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The Association Between Teen Pregnancy and Academic Performance Among Schoolgirls in the Ivory Coast

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Abstract

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MA, Felix H. Boigny University, Abidjan, Ivory Coast, 2015

Dissertation Submitted in Partial Fulfillment

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Abstract

Teen pregnancy (TP) is a social and public health problem around the world. In developed nations, approximately 16 million girls from aged 15 to 19 years become pregnant each year, presenting health problems for the mother and fetus in addition to economic and social consequences for the communities in which they live. The purpose of this quantitative causal-comparative study, based on the theory of planned behavior, was to explore the association of academic performance and self-efficacy with TP. The research questions examined the association between the TP and the academic performance and self-efficacy while controlling for two covariates (socioeconomic status and ethnicity). A survey was distributed to a sample of participants in the Ivory Coast, ages 18 and 19 years, to collect data on demographics, academic performances, self-efficacy, and socioeconomic status. One group of participants consisted of teens who became pregnant while in school during 2017-2019; a second group included participants who did not become pregnant while in school. Analysis consisting of t test, Chi-Square, and generalized linear modeling (GLM) revealed significant differences in academic performance and self-efficacy for students based on pregnancy status. Socioeconomic status and ethnicity did not exert meaningful influence on these relationships. This study enables a basic understanding of teen pregnancy and associated factors in the Ivory Coast to guide policy change and future research. Further knowledge regarding the outcomes of teen pregnancy can allow leaders and health professionals to take steps to eliminate this public health problem, resulting in positive outcomes for women in the Ivory Coast and healthier families and communities.

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Chapter 1: Introduction to the Study

Teen pregnancy (TP) is a global problem that poses a public health problem as both mothers and fetuses are impacted by preterm birth, low birth weight, and postpartum depression (PPD). In addition, TP results in economic and social consequences for communities and families, such as school dropout, lower educational levels, and lower socioeconomic status. Researchers have established causal factors for TP and explored some predictors of it. I expand the research on predictors of TP by studying the association between it and academic performance and self-efficacy to determine if they are predictors of TP. If academic performance and self-efficacy can be identified as predictors, they may provide school and other officials with a means to identify teen girls at risk of becoming pregnant for intervention and prevention. This chapter includes the background and problem statement for the research, research questions, theoretical background for the study, and significance.

Background and Problem Statement

According to the Centers for Disease Control (CDC, 2016), teen pregnancy (TP) is defined as the pregnancy of girls under the age of 20 years. Other scholars have articulated TP as the pregnancy of girls before they reach legal adulthood, an age that varies across the world (Aparicio et al., 2016; Heller & Blackman, 2016; Obinchemti Egbe et al., 2015; Odejimi & Bellingham-Young, 2014; Workman et al., 2015). Researchers have identified the potential negative impact of TP on the health of both mothers and infants. Because most adolescents are still in the final stages of physiological development when TP occurs, their organs may not be fully developed and, therefore, not

ready to carry a baby (Jeha et al., 2015; Wilkinson & Pickett, 2010). Conditions, such as low birth weight and preterm birth, are results of teen physiological underdevelopment (Hoffman et al., 2015).

Further, researchers have defined TP as a global public health problem resulting in potential economic and social consequences (Arceo-Gomez & Campos-Vazquez, 2014; Hoffman et al., 2015). For example, teens may drop out of school when they become pregnant, which can lead to economic and social problems for their communities (Patra, 2016; Prasai, 2017). In addition, because adolescent mothers who drop out of school have lower levels of education, they are less qualified for jobs than students who remain in school, resulting in lower pay and poor living conditions (Wilkinson & Pickett, 2010).

Previous U.S. researchers have shown that unprotected sex among adolescents, inadequate access to contraceptives, lack of sexual education in schools, and families are the main causes of TP (Taylor et al., 2014). These causes are also common in the Ivory Coast (United Nations Population Fund, 2015), the country studied in this research. Although these factors may lead to TP, other conditions, known as predictor variables, impact adolescents' risk of becoming pregnant. Researchers have shown that socioeconomic, racial, and ethnic factors are strong predictors of TP risk. For example, 66% of teen pregnancies come from low-income families (Chandra-Mouli, 2014; Heller & Blackman, 2016). In the United States, the TP rate is 47.9% for Latinas, 36% for African Americans, and 11.8% for White Americans (Campero et al., 2014), demonstrating that race is a predictor for TP.

Although some predictor factors of TP are well established in the research, few researchers have examined other factors, such as academic performance (Hoskins & Simons, 2015) and self-efficacy. Bandura (1997) described self-efficacy as a person's ability to deal effectively with various situations and act in their interests. U.S. researchers have measured academic performance or achievement of educational goals by cumulative grade point average and the completion of an educational degree, such as a high school diploma or a General Education Development test (Cheung-Lewis, 2016). Academic achievement has been used to predict other youth behavioral issues, such as violence, delinquency, and school dropout (Barrett et al., 2015; Rosenberg et al., 2015). Because TP leads to dropout, and academic performance is a predictor of school dropout (Rosenberg et al., 2015), it may also be a predictor of TP.

Self-efficacy has also not been researched as a potential predictor of TP. Many researchers have linked self-efficacy to anticipated behavioral outcomes (e.g., Johnston-Briggs et al., 2008; Wang et al., 2009). According to the social cognitive theory (SCT), for example, youth reporting higher self-efficacy have a greater likelihood of expending more effort to accomplish goals over longer periods of time (Bandura et al., 2001). Youth also demonstrate more intentional behavior regarding goal planning and action initiation than their peers with lower self-efficacy (Schwarzer, 2008). According to the theory of planned behavior (TPB; Ajzen, 1991), perceptions of one's ability to perform a behavior or self-efficacy may predict subsequent engagement in that behavior. In this study, self-efficacy was measured using in the General Self-Efficacy Scale (GSQ) developed by Schwarzer and Jerusalem (1995) to determine if it was a predictor of TP.

Purpose of the Study

The purpose of this quantitative study was to examine the association between academic performance and self-efficacy of teenagers with TP while controlling for ethnicity and socioeconomic status to determine if these might be modifiers or predictors. Therefore, TP was the independent variable; academic performance and self-efficacy were the dependent variables. The covariates for the study were ethnicity and socioeconomic status.

I collaborated with an official from the Ivory Coast's Ministry of Education and administrators from two schools in the Ivory Coast to identify teens (one group representing teens who became pregnant while in school from 2017 to 2019, and one group representing those who did not). A survey was administered to both groups. Data were analyzed to determine the associations between academic performance and self-efficacy with TP in both groups.

Research Questions and Hypotheses

The research questions and hypotheses for this study included the following:

Research Question 1 (RQ1): Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast?

$H_0 1$: There is no significant association between pregnancy status and academic performance among at school teens in Ivory.

$H_a 1$: There is significant association between pregnancy status and academic performance among at school teens in Ivory Coast.

Research Question 2 (RQ2): Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast?

$H_0 2$: There is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast.

$H_a 2$: There is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast.

Research Question 3 (RQ3): Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate?

$H_0 3$: There is no significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

$H_a 3$: There is significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

Research Question 4 (RQ4): Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate?

$H_0$4: There is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

H_a4: There is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

Research Question 5 (RQ5): Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate?

$H_0$5: There is no significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate.

H_a5: There is significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate.

Research Question 6 (RQ6): Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast if ethnicity is considered as a covariate?

$H_0$6: There is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if ethnicity is considered as a covariate.

H_a6: There is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if ethnicity is considered as a covariate.

RQ1 was addressed by conducting t test. A t test was used to determine if there were any statistically significant mean differences in a continuous dependent variable. RQ2 was addressed using a Chi-Square test. This test was used to determine if there were any statistically significant mean differences in self-efficacy amongst the two different groups: pregnant and nonpregnant teens. RQ3 was addressed by conducting a generalized linear model (GLM). The GLM was used to measure mean differences in a continuous dependent variable, in this case academic performance, amongst different groups of a nominal independent variable, in this case pregnancy (yes/no) while controlling for a covariate, in this case socioeconomic status. RQ4 was addressed by conducting a GLM. The GLM was used to measure mean differences in self-efficacy between the two groups (pregnant vs. nonpregnant teens), while controlling for the covariate socioeconomic status. RQ5 was addressed by conducting a GLM. The GLM was used to measure mean differences in academic performance among the two groups while controlling for the covariate ethnicity. RQ6 was addressed by conducting a GLM. The GLM was used to measure mean differences in self-efficacy among the two groups while controlling for the covariate ethnicity.

Theoretical Framework

This study was grounded in the TPB. The TPB can be used to predict behaviors that can be deliberative and premeditated (Glanz et al., 2015). Self-efficacy was the focus of this study as a major extension of TPB. Researchers of the TPB assume that rational

considerations, such as the benefit or outcome of an action, lead to choices and behaviors of individuals (Taylor et al., 2014). Researchers have used the TPB to provide insight into understanding an individual's social behavior, considering social norms (Glanz et al., 2015). As applied to this study, TPB showed that the dependent variables academic performance and self-efficacy would predict the independent variable TP. Deriving from this construct, I showed how academic performance and self-efficacy might be predictors of risk for TP.

Nature of the Study

I used a quantitative approach to explore the association of academic performance and self-efficacy with TP among youth in the Ivory Coast to determine whether they are predictors of TP. A quantitative approach was appropriate because it provided insights on variables that could be quantified (see McDonald, 2006). Additionally, a quantitative research method was most appropriate for this study because I used data in the form of number and evaluated the hypotheses. As McCusker and Gunaydin (2015) stated, a quantitative researcher ensures research objectivity because they are separated from research participants. Park and Park (2016) indicated that a quantitative research provides justification based on reliability and validity testing in a controlled environment. Barnham (2015) added that the key tenants of quantitative research include controlled conditions, large base sizes, and the application of statistics to make inferences about the population. I ensured study alignment with this assessment.

Teen pregnancy data (the independent variable) were gathered from a report provided by the Ivory Coast's Ministry of Education to identify participants who became

pregnant while in school. Participants who did not become pregnant while in school were recruited in collaboration with officials at two schools in the Ivory Coast. Data for the two dependent variables, academic performance and self-efficacy, were collected from survey responses. GLM was also used to explore the association of academic performance and self-efficacy with TP, adjusting for relevant covariates of ethnicity and socioeconomic status.

Definitions

Key terms are defined as follows for the context of the study:

Academic performance: Academic performance refers to the performance of the student in school based on standards and goals set by the school. For this study, academic performance will be based on self-reported data from the survey.

Self-efficacy: Self-efficacy is defined as having the belief that one can learn effectively (Bandura, 1986). For this study, self-efficacy data will be collected from the General Self-Efficacy Questionnaire (GSQ) administered in the survey.

Teen pregnancy: TP is pregnancy among girls ages 12 through 19 years or among girls below the legal age in their respective country (Aparicio et al., 2016; Obinchemti Egbe et al., 2015; Odejimi & Bellingham-Young, 2014; Wilkinson, & Pickett, 2010; Workman et al., 2015). For this study, 13 years was the lower end and 19 years was the upper end of age ranges utilized.

Assumptions, Scope, and Limitations

This study contained several assumptions accepted as true. I assumed that the item specifications and administrative procedures of the Ministry of Education of the Ivory Coast remained constant for the identification of teens pregnant while in school.

The scope of this study was limited to TP reported from 2017 to 2019 among 13- to 19-year-old girls in school in the Ivory Coast. The government reported 4,502 teen pregnancies from 2017 to 2019, with 4,475 in secondary school and 127 in primary school (Ministere, 2019). Of the 4,475 cases in secondary school, 4,034 were reported in rural areas and 441 in urban (Ministere, 2019).

Other limitations concerned aspects of the study beyond my control. Sampled participants were a mix of ethnicities and might not reflect the general population of teenage girls in the Ivory Coast. Another limitation was certain variables, such as teacher quality, parental involvement, and school climate, might exist as relevant factors of TP but could not be measured using the methods for this study. Another limitation was an inadequate sample size due to using the number of TP cases instead of the entire teen population for sampling procedures. Although a minimum sample size of 128 was aimed at, there was a possibility that it might not have been achieved. In such a case, nonparametric techniques, such as bootstrapping, were employed.

Significance

I helped fill the current gap in knowledge about potential predictors for TP. Many researchers have examined predictor factors, such as racial, ethnicity, and socioeconomic status, and results have indicated that these factors are associated with the likelihood of

TP (Aparicio et al., 2016; Barrett et al., 2015). However, academic performance and self-efficacy as TP predictors are under-researched areas (Hoskins & Simons, 2015). In addition, I targeted a unique demographic, the Ivory Coast, which had never been studied.

Research regarding the association between TP, self-efficacy, and academic performance is needed in the Ivory Coast because of the high number of reported cases. The high rate of TP in the Ivory Coast is a barrier to keeping girls in school since one of the leading social consequences of TP is school dropout (Campero et al., 2014). In 2014, the World Bank (2016) reported that 29.0% of 10th-grade girls in the Ivory Coast did not finish high school. By identifying a potential association between academic performance, self-efficacy, and TP, this research may enable authorities to target preventive interventions to reduce the rate of TP and to empower teens and women to make decisions and support themselves and their family financially and emotionally.

Additionally, study results may show insight into future systematic changes in the education and healthcare systems in the Ivory Coast. Education policy changes can be made if results indicate a significant association between teenage girls' academic performance, self-efficacy, and the likelihood of pregnancy.

Summary

Chapter 1 included the problem of TP in the Ivory Coast, background on the country, and studies with racial, ethnic, and demographic factors as predictors. I expanded previous studies to explore if academic performance and self-efficacy were associated with TP while controlling for ethnic and socioeconomic factors to determine if

these were predictors of it. The remainder of the dissertation contains an overview of

relevant literature, the presentation of the research's methodology, and the results from

the empirical study to inform future practice.

Chapter 2: Literature Review

Overview

This chapter includes a review of scholarship on the relevant concepts for this research project. The theory of planned behavior is reviewed as the theoretical framework to examine how researchers have used it in their studies. TP, self-efficacy, and academic performance are discussed, as is the background on the Ivory Coast. I review scholarship on these concepts to show the gap in knowledge.

TP is a global problem that poses a great public health problem since mothers and fetuses are impacted by conditions, such as preterm birth, low birth weight, and PPD. In addition, TP results in economic and social consequences for communities and families, such as school dropout, lower educational levels, and lower socioeconomic status. I expand current knowledge related to predictors of TP by researching the association between TP, academic performance, and self-efficacy while controlling for ethnicity and socioeconomic status.

Literature Search Strategy

All literature for this review was obtained through Walden University Library's databases. Databases included *Communication & Mass Media Complete*, *Academic Search Premier, PubMed, PsycARTICLES, Business Source Premier, PsycINFO*, and *PsycCRITIQUES, PsycEXTRA, ERIC*, *Centers for Disease Control and Prevention*, and *SAGE Journals*. Google Scholar was also used. Literature selected for review were published within the past five years. In addition to scholarly publications, gray literature was reviewed for emphasis or clarity in some areas but was not utilized to draw

conclusions or dictate discussions. Key search terms used included "theory of planned behavior" + "teen-pregnancy," "academic achievement factors," and "self-efficacy;" all were searched in the title.

Theoretical Foundations

The TPB is based on the theory of reason action proposed by Ajzen (1985). The TPB shows that an individual's future behaviors and actions are influenced by their previously held beliefs and perception of self-control, as well as with the social norms present within their environment (Ajzen, 1985). Researchers can use the TPB to posit that an individual's perception of whether an action violates a social norm is influenced by previous observations of that behavior (Ajzen, 1985; Armitage, 2010; Hardman, 2002). If an individual has limited exposure to a behavior or belief, then it is not viewed as a social norm and will not be integrated into the individual's own belief or value system (Ajzen, 1985; Armitage, 2010;). Further, it will not become mimicked behavior. Once an individual has made the judgement that a behavior or belief is outside of their social norm, they are not likely to explore it further unless the need for a revision becomes quite apparent (Ajzen, 1985).

Researchers can also use the TPB to posit that an individual's perceived autonomy influences their ability to make judgements about the normative nature of beliefs and actions (Ajzen, 1985). If an individual's perceived self-efficacy is high, determinations of belief and action are more focused than those of individuals with low perceived autonomy (Ajzen, 1991). Researchers have used the TPB as a guide since its development in the early 1990s (Armitage, 2010; Hardman, 2002). As such, researchers

have utilized it to discuss and explain a wide variety of phenomena, making it appropriate as the theoretical framework for this study.

