage Pregnancy

RQ 4 explored how perceived vulnerability, severity, and media-related factors relate to knowledge. Regression results (Table 7) showed that perceived severity and online health information seeking positively predicted knowledge, while age and digital-media use were negative predictors; vulnerability and education were not significant. The negative correlation with age implies that younger adolescents who may still be in formal schooling are exposed to structured sexual education, leading to higher knowledge retention (Kassa et al., 2018).

The adolescents in this study demonstrated relatively high factual knowledge about teenage pregnancy (mean =7/10), suggesting awareness of risks and preventive measures. This finding partly aligns with Ali et al. (2021), who note that comprehensive sex education can impart necessary knowledge to reduce teen pregnancy risk.

However, the high knowledge in our sample contrasts with studies emphasizing pervasive knowledge gaps. For example, Esan et al. (2022) found that many youths in Nigeria lacked essential understanding of contraception, while Kassa et al. (2018) report that taboos often leave African teens with insufficient knowledge about pregnancy prevention. The divergence may reflect differences in context or recent improvements in health education. Importantly, the literature cautions that cultural stigmas and inadequate sex education persist (Kassa et al., 2018),

thus even well-informed teens may still benefit from continued education and open communication. Interestingly, our results also indicated that higher knowledge itself predicted greater online health information seeking (RQ4), suggesting a reciprocal relationship, which is that knowledge motivates teens to look for more information, while seeking further information can reinforce knowledge.

Online Health- Information Seeking Behavior of Teenagers

RQ 5 and hypotheses 3 and 4 examined predictors of online health-information seeking. Correlation results confirmed H 3 and H 4, showing significant positive relationships between online seeking and both response efficacy and self-efficacy. Regression analysis (Table 8) revealed that knowledge, digital-media use, perceived vulnerability, and perceived severity significantly predicted online seeking, explaining 57% of the variance ($R^2 = 0.569$).

Well-informed adolescents tend to pursue preventive behaviors, as Park and Kwon (2018) observed that teens who actively use the internet for health information often show better understanding and protective actions. At the same time, studies warn that many youths struggle to appraise online content. For example, Eyimaya et al. (2021) note that adolescents with limited formal sex education often turn to the internet and social media for answers, encountering a mix of reliable and misleading information. Abo-Rass (2024) similarly emphasizes that without strong eHealth literacy, teens may accept misinformation online, undermining prevention efforts.

In line with this, our respondents' online seeking was positively associated with knowledge, but the literature suggests this benefit hinges on source quality. Disparities in digital literacy (Liang et al., 2020) can create unequal ability to discern credible information. Overall, while online health-seeking can support learning, the findings highlight the need for guidance on evaluating sources to avoid misconceptions (Eyimaya et al., 2021; Abo-Rass, 2024). These

findings align with RQ5, H3 and H4 which showed that knowledge, digital media use, and stronger perceptions of vulnerability and severity significantly predicted online health information seeking.

Protection Motivation Theory Constructs and Descriptives Findings

Perceived Vulnerability

Respondents indicated moderate perceived susceptibility to teenage pregnancy. This is notable given that adolescents often exhibit “optimistic bias,” believing it will not happen to them. Mediastuti (2023) highlights this tendency, finding that many teens underestimate their own risk. Our participants’ recognition of vulnerability, albeit not extremely high, suggests some awareness of personal risk. This aligns with PMT, which posits that acknowledging vulnerability motivates protective action. The literature suggests that educational interventions can raise risk perception (Chung et al., 2020; Mediastuti, 2023), which could further enhance prevention efforts in contexts such as Ghana.

Perceived Severity

The adolescents in our study largely viewed teen pregnancy as a serious threat. This accords with qualitative evidence. Grossman (2024) reports that young people often describe teen pregnancy consequences as highly detrimental to education and livelihoods. Such perceptions are vital in PMT, as recognizing severe outcomes (e.g., school dropout) can strengthen motivation to avoid pregnancy. Our finding that severity was positively related to knowledge suggests that teens who appreciate seriousness seek information, a pattern consistent with other PMT applications where perceived gravity spurs protective behaviors (Grossman, 2024).