Application of the TPB has been primarily in the fields of education, health, and marketing. Armitage (2010) conducted a meta-review of 185 studies published before 1997 and found that TPB accounted for 27% to 39% of the literature that sought to determine variance in behavior and intention. Similarly, Hardman's (2002) meta-review of TPB research showed that out of the 30 peer-reviewed articles examined, 24 reported on TPB-based intervention methods. Researchers reported that the TPB illustrated how an individual decides to act in various social situations or within interpersonal relationships (Armitage, 2010; Hardman, 2002). Applied uses of the TPB most often included behavior prediction and the measurement of social processes, as well as measurements of outcome variables.

Although the TPB was effective in explaining social interactions and predictive behavior, the effectiveness of TPB to create intervention protocols remains unclear (Hardeman et al., 2002). Empirical literature has found no support for the use of TPB to design interventions. The biases of cognitive behavioral theories are most apparent from researchers who examine repeated health behaviors, such as medication, exercise, diet, and condom use. Correlational data analysis procedures can mislead researchers about the theory's predictive accuracy (Weinstein, 2007). However, a few researchers of TPB found outcomes that did not conflict with the possible bias TPB might cause. These uses include entrepreneurial intentions (Munir, 2019), species-specific veterinary care career

intentions (Feakes et al., 2019), academic dishonesty (Hendy & Montargot, 2019), and alcohol consumption (Norman et al., 2019).

Because researchers have used the TPB to explain a variety of social behaviors (Hendy & Montargot, 2019), its use has been integrated into studies that utilize a variety of quantitative, qualitative, and mixed methodologies (Munir, 2019). As the TBP was utilized to explain social behaviors and interpersonal relationships (Hendy & Montargot, 2019), it was an effective theory to explain the phenomenon of interest in this current study.

Teen Pregnancy

Teenagers in the developing world are at higher risk of unplanned pregnancies when compared to global averages (McCarthy, 2018). Unintended pregnancies, especially within the adolescent population, are often risky and can result in poorer health outcomes for women, children, and families (McCarthy, 2018). Adolescent mothers are at an increased risk of anemia or preeclampsia. Their newborns are at risk of low birth weight, cognitive impairment, and premature birth (Merritt, 2019).

Recent literature about TPB and TP was focused on a few basic domains often associated with elevated prevalence of TP. Many researchers have used the TPB to understand how better viewing TP as a social norm can lead to higher incidences (Flanagan, 2019; Geber et al., 2021; Louis et al., 2016; Maness & Buhi, 2016). Many other researchers have utilized the TPB to investigate the risky behavior portrayed by teenage girls that result in unintended pregnancy or the health implications associated with this risky behavior (Hendy & Montargot, 2019; Morell-Gomis et al., 2019; Norman

et al., 2019). TPB has also been influential in the study of school-based intervention programs and other technologically based digital intervention methods (Hendy & Montargot, 2019; Morell-Gomis et al., 2019; Norman et al., 2019). Within these domains, researchers have sought data about sociodemographic information, knowledge of topic, psychosocial variables, sexual risk behaviors, and history of STDs (Boyer et al., 2000). Others have studied parental rejection, peer groups, depression, exposure to pornography, and self-esteem (Lawrence, 2014).

Social norms were found to influence the likelihood of partaking in health risky behaviors (Geber et al., 2021). Within the context of TPB, teenage girls that were associated with other girls that had become pregnant or in communities with an elevated prevalence of TP were more likely to become pregnant themselves. Further, previous research utilizing TPB focused on identifying and defining the social norms that youth experience amongst their peers, as well the effect of negative peer influence on school engagement and the achievement of academic goals (Geber et al., 2021). Teenage girls that set and achieved academic goals were less likely to participate in risky behavior and, moreover, were more likely to associate with like-minded teenagers (Voisin & Neilands, 2010). Another researcher focused on the relationship between parent and child and the effect that it had on social and subjective norms as measured through consumption of health food, junk food, amount of physical activity, and screen time (Lenne et al., 2019). Overall, some scholars have noted that social norms influence behavior, especially within the framework of the TPB (Voisin & Neilands, 2010).

Other researchers have focused on the associated factors related to risky behavior within the context of TPB. For example, Javier (2015) focused on risky behaviors among Filipino American youth and concluded that common risky behaviors associated with unintended TP included not using contraceptive methods, engaging in sexual activity with multiple partners, and utilizing drugs or alcohol before sexual activity. Adolescents who viewed these behaviors as normative or were raised in environments in which these behaviors were common were more likely to mimic this behavior (Javier, 2018). Lawrence (2014) found that teenagers in Nigeria were more likely to partake in risky sexual behavior like those mentioned in Javier (2018). Further, risky behavior was increasingly likely to occur if teenagers were ostracized from their peer group or otherwise were rejected by those tasked with providing social and emotional support, including parents, siblings, or other relatives (Lawrence, 2014). Gerber (2019) established risky behaviors, such as drunk driving, speeding, and reckless driving, were associated with mimicked behaviors. Parents, older siblings, and peers who engage in these behaviors regularly were more likely to be emulated by teenagers that view these risky behaviors as normative (Gerber, 2019). All these studies were associated with the TPB (Gerber, 2019; Lawrence, 2014), and results all supported the TPB as a theoretical explanation for teenagers' participation in risky behaviors.

Cheah et al. (2018) examined all factors associated with sexual behavior to analyze the probability of multiple sex partners. Results indicated that teenagers were more likely to have multiple sex partners if they participated in risky behaviors such as suicidal ideations and drug/alcohol use (Cheah et al., 2018). The researchers linked risky

behaviors associated with TPB to sexual activity with multiple partners. This study was important because associated health risks of multiple sexual partners, as well as unplanned pregnancy, was examined within the framework of the TPB (Cheah et al., 2018). Merritt (2019) focused on sexually transmitted diseases (STDs) and unintended pregnancy as negative health factors associated with risky sexual behaviors amongst adolescent females. Merritt found that the prevalence of STDs was higher when teenaged girls had sex with multiple partners. Further, many females in the study had a comorbidity of a subsequent STD when they participated in more risky sexual behaviors. Merritt linked the TPB to STDs and unintended pregnancy, as participation in risky behaviors increased when behaviors were perceived as normative. Further, Merritt illustrated a relationship between viewing the diagnoses of STDs and unwanted pregnancy as more normative within teenage cohorts than previous studies.

Finally, Boyer et al. (2000) focused on perceptions of sexual behavior within adolescent girls that were previously sexually experienced. Results indicated that although risky sexual behavior (unprotected sex, multiple sexual partners, and older sexual partners) often facilitated unwanted pregnancy or the contraction of STDs, often these consequences were not enough to statistically reduce participation in risky behavior (Boyer et al., 2000). Many girls believed that negative consequences were not likely to occur in their respective case; therefore, results underscored the need for more comprehensive intervention programs (Boyer et al., 2000). The researchers incorporated the need to establish more comprehensive and abundant sexual intervention programs, in

the context of TPB in which avoidance of risky sexual behavior would become nonnormative and, therefore, less likely to be repeated (Boyer et al., 2000).

Teen Pregnancy Intervention

Marseille et al. (2018) examined school-based TP prevention efforts throughout the United States and Canada. Results indicated no statistically significant reduction in STDs or unwanted pregnancy after participation in any of the reviewed intervention programs. Therefore, the author suggested utilizing the TPB as the framework for future prevention programs to create normative views on safe sexual practices which could result in permanent change of behavior (Marseille et al., 2018)

LeCroy (2018) examined the efficacy of reducing TP through an intervention program for adolescent girls. The researcher found that gender-specific prevention programs are more effective in facilitating discussion and examining risky behavior that leads to unintended pregnancy. However, there remained much work that could be done to create more comprehensive protocols to reduce participation in risky behavior, including using TPB in adolescent pregnancy prevention curricula. By using the TPB, leaders could adapt these programs for cultural relevance, such as in the case of this study, in the White, rural population of Wayne County, West Virginia (LeCroy, 2018).

Scull et al. (2018) examined the short-term efficacy of a classroom-based media literacy education program for improving adolescents' sexual health outcomes. The researchers established that utilizing technology, which, for most teenagers, was a normative way to gain information, was effective in conveying information on safer sexual practices and sexual health. Results indicated that because the information was

conveyed in a way that was normative, it was more readily integrated into the thoughts

and actions of teenaged participants, supporting using the TPB (Scull et al., 2018). Oman

et al. (2015) found that comprehensive Teen Pregnancy Program (TPP) interventions

were more effective than abstinence-only programs. The United Nations Population Fund

(2013) studied the relationship between teen pregnancy and women empowerment (the

ability to take responsibility for their lives). The authors suggested the empowerment of

women, adolescents, and young people through reproductive rights, access to sexual and

reproductive health services, and gender equality can reduce teen pregnancy and improve

the lives of young people. Lastly, Jewkes (2009) explored the relationship between teen

pregnancy and teenager empowerment and discovered that the key to success in teenage

pregnancy reduction is empowering social policy that includes young people.

In addition, researchers have examined the effectiveness of digital interventions,

including for TP, to encourage more normative behaviors. For example, members of U.S.

minority populations use mobile phones to access health information more than

nonminority populations. mHealth is the term for a new method of intervention based on

patient care via a smartphone app (Anderson-Lewis, 2018). Text-message intervention

was the topic of a study; text messages were presented as a functional tool in the care of

depression and prevention of suicide among other vital psychological issues (Ranney et

al., 2018). McCarthy (2018) focused on contraceptive intervention via mobiles phones,

viewing mobile phones as a viable method for contraception awareness, which the author

suggested should be implemented in developing countries.

There has been a trend toward a digital form (i.e., cell phone) of intervention. However, a few issues may arise when using these intervention strategies (McCarthy, 2018). Differences exist regarding intervention success rates between methods that utilize an app on the newest and most expensive smart phones, and those that utilize only text-messaging which would be available on any mobile phone (McCarthy, 2018). Difference in the availability of internet connectivity effects the functionality of the digital intervention (McCarthy, 2018). Moreover, digital intervention depends on Internet services, which may exclude people who live beyond the scope of major metropolitan areas.

TPB was applied as a useful theory to examine TP, as TPB was linked to the understanding of risky sexual behaviors, risk factors associated for the participation in risky sexual behaviors, and the efficacy of prevention protocols for the reduction of teenage pregnancy (McCarthy, 2018; Ranney et al., 2018). As such, TPB was an ideal theory to guide me on the association of academic performance and self-efficacy on TP.

Self-Efficacy

The concept of self-efficacy is influenced by Bandura's (1994) social cognitive theory (SCT). According to the SCT, an individual's ability to learn is facilitated by both the environment and their cognitive ability (Van Der Roest et al., 2017). When learning, if the environment, including tools and instruction, is suitable to successful task completion, individuals are more apt to accomplish goals. When a person becomes increasingly successful on their path to achieving goals, self-efficacy increases and is strengthened (Bandura, 1994; Van Der Roest et al., 2017). This finding is especially true

when task success is accompanied by praise or positive feedback while an individual is learning (Bandura, 2001).

However, negative outcomes are more likely to occur when the environment is not suitable for task completion. When the environment is not equipped with the proper tools, or instruction is lacking, self-efficacy decreases (Bandura, 1994), leading to feelings of helplessness and less effort devoted to accomplishing a task. As such, a circular pattern develops in which lowered self-efficacy facilitates negative outcomes which continues to lead to lower self-efficacy (Van Der Roest et al., 2017). In some cases of extremely poor environmental support, feelings self-efficacy fails to develop at all (Bandura, 2001). Without strong feelings of self-efficacy, individuals are likely to engage in behaviors to please others, which may lead to negative outcomes (Bandura, 2001).

Self-efficacy may serve as a mediator between abuse and reproductive health outcomes. For example, researchers have focused on condom use self-efficacy and found that high levels of condom use self-efficacy were associated with safer sexual practices among adolescents (O'Leary et al., 2008). Precoital youth who report condom use self-efficacy may be more likely to use condoms upon introduction to them; therefore, it is important to examine antecedents of condom use self-efficacy. Just as there are gender differences in engagement in sexual activity, there may also be gender differences in condom use self-efficacy (Ritchwood et al., 2017).

Sexual self-efficacy refers to an individual's belief that they can engage in protective health behaviors such as negotiating condom use, refusing unwanted sex, or using condoms (Downs et al., 2018). Sexual self-efficacy has been associated with

adolescent and young adult women's condom and other contraceptive use (Downs et al., 2018). Thus, sexual self-efficacy is a promising avenue for exploration as a mediator between abuse and unintended pregnancies and STDs (Downs et al., 2018). Establishing this relationship may inform future interventions about programs that increase young women's sexual self-efficacy.

Literature Review Related to Key Variables and/or Concepts

Teen Pregnancy

TP was the independent variable for this study. TP is a global problem particularly challenging for developing countries, such as the Ivory Coast. Thus, the literature related to TP is discussed in the following subsections.

Epidemiology

TP occurs within every country in the world regardless of developmental factors, socioeconomic status, or geographical location. World Health Organization (WHO, 2018) estimated that in developing countries, approximately 22 million girls aged 15 to 19 years of age become pregnant every year. Additionally, in developing countries another 2 million girls under the age of 15 become pregnant annually. In developed nations, approximately 16 million girls from ages 15 to 19 become pregnant while another 2.5 million girls under this age become pregnant each year. The overall in Europe since 1970 has shown a decrease in the total fertility rate, an increase in the age at which women experience their first birth, and a decrease in the number of births among teenagers (WHO, 2018).

The United States, although advanced, boasts a high incidence of TP relative to other countries with similar Gross Domestic Product and population. WHO (2018) estimated that in the United States, the birth rate was approximately 55 births per 1,000 teenage girls, one of the highest rates of TP in the developed world. This statistic shows an overall decline in TP; however, as TP rates were approximately 67 births per 1,000 teenaged girls only 10 years ago (WHO, 2018). In Europe, the rates of TP differ in individual countries; yet the overarching trend is a decline in TP throughout the continent. The highest incidence of TP is in the United Kingdom, with approximately 30 births per 1,000 teenage girls. Conversely, the lowest incidence of TP is in Italy, with only about 5 births per 1,000 adolescent females (WHO, 2018). Although the annual prevalence of TP remains high within places, such as the United Kingdom, the incidence of adolescent birth rate has declined from an estimated 65 births per 1,000 girls a decade ago (WHO, 2018).

This decline in global TP is attributed primarily to increased education for adolescent girls and their parents (WHO, 2018). Most of this education concerns the consequences of risky sexual behavior, as well as the opportunities for female societal advancement (Mueller et al., 2017). As a result, many adolescent females may realize that they have more options than motherhood and may not have to use motherhood to ensure socioeconomic stability (Mueller et al., 2017).

With global incidence of TP declining, some evidence indicates that unequal development and restrictions to healthcare in some regions of the world may indicate higher annual rates of TP in those regions than the global decline of TP may suggest

(WHO, 2018). In Africa, the continent that persists in the highest incidence of TP, the estimated total number of births is approximately 150 births per 1,000 teenaged girls. In Western Africa, the most current estimate is 115 births per 1,000 adolescent women (WHO, 2018). Many girls (50%) gave birth in Africa before the age of 15 years, while another 40% gave birth between the ages of 16 to 18 years. Although Africa boasts the highest prevalence of teenaged mothers, birth rates to adolescent girls are also high in Latin America (WHO, 2018). Throughout the regions of Latin America, TP results in 64 births per 1,000 women which is much higher than the global average (WHO, 2018).

Risk Factors

Although TP occurs in all countries, there are some factors that influence how prevalent it is or may be. The first major risk factor is the type of community in which adolescents receive their upbringing. There is a direct correlation between the type of environment one is raised in and rates of TP, regardless of the nationality (Odland, 2018). Often, the type of neighborhood in which a person resides may contribute to numerous factors that influence of both resources and education available to adolescent girls, resulting in higher rates of pregnancy (Odland, 2018). According to Yadufashije et al. (2017), TP rates are more likely in rural or urban areas than in suburban areas especially in undeveloped countries, including the Ivory Coast. This finding is attributed to the isolation from neighboring communities that these types of environments often exhibit (Yadufashije et al., 2017). Isolation, in this sense, is caused greatly by the insular composition of community structure (Barthel et al., 2017). Often, inhabitants of rural or urban areas do not travel outside community boundaries, and those outside of these

communities to do not emigrate to these places. As such, citizens of rural or urban areas begin to experience feelings of self-identification and intrinsic senses of belonging to an insular community structure (Yadufashije et al., 2017). If teens are raised within such environments, they look less often for opportunities outside places of birth and set lower personal goals. Moreover, citizens of these types of communities remain wary of outside influence and often do not take advantage of opportunities outside their communities (Yadufashije et al., 2017).

Rural and urban communities are often lower in socioeconomic status than are suburban communities (Kearney & Levine, 2014), especially in counties comprised of large indigenous populations, like the Ivory Coast (Barthel et al., 2017). Poverty, another factor correlated with increased prevalence of TP, may influence the types of opportunities afforded to adolescent girls (Barthel et al., 2017). Researchers have estimated that adolescent girls with restricted access to academics are five times more likely to become a mother than those with higher levels of education (Barthel et al., 2017). Further, teens who get pregnant in impoverished communities are more likely to drop out of school which often limits their opportunities for future employment success (Barthel et al., 2017).

When poverty restricted educational choices and an insular community environment are combined, teenage girls exhibit attitudes of cultural despair. Cultural despair occurs when teenage girls feel hopeless about their prospects for future success and, therefore, settle for minimal goals that are more easily attained (Kearney & Levine, 2014). In addition, poverty within a community can restrict access to educational

opportunities for teenage girls pertaining to safe sexual practices and reproductive health. With restricted access to critical information concerning safe sex and contraceptive use, increased rates of teen pregnancy are demonstrated within impoverished neighborhoods (Yadufashije et al., 2017).

Many other factors are associated with increased risk of teen motherhood, including family upbringing, history of sexual abuse, prevalence of mental health issues, and participation in risky social behaviors (Wall-Wieler et al., 2016). Children of teenage mothers are estimated as 50% more likely to become mothers as teens. Moreover, younger female siblings of teen mothers are approximately 45% more likely to become teenage mothers, especially when using childcare (Wall-Wieler et al., 2016). This increase in likelihood of TP is attributed to normative beliefs within the home, as well as the proximate support network (Mueller et al., 2017). Often, when girls have mothers who were themselves teenage mothers, participation in sexual activities and subsequent conceptions is met with less consequence and can be perceived as permissible (Wall-Wieler et al., 2016). Moreover, in households with multigenerational teenage mothers, there is less education or instruction from parental figures on safe sexual practices, contraception, or reproductive health (Wall-Wieler et al., 2016). This finding is true regardless of sex, as teenage boys of teen mothers on average exhibit decreased use of condoms, have more sexual partners, and display less concern about impregnating others compared to teen boys not born of teen mothers (Wall-Wieler et al., 2016).

Another predicative factor of TP is incidence of sexual abuse, influencing approximately 20% of teenage girls globally each year (Noll et al., 2018). Regardless of

age, socioeconomic status, ethnicity, or inhabited region, incidence of prior sexual abuse has been significantly correlated with higher incidence of TP (Noll et al., 2018). Teenagers sexually abused in childhood were more likely to participate in risky sexual behavior including participation in unprotected sex, sex with multiple and older partners, and drug/alcohol use (Noll et al., 2018). As such, many adolescent girls who have experienced sexual abuse are more likely to become pregnant. In developing nations, such as the Ivory Coast, incidence of sexual abuse against adolescent girls often remains higher than in developed countries (Noll et al., 2018). In many cases, as pregnancy results; girls cannot fend off sexual predators or may be sold into prostitution. Even if legal, participation in coercive sex acts, even with husbands or boyfriends, may lead to unwanted pregnancies (Noll et al., 2018).

Adolescent girls with a history of mental health issues are approximately 33% more likely to become mothers than girls that do not have issues with mental health (Corcoran, 2016). The higher rate of pregnancy within this group is attributed to the association of mental disorders, such as depression, anxiety, and bipolar disorder, to higher rates of participation in risky behaviors, including sexually oriented practices (Corcoran, 2016). Teenaged girls with diagnosed mental disorders may have higher rates of drug and alcohol use as they often use substances to self-medicate (Corcoran, 2016). Some mental disorders, such as bipolar disorder, have periods of mania leading to reduced inhibitions and greater prevalence of risky behaviors, including unsafe sexual practices (Corcoran, 2016). Other mental illnesses, such as depression and anxiety, can facilitate perceived feelings of social ostracism; many teenaged girls will participate in

drug or alcohol use, unprotected sex, and sex with multiple partners to achieve perceived social acceptance (Corcoran, 2016). As drug and alcohol use, unprotected sex, and sex with an increased number of partners lead to increased rates of adolescent pregnancy, extrinsic social pressures may lead to higher rates of teenage pregnancy (Noll et al., 2018).

Social Pressure

Adolescent girls may feel a great deal of pressure to birth a child, even if the pregnancy was unplanned or initially unwanted (Vincent & Alemu, 2016). Although most researchers have examined TP based on a negative perspective, teenage girls purposely try to conceive and want to get married and start a family (Vincent & Alemu, 2016). Globally, many adolescent girls plan conception based on social pressure; thus, they view this behavior as normative. Researchers have estimated that every year, approximately 16 million girls under 18 get married; of those, 90% will give birth to children shortly after marriage (Vincent & Alemu, 2016).

Normative thoughts and behaviors regarding marriage and motherhood may be cultural (Kuruvilla et al., 2016). Globally, an estimated 20% of girls will marry as adolescents—a trend especially apparent in Africa, Latin America, and the Middle East (Kuruvilla et al., 2016). In some developing countries, teenage girls wed men to provide financial security, as there are little other perceived options (Kuruvilla et al., 2016). Another factor that increases the age of matrimony for women is life expectancy. When life expectancy is lower, such as in some developing nations, prevalence of marriage for teenage girls increases (Kuruvilla et al., 2016).

Once married, there persists cultural norms regarding marriage status and motherhood. Often, married women are discouraged to use contraception or abstinence as they are culturally perceived as wives instead of girls (Vincent & Alemu, 2016). When this cultural perception exists, adolescent girls may feel both direct and indirect pressure to become mothers (Vincent & Alemu, 2016). In many societies around the world, when married women do not produce children quickly, they are perceived as unfit wives, which may facilitate feelings of shame, hopelessness, anxiety, and depression (Vincent & Alemu, 2016). Conversely, teenage girls may wed to gain access to comprehensive health care, including family practice services.

When adolescent girls marry, they may gain access to comprehensive health insurance through either the employment of their husband or through increased household income (Harrison et al., 2017). In many developing countries, unwed teen mothers are legally restricted to safe health care practices, including reproductive health services due to restrictive laws that reduce access, to contraception or abortion services based on marriage statuses or healthcare workers' biases (Harrison et al., 2017). In many countries, healthcare workers can make judgements on the validity of a teenage girl's need for contraception or abortion (Harrison et al., 2017). Healthcare workers' bias may skew attitudes regarding safe sexual health because a patient is an adolescent.

When the teenage girl meets resistance and shame for attempting to acquire family planning services the results can be detrimental to her health (Harrison et al., 2017). Teenage girls who have met opposition in gaining access to contraception may not try to acquire birth control elsewhere. This issue leads to increased prevalence of

contraception misuse and renders some methods, such as birth control pills, ineffective (Harrison et al., 2017). Moreover, teenage girls may internalize the opinions of the health care worker and lose feelings of autonomy, creating increased risk of health consequences (Harrison et al., 2017).

Health Consequences

Throughout the world, the leading cause of death in adolescent girls is pregnancy and childbirth complications (Harrison et al., 2017). Moreover, teenaged maternal deaths account for almost all (99%) of deaths associated with childbearing in countries of low socioeconomic status (Harrison et al., 2017). With such high incidence of complication and mortality, health consequences of TP are varied and affect both the physical and mental health of adolescent girls and their babies. Health consequences are often longer lasting than in other female age cohorts, as the emotional needs of teenagers are greater than the emotional needs of adults (Harrison et al., 2017).

Teenaged mothers have a higher risk of anemia and subsequent preeclampsia, a physical disorder associated with pregnancy in which the body suffers from high blood pressure with excess protein synthesis (Brosens et al., 2019). As a result, tissues and organs malfunction and degrade which can be dangerous for mothers and potentially fatal for fetuses (Brosens et al., 2019). Teenage mothers are at higher risk for issues with high blood pressure than mothers in different cohorts (Louis et al., 2016).

Further, teenage mothers are more likely to suffer from PPD (Dinwiddie et al., 2018). Affecting approximately two in five teenage mothers, PPD is characterized by extreme sadness, anxiety, exhaustion, and a general disconnect or withdrawal from loved

ones, including the baby born to them (Dinwiddie et al., 2018). Symptoms of PPD may

manifest shortly after giving birth; however, it may take many months to present. Further,

PPD may persist for months or years and, in some rare cases, symptoms persist

indefinitely and can be detrimental to the physical and mental well-being of both mothers

and their children (Dinwiddie et al., 2018).

Teen mothers have higher rates of premature birth and low birth rates among

infants (Dinwiddie et al., 2018). This trend is especially prevalent in lower

socioeconomic areas and in places of high rural and urban populations (Maness & Buhi,

2016). Low birth rates create a multitude of problems for developing fetuses, which may

present in isolation or may be interrelated; these include cognitive impairments, issues

with vision development, auditory impairments, issues with proper respiratory

functioning, pulmonary issues, and problems with development of neural and heart tissue

and associated functioning (Louis et al., 2016). These issues are detrimental to the health

of developing babies and can lead to higher infant mortality rates. Low birth rates and

premature births are attributed to inadequate nutrition and health care for teenaged

mothers (Maness & Buhi, 2016).

Economic and Social Consequences

TP can have negative impacts outside of physical or mental health. Economic and

social consequences can result for the teen mother and her family as well as their

community (Bekaert & SmithBattle, 2016). In some communities, previously supportive

family and peer groups may shun unmarried pregnant teens, causing feelings of

worthlessness and despair, with more practical complications (Bekaert & SmithBattle,

2016). Teenage mothers marginalized by social support networks may struggle to obtain adequate housing, proper nutrition, and the ability to continue their education (Bekaert & SmithBattle, 2016). Moreover, teenage single mothers without adequate support struggle financially to raise the child without proper resources. Children of teenage mothers have higher incidence of homelessness, hunger, and poverty, which often create intergenerational issues (Bekaert & SmithBattle, 2016).

Teenagers who face these issues alone are often at higher risk for participation in risky behaviors. Impoverished and homeless teenage girls, especially those with previous children, are more likely to participate in illegal activities, such as theft, prostitution, and drug use (Kearney & Levine, 2014). Further, women within this cohort may perceive these choices as the only options available, as all other traditional support networks have failed. Both prostitution and drug/alcohol uses have been positively correlated with increase chance of unwanted pregnancy (Kearney & Levine, 2014). As such, teen mothers mitigating social stigma and fiscal loss of being rejected from their previously supportive network of caretakers and peers may face increased chances of additional unwanted pregnancies and subsequent persisting impoverishment (Kearney & Levine, 2014).

Although financial hardship and associated poverty plaque many adolescent mothers, especially those disenfranchised from social support, other consequences of teen pregnancy can cause harm and distress to expectant teen mothers (Kearney & Levine, 2014). Girls who have children or are pregnant at younger ages experience higher levels of physical and emotional abuse than do teenagers that abstain from motherhood due to

panic and hopelessness experienced by teen mothers. Teenaged mothers may believe they have neither the financial nor other practical resources needed to raise a child adequately if they would attempt single motherhood (Kearney & Levine, 2014). As a result, teenaged girls may get trapped in relationships that are abusive, or otherwise detrimental to overall well-being. As teen mothers become increasingly dependent on their abusive partners, the ability to emancipate from this abusive situation becomes increasingly difficult (Kearney & Levine, 2014). Teenage mothers may believe that their abusive partners are the only ones who will offer them resources and affection, even if feelings of love are transient.

Teen mothers shunned by parents or peers may experience feelings of reduced self-worth, may question their decision-making abilities, and experiences some levels of learned helplessness as coping behaviors within this situation (Bekaert & SmithBattle, 2016). All these feelings reinforce mothers' belief that they must stay with their domestic partners, regardless of the prevalence of abuse. Situations that foster abusive tendencies often reduce feelings of autonomy within the pregnant adolescent girl, influencing other practical decisions and further entrench into additional pregnancies, abuse, and poverty (Bekaert & SmithBattle, 2016).

Shuger (2012) estimated that approximately 30% of teenaged girls ceases their education once they become pregnant, and another 40% will cease taking advantage of educational opportunities after high school graduation. As such, teenage mothers may have lower educational levels than other teen girls (Shuger, 2012). Reduction in educational attainment can be detrimental to obtaining employment adequate for raising children, especially if the teen mother has no support system in place to mitigate child-

rearing expenses. Further, single teenage mothers are less likely to find adequate

employment as childcare options are limited by financial constraints, creating disruptions

in work schedules and job availability (Shuger, 2012). Researchers have estimated that

approximately 80% of teenage mothers struggle to find suitable employment, being

relegated to menial or servant-based work, employed as house cleaners, nannies, cooks,

or unskilled laborers (Herrera et al., 2016). As teenage mothers, especially those with

absent or reduced support, struggle to finish their education and find employment

adequate to support both themselves and their children, the community is impacted by the

prevalence of teenaged mothers (Herrera et al., 2016).

Communities that boast higher rates of teenaged pregnancy are also impacted in

economic ways, as many adolescent mothers are impoverished and lack resources

independently (Barfield et al., 2017). First, as rates of teen pregnancy increase throughout

a community, more money must be allocated for supplemental healthcare services,

including adequate prenatal care and birthing procedures for expectant teenaged mothers

(Barfield et al., 2017). Healthcare costs also must be allocated to mitigate the increased

levels of pregnancy and birthing complications that are more common in teenaged

pregnancy (Barfield et al., 2017). Next, as the number of adolescent mothers increases

throughout the community, other social services must often be funded (Barfield et al.,

2017). Social programs for free or reduced costs of childcare, diapers, and other baby

needs (e.g., food and shelter) are regularly utilized by expectant teen mothers, especially

if they must raise the child without support from family or peers. Estimated costs of the

global community are approximately $15,000 dollars for each child born to teenaged

mothers, which includes health care, food, shelter, and clothing from birth to two years of age (Barfield et al., 2017). The costs of raising a child are so high within this cohort, and communities are fiscally impacted by increased prevalence of teenage pregnancy; thus, many area leaders have initiated prevention protocols to mitigate the incidence of pregnancy in adolescent girls, both to reduce health risks and financial impact (Barfield et al., 2017).

Prevention

Prevention strategies to educate teenagers about the associated risks of pregnancy as well as promote safer sexual practices have been developed (Mueller et al., 2017). The first basic strategy to reduce TP is the implementation of practices to increase accessibility of education to a greater number of teenaged girls around the world (Mueller et al., 2017). As one major causative factor for teenaged pregnancy is the lack of opportunity and associated feelings of cultural despair, more educational opportunities for teenaged girls will help them be more likely to believe in future academic or career goals and plan to achieve such goals (Mueller et al., 2017). This plan includes integrating more sexual education, education on planning services, and education on risky behaviors that lead to unintended or unwanted pregnancies (Mueller et al., 2017).

Education on risky behaviors is important to the framework of prevention programs as pregnancy is often not immediately associated with some risky behaviors. Drug or alcohol use are often more associated with overdose or accidental death than pregnancy even though they are positively correlated. Other risky behaviors, such as participation in sexual activity with multiple partners or unprotected sex, are stressed as

part of pregnancy prevention protocols (Tevendale et al., 2017). Education about

contraception is vital to effective pregnancy prevention programs as contraception, such

as condoms or birth control pills, are utilized sporadically or incorrectly. In effective

pregnancy prevention initiatives, free contraception (i.e., typically condoms) is

distributed or easily accessible to promote importance and ease of acquirement (Mueller

et al., 2017). Abortions are presented in a practical way in many prevention programs.

Although health risks are stressed, providing comprehensive information in a logical way

free from bias decreases stigma about this procedure and often allows for informed

decisions to be made (Mueller et al., 2017).

The acquisition of contraception or abortion procedures can be hindered by the

bias of health care providers (Tevendale et al., 2017). Healthcare providers may ignore

the autonomy of teenaged mothers or decide that they know what is best for them and

thus refuse access to contraceptive measures and safe abortions (Tevendale et al., 2017).

Many communities that effectively reduce TP included provisions to educate health care

providers on how to reduce bias, encourage female autonomy and grant better access to

contraception and abortion (Tevendale et al., 2017). In this way, teenaged females are

more likely to utilize these health care services more regularly and without fear of being

stigmatized.