Self-Efficacy

Participants reported high confidence in their ability to prevent pregnancy (self-efficacy). This is encouraging, as literature strongly links self-efficacy with protective behavior. Deswinda et al. (2020) found that Indonesian adolescents with greater confidence in managing their sexual health were significantly less likely to experience unintended pregnancy. Similarly, our analysis showed self-efficacy positively predicted preventive intention. This corroborates PMT predictions showing that youth who believe they can use contraception or negotiate safe sex are more likely to do so (Deswinda et al., 2020). Thus, our findings underline calls in the literature for interventions that build teens' self-efficacy (e.g., skill-building programs) as a key prevention strategy.

Response Efficacy

Teenagers in the sample largely agreed that preventive actions (e.g. contraception, education) are effective. Mwaria et al. (2016) demonstrated that when adolescents understand and trust the effectiveness of contraceptive methods, consistent use increases. In our study, positive response efficacy likely bolstered protective intentions. The literature supports this, highlighting that evidence-based sexual health programs that emphasize the efficacy of prevention tools significantly influence youth behavior (Mwaria et al., 2016).

Response Costs

Perceived response costs (barriers) were moderate. PMT posits that higher perceived barriers reduce motivation. For instance, Rogers (1975) noted that concerns like cost, stigma, or effort can diminish protective behavior. Studies such as Wu et al. (2022) in a vaccination context confirm that perceived costs deter action (e.g. fear of side effects lowers uptake). In our context, the moderate costs reported may partly explain why not all teens seek help despite high-risk perception. This aligns with the idea that even motivated adolescents face obstacles (such as time

and embarrassment) that can slow action. Addressing these barriers (for example, by ensuring confidential, youth-friendly services) is therefore critical, as the theory and empirical work suggest that reducing costs strengthens protection motivation.

Theoretical Implications

This study extends Protection Motivation Theory into the digital health space for Ghanaian youth. This study was guided by Protection Motivation Theory (PMT), which provided a lens for understanding how Ghanaian teenagers assess threats and coping strategies in relation to pregnancy prevention. The results of this study affirm PMT's explanatory power, while also extending the model to account for cultural silence, adolescent social dynamics, and the role of digital media in shaping reproductive health behaviors (in a sample of 429 adolescents, 73.7% were female where Internet/social media was the primary SRH source for 40.5% and school for 32.8%).

PMT argues that protection motivation is shaped by two cognitive processes: threat appraisal (perceived severity, perceived vulnerability, and perceived benefits of risky behavior) and coping appraisal (response efficacy, self-efficacy, and response costs) (Rogers, 1975; Maddux & Rogers, 1983). The findings of this study support these processes but also highlight refinements needed when applying the model in contexts such as Ghana.

Perceived severity was strongly associated with motivation to prevent pregnancy. Teenagers who recognized the consequences of adolescent pregnancy such as stigma, interrupted schooling, and economic hardship were more likely to express preventive intentions (in this study, severity correlated with preventive behaviors, $r = .699, p < .01$, and predicted them in multivariable models, $\beta = .202, p < .001$; severity also predicted knowledge, $\beta = .279, p < .001$, while showing a negative association with digital media use, $\beta = -0.303, p < .001$). These results

indicate that adolescents who perceive greater severity of the threat tend to know more about prevention but, somewhat counterintuitively, engage slightly less with digital media for health information. This is consistent with evidence from Ghana, where early childbearing is linked to poor maternal health outcomes, low birth weight, and school dropout (Krug et al., 2016; Kassa et al., 2018; Mohammed, 2023; GSS, 2023). It also mirrors findings in other PMT studies.

Maleki et al. (2022) showed that perceived severity predicted skin cancer preventive behaviors, and Rad et al. (2021) reported that severity was a critical predictor of COVID-19 prevention in Iran. Together, these findings affirm severity as a universal PMT driver of protective behaviors, across both infectious and non-communicable threats.

Perceived vulnerability, however, was less predictive. Although many participants acknowledged teenage pregnancy as common, they underestimated their personal susceptibility (vulnerability showed no association with digital media use, $r = -.009$, did not predict knowledge, $\beta = .011$ $p > .05$, and fell to marginal in the full protective-behavior model, $\beta = .098$, $p > .05$), echoing Mediastuti's (2023) findings on adolescents' "optimistic bias." In Ghana, this reflects the cultural silence around adolescent sexuality (Awusabo-Asare et al., 2017; Hagan et al., 2019), where discussions on risk are often abstract or community-focused rather than personal. Parallel gaps have been documented elsewhere. For instance, in China, Wu et al. (2022) found that despite awareness of COVID-19 booster vaccines, individuals discounted their personal vulnerability, lowering uptake. These insights suggest that interventions in Ghana must work to translate community awareness into personal risk perception.

The coping appraisal process was more robust in explaining behavior. Response efficacy significantly predicted motivation. Teens who believed that abstinence, contraceptives, or delaying sex were effective in preventing pregnancy were more motivated to act. Response

efficacy correlated with preventive behaviors, $r = .699, p < .01$, and predicted them strongly in the regression models that included efficacy and media variables ($\beta = .415$ in M_1 and $\beta = .324$ in M_3 , both $p < .001$). Similar findings have been reported globally. Khodayarian (2023) and Conley et al. (2021) demonstrated that response efficacy was central in breast cancer screening decisions, while Mwaria et al. (2016) emphasized its role in adolescent contraceptive use. The current study confirms that efficacy beliefs are essential for motivating reproductive health action.

Self-efficacy emerged as one of the strongest predictors in this study. Adolescents who felt capable of accessing contraceptives, negotiating safer sex, or seeking information online were more likely to report preventive intentions (self-efficacy predicted digital media use, $\beta = .337, p < .001$; predicted preventive behaviors, $\beta = .339$ in M_1 and $\beta = .166$ in M_3 , both $p < .01$; and correlated strongly with online health information seeking, $r = .792, p < .01$). This resonates with Nyarko (2015) and Usonwu et al. (2021), who observed that stigma and limited youth-friendly services erode confidence in Ghana.

At the same time, it aligns with Morowatisharifabad et al. (2021), who found that self-efficacy was a powerful predictor of physical activity among diabetic patients, and Guan (2023), who reported improved COVID-19 prevention when nursing interventions enhanced self-efficacy. The consistency of this construct across diverse settings suggests that bolstering adolescents' confidence may be one of the most effective strategies for pregnancy prevention.

Perceived benefits of risky behavior undermined motivation. For some teens, pregnancy was perceived as a pathway to adulthood, social recognition, or relational security. This finding reflects cultural norms in Ghana where fertility and motherhood remain highly valued (Hagan & Buxton, 2012; Agbenu et al., 2022). PMT predicts that such perceived benefits of risky behavior

reduce motivation for protective behavior (Rogers, 1983), and global evidence concurs: Salmani & Prapavessis (2023) demonstrated that the perceived social benefits of vaping reduced protection motivation among university students, while Pilch et al. (2021) showed maladaptive responses during COVID-19 were linked to reward perceptions response costs showed positive links with digital media use, $\beta = .235, p < .001$, and with preventive behaviors, $\beta = .191, p < .001$, suggesting costs/norms shape engagement and action).

A unique contribution of this study is its focus on digital media as a contextual factor shaping threat and coping appraisals. Many participants reported that social media and online platforms provided confidential access to accurate reproductive health information, reinforcing severity and efficacy beliefs (online health information seeking was high, $M = 4.15, \alpha = .90$, and predicted knowledge, $\beta = .229, p < .001$, and preventive behaviors, $\beta = .305, p < .001$). This aligns with findings that Ghanaian adolescents increasingly rely on media for SRH knowledge when families and schools are silent (Awusabo-Asare et al., 2006; Van der Geugten et al., 2013).

A key theoretical implication emerging from this study is the relocation of adolescent health information behavior into digital spaces. Nearly 41% of participants reported the internet and social media as their primary sources of sexual and reproductive health information, surpassing all traditional sources combined. This empirical finding represents more than a behavioral trend. It reflects a paradigm shift in how Protection Motivation Theory (PMT) operates within contemporary media environments.

Evidence suggests that the accessibility and anonymity inherent in digital platforms reduce barriers traditionally associated with discussing sensitive issues such as sexual and reproductive health. Studies indicate that social media provides adolescents with a judgement-free environment for acquiring information that might otherwise be stigmatized when sourced

from family or peers (Burns & Arnault, 2019; Stevens et al., 2017). These characteristics make such platforms particularly appealing to youth, who exhibit increased comfort in exploring sexual health and risk behaviors, thus challenging the cultural norms prevalent in many societies where traditional familial and community authorities serve as primary information gatekeepers (Burns & Arnault, 2019; Mulyani & Safira, 2023).