One other facet of effective teenage pregnancy reduction initiatives is to

emphasize where and how to get help for any physical or emotional issues that teenaged

girls may face (Tevendale et al., 2017). Moreover, this type of information may decrease

the prevalence of participation in risky behaviors that can lead to pregnancy (Tevendale

et al., 2017). Teenaged girls may be embarrassed or scared to talk to parents or others in their support networks; thus, providing adequate access to seek help when needed increases female autonomy and reduces the opportunity for pregnancy (Tevendale et al., 2017). Many effective pregnancy prevention protocols are established within communities that do not typically view TP as normative and, as such, do not have to compete with the dissonance between normative behavior and prevention protocols. Few effective prevention protocols exist within developing countries and those with lower over socioeconomic statuses (Tevendale et al., 2017).

The Ivory Coast

The Republic of Cote D'Ivoire was the country in and context for which this research was conducted. More commonly called the Ivory Coast in English, it is located on the Western Coast of Africa (Côté et al., 2018). To the East, the Ivory Coast abuts Ghana, and the northern border is shared with Mali and a small portion of Burkina Faso (Côté et al., 2018). The rest of the country is surrounded by water, both the Atlantic Ocean and the Gulf of Guinea (Côté et al., 2018).

Historically, the country has been influenced heavily by French rule. Presently, French is the most utilized language, and approximately 10% of the current population has descended from French peoples (Young, 2018). The Ivory Coast won its independence from France in the 1960s (Young, 2018). Since then, there has been a growing ideological movement to separate the Ivorian people from French influence which many patriotic Ivorians view as oppressive (Young, 2018). Since independence,

growing numbers of African peoples have emigrated into the Ivory Coast; as such, the country has become diverse, both demographically and economically (Young, 2018).

The Ivory Coast is renowned for its abundance of precious natural resources including gold, diamonds, and other precious metals (Kennedy, 2018). These precious metals and gemstones are used to create jewelry as well as components for electronics, lasers, other precision tools, and building infrastructure. Further, the Ivory Coast is the world's leading purveyor of cocoa beans, which is the main ingredient of chocolate (Kennedy, 2018). With precious metals and cocoa beans in high demand throughout the world, the Ivory Coast has an economy relying on trade and is currently one of the strongest economies in Africa (Kennedy, 2018). The country is the fourth leading African exporter of goods after Kenya, South Africa, and Angola; thus, it boasts higher per capita wealth than most other African countries (Kennedy, 2018). Although the economy is strong, the distribution of wealth is widely skewed, creating large discrepancies in financial distribution (Kennedy, 2018). Further, since France influence is increasingly resented, the current political, civil, and economic climates of the Ivory Coast are in flux (Kennedy, 2018).

Demographics

The Ivory Coast has a population of approximately 25 million individuals, making it the 53rd most populous country in the world. Most of the population is Black; however, many ethnic groups reside in the Ivory Coast (Côté et al., 2018). Although approximately 80% of the inhabitants of the Ivory Coast identify as Ivorians, many simultaneously identify as members of their ethnic group (Côté et al., 2018). The largest population is the

Akan people, with a population of 9 million, approximately 43% of the country's

population (Sezgin, 2018). The Akan group include the Anye, Akye, Asante, Aowin, and

Baule tribes, which inhabit primarily the Southern portions of the country (Sezgin, 2018).

Voltaiques or the Gur are another ethnic group that comprise approximately 18% of the

population (Sezgin, 2018). The Northern Mandes, Krous, and Southern Mandes peoples

represent approximately 30%; the remaining population comprises Lebanese or French

immigrants (Sezgin, 2018).

Although the ratio of male to female inhabitants is approximately equal there is a

difference in age cohorts (Brass, 2015). Approximately 40% of the population is less than

14 years of age. Most of the population, an estimated 59%, are between the ages of 15

and 64, with a median age of 19 for both males and females (Brass, 2015). The cohort

with the fewest is those individuals over the age 65, which is 3% of the population. The

small number of older adults is attributed to the prevalence of AIDS and other

communicable diseases (Brass, 2015). With inadequate health care, these diseases result

in high mortality rates; therefore, the life expectancy within the Ivory Coast is 59 years of

age—20 years lower than the global average (Brass, 2015).

Socioeconomic Statuses and Education

Although the Ivory Coast boasts a strong economy and relatively high per capita

wealth, the distribution of wealth is skewed (Martinez, 2012). The United Nation's

Human Development Index (HDI) measures aspects that influence an individual's quality

of life based on factors such as literacy rate, life expectancy, and other human

development criteria in relation to overall Gross Domestic Product (Martinez, 2012). The

HDI ranked the Ivory Coast at 154 out of 174 countries, placing the country into the low

human development category (Martinez, 2012). Over 50% of inhabitants live below the

poverty line.

The rate of poverty is higher for groups of indigenous people which often inhabit

increasingly populated urban areas. Over 60% of the country suffers from slowed

production or revenue trends, increasing the rate of poverty as the population continues to

grow at an estimated rate of over 5% annually (Ravallion, 2017). Consequently, the

population of the Ivory Coast is set to outgrow the available jobs and associated wages

needed to sustain a population above poverty levels. Currently, it is estimated that

approximately 19% of Ivorians earn less than a dollar a day (Ravallion, 2017). One dollar

a day is the established minimum wage that can accommodate simultaneous acquisition

of some amount of food, shelter, and clothing (Ravallion, 2017). Although the ability to

find food, shelter, and clothing when earning one dollar a day is possible, the standard of

living at this rate is often inadequate (Ravallion, 2017). Over 25% of all children under

the age of five are chronically underfed and are malnourished while almost 60% of

Ivorian adults live with chronic hunger (Ravallion, 2017).

Housing in the Ivory Coast is often inadequate for much of the population—

especially true in rural or urban areas where much of the Ivorian population resides

(Cogneau et al., 2016). This issue is complex and occurs for many interrelated reasons.

First, there is not ample housing available for the steadily increasing population

(Cogneau et al., 2016). Many individuals emigrate regularly from other African countries

to find employment and escape civil unrest. Moreover, the fecundity of Ivorian women is

higher than global averages creating higher amounts of births within this country (Cogneau et al., 2016). Therefore, housing remains scarce and those individuals that can find it often pay more than market value to live there.

Next, as extant housing is scarce, over-priced and often inadequate for Ivorian families, many residents dwell in more historically traditional housing (Christiaensen & Premand, 2017). These dwellings are composed of materials easily acquired for free within rural communities including wood, straw, and mud. These dwellings are hastily constructed with inadequate building materials so that people are vulnerable to storms (Christiaensen & Premand, 2017). These dwellings also lack electricity, plumbing, and sewage, causing an increase in pests and insect infestations that are often associated with the spread of diseases such as malaria. Many families within urban and rural areas inhabit these inadequate transient homes as they are left with few alternatives (Christiaensen & Premand, 2017).

As much of the country lives in impoverished urbanized or rural areas, often education is inaccessible to most citizens. Formal education is discouraged past elementary school within some communities, especially for indigenous peoples (Ouili, 2017). Schooling for youths does not typically exceed primary education which in the Ivory Coast culminates prior to adolescence (Brock, 2015). Instead, some indigenous tribes rely on practical education, often grooming children to aid in familial agricultural or animal husbandry endeavors or skilled trades. Social leaders expect children in rural or urban areas to facilitate the success of family businesses, and many family-owned enterprises are multigenerational (Brock, 2015), Moreover, as children grow up

immersed in family businesses, they do not get the opportunity to explore outside interests or develop other skill sets enough to leave them (Brock, 2015). Thus, positions within family-owned businesses are unpaid with sole compensation of food and shelter. Therefore, there is little option for work outside of these opportunities without further risk of worsening poverty (Ouili, 2017).

Male and female children attend elementary school with regularity; however, the length of schooling differs for each gender (Brock, 2015). On average, education for Ivorian females ends after five years (at age 12). Conversely, male children go to school slightly longer, with an average of eight years of education (ending at age 15; Brock, 2015).

As rates of formal education remains low throughout the Ivory Coast, literacy rates are low for both males and females regardless of age. In a survey of adult literacy completed in 2012 (United Nations Educational, Scientific and Cultural Organization, 2014), the Ivory Coast ranked as one of least literate countries throughout Africa. Further, large discrepancies between male and female literacy rates exist (United Nations Educational, Scientific and Cultural Organization, 2014). Approximately 60% of all literate adults were male, while only 40% were female (Brock, 2015). This discrepancy in literacy can be primarily attributed to differences in education but anecdotal evidence also exists that indicates that there is more emphasis on male literacy since they are responsible for most of the country's businesses (Kablan et al., 2017). Literacy is viewed largely as a practical tool and less as a universal norm, or developmental step, within childhood (Brock, 2015). Access to education and associated literacy rates of Ivorian

males and females is indicative of a more comprehensive gender inequality issue throughout the Ivory Coast.

Gender Inequality

For most of the history of the Ivory Coast, females have been viewed as inferior to males. Before independence, Ivorian females had few options outside homemaking, agricultural, or other domestic responsibilities (Schuerkens, 2017). These limited options persisted throughout much of the 20th century. The oppression of women in the Ivory Coast was readily manifested through social practices and legislation since men dominated many civil and business-related positions (Schuerkens, 2017). Women, when allowed to seek employment, were relegated to selling crops and crafts in local markets. Until the independence of the Ivory Coast in 1960, women were marginalized (Schuerkens, 2017).

The United Nations studied global gender inequality in the latter portion of the 1990s ranking the Ivory Coast last among African countries and in the lowest quartile globally as measured with the Gender-Related Development Index (GDI; Riley et al., 2016). The GDI is a framework based on developmental factors, such as access to education, employment rates, wages for comparable work, access to health care, and representation within governmental policy for males and females to ascertain inequality measure (Riley et al., 2016). The Ivory Coast's ranking further reflects the historically low scores it has received on the United Nation's HDI. Like the GDI, the HDI scores successful completion of education, attainment of adequate wages, life expectancy, and per capita income to develop a comprehensive scale to measure to which degree human

development has been accomplished (Riley et al., 2016). When HDI scores are low, expected life span is low, educational attainment is low, and per capita income is low. When measured in prior decades, the Ivory Coast scored low at 0.35 (World Bank, 2018). Although the Ivory Coast's score improved slightly in the 1980s, the score on the United Nation's HDI has continued to decline since the 1990s (Kpolovie et al., 2017).

In the latter part of the 1980s, only one in six students at the National University of Ivory Coast were women (Schuerkens, 2017). Further, in 1990, only under 5% of parliamentary seats were occupied by Ivorian women. Without representation in higher education and government, the subservient attitude towards Ivorian women had little resistance (Adelowokan et al., 2019). This underrepresentation facilitated decades in which the needs and equality of women were largely overlooked (Adelowokan et al., 2019). At the same time, Ivorian women routinely made less money than male counterparts and often had far less opportunity to gain promotion or positions of leadership (Adelowokan et al., 2019).

The number of women in the Ivorian workforce has increased; however, it remains lower than male counterparts. Women now comprise almost 25% of the civil workforce; while still low in comparison to global standards, it represents a marked improvement regarding female representation within the Ivory Coast (Goodwin et al., 2017). Moreover, women are gaining unprecedented access to fields historically restricted to male employment. Women have gained representation in the fields of law, higher educational instruction, and medicine; however, female representation amongst these career options persists at less than 7% (Goodwin et al., 2017). In 2005,

approximately 10% of Ivorian women were elected to hold higher governmental office; however, this statistic is misleading as many of these women hold administrative positions and largely oversee ministerial positions (Goodwin et al., 2017). This finding indicates that Ivorian women still wield little authoritative power in creation and representation of legislation (Goodwin et al., 2017).

Fertility and Reproductive Health Education in the Ivory Coast

As women remain largely disenfranchised in the Ivory Coast, reproductive options for Ivorian women are restricted by resources and autonomy. Historically, fertility rates have been high, and although they have reduced for women of higher social economic status, the rate remains high in Ivorian women of indigenous descents and of lower socioeconomic statuses (Inghels et al., 2017). Total fertility rate (TFR) is a measure that estimates the average number of children born within a country (Inghels et al., 2017). Although largely theoretical, the TFR of a country can be utilized to ascertain average fertility rates for given regions. The TFR in the Ivory Coast decreased from approximately seven births per Ivorian woman in 1980 to an average of six births per woman in 2015 (Inghels et al., 2017). However, the TFR rates remain higher at approximately eight births per woman in rural areas, as motherhood persists as a primary life path for the many Ivorian women that inhabit these areas (Inghels et al., 2017).

Many women in the Ivory Coast have restricted access to education about reproductive health, especially in rural and urban areas where poverty exists. Areas of lower socioeconomic statuses may not have the appropriate resources or the needed professionals to adequately service their communities (Inghels et al., 2017). As females

in these areas may not attend formal education past primary school, sexual education is absent (Inghels et al., 2017). Moreover, as female autonomy is more limited in poorer communities, decisions about pregnancy are often made by husbands or other males (Inghels et al., 2017).

Within the areas where poverty, female autonomy, and education are low, over 25% of pregnancies are unplanned and unwanted by the mother after conception (Eugène et al., 2018). Family planning services, which include medical and social education on conception alternatives such as abortion and contraceptives are also often limited within these areas (Inghels et al., 2017). Even when family planning services are available to lower socioeconomic communities, they are largely under-utilized (Inghels et al., 2017). Often within poorer or indigenous communities there persists a bias against such services. Many Ivorian families remain largely patriarchal; as such, some women are uncomfortable making health decisions alone, even about reproductive health (Inghels et al., 2017). Moreover, in many indigenous groups and lower socioeconomic communities, women believe that birthing children is their primary contribution to the success of familial groups (Inghels et al., 2017). This social philosophy creates a stigma against purposively abstaining from having children. Even if a pregnancy is unwanted, many women will continue pregnancy as it fulfills her role within society (Inghels et al., 2017).

Contraceptive Use

Although unwanted pregnancy rates remain high for Ivorian women, little has been done to mitigate this issue. Education concerning the use of contraceptives is largely inaccessible (Inghels et al., 2017). Although most Ivorian women (90%) have heard of at

least one form of contraception, most commonly condoms and birth control pills, how to

utilize them appropriately is often overlooked (Inghels et al., 2017). Although recognition

of contraception is high with Ivorian women, contraceptive use is low (Inghels et al.,

2017). Under 10% of women currently utilize any form of contraceptive preventative

measures; with the lowest use among the poor and indigenous women that inhabit much

of the urban and more rural areas of the Ivory Coast (Eugène et al., 2018). Ivorian women

are approximately 70% less likely to employ any form of contraception than non-Ivorian

women living in the Ivory Coast (Arikawa et al., 2016). Married Ivorian women of higher

socioeconomic statuses represent 80% of women who utilize contraception; however,

only 5% of them utilize modern contraceptive measures, such as oral birth control pills,

while the remaining commonly utilize older, less reliable anecdotal methods (Arikawa et

al., 2016). Forms of female birth control like IUDs, shots, and contraceptive patches are

largely negligible throughout all socioeconomic statuses (Arikawa et al., 2016). Further,

as socioeconomic status can produce differences in contraceptive use so does educational

attainment.

Ivorian women completing higher education, are approximately five times more

likely to utilize contraceptive measures than are women with little or no education

(Arikawa et al., 2016). Ivorian women that possess lower levels of education are often

less trusting of birth control measures, such as condoms and birth control pills (Tanoa et

al., 2018). Among these women, there is a common belief that condoms are less effective

than stated, that they break often, and they only result in a negligible reduction in

pregnancy (Tanoa et al., 2018). Further, contraceptive use is encouraged less often

throughout the Ivory Coast because abortion is utilized as the primary method for family planning and dealing with unwanted pregnancy (Arikawa et al., 2016).

Abortion

Results of a 2015 survey indicated that over 40% of Ivorian women reported having an abortion at least one time and many women report having more than one abortion before the age of 20 (Arikawa et al., 2016). Although many Ivorian women have utilized abortion procedures as a primary source of family planning, many women remain without access to legal or safe institutions that will facilitate abortions procedures. In 2016, 6% of abortions were unsafe for women which resulted in a higher prevalence of maternal deaths and life-long disabilities than in countries that did provide women access to safe abortion practices (Arikawa et al., 2016). Moreover, researchers have estimated that unsafe abortion practices are the cause of approximately 20% of all pregnancy related deaths in the Ivory Coast, though this number may be higher as many abortions go unreported (Eugène et al., 2018).

Ivorian women's beliefs about abortions reflect much of the anecdotal medical advice present throughout the country. Although the risks of these unsafe abortion practices are well documented, it is still the preferred choice of contraception (Eugène et al., 2018). Although Ivorian women from all different backgrounds undergo abortion procedures, women from lower socioeconomic are more likely to undergo them than Ivorian women from more affluent communities (Eugène et al., 2018). Moreover, women from urban areas are the more likely to undergo abortions than women in rural or suburban areas (Eugène et al., 2018).