Traditionally, PMT has been applied to health contexts characterized by direct interpersonal communication or structured campaign exposure. However, this study demonstrates that the mechanisms of PMT particularly threat appraisal (severity, vulnerability) and coping appraisal (self-efficacy, response efficacy) are now being enacted primarily within digital ecosystems. Adolescents no longer rely solely on institutional or family gatekeepers for health information; rather, they navigate participatory, decentralized platforms where information is abundant but credibility varies.

This transition is substantiated by the data: many participants reported that social media and online platforms provided confidential access to accurate reproductive health information, reinforcing severity and efficacy beliefs. Online health information seeking was notably high ($M = 4.15$, $\alpha = .90$) and significantly predicted both knowledge ($\beta = .229$, $p < .001$) and preventive behaviors ($\beta = .305$, $p < .001$). These findings align with prior research showing that Ghanaian adolescents increasingly depend on media for SRH knowledge in contexts where family or school discussions remain limited (Awusabo-Asare et al., 2006; Van der Geugten et al., 2013).

At the same time, misinformation and sensationalized sexual content online undermined efficacy beliefs and reinforced norms favorable to risk, echoing concerns raised by Brown et al. (2006) and Fatusi & Blum (2008) (notably, general digital media use was moderate, $M = 2.77$, $\alpha = .83$, positively associated with preventive behaviors, $\beta = .087$, $p < .01$, but negatively

associated with knowledge, $\beta = -.157, p < .001$; RQ1 showed higher digital use among those with greater self-efficacy and response costs, and lower use among those with higher perceived severity, model $R^2 = .093$). This suggests that PMT could be extended to explicitly incorporate digital media exposure as a moderator of both threat and coping appraisals, given its dual capacity to motivate or demotivate protection.

In summary, this study affirms PMT as a valuable framework for understanding teenage pregnancy prevention in Ghana while also extending its scope. The results reinforce the centrality of severity, efficacy, and self-efficacy across contexts, highlight persistent challenges in vulnerability perceptions, and demonstrate how perceived benefits of risky behavior and digital media complicate the model's pathways (in the full PMT + knowledge + media model, $R^2 = .635$, with significant contributions from perceived severity, self-efficacy, response costs, knowledge, online health information seeking, and digital media use). A refined PMT framework that incorporates cultural norms, social dynamics, and digital media influences would better capture adolescent decision-making in Ghana and similar settings.

Practical Implications

The findings offer clear direction for policymakers in Ghana as they refine adolescent sexual and reproductive health (SRH) and education policies. Given adolescents' relatively high baseline knowledge and strong orientation toward online information-seeking, national strategies should deliberately incorporate digital health literacy into the policy framework for comprehensive sexuality education. The Ghana Education Service could embed digital evaluation skills such as assessing credibility, recognizing bias, and identifying vetted resources into official curricula. This shift would ensure that students are not only receiving SRH content

but also developing the critical skills necessary to navigate the rapidly expanding online information environment.

Policy adjustments are also needed in the area of health communication campaigns. Ministries and agencies (e.g., Ghana Health Service, Ministry of Health, and Ministry of Gender, Children, and Social Protection) can use the study's evidence to design large-scale, youth-centered campaigns distributed across social media platforms where adolescents are most active. By grounding campaigns in Protection Motivation Theory, policymakers can institutionalize message frameworks that balance severity with efficacy, highlight accessible prevention services, and strengthen self-efficacy through relatable modeling. Integrating these principles into national communication strategies will enhance both reach and impact.

The data also point to the importance of a multi-channel and cross-sector approach. Policymakers should mandate coordination between schools, health facilities, and community organizations to create reinforcing messages across settings. For example, policies could require schools to link classroom lessons with digital modules approved by the Ghana Education Service, while health facilities and community groups distribute materials connected to the same official platforms. Such policy-level coordination would reduce fragmentation, ensuring that adolescents receive consistent cues to action.

To address barriers to access, policies should target reducing structural response costs. Regulatory frameworks could incentivize telecom providers to zero-rate approved SRH websites and applications or establish toll-free hotlines for adolescent health information. Data protection and verification policies could also require official health-related accounts to carry government-issued verification badges, thereby combating misinformation and protecting adolescents from privacy risks.

Finally, the findings show the need for policy-driven monitoring and evaluation systems. Ministries can mandate the collection of routine indicators such as click-throughs to official SRH platforms, completion of digital modules, and utilization of hotlines. Embedding such metrics into national monitoring frameworks would allow policymakers to continuously assess effectiveness and refine interventions. Editorial standards for accuracy, youth privacy protections, and misinformation flagging could be codified into regulatory policies governing digital health content. Taken together, these findings provide a roadmap for strengthening adolescent SRH policy in Ghana by aligning education, communication, and regulatory frameworks with the realities of adolescents' digital engagement. They show that policy decisions should move beyond simply providing information to actively shaping the quality, accessibility, and trustworthiness of the information environment where Ghanaian youth are already seeking answers.

Limitations and Recommendations

Several limitations should temper the interpretation of these findings. First, the convenience sample was drawn largely from schools and social media, with a high proportion of female respondents. This limits generalizability like out-of-school youths or those in remote rural areas (who may have lower knowledge and different media access) are underrepresented. Second, all measures were self-reported, which may introduce social desirability bias (teens wanting to appear knowledgeable or responsible) and recall errors. Third, the cross-sectional design means we cannot infer causality from the associations. For example, it is unclear whether higher self-efficacy leads to more online seeking or vice versa. Fourth, the study focused only on 18–19-year-olds (due to consent issues), so younger adolescents' beliefs and behaviors may differ. Fifth, our measure of “digital media use” was broad and did not distinguish specific

platforms or content types; it is possible that Facebook, WhatsApp, or YouTube have different impacts on youth motivation. Finally, because the survey was conducted online, youths without Internet access (potentially the most at-risk group) were excluded, possibly biasing the results toward higher overall digital engagement. These caveats suggest caution in applying the findings universally.

For recommendations, longitudinal and experimental studies are needed to test causality (e.g., do PMT-informed social media campaigns increase actual contraceptive use over time?). Qualitative research could explore why high perceived risk did not translate into online engagement. Further work should examine differences by gender (since males had lower knowledge here) and evaluate which specific digital interventions (apps, social media programs, etc.) are most effective in practice. Finally, studying how family and school influences interact with online behavior would provide a fuller picture of adolescent SRH dynamics.

Equally important, future interventions and policy initiatives should account for the cultural and religious context that shapes sexual communication in Ghana. Discussions about pregnancy and contraception often remain taboo within families and schools, limiting open dialogue (Awusabo-Asare et al., 2017; Kassa et al., 2018). Therefore, policies promoting comprehensive sexuality education or digital media campaigns must engage parents, community leaders, and faith-based institutions to build culturally acceptable pathways for adolescent health communication.

Conclusion

In summary, Ghanaian adolescents in our study demonstrated considerable knowledge about preventing teen pregnancy and perceived it as a serious threat, but these alone did not guarantee action. What stood out was their readiness to seek information online and their belief

in digital media's usefulness (high response efficacy). Crucially, Protection Motivation Theory held up: teens with stronger efficacy beliefs (in the effectiveness of prevention and their own ability to use it) and those more engaged with online health resources reported the greatest motivation to adopt safe sexual behaviors. Digital engagement itself also made a positive difference, highlighting the potential of technology-based strategies.

These findings suggest that reinforcing both threat and coping appraisals via youths' preferred media can bolster safe sexual practices. By tailoring PMT-based messages to social networks, websites, and other platforms that Ghanaian youth frequent while simultaneously supporting digital literacy and integrating these efforts with schools and communities where we can empower adolescents to make informed reproductive choices. The study thus contributes both theoretically (by confirming PMT's relevance in a digital context) and practically (by offering concrete guidance for education and public health). Ultimately, leveraging the synergy of strong school-based programs and innovative online outreach may help reduce teenage pregnancy rates in Ghana. This research fills a gap in understanding how beliefs and digital habits interact, laying the groundwork for effective interventions to support Ghanaian youths' sexual and reproductive health.

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Appendix A - Survey Questionnaire

This survey is being conducted by a graduate student at Kansas State University for a master's thesis on teenage pregnancy prevention and the role of digital media in adolescent reproductive health. Participation is voluntary, and responses are confidential and anonymized. This survey should take 20–30 minutes. Thank you for your participation.