Teen Pregnancy

As the median age for women in the Ivory Coast is 19, many adolescent girls have children beginning at early ages (Côté et al., 2018). Ivorian girls struggle with autonomy and access to education on safe sexual practices and reproductive health (Inghels et al., 2017). Thus, the issue of teenage mothers in the Ivory Coast mimics trends on TP observed throughout the world.

In the Ivory Coast, the teen birth rate is 125 per 1,000 total population, significantly higher than the global rate of 50 per 1,000. From 2008 to 2013, cases of TP increased from 1,292 to 5,076 in the Ivory Coast (Ministere, 2019). The Ivory Coast educational ministry launched an educational campaign named "Zero Pregnancies in School" in 2013 to reduce the number of unintended pregnancies among teenagers (United Nations Population Fund, 2015). Despite this campaign, the government reported 2,982 teen pregnancies from 2013 to 2015 (United Nations Population Fund, 2015) and 4,502 cases from 2017 to 2019 (Ministere, 2019). Thus, TP is an ongoing problem for the country as are the health and socioeconomic consequences that result (Ministere, 2019). More fully understanding predictors of TP can help officials identify those at risk earlier in their educational endeavors (Ministere, 2019). Doing so may lead to more effective early intervention and programming to help teen girls in the country avoid risk factors for TP, avoid pregnancy, and remain in school (Ministere, 2019).

Researchers have linked TP to ethnic and socioeconomic characteristics as predictors (e.g., Ministere, 2019). However, this current researcher expanded the understanding of the potential predictors for TP by studying the potential association of

additional characteristics: academic performance and self-efficacy. As such, I contributed to the existing knowledge base and arm officials with more information to create those interventions and programs.

Fertility rates for Ivorian adolescent girls, aged 15 to 19 years of age, are higher than for other female cohorts within the Ivory Coast (Maness & Buhi, 2016). The adolescent fertility is presently reported at approximately 140 reported births per 1,000 women; however, this number may be higher as many births to poor and indigenous women may go unreported (Maness & Buhi, 2016). As fertility remains high for Ivorian teenagers, the complications and associated costs of teen pregnancy have become more readily examined (Maness & Buhi, 2016). TP can be explained by a few prevalent health risks established within literature conducted on teenage mothers, especially within the Western regions of Africa where healthcare and education on proper health during pregnancy remains inaccessible (Maness & Buhi, 2016).

Although levels of PPD are higher within teenage mothers, the rate is greater in teenage mothers within countries, such as the Ivory Coast. The prevalence of PPD within much of Western Africa is significantly higher than in other countries with higher GDI and HDI scores (Barthel et al., 2017). PPD is linked to pregnancies that are unwanted, unplanned, or in cases in which the mother has little autonomy (Barthel et al., 2017). Further, as Ivorian women remain largely marginalized and their autonomy about decisions about pregnancies, PPD affects more mothers within these territories than in other countries that boast higher autonomy for women (Barthel et al., 2017). Health-related risks of teenage pregnancy, although serious in nature, are not the only domain in

which complications arise for teenage mothers (Barthel et al., 2017). As the resources needed to raise a child are abundant, teenage mothers are left with reduced options for child-rearing and less opportunity in determination of their own futures (Barthel et al., 2017).

Summary

TPB was an ideal theory to guide this study as I could then explore the association between TP in the Ivory Coast, academic performance, and self-efficacy. The Ivory Coast was selected as the site of interest for this research as the demography and economy created a diverse framework to examine the variables under study. This demography also showed the importance of the examination of this research topic as adolescents comprised much of the population and lived in impoverished urbanized or rural areas where education and adequate reproductive health care were inaccessible (see Ouili, 2017). The issues of teenage mothers in the Ivory Coast mimics trends on TP observed throughout the world.

This literature review included an outline of various concepts needed to understand better the context for the research. The next chapter articulates the methodology in which these research questions are examined. Chapter 3 includes a discussion on sampling methodology, data collection, data analysis, and any limitations or ethical concerns associated with the completion of this research.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study was to examine the association between academic performance and self-efficacy of teenagers with TP while controlling for ethnicity and socioeconomic status to determine if these might be modifiers or predictors. I determined the association to identify them as predictors for TP. I compared data between two groups of teens in the Ivory Coast: those who became pregnant while in school and those who did not.

For this study, the independent variable was teen pregnancy, and the dependent variables included academic performance and self-efficacy. The covariates were socioeconomic status and ethnicity. Academic performance was determined using self-reported grade average. Self-efficacy was measured using the GSQ (see Appendix B). Independent Chi-Square and GLM were used to examine the differences between the groups.

This chapter includes a discussion of the research design and its appropriateness to the study. The description of the population, sampling procedures, recruitment, and data collection procedures are outlined, followed by operationalization of constructs and data analysis plans. Assumptions, limitations, delimitations, and ethical procedures are discussed. A summary of the important details about the methodology concludes the chapter.

Research Design and Rationale

I employed a quantitative method—a research methodology using mathematical techniques to yield statistical inferences about the association between numerically measured variables (Camm, 2012; Hancock & Mueller, 2010; Wisniewski, 2016). Quantitative methods are used in studies with research questions about "who," "what," and "how many" (Leavy, 2017). Quantitative methods were appropriate for this study because the objective was to examine the association between variables: academic performance, self-efficacy, and TP while controlling for ethnic and socioeconomic factors. TP was the independent variable (pregnancy status); the dependent variables included academic performance and self-efficacy. I controlled for the effect of two covariates: socioeconomic status and ethnicity.

Qualitative and mixed methods were inappropriate for the study. Qualitative studies involve using observations, interviews, and case studies to collect information about certain phenomena from selected individuals or groups of individuals (Barczak, 2015; Park & Park, 2016); such researchers aim to answer "how" and "why" questions (Peters & Halcomb, 2015). Moreover, mixed methods combine both quantitative and qualitative methods (Halcomb & Hickman, 2015; Terrell, 2012). Mixed-methods researchers use qualitative techniques to expound and give context to the quantitative results. For this study, data were collected by survey requiring numeric responses; therefore, qualitative and mixed-method approaches were ineffective.

Likewise, other research designs, such as correlational and experimental, were inappropriate for the study. A correlational research design is appropriate when assessing

the relationship between two or more variables without any grouping of participants (Curtis et al., 2016; Gaskin, 2014; Hoe & Hoare, 2012). However, I determined the differences between the two groups of participants utilizing two dependent variables. An experimental approach was inappropriate for the current study as such researchers would use hypotheses that affirmed whether a treatment or experiment influenced a variable or variables (see Babbie, 2013; Hoe & Hoare, 2012). I did not conduct any treatments or experiments with the selected participants, only focusing on existing self-reported student characteristics. Thus, correlational and experimental research designs were inappropriate for the objective of this study.

Methodology

Population

The population of interest for this study included teenagers aged 18 and 19 years who attended school from 2017 to 2019 in Ivory Coast. As of the end of 2018, there was approximately 40% of the population less than 14 years of age (Adelowokan et al., 2019; Tanoa et al., 2018). Most of the population, an estimated 59%, were between the ages of 15 years of age and 64 years of age, with a median age of 19 for both males and females (Brass, 2015). The cohort with the fewest individuals was those individuals over the age of 65, constituting 3% of the population (Brass, 2015).

Abidjan is the economic capital of the Ivory Coast, with a population of 4.7 million representing 20% of the country's overall population. There were 1,778 secondary schools in the Ivory Coast, with 511 located in Abidjan (Brass, 2015). Abidjan was the only city with two public school girls. The first school was Saint Mary School, in

a wealthy neighborhood, which had 704 students aged from 9 to 22 years old and 573 aged 13 to 19 (Brass, 2015). The second one was a girls' school in Yopougon in a middle- and low-income area, with 912 schoolgirls, and 656 were ages 13 to 19 years. Between 2017 to 2018 and 2018 to 2019, respectively, 390 and 442 cases of teen pregnancy were reported in Abidjan (Brass, 2015).

Sampling

I used purposive sampling. Researchers conduct purposive sampling by using a mindful selection of participants so that only those who satisfy the inclusion criteria for the study are included (Duan et al., 2015; Haas, 2012). Inclusion criteria for this study included participants (a) 18 and 19 years old, (b) residing in Ivory Coast, and (c) attending school when pregnancy occurred or currently in school and not pregnant. Exclusion criteria for this study included people (a) below 18 years old and above 19 years old and (b) rape victims who became pregnant.

The required sample size was determined by conducting a power analysis using G*Power software (Faul et al., 2013). Four factors considered in the power analysis included significance level, effect size, power of the test. Significance level refers to the probability of rejecting a true null hypothesis, also commonly called Type I error. Power of test refers to the probability of rejecting a false null hypothesis (Haas, 2012). In most quantitative studies, the significance level is set at 95%, and the power of the test is set at 80%, (Koran, 2016). I used the same factors for this study: 95% significance level and 80% power of the test.

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The effect size indicates the estimated degree of relationship between predictor and criterion variables (Cohen, 1988). Effect size is categorized into small, medium, and large sizes; medium is commonly used for quantitative studies as it strikes a balance between being too strict and lenient in estimating the degree of relationship between the variables (Berger et al., 2013). Lastly, I used a generalized linear model to address the research questions and test the hypotheses. Using a 95% significance level, 80% power of the test, medium effect size ($\rho = .15$), and GLM with two groups, the minimum required sample size was 128 (see Appendix A).

Procedures for Recruitment and Participation

Pregnant Teens

A report from the Ivory Coast's Ministry of Education was utilized to identify teens who became pregnant while attending school during 2019 to 2020. The ministry collected and tracked data on TP, including contact information, since 2013. The report only identified those teens who became pregnant; it could not be used to identify teens who completed school without becoming pregnant.

Data from the Ministry of Education's report were available in Excel format; I was given permission by the ministry to use this data. I used the following procedures:

Data from the Ministry of Education's report were available in Excel format; I was given permission by the ministry to use this data. I used the following procedures:

- An official from the Ministry of Education selected a random sample of 64 pregnant teens identified in the report based on the following criteria: 18- and

19-year-old girls who got pregnant while in school, girls enrolled in school during the 2019 to 2020 academic year, and girls not pregnant by rape.

- Once a random sample was selected, an official from the Ministry of Education sent an invitation e-mail to identified teens (between 18 and 19 years old) to inform them that they were chosen to participate.

Nonpregnant Teens

I collaborated with administrators (advisors) at two schools in Abidjan, Ivory Coast (Saint Mary School and Girls School of Yopougon) to identify teens (18 to 19 years of age) enrolled in school in 2019 to 2020 but had not become pregnant. The following procedures were used:

- School administrators (advisors) from both schools identified all potential participants using existing student data based on the criteria that they were currently 18 or 19 years of age, enrolled in school during the 2019 to 2020 academic year, and had not become pregnant. Existing student data in each school contained email contact information, as well as age information.

- Once a random sample was selected, administrators sent them an email invitation.

The invitation email for both groups contained a consent form and a link (Appendix C) to the survey. The consent form and the survey were available in French.

Instrumentation and Operationalization of Constructs

The survey (Appendix B) distributed to both groups asked students to identify their ethnicities and socioeconomic statuses (i.e., the covariates for the study).

Participants were asked to identify if they were a member of Akan, Gur, Northern

Mande, and Southern Mande (Sezgin, 2018) as their ethnic statuses. They were asked to

identify their parents' socioeconomic statuses as low, middle, or high. Low

socioeconomic statuses in the Ivory Coast were considered a household earning under

$400/month, middle if earning between $400 and $1,900, and high if earning was more

than $1,900 (Institut National de la Statistique, 2012). Survey questions also asked

participants to identify their academic performances (average grades). Academic

performances were measured using the average grades reported by the students in the

survey as the standard measure used in the Ivory Coast.

Questions from the GSQ (Schwarzer & Jerusalem, 1995) were used to identify

measure self-efficacy. This 10-item psychometric scale was designed to assess optimistic

self-beliefs to cope with a variety of difficult demands in life. In contrast to other scales

designed to assess optimism, this one referred to personal agency (i.e., the belief that

one's actions were responsible for successful outcomes). The GSQ consisted of 10 items

using a 4-point Likert-type scale. The total score was calculated by finding the sum of all

items. For the GSQ, the total score ranged between 10 and 40, with a higher score

indicating a higher level of self-efficacy. The instrument had shown good internal

reliability and internal validity; for example, the Cronbach's alpha for the entire scale was

between .76 and .90, indicating good internal reliability (Schwarzer & Jerusalem, 1995).

Data Analysis

Data analysis for this study was performed using the Statistical Package for the

Social Sciences, Version 23 (SPSS, v. 23) to provide a range of descriptive and

inferential statistics. Researchers in educational, social, and behavioral sciences use SPSS

software (Hinton et al., 2014). The advantage of using SPSS, v. 23 was that it was user-

friendly, enabling me to export data from Microsoft Excel (see Kulas, 2009).

All data were preprocessed using Microsoft Excel. Preprocessing was used to

ensure a clean dataset by excluding data outliers and missing data. Only complete surveys

were included in the analysis. Once a complete and clean dataset was prepared, the

dataset was then exported to SPSS, v. 23 for data analysis. The research questions and

hypotheses for this study included the following:

RQ1: Is there any significant association between pregnancy status and academic

performance among at school teens in Ivory Coast?

$H_0$1: There is no significant association between pregnancy status and academic

performance among at school teens in Ivory.

H_a1: There is significant association between pregnancy status and academic

performance among at school teens in Ivory Coast.

RQ2: Is there any significant association between pregnancy status and self-

efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at

school teens in Ivory Coast?

$H_0$2: There is no significant association between pregnancy status and self-

efficacy among at school teens in Ivory Coast.

H_a2: There is significant association between pregnancy status and self-efficacy

among at school teens in Ivory Coast.

RQ3: Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate?

$H_0 3$: There is no significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

$H_a 3$: There is significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

RQ4: Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate?

$H_0 4$: There is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

$H_a 4$: There is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

RQ5: Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate?

$H_0$5: Is there is no significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate.

H_a5: There is significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate.

RQ6: Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast if ethnicity is considered as a covariate?

$H_0$6: There is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if ethnicity is considered as a covariate.

H_a6: There is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if ethnicity is considered as a covariate.

Descriptive analysis was conducted to characterize the demographics of the participants and their responses to the survey. Descriptive statistics, such as frequency, percentage, mean, and standard deviation, were computed. Charts, such as pie charts and histograms, were generated to accompany the descriptive analysis.

Inferential analyses using the t test (RQ1), Chi-Square (RQ2), and GLM (RQs 3, 4, 5, and 6) showed the differences between teens who became pregnant while in school and those who did not and (independent variable) academic performance and self-efficacy (dependent variables) while controlling for socioeconomic status and ethnicity (covariates). A t test was appropriate for the study to determine whether a significant

difference existed between the means of two groups. Chi-square was used to evaluate the relationship between categories variables. Additionally, the GLM was appropriate to determine whether a significant difference existed between the means of the groups while controlling for covariates. The goal of the GLM was to discover whether there was a significant difference or interaction effect, respectively, of the independent variables and covariates on the dependent variable (Field, 2013). *T* tests, Chi-Square, and GLM were conducted using a 95% confidence level.

Because the *t* test, Chi-Square, and GLM were considered tests, certain assumptions must be met. For the Chi-Square, normality, homogeneity of variances, and absence of outliers must be considered. For GLM, normality, homogeneity of variance, linearity, and independence must be considered (see Sedgwick, 2015). A Kolmogorov-Smirnov goodness of fit test was performed to detect if all study variables complied with the normality assumption (see Siddiqi, 2014). A test for homogeneity of variance was conducted using Levene's test to investigate a constant variance of error for the independent variable by plotting residuals versus predicted values and residuals versus independent variables. If the scatterplots of the variables were pattern-less, this finding indicated that the error was consistent across the range of predicted values; hence, the assumption was met (see Parra-Frutos, 2013). Linearity was tested to examine the linear relationship between the two variables (Sedgwick, 2015). Linearity testing involved producing scatterplots to ensure that the mean of the outcome variable for increment resembled a straight line. Lastly, a test for outliers was conducted through visual

inspection of histograms and box plots to meet the assumption of independence (Huber & Melly, 2015).

Hypothesis testing was conducted on all analyses, with a 0.05 level of significance (Weakliem, 2016). A p value of less than 0.05 dictated that there was a statistically significant difference and that the null hypothesis was rejected. Conversely, a value of greater than 0.05 dictated that there was no statistically significant difference between the groups.