Terms of Participation: By selecting "Yes," you confirm that you have read and understood this consent form and agree to participate.

Do you wish to continue?

B) Yes

B) No

Filter questions

Are you a Ghanaian?

A) Yes

B) No (skip logic to exit survey)

Are you aged 18+?

A) Yes

B) No (skip logic to exit survey)

Knowledge about Teen Pregnancy and Reproductive Health

In this section, we ask you some basic questions about teenage pregnancy. Please read the questions carefully. *(Adapted from Atiglo & Biney, 2021; Ghana Statistical Service, 2023; Awusabo-Asare & Annim, 2015; United Nations Population Fund Ghana, 2021)*

Statements	True	False	I Dont Know
a) Teenage pregnancy can lead to severe health complications for both mother and child.			
b) The benefits of contraception for teens include the prevention of pregnancy.			
c) The use of contraception can significantly increase academic focus.			
d) Unprotected sexual activity is the main cause of teen pregnancy.			
e) All the following are methods of contraception: condoms, birth control pills, emergency contraception, and injectable contraceptives.			
f) Using contraception eliminates the risk of sexually transmitted infections (STIs).			
g) Adolescents have the same access to contraceptive methods as adults.			
h) Emergency contraception can be used as a regular contraceptive method.			
i) Teenage mothers are at a higher risk of dropping out of school compared to their peers.			
j) Male condoms are 100% effective in preventing pregnancy and STIs when used correctly.			

Perceived Vulnerability to Teen Pregnancy

11. Please indicate the likelihood of the following statements applying to you. *(Adapted from Krawczyk et al.,2012)*

Statement	No chance at all	Very low chance	Low chance	High chance	Very high chance
a) Teenagers could experience an unplanned pregnancy in my lifetime.					
b) If teenagers do not use contraception, they are at risk of getting pregnant.					
c) Teenager's risk of getting pregnant increases if they don't actively seek preventive information.					
d) Teenagers are at risk of an unplanned pregnancy due to a lack of reproductive health knowledge.					

e) Teenagers' chances of an unplanned pregnancy are high because they don't regularly practice safe sexual behaviors.					
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Perceived Severity of Teen Pregnancy

Please indicate how serious you think the following consequences of teenage pregnancy would be for you. (*Adapted from Krawczyk et al., 2012*).

Statement	Not at all serious	Slightly serious	Somewhat serious	Moderately serious	Extremely serious
a) How would teenage pregnancy impact career or educational goals?					
b) How seriously do I consider the health impacts of teenage pregnancy on myself and a child?					
c) Teenage pregnancy could create significant social and family challenges.					
d) The financial impact of teenage pregnancy would be severe.					
e) I consider the effects of teenage pregnancy on mental and emotional health serious.					

Response Efficacy of Digital Media in Preventing Teen Pregnancy

Please indicate your level of agreement with the following statements. (*Adapted from Krawczyk et al., 2012*).

Statement	Not at all agree	Slightly agree	Somewhat agree	Moderately agree	Strongly agree
a) Digital media helps me understand pregnancy prevention measures better.					
b) Information from social media is reliable for pregnancy prevention guidance.					
c) Digital resources on pregnancy prevention encourage me to seek out additional health resources.					
d) Visuals and videos on social media make understanding reproductive health easier.					
e) I am confident that digital platforms can help reduce teenage pregnancy rates.					

Self-Efficacy in Engaging with Digital Media for Pregnancy Prevention

14. Please indicate how confident you feel about the following statements. (*Adapted from Britt et al.,2015; Helmes,2002*).

Statement	Not at all confident	Slightly confident	Somewhat confident	Moderately confident	Very confident
a) I am confident in finding accurate pregnancy prevention information online.					
b) I understand how to use digital media to improve my knowledge on pregnancy prevention.					
c) I feel confident in talking to friends about pregnancy prevention if I learn online tips.					
d) I am capable of evaluating the reliability of online sources on reproductive health.					
e) I believe I can independently learn about pregnancy prevention by using digital tools.					

Response Costs Associated with Pregnancy Prevention Information on Digital Media

15. Please indicate your level of concern in considering pregnancy prevention information online. (*Adapted from (Abotchie & Shokar, 2009; Helmes, 2002)*).