Ethical Considerations

I followed all ethical considerations governed by Walden University and American Psychological Association (APA). The Institutional Review Board (IRB) approved this study (IRB No. 01-11-21-0614841). I respected the ethic and research regulation codes of the Ivory Coast (see Ethic et code de la segmentation, 2018). My priority, above all others in this study, was that there was no harm to the participants. Collaborators (official and administrators) uninvolved in data analysis selected teens. They sent to the identify teens an invitation that includes the link to the survey through email. I did not have any interaction with participants

Data were entered into Excel using an assigned identifier but did not include names or other contact information so that all data were anonymized; print copies will be shredded after five years. The data were stored in an encrypted format on a flash drive kept in a secure area of my office for five years and only accessible to me; the data will be destroyed at the end of five years. Safeguards were made to ensure that the entire five-year period was observed, including electronic calendar reminders to ensure that these

procedures were followed to remain compliant with these requirements. After five years, any hard copies and soft copies that contain the data set will be shredded and deleted.

Summary

The purpose of this quantitative study was to examine the association between academic performance and self-efficacy of teenagers with TP while controlling for ethnicity and socioeconomic status to determine if these might be modifiers or predictors. The t test, Chi-Square, and GLM were used to analyze the data. Data analysis was conducted in SPSS, v. 23. Chapter 4 presents the results. Chapter 5 presents the findings and recommendations of this study.

Chapter 4: Results

The purpose of this quantitative study was to examine the association between academic performance and self-efficacy of teenagers with TP while controlling for ethnicity and socioeconomic status to determine if these might be modifiers or predictors. Therefore, TP was the independent variable; academic performance and self-efficacy were the dependent variables. The covariates for the study included ethnicity and socioeconomic status. For this study, I collaborated with an official from the Ivory Coast Educational Ministry and administrators from two schools in the Ivory Coast to identify teens (one group representing teens who became pregnant while in school from 2019 to 2020 and one group representing those who did not). I administered a survey to both groups; data were analyzed to determine the association between academic performance and self-efficacy with TP in both groups. The research questions and hypotheses for this study included the following:

RQ1: Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast?

$H_0 1$: There is no significant association between pregnancy status and academic performance among at school teens in Ivory.

$H_a 1$: There is significant association between pregnancy status and academic performance among at school teens in Ivory Coast.

RQ2: Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast?

$H_0$2: There is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast.

H_a2: There is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast.

RQ3: Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate?

$H_0$3: There is no significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

H_a3: There is significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

RQ4: Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate?

$H_0$4: There is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

H_a4: There is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

RQ5: Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate?

$H_0$5: There is no significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate.

H_a5: There is significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate.

RQ6: Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast if ethnicity is considered as a covariate?

$H_0$6: There is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if ethnicity is considered as a covariate.

H_a6: There is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if ethnicity is considered as a covariate.

In this chapter, I describe data collection and results of statistical analyses. The analyses involved descriptive statistics, the testing of assumptions for parametric testing, and the outcomes of statistical testing. The results are organized according to the research questions. This chapter concludes with a summary of the findings.

Data Collection

An official used teen pregnancy data (the independent variable) from Ivory

Coast's Ministry of Education report to identify participants who became pregnant while

in school. Participants who did not become pregnant while in school were recruited in

collaboration with advisors at two schools in the Ivory Coast. Data for the two dependent

variables of academic performance and self-efficacy were collected from survey

responses from January 17, 2021, to January 27, 2021. I received 192 responses, removed

eight incomplete answers, and retained 184 in the dataset.

Results

I first describe demographics using descriptive statistics. Then, I provide the

results of statistical assumption testing. Finally, I report the findings from statistical

analyses organized according to each research question.

Descriptive Statistics

Table 1 shows the demographics of the survey participants. Out of 184

respondents, 95 (51.6%) were 18 years old, and 89 (48.4%) were 19 years old. Forty-five

(24.5%) were Mande, 53 (28.8%) were Akan, 42 (22.8%) were Gur, and 44 (23.9%) were

Krou. Eighty-two (44.6%) reported that their parents made under $400 per month, 92

(50%) reported their parents made $400 to $1,900 per month, and 10 (5.4%) reported

their parents made more than $1,900 per month. Ninety-eight (53.3%) reported being

pregnant at school, and 86 (46.7%) reported not being pregnant at school. Also, 183

(99.5%) of the students were still in school, and one (.05%) reported not being in school.

For first-quarter grades, 49 (26.6%) scored less than 9, 122 (66.3%) scored between 9 and

13, and 13 (7.1%) scored more than 13. For second-quarter grades, 65 (35.3%) scored

less than 9, 108 (58.7%) scored between 9 and 13, and 11 (6.0%) scored more than 13.

For third-quarter grades, 77 (41.8%) scored less than 9, 88 (47.8%) scored between 9 and

13, and 19 (10.3%) scored more than 13.

Table 1

Participant Demographics

		N	%
Age	18	95	51.6%
	19	89	48.4%
Ethnicity	Mande	45	24.5%
	Akan	53	28.8%
	Gur	42	22.8%
	Krou	44	23.9%
Parents Income	Under $400 monthly income	82	44.6%
	$400 to $1900 monthly income	92	50.0%
	Above $1900 monthly income	10	5.4%
Pregnant at school	Yes	98	53.3%
	No	86	46.7%
Still in school	Yes	183	99.5%
	No	1	.05%
First quarter grade	Less than 9	49	26.6%
	Between 9-13	122	66.3%
	More than 13	13	7.1%
Second quarter grade	Less than 9	65	35.3%
	Between 9-13	108	58.7%
	More than 13	11	6.0%
Third quarter grade	Less than 9	77	41.8%
	Between 9-13	88	47.8%
	More than 13	19	10.3%

Note. N = number; % = percentage

Statistical Assumptions

The statistical assumptions evaluated for this study included continuous level of

measurement for dependent variables, independence of observations, normal distribution,

and homogeneity of variances. Responses collected from the GSQ were treated as continuous data, and the data for academic performance were categorical. Therefore, the level of measurement assumption for academic performance was violated. The assumption of independence of observations was met because the teens were independent of one another. Normality was assessed using the Kolmogorov-Smirnov test for normality (see Table 2). The significance levels for all variables in this study were $p <$ .001, indicating that the assumption for normality was violated. Variable transformations were computed but did not improve normality.

Table 2

Test for Normality

	Kolmogorov-Smirnov		
Variable	Statistic	*df*	Sig.
GSQ	.114	184	<.001
Ethnicity	.195	184	<.001
Parents Income	.301	184	<.001
Pregnant at School	.358	184	<.001
First-Quarter Grade	.373	184	<.001
Second-Quarter Grade	.342	184	<.001
Third-Quarter Grade	.272	184	<.001

Finally, the assumption for homogeneity of variances was measured using the Levene's statistic (see Table 3). The significance for GSQ scores was $p = .98$. The significance for each of the three academic performance variables' p (first-, second-, and third-quarter grades) was $< .001$, indicating that the assumption for homogeneity of variances was violated for academic performance.

Table 3

Test for Homogeneity of Variances

	Levene's Test			
Variable	Statistic	df1	df2	Sig.
GSQ	.145	5	178	.98
First-Quarter Grade	27.93	1	182	<.001
Second-Quarter Grade	50.58	1	182	<.001
Third-Quarter Grade	11.29	1	182	<.001

Results

Research Question 1

RQ1 asked the following: Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast?

The null hypothesis was there is no significant association between pregnancy status and academic performance among at school teens in Ivory. The alternative hypothesis was there is significant association between pregnancy status and academic performance among at school teens in Ivory Coast.

Because the academic performance was measured according to three variables (i.e., first-quarter grades, second-quarter grades, and third-quarter grades), I conducted three separate Chi-square tests for independence to answer this research question. I combined the three performance data points as a new, total academic performance variable. However, when I used this variable, the assumption for Chi-square tests that the lowest expected frequency was five cases was violated. I used each performance data point separately because of this violation.

The results of each Chi-Square test were significant with large effect sizes, meaning that there were significant differences in academic performance between teens who became pregnant in school and those who did not. The Chi-Square test for the association between pregnancy and nonpregnancy and first-quarter grades was x^2 (2, n = 184) = 16.91, p = .001, phi = .30 (see Table 4 and Table 5).

Table 4

Relationship Between Pregnancy Status and First-Quarter Grade

	Value	df	Sig.
Pearson Chi-Square	16.91	2	<.001
Likelihood Ratio	17.75	2	<.001
Linear-by-Linear Association	15.98	1	<.001
N of Valid Cases	184		

Table 5

Symmetric Measures for Relationship Between Pregnancy Status and First-Quarter Grade

		Value	Approximate Sig.
Nominal by Nominal	Phi	.303	<.001
	Cramer's V	.303	<.001
N of Valid Cases		184	

The Chi-square test for the association between pregnancy and nonpregnancy and second-quarter grades was x^2 (2, n = 184) = 43.99, p = .001, phi = .49 (see Table 6 and Table 7).

Table 6

Relationship Between Pregnancy Status and Second-Quarter Grade

	Value	df	Sig.
Pearson Chi-Square	43.99	2	<.001
Likelihood Ratio	47.85	2	<.001
Linear-by-Linear Association	39.02	1	<.001
N of Valid Cases	184		

Table 7

Symmetric Measures for Relationship Between Pregnancy Status and Second-Quarter Grade

		Value	Approximate Sig.
Nominal by Nominal	Phi	.489	<.001
	Cramer's V	.489	<.001
N of Valid Cases		184	

The Chi-square tests for the association between pregnancy and nonpregnancy and third-quarter grades was x^2 (2, *n* = 184) = 40.02, *p* = .001, phi = .47 (see Table 8 and Table 9). Based on the results of the Chi-square tests, the null hypothesis was rejected.

Table 8

Relationship Between Pregnancy Status and Third-Quarter Grade

	Value	df	Sig.
Pearson Chi-Square	40.02	2	<.001
Likelihood Ratio	42.26	2	<.001
Linear-by-Linear Association	35.04	1	<.001
N of Valid Cases	184		

Table 9

Symmetric Measures for Relationship Between Pregnancy Status and Third-Quarter Grade

		Value	Approximate Sig.
Nominal by Nominal	Phi	.466	<.001
	Cramer's V	.466	<.001
N of Valid Cases		184	

Research Question 2

RQ2 asked the following: Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast?

The null hypothesis was there is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast. The alternative hypothesis was there is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast.

I used the nonparametric alternative to the *t* test, the Mann-Whitney U test, to address RQ2 because the data for the GSQ were not normally distributed, and the normality could not be corrected with variable transformations. The results of the Mann-Whitney U test revealed a significant difference in self-efficacy levels for teens who became pregnant in school (*Md* = 24, *n* = 98) and those who did not (*Md* = 26, *n* = 86), *U* = 5381, *z* = 3.25, *p* = .001 (see Table 10).

Table 10

Effects of Pregnancy Status on Self-Efficacy

Category	Statistics
Total N	184
Mann-Whitney U	5381.00
Value Test Statistic	3.25
p-value	.001

Teens who did not become pregnant in school had higher levels of self-efficacy than teens who became pregnant. Based on the results of the Mann-Whitney U test, the null hypothesis was rejected.

Research Question 3

RQ3 asked the following: Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate?

The null hypothesis was there is no significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate. The alternative hypothesis was there is significant association between pregnancy status and academic performance among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate.

I used three univariate GLMs with fixed factors (one for each quarter) to address this research question. I used the GLM instead of the ANCOVA because the covariate for this research question was a categorical variable. Additionally, the data used to answer this research question violated the assumptions of normality and homogeneity of

variance. However, because a nonparametric alternative was unavailable, the analyses

were conducted anyway. This issue was included as a limitation of this study.

The results of the analyses revealed that socioeconomic status did not have a

statistically significant interaction effect on any of the models: first-quarter grade, F (2,

178) = .27, p = .76 (see Table 11); second-quarter grade, F (2, 178) = 1.19, p = .31 (see

Table 12); and third-quarter grade, F (2, 178) = .18, p = .83 (see Table 13). Furthermore,

socioeconomic status was not significant as a main effect: first-quarter grade, F (2, 178) =

2.26, p = .11 (see Table 11); second-quarter grade, F (2, 178) = 1.67, p = .19 (see Table

12); and third-quarter grade, F (2, 178) = .37, p = .69 (see Table 13). Only being pregnant

at school had a significant main effect on academic performance: first-quarter grade, F

(1, 178) = 7.51, p = .007 (see Table 11); second-quarter grade, F (1, 178) = 25.80, p =

.001 (see Table 12); and third-quarter grade, F (1, 178) = 16.87, p = .001 (see Table 13).

Based on these results, the null hypothesis was retained.

Table 11

Effects of Pregnancy Status and Socioeconomic Status on First-Quarter Grades

	Type III Sum of Squares	df	Mean Square	F	p-value
Corrected Model	6.257	5	1.251	4.574	.001
Intercept	254.246	1	254.246	929.282	.000
PregAtSchool	2.056	1	2.056	7.515	.007
ParentsIncome	1.240	2	.620	2.265	.107
PregAtSchool * ParentsIncome	.148	2	.074	.270	.764
Error	48.700	178	.274		
Total	654.000	184			
Corrected Total	54.957	183			

Table 12

Effects of Pregnancy Status and Socioeconomic Status on Second-Quarter Grades

	Type III Sum of Squares	df	Mean Square	F	p-value
Corrected Model	14.358	5	2.872	11.162	.000
Intercept	207.528	1	207.528	806.660	.000
PregAtSchool	6.639	1	6.639	25.805	.000
ParentsIncome	.860	2	.430	1.672	.191
PregAtSchool * ParentsIncome	.611	2	.306	1.188	.307
Error	45.794	178	.257		
Total	596.000	184			
Corrected Total	60.152	183			

Table 13

Effects of Pregnancy Status and Socioeconomic Status on Third-Quarter Grades

	Type III Sum of Squares	df	Mean Square	F	p-value
Corrected Model	15.241	5	3.048	8.685	.000
Intercept	210.109	1	210.109	598.620	.000
PregAtSchool	5.921	1	5.921	16.870	.000
ParentsIncome	.259	2	.129	.369	.692
PregAtSchool * ParentsIncome	.130	2	.065	.185	.831
Error	62.476	178	.351		
Total	600.000	184			
Corrected Total	77.717	183			

Research Question 4

RQ4 asked the following: Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast if the socioeconomic status is considered as a covariate?

The null hypothesis was there is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if the socioeconomic status

is considered as a covariate. The alternative hypothesis was there is significant

association between pregnancy status and self-efficacy among at school teens in Ivory

Coast if the socioeconomic status is considered as a covariate.

I used a univariate GLM with fixed factors to address this research question. I

used the GLM instead of the ANCOVA because the covariate for this research question

was a categorical variable. Additionally, the data used to answer this research question

violated the assumptions of normality. However, because a nonparametric alternative was

unavailable, I still conducted the analysis. This issue was included as a limitation of this

study.

The results of the analysis revealed that socioeconomic status did not have a

statistically significant interaction effect on the model, F (2, 178) = 2.12, p = .12 (see

Table 14). Furthermore, socioeconomic status was not significant as a main effect F (2,

178) = .69, p = .50. Only pregnant at school had a significant main effect on self-efficacy,

F (1, 178) = 11.11, p = .001. Based on these results, the null hypothesis was retained.

Table 14

Effects of Pregnancy Status and Socioeconomic Status on Self-Efficacy

	Type III Sum of Squares	df	Mean Square	F	p-value
Corrected Model	310.326	5	62.065	3.197	.009
Intercept	46991.127	1	46991.127	2420.188	.000
PregAtSchool	215.786	1	215.786	11.114	.001
ParentsIncome	26.858	2	13.429	.692	.502
PregAtSchool * ParentsIncome	82.270	2	41.135	2.119	.123
Error	3456.104	178	19.416		
Total	120221.000	184			
Corrected Total	3766.429	183			

Research Question 5

RQ5 asked the following: Is there any significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate?

The null hypothesis was there is no significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate. The alternative hypothesis was there is significant association between pregnancy status and academic performance among at school teens in Ivory Coast if ethnicity is considered as a covariate.

Before conducting analysis for RQ5 using ethnicity as a covariate, I conducted a Chi square test of association to examine the potential relationship between ethnicity and whether teens became pregnant while in school, as well as teens' grades in the first quarter, second quarter, and third quarter. First, I conducted a Chi square test of association with ethnicity and pregnancy status (see Tables 15 and 16).