Statement	Not at all concerned	Slightly concerned	Somewhat concerned	Moderately concerned	Extremely concerned
a) I worry about the privacy of my search history on pregnancy prevention topics.					
b) I am concerned about potential misinformation on reproductive health from digital media.					
c) I feel that family or peers might judge me if they knew I accessed pregnancy prevention info online.					
d) I am concerned about the cost of internet data required to access online health information.					
e) I worry about digital media's potential to increase fear or anxiety about pregnancy.					

Online Health Information Seeking Behavior

16. Please indicate your perception of online health information. (*Adapted from Kelly et al., 2015*).

Statement	Not at all agree	Slightly agree	Somewhat agree	Moderately agree	Strongly agree
a) Online resources help me learn about reproductive health on my own terms.					
b) The internet provides me with health information not available in my community.					
c) I trust online platforms for gaining general knowledge on reproductive health.					
d) Social media posts on health topics motivate me to research further.					
e) The internet helps me feel more in control of my health decisions.					

Frequency of Digital Media Use for Health Information

How often do you use the following sources for health-related information in a two-week period? (*Adapted from Wong & Sam, 2010*).

Source	Never	Rarely (1-2 times)	Sometimes (3-4 times)	Often (5-6 times)	Always (More than 7)
Social Media					
Health Websites					
Blogs					
Video Platforms (YouTube, etc.)					
Online forums (Reddit, Quora)					
TV					
Radio					

Preventive measures and Protective behaviors

Please read each statement carefully and indicate your level of concern regarding each issue. Select one option per statement based on how concerned you are about the situation described.

Place a check in the appropriate box to indicate your selection for each of the following items.

(Adapted from Matejic et al., 2011).

Statement	Not all concerned	Slightly concerned	Somewhat concerned	Moderately concerned	Extremely concerned
a) My family history of early pregnancies influences my decision to use contraception or other pregnancy prevention methods.					
b) I am well informed about teenage pregnancy risks and prevention methods, which motivates me to adopt preventive behaviors.					
c) I consistently practice safe sexual behaviors (e.g., using contraception and avoiding unprotected sex) to prevent teenage pregnancy.					
d) The cost of contraception or pregnancy prevention methods affects my ability to take preventive measures.					
e) I fear using contraception or other preventive methods, which affects my willingness to adopt them.					
f) My friends or peers who have experienced teenage pregnancy influenced my decision to use contraception or other preventive methods.					
g) The social stigma or judgment surrounding teenage pregnancy affects my willingness to seek pregnancy prevention information or services.					
h) My lack of access to reproductive health services or information prevents me from taking preventive measures.					
i) I worry about the possibility of school dropout or educational disruption due to teenage pregnancy, which motivates me to prevent it.					
j) Fear or anxiety about becoming a teenage parent motivates me to adopt preventive measures, such as contraception.					

Demographic Information

17. Age

How old are you?

18. Gender

B) Male

B) Female

19. Educational Status

- a. Junior High School
- b. High School
- c. College/University
- d. Vocational Training
- e. Other

2. Geographical Location

- a. Urban
- b. Rural

3. Relationship Status

- a. Single
- b. Dating
- c. Engaged
- d. Married
- e. Other

4. Primary Source of Health Information

- a. Family
- b. Friends
- c. School
- d. Internet
- e. Health professionals

5. Employment Status

- a. Employed (full-time)
- b. Employed (part-time)
- c. Self-employed
- d. Unemployed
- e. Student

Appendix B - IRB Approval Form



Office of Research Integrity,
Compliance and Security

TO: Nancy Muturi
AQ Miller School of Media and Communication
Manhattan, KS 66506

Proposal Number: IRB-12571

FROM: Lisa Rubin, Chair
Committee on Research Involving Human Subjects

DATE: 01/21/2025

RE: Proposal Entitled, "The Role of Digital Media in Motivating the Prevention of Teenage Pregnancy in Ghana."

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is EXEMPT from further IRB review. This exemption applies only to the proposal - as written - and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, **45 CFR §104(d), category: Exempt Category 2 Subsection ii.**

Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.

Electronically signed by Lisa Rubin on 01/21/2025 9:51 AM ET