Table 15

Relationship Between Ethnicity and Pregnancy Status

	Value	df	p-value
Pearson Chi-Square	.64	3	.888
Likelihood Ratio	.64	3	.888
N of Valid Cases	184		

Table 16

Symmetric Measures for Relationship Between Ethnicity and Pregnancy Status

		Value	Approximate p-value
Nominal by Nominal	Phi	.059	.888
	Cramer's V	.059	.888
N of Valid Cases		184	

The analysis resulted in an association of x^2 (3, $n = 184$) = .64, p = .888, *phi* = .06. Given this finding, ethnicity was not significantly related to whether teens became pregnant while in school.

Next, I conducted a Chi square test of association with ethnicity and first-quarter grades (see Tables 17 and 18).

Table 17

Relationship Between Ethnicity and First-Quarter Grade

	Value	df	p-value
Pearson Chi-Square	7.29	6	.295
Likelihood Ratio	7.38	6	.287
N of Valid Cases	184		

Table 18

Symmetric Measures for Relationship Between Ethnicity and First-Quarter Grade

		Value	p-value
Nominal by Nominal	Phi	.199	.295
	Cramer's V	.141	.295
N of Valid Cases		184	

The analysis resulted in an association of x^2 (6, n = 184) = 7.29, p = .295, phi = .20.

Given this finding, ethnicity was not significantly related to first-quarter grades.

Next, I conducted a Chi square test of association with ethnicity and second-quarter grades (see Tables 19 and 20).

Table 19

Relationship Between Ethnicity and Second-Quarter Grade

	Value	df	p-value
Pearson Chi-Square	11.84	6	.066
Likelihood Ratio	11.06	6	.087
N of Valid Cases	184		

Table 20

Symmetric Measures for Relationship Between Ethnicity and Second-Quarter Grade

		Value	p-value
Nominal by Nominal	Phi	.254	.066
	Cramer's V	.179	.066
N of Valid Cases		184	

The analysis resulted in an association of x^2 (6, n = 184) = 11.84, p = .066, phi = .25.

Given this finding, ethnicity was not significantly related to second-quarter grades.

Finally, I conducted a Chi square test of association with ethnicity and third-quarter grades (see Tables 21 and 22).

Table 21

Relationship Between Ethnicity and Third-Quarter Grade

	Value	df	*p*-value
Pearson Chi-Square	7.86	6	.248
Likelihood Ratio	8.03	6	.236
N of Valid Cases	184		

Table 22

Symmetric Measures for Relationship Between Ethnicity and Third-Quarter Grade

		Value	*p*-value
Nominal by Nominal	Phi	.207	.248
	Cramer's V	.146	.248
N of Valid Cases		184	

The analysis resulted in an association of x^2 (6, *n* = 184) = 7.86, *p* = .248, *phi* = .207. Given this finding, ethnicity was not significantly related to third-quarter grades.

I used three univariate GLMs with fixed factors (one for each quarter) to address this research question. I used the GLM instead of the ANCOVA because the covariate for this research question was a categorical variable. Additionally, the data used to answer this research question violated the assumptions of normality and homogeneity of variance. However, because a nonparametric alternative was unavailable, I conducted the analyses anyway. This issue was included as a limitation of this study.

The results of the analyses revealed that ethnicity only had a statistically significant interaction effect on group differences for second-quarter grades: first-quarter grade, *F* (3, 176) = 1.00, *p* = .39 (see Table 23); second-quarter grade, *F* (3, 176) = 5.53,

$p = .001$ (see Table 24); and third-quarter grade, $F(3, 176) = 1.54$, $p = .20$ (see Table 25).

Ethnicity was not significant as a main effect: first-quarter grade, $F(3, 176) = 1.52$, $p =$

.21 (see Table 23); second-quarter grade, $F(3, 176) = .39$, $p = .76$ (see Table 24); and

third-quarter grade, $F(3, 176) = .85$, $p = .47$ (see Table 25). Pregnant at school had a

significant main effect on academic performance: first-quarter grade, $F(1, 176) = 16.81$,

$p = .001$ (see Table 23); second-quarter grade, $F(1, 176) = 53.02$, $p = .001$ (see Table

16); and third-quarter grade, $F(1, 176) = 41.51$, $p = .001$ (see Table 25). Based on these

results, the null hypothesis was partially rejected.

Table 23

Effects of Pregnancy Status on First-Quarter Grade, Controlling for Ethnicity

	Type III Sum of Squares	df	Mean Square	F	p-value
Corrected Model	6.849	7	.978	3.579	.001
Intercept	603.042	1	603.042	2206.192	.000
PregAtSchool	4.595	1	4.595	16.811	.000
Ethnicity	1.250	3	.417	1.525	.210
PregAtSchool * Ethnicity	.823	3	.274	1.003	.393
Error	48.108	176	.273		
Total	654.000	184			
Corrected Total	54.957	183			

Table 24

Effects of Pregnancy Status on Second-Quarter Grade, Controlling for Ethnicity

	Type III Sum of Squares	df	Mean Square	F	p-value
Corrected Model	17.171	7	2.453	10.045	.000
Intercept	544.158	1	544.158	2228.243	.000
PregAtSchool	12.947	1	12.947	53.016	.000
Ethnicity	.286	3	.095	.390	.760
PregAtSchool * Ethnicity	4.053	3	1.351	5.532	.001
Error	42.981	176	.244		
Total	596.000	184			
Corrected Total	60.152	183			

Table 25

Effects of Pregnancy Status on Third-Quarter Grade, Controlling for Ethnicity

	Type III Sum of Squares	df	Mean Square	F	p-value
Corrected Model	17.456	7	2.494	7.283	.000
Intercept	530.994	1	530.994	1550.832	.000
PregAtSchool	14.212	1	14.212	41.506	.000
Ethnicity	.872	3	.291	.849	.469
PregAtSchool * Ethnicity	1.586	3	.529	1.544	.205
Error	60.261	176	.342		
Total	600.000	184			
Corrected Total	77.717	183			

Research Question 6

RQ6 asked the following: Is there any significant association between pregnancy status and self-efficacy, as measured by the General Self-Efficacy Questionnaire (GSQ), among at school teens in Ivory Coast if ethnicity is considered as a covariate?

The null hypothesis was there is no significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if ethnicity is considered as a covariate. The alternative hypothesis was there is significant association between pregnancy status and self-efficacy among at school teens in Ivory Coast if ethnicity is considered as a covariate.

I used a univariate GLM with fixed factors to address this research question. I used the GLM instead of the ANCOVA because the covariate for this research question was a categorical variable. Additionally, the data used to answer this research question violated the assumptions of normality. However, I conducted the analysis anyway because a nonparametric alternative was unavailable. This issue was included as a limitation of this study.

The results of the analysis revealed that ethnicity did not have a statistically significant interaction effect on the model, $F(3, 176) = 1.34$, $p = .26$ (see Table 26). Furthermore, ethnicity was not significant as a main effect $F(3, 176) = .44$, $p = .72$. Only pregnant at school had a significant main effect on self-efficacy, $F(1, 176) = 10.11$, $p = .002$. Based on these results, the null hypothesis was retained.

Table 26

Effects of Pregnancy Status on Self-Efficacy, Controlling for Ethnicity

	Type III Sum of Squares	df	Mean Square	F	p-value
Corrected Model	305.259	7	43.608	2.217	.035
Intercept	115424.549	1	115424.549	5869.322	.000
PregAtSchool	198.734	1	198.734	10.106	.002
Ethnicity	26.119	3	8.706	.443	.723
PregAtSchool * Ethnicity	79.328	3	26.443	1.345	.262
Error	3461.170	176	19.666		
Total	120221.000	184			
Corrected Total	3766.429	183			

Summary

The results of each Chi-square test for RQ1 were significant with large effect sizes, meaning that there were significant differences in academic performance between teens who become pregnant in school and those who do not in Ivory Coast. For RQ2, the results of the Mann-Whitney U Test revealed a significant difference in self-efficacy levels for teens who became pregnant in school and those who did not. The analyses for RQ3 showed that socioeconomic status did not have a statistically significant interaction effect on any of the models for pregnancy at school and academic performance. The analysis results for RQ4 revealed that socioeconomic status did not have a statistically significant interaction effect on the model for pregnant at school and self-efficacy. The

analysis results for RQ5 showed that ethnicity only had a statistically significant interaction effect on group differences for second-quarter grades. Finally, the analysis results for RQ6 revealed that ethnicity did not have a statistically significant interaction effect on the model for pregnant at school and GSQ. In Chapter 5, I provide an interpretation of these results and recommendations for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative study was to examine the association between academic performance and self-efficacy of teenagers with TP while controlling for ethnicity and socioeconomic status to determine if these might be modifiers or predictors. I uncovered two predictor factors that might facilitate early identification of teens at risk of becoming pregnant; provides increased understanding of how to better understand, intervene, and keep adolescent girls from becoming pregnant, thus staying enrolled in school.

The major findings of this study are significant. There were significant differences in academic performance between teens who became pregnant in school and those who did not in Ivory Coast and significant differences in self-efficacy levels. The findings showed that socioeconomic status was not a statistically significant factor. In contrast, ethnicity did show a statistically significant interaction effect for academic performance, but only for second-quarter grades. However, ethnicity was not a statistically significant interaction effect on the model for pregnant at school and GSQ.

In this chapter, I discuss the interpretation of the findings and compare these findings with existing literature. Further, in this chapter, I discuss the study's limitations, especially regarding generalizability. I discuss the research implications regarding social change for individual, organizational, and societal levels. I conclude with a list of recommendations for future research and social change.

Interpretation of the Findings

In this section, I interpret the findings in line with the six research questions. Interpretation of the findings from the statistical analyses are discussed and organized in accordance with each respective research question.

Research Question 1

For the first research question, results from the Chi-square tests showed significant differences in academic performance between teens who became pregnant in school and those who did not. These findings were like those reported that pregnancy in school leads to decreased academic performance (Birchall, 2018; Stoner et al., 2019). Past researchers have also noted that teen girls who become pregnant in school are more likely to experience barriers to academic achievement (Birchall, 2018; Stoner et al., 2019). Teens who become pregnant in school experience unique challenges in physical, mental, societal, and emotional areas (Birchall, 2018). According to Birchall (2018), teen girls who become pregnant in school need support, especially as they face social, academic, and economic pressures. Stoner et al. (2019) also noted that teens who became pregnant in school and who did not receive academic support help were more likely to drop out of school.

Additionally, this finding was also in line with another framework used in this study, which was the SCT. According to the SCT, youth with higher levels self-efficacy are more likely to expend more effort to accomplish goals over longer periods of time (Bandura et al., 2001). Furthermore, youth with higher levels self-efficacy are more likely to stop intentional behaviors regarding goal planning and action initiations compared to

their peers with lower self-efficacy (Schwarzer, 2008). Together with the finding in RQ2 (teens who did not become pregnant also have higher levels of self-efficacy than teens who did), the SCT was consistent with this study's finding. There were significant differences in academic performance between teens who became pregnant in school and those who did not and most likely due to their differences in self-efficacy levels, as noted in the SCT. As such, I (both for RQ1 and RQ2) expanded the SCT by examining self-efficacy and academic performance among teens in the Ivory Coast who became pregnant in school and those who did not become pregnant.

I conducted the first empirical study to establish this association among teens in Ivory Coast. As a result, the findings in conjunction with existing literature showed the need for additional academic support for teens who became pregnant. Specific support programs, special programs, and counseling plans are essential to reduce the gap in academic performance between those who become pregnant while in school and those who do not become pregnant.

Research Question 2

The Mann-Whitney U Test showed a significant difference in self-efficacy levels for teens who became pregnant while in school and those who did not pregnant. Teens who did not become pregnant had higher levels of self-efficacy than teens who become pregnant. This finding was consistent with previous research, showing that teens who became pregnant had lower levels of self-efficacy than those who did not become pregnant (Machmud & Indrapriyatna, 2019; Naidoo & Taylor, 2019). Reports have further shown that teenagers with low self-efficacy have six times more risk of becoming

pregnant in school than teenagers with higher self-efficacy levels (Machmud &

Indrapriyatna, 2019). However, past researchers have not focused on the population of

teens in the Ivory Coast (Machmud & Indrapriyatna, 2019; Naidoo & Taylor, 2019); I

was the first to examine and find a significant correlation between self-efficacy levels and

pregnancy in school.

I extended the used framework in this study, which was the TPB. According to

the TPB, one's self-efficacy influences engaging in a certain behavior (Ajzen, 1991). In

this case, teenagers with low self-efficacy had a higher risk of becoming pregnant in

school than teenagers with higher self-efficacy levels.

Research Question 3

Another key finding of this research was that socioeconomic status did not

significantly influence any of the models (first-quarter grade, second-quarter grade, and

third-quarter grade). Only becoming pregnant in school had a significant main effect on

academic performance. However, the finding that socioeconomic status was not

significant as a significant effect was inconsistent with past studies. For example, von

Stumm (2017) reported that socioeconomic status was a significant factor that impacts

the academic achievement of teens in school. Socioeconomic status increases the

academic achievement gap between high and low socioeconomic status teens (von

Stumm, 2017).

I might be the first to examine the association between academic performance and

self-efficacy of pregnant teenagers while controlling for ethnicity and socioeconomic

status. However, previous researchers have reported that socioeconomic status is a

significant factor to consider in examining teenage pregnancy and their academic outcomes (Birchall, 2018; Stoner et al., 2019; von Stumm, 2017). The finding of this current study is partially in contrast to this literature; thus, there is a need to examine this topic further, possibly by using a nonparametric alternative for analyses of data.

Research Question 4

A key finding from the analyses showed that socioeconomic status did not have a statistically significant interaction effect on the model. Additionally, socioeconomic status was not significant as the main effect. Self-efficacy does not significantly differ between teens who became pregnant in school and those who do not in Ivory Coast when the socioeconomic status is considered a covariate. Both groups of teens have similar levels of self-efficacy, namely their ability to expend more effort to accomplish goals over more extended periods, even when controlling for socioeconomic status (Bandura et al., 2001). Importantly, I was the first to examine differences in self-efficacy between teens who became pregnant in school and those who did not consider socioeconomic status. I added to and expanded existing literature. The results showed empirical information that both groups in the Ivory Coast had similar levels of self-efficacy, controlling for socioeconomic status.

Research Question 5

The results of the study showed that ethnicity only had a statistically significant interaction effect on group differences for second-quarter grades. Past researchers have also noted that ethnicity (specifically relating to African American and Hispanic/Latino teen girls) has a significant role in impacting teens' academic performance who become

pregnant in school (Dowden et al., 2018; Ohene & Garcia, 2020). Moreover, past researchers have noted the need to provide further support for ethnically minority teen girls at risk of becoming pregnant in school (Dowden et al., 2018; Mkwananzi, 2017). Ethnicity was not significant as the main effect.

I was the first to explore academic performance among teens who became pregnant in school and those who did not while examining ethnicity as a covariate. Although researchers have indicated that racial/ethnicity are associated with pregnancy outcomes, they have not explored academic performance among ethnic teens who became pregnant in school and those who did not (Aparicio et al., 2016; Barrett et al., 2015). As such, I added to the current body of literature, with a focus on teen girls in Ivory Coast. Also, the results showed that becoming pregnant while in school had a significant main effect on academic performance and is consistent with previous literature (Barrett et al., 2015; Rosenberg et al., 2015).

Research Question 6

Findings showed that self-efficacy did not significantly differ between teens in the Ivory Coast who became pregnant in school and those who did not when ethnicity was considered as a covariate. Furthermore, only pregnancy while in school had a significant main effect on self-efficacy. I was the first to explore the self-efficacy of teen girls in Ivory Coast while considering ethnicity as a covariate. Therefore, this finding indicates that becoming pregnant in school has significant effects on teens' levels of self-efficacy. This information may help school leaders and other officials develop programs for intervention and prevention, specifically aiming to increase teens' self-efficacy.

I extended the used framework in this study, which was the TPB. According to the TPB, one's self-efficacy influences following engagement in that behavior (Ajzen, 1991). This finding was also an extension of the used framework in this study, which was the SCT. According to the SCT, youth with higher levels self-efficacy have a greater likelihood of expending more effort to accomplish goals over longer periods of time (Bandura et al., 2001). Youth also demonstrate more intentional behavior regarding goal planning and action initiation (Schwarzer, 2008) than their peers with lower self-efficacy. According to the TPB (Ajzen, 1991), perceptions of one's ability to perform a behavior or self-efficacy may predict subsequent engagement in that behavior.

Limitations of the Study

There were various limitations of this study. I used pregnancy data collected from a report provided by the Ivory Coast's Ministry of Education. As such, the focus of this study did not include other teens who became pregnant while in school in other parts of Ivory Coast or other areas of the world. Additionally, teens who did not become pregnant while in school were recruited from only two schools in the Ivory Coast. Therefore, the conclusions cannot be generalized to other parts of the Ivory Coast or other world areas. Also, there was a lack of available nonparametric alternatives for data analysis. Thus, the data used to answer this study's research questions violated the assumptions of normality and homogeneity of variance. Furthermore, I found it challenging to analyze, gauge, confirm or disconfirm the results due to the lack of available peer-reviewed literature on the self-efficacy and academic performance among teens who become pregnant in school while controlling for ethnicity and socioeconomic status.

Nonetheless, I provided a foundation for future researchers who might wish to further examine the association between academic performance and self-efficacy of teenagers who become pregnant. Additionally, future researchers can use the results of this study to explore these and potentially other modifying and predicting factors linked to academic performance and self-efficacy in the context of teen pregnancy.

Recommendations

Teen pregnancy in the Ivory Coast is relatively new in extant literature despite its prevalence; therefore, much is unknown (Côté et al., 2018; Inghels et al., 2017). With minimal previous literature regarding teen pregnancy, self-efficacy, and academic performance in the context of the Ivory Coast or in similar settings, the results can be considered as an initial reference for further research.

I focused on teenage girls in the Ivory Coast; however, participants may not have reflected the country's general population. Therefore, I recommend for future researchers to expand the sample size and conduct research employing additional schools in the Ivory Coast. Another recommendation is to include the entire teen population for sampling procedures rather than limit the sample size to the number of reported teen pregnancy cases in the Ivory Coast by the Ministry of Education. Expanding the sample size to reflect the general population of teenage girls in the Ivory Coast may provide more insight and in-depth findings on the understudied topic of teen pregnancy, self-efficacy, and academic performances among teen girls.

According to past research, various factors were shown to contribute to teen pregnancy, including teacher quality, parental involvement, and school climate (Geber et

al., 2021; Javier, 2018). Future researchers can use these findings as new information to expand on what is known as contributing variables that contribute to teen pregnancy. Furthermore, the results from this study can be used for developing and improving essential public health services for teenage girls in the Ivory Coast. According to the CDC (2020), essential public health services are necessary for all people in all communities. One should identify and address systemic and structural barriers that contribute to public health inequities to provide equitable and optimal health for all people in all communities (CDC, 2020). This study is aligned with the core functions of public health, wherein leaders can use the findings for assessment, assurance, and policy development for protecting and promoting the health of teenage girls in the Ivory Coast, especially regarding teen pregnancy (CDC, 2020).

Furthermore, one of the key results showed that ethnicity only had a statistically significant interaction effect on group differences for second-quarter grades. This finding is inconsistent with findings in previous research (Dowden et al., 2018; Mkwananzi, 2017; Ohene & Garcia, 2020). Then, there is a need to explore this topic further to examine why results are different for the participants in this study and other factors that mitigate ethnicity. I was the first to focus on teens' academic performance while considering ethnicity as a covariate; thus, the findings could be used as an initial reference for future researchers to extend the current knowledge on the effect of ethnicity.

Another area for consideration for further research is to conduct a study using a quasi-experimental design. A researcher may use a quasi-experimental design to include interventions where leaders promote health and well-being among teens, specifically

concerning teenage pregnancy in school (Machmud & Indrapriyatna, 2019). This study is essential given the prevalence of teen pregnancy in the Ivory Coast (see Côté et al., 2018). There is much more examination needed to understand better how teens at risk of becoming pregnant in school can be supported to stay in school.

Implications

The study on the association between teen pregnancy, self-efficacy, and academic performance among schoolgirls in the Ivory Coast includes several implications for school administrators, education leaders in Ivory Coast, policymakers, public-health officials/leaders, public-health experts, public-health practitioners, and other related professionals. The study will be beneficial to school leaders and other officials seeking to identify teen girls at risk of becoming pregnant to develop programs related to intervention and prevention. Furthermore, I provide understanding and knowledge that authorities and policymakers in the Ivory Coast can used to develop policies and interventions to reduce the rate of teen pregnancy. The findings of this research study show more in-depth information that public health leaders, authorities, and policymakers can use when addressing and removing systemic and structural barriers. Schoolgirls in the Ivory Coast face such issues when seeking support, education, and health diagnoses regarding pregnancy. This finding is line with the CDC's (2020) core functions of public health and the 10 essential public health services, underscoring the need to assess, monitor, investigate, diagnose, and address health issues and hazards that affect teenage girls in the Ivory Coast. This includes providing communication and education regarding

health factors and improving them while also developing strong public health functions and access for the affected population group (CDC, 2020).

I promote future systematic changes in the education and public healthcare systems in the Ivory Coast to promote the continuous development of proactive, equitable public healthcare systems specific to teen girls. Therefore, policymakers can use the findings as they apply changes, particularly empowering teens and women in the Ivory Coast to make decisions and to support themselves and their families financially and emotionally. Policymakers can reduce the rate of teen pregnancy; thus, economic and social consequences for communities and families may be reduced through better and more equitable public healthcare systems, including rates of school dropout, educational levels, and socioeconomic status, contributing to societal change.

The results showed significant differences in academic performance between teens who became pregnant in school and those who did not. Teens were significantly impacted in their academic performances as they became pregnant in school, leading to adverse academic performances. As Rosenberg et al. (2015) found, without the provision of academic and emotional support, teens who become pregnant in school are most likely to drop out. Thus, the findings have significant implications for the education system in the Ivory Coasts, underscoring the need to focus on developing programs and interventions to support the academic goals of teens who become pregnant in school. Hence, this study shows significant implications for helping teen girls in Ivory Coast in their academic goals, allowing and empowering this unique population group to stay in school and attain better socioeconomic opportunities.

The findings have the potential for positive social change within the individual, societal, and policy levels of public healthcare. As researchers have shown (Aparicio et al., 2016; Barrett et al., 2015; CDC, 2020; World Bank, 2016), there is a continuing need for healthcare leaders and institutions to develop proactive policies and programs for teen girls at risk of becoming pregnant. I was the first to examine teen pregnancy, self-efficacy, and academic performances among teen girls in the Ivory Coast while considering socioeconomic status and ethnicity. Hence, I can aid in developing an effective public health model for the early identification of teens at risk of becoming pregnant.

Conclusion

I conducted this quantitative study based on the TPB to gain more insight into the association of academic performance and self-efficacy with teen pregnancy and determine if they are predictors of it among teen girls in the Ivory Coast. Current literature on academic performance, teen pregnancy, and self-efficacy is scarce. One should address this lack of knowledge because there is a persistent prevalence of teen pregnancy in the Ivory Coast (Barrett et al., 2015; Rosenberg et al., 2015).

I found several conclusions from the results. There were significant differences in academic performance and self-efficacy levels between teens who became pregnant in school and those who did not. Socioeconomic status did not have a statistically significant interaction effect on any of the models for pregnancy at school and academic performance and self-efficacy. Ethnicity only had a statistically significant interaction

effect on group differences for second-quarter grades. Also, ethnicity did not have a statistically significant interaction effect on the model for pregnant at school and GSQ.

I provide only the beginning of an understanding of teen pregnancy in the Ivory Coast and the factors associated with it (academic performance and self-efficacy while controlling for ethnic and socioeconomic factors). There is a need to investigate this topic further by employing a larger sample size and reflecting the general teen population in the Ivory Coast. Additional research is also needed on this topic in other areas of the world and learning how teen pregnancy is managed and reduced in other areas. Given that teen pregnancy is a global problem representing a tremendous public health problem, this additional research is critical. I provide a foundation for future research to build on this topic further.

Future researchers should explore the topic more by expanding the scope and sample size, using another research design, and considering other variables such as school climate and parental involvement. One should understand whether teen pregnancy, academic performance, and self-efficacy are associated in the Ivory Coast, which is what I accomplished. As more teen pregnancy cases arise, it will be more significant for public-health officials and practitioners who work in teenage pregnancy reduction to mitigate the risk of teen pregnancy effectively in the Ivory Coast. They should address health problems of teenage girls in the Ivory Coast by providing them a fair and just opportunity to public healthcare.

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Appendix A: Sample Size Calculation

t tests - Means: Difference between two independent means (two groups)

Analysis: A priori: Compute required sample size

Input: Tail(s) =   Two

Effect size d   =   0.5

α err prob   =   0.05

Power (1-β err prob)   =   .80

Allocation ratio N2/N1   =   1

Output: Noncentrality parameter δ   =   2.8284271

Critical t   =   1.9789706

Df   =   126

Sample size group 1   =   64

Sample size group 2   =   64

Total sample size   =   128

Actual power =   0.8014596
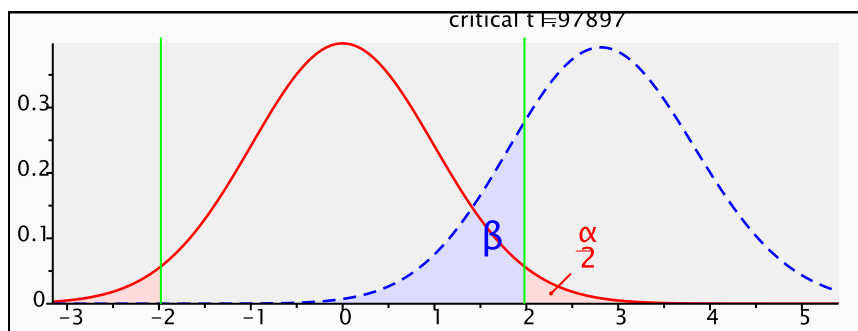
F tests - GLM: Fixed effects, main effects and interactions

Analysis: A priori: Compute required sample size

Input: Effect size f   =   0.25

          α err prob   =   0.05

          Power (1-β err prob) =   .80

          Numerator df =   1

          Number of groups   =   2

          Number of covariates =   1

Output: Noncentrality parameter λ =   8.0000000

          Critical F   =   3.9169322

          Denominator df   =   125

          Total sample size   =   128

          Actual power =   0.8014112

Appendix B: Survey

Section I - Demographics

1. What is your age? _____

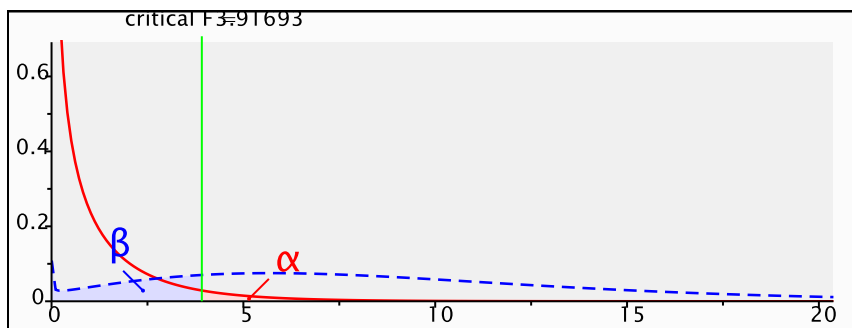2. What is your pregnancy status? Got pregnant during school

    a. Yes   If yes, are you still in school? Yes   No

    b. No

3. What was your grade last year?

    a. First quarter: Less than 9

                  Between 9-13

                  More than 13

    b. Second quarter: Less than 9

                  Between 9-13

                  More than 13

    c. Third quarter: Less than 9

                  Between 9-13

                  More than 13

4. What is your ethnicity?

    a. Akan

    b. Gur

    c. Krou

    d. Mande

5. What is your parents social economic status?

    a. Low (under $ 400 monthly income)

    b. Middle ($ 400 and $1900 monthly income)

    c. High (above $1900 monthly income)

Section II – Self-Efficacy

	Not at all true (1)	Hardly true (2)	Moderately true (3)	Exactly true (4)
1. I can always manage to solve difficult problems if I try hard enough.				
2. If someone opposes me, I can find the means and ways to get what I want.				
3. It is easy for me to stick to my aims and accomplish my goals.				
4. I am confident that I could deal efficiently with unexpected events.				
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.				
6. I can solve most problems if I invest the necessary effort.				
7. I can remain calm when facing difficulties because I can rely on my coping abilities.				
8. When I am confronted with a problem, I can usually find several solutions.				
9. If I am in trouble, I can usually think of a solution.				
10. I can usually handle whatever comes my way.				

Appendix C: Survey French Version Questionnaire

Section I: Données Demographiques

6. Quel est votre age? _____

7. Etre vous tombée enceinte à l'école?

    a. Oui   si oui, être vous toujour à l'école? Oui   Non

    b. Non

8. Quelles étaient vos moyennes l'an dernier?

    a. Premier trimestre: Moins de 9

        Entre 9-13

            Plus de 13

    a. Deuxième trimestre: Moins 9

            Entre 9-13

            Plus de 13

    b. Troisième trimestre: Moins 9

            Entre 9-13

            Plus de 13

9. Vous être de quel group ethnique?

    a. Akan

    b. Gur

    c. Krou

    d. Mande

10. Quel est le statut socio-economique de vos parents?

    a. Faible (moins de 200 cfa par mois)

    b. Moyen (entre 200 and 800 cfa par mois)

    c. Elevé (Plus de 800 cfa par mois)

Section II: Auto-Efficacité

	pas du tout vrai (1)	à peine vrai (2)	moyennement vrai (3)	Totalement vrai (4)
1. Je peux arriver toujours à résoudre mes difficultés si j'essaie assez fort.				
2. Si quelqu'un s'oppose à moi, je peux trouver une façon pour obtenir ce que je veux.				
3. C'est facile pour moi de maintenir mon attention sur mes objectifs et accomplir mes buts.				
4. J'ai confiance que je peux faire face efficacement aux événements inattendus.				
5. Grâce à ma débrouillardise, je sais comment faire face aux situations imprévues.				
J6. e peux résoudre la plupart de mes problèmes si j'investis les efforts nécessaires.				
7. Je peux rester calme lorsque je suis confrontés à des difficultés car je peux me fier à mes habiletés pour faire face aux problèmes.				
8. Lorsque je suis confronté à un problème, je peux habituellement trouver plusieurs solutions.				
9. Si je suis "coincé", je peux habituellement penser à ce que je pourrais faire.				
10. Peu importe ce qui arrive, je suis capable d'y faire face généralement.				

Appendix D: Letter of Approval English Version

MINISTRY OF EDUCATION, TECHNICAL
AND VOCATIONAL TRAINING

THE MINISTER'S OFFICE

BP V 120 ABIDJAN

REPUBLIC OF COTE D'IVOIRE
Union – Discipline - Travail

N° 4949/MENETFP/CAB-2/rk

Abidjan, November 26, 2019

From The Minister

To

The Regional/Departmental Director of
Education Technical and Vocational
Training

Subject: **Authorization to investigate.**

Madam /Sir,

Mrs Ouattara Moussokoura Epse Assoumou, a PHD student in Public Health, major **Epidemiology**, has been registered at Walden University in the USA, under the student card number: A00614841. In this regard, she has undertaken research work on the following topic: **Association between teenage pregnancy and academic performance among young girls attending school in Cote d'Ivoire.** To conduct this research, it is essential to carry out investigations within your department

I would be appreciative if you and your staff could take all necessary measures to facilitate access to available sources of information on the topic of this work.

I would like to express my gratitude to you for your constant contribution to research. Please accept, Madam/Sir, the expression of my distinguished sentiments.

For the Minister and by delegated authority

The Deputy Chief of Staff

(Signature and seal)

Raoul KONE

We, the undersigned, AMERICAN BUSINESS SCHOOL (AMBIZ), accredited by the Ministry of Education and "FDFP" Abidjan - Côte d'Ivoire, specialized in providing language, training, translation and interpretation services hereby certify that the above document is the true and correct translation of the original. In witness whereof, we have hereunto signed and affixed the stamp. Date MONDAY THIS 9th DAY OF DECEMBER

AMBIZ
AMERICAN BUSINESS SCHOOL
RC: CI-ABJ-2019-B-17034 - N°CC: 19A6599 Y
REGIME DIMPOSITION: RSI
CENTRE DES IMPOTS: COCODY
TEL: (225) 22 44 74 97 / 22 54 18 93
CEL: 05 01 43 28 / 48 97 54 74

Appendix E: Letter of Approval French Version

MINISTERE DE L'EDUCATION NATIONALE,
DE L'ENSEIGNEMENT TECHNIQUE ET DE
LA FORMATION PROFESSIONNELLE

CABINET

BP V 120 ABIDJAN

N° - 4 9 4 9 /MENETFP/CAB-2/rk

REPUBLIQUE DE CÔTE D'IVOIRE
Union – Discipline – Travail

Abidjan, le **2 6 NOV 2019**

Le Ministre

à

Madame / Monsieur le Directeur Régional / Départemental de l'Education Nationale, de l'Enseignement Technique et de la Formation Professionnelle

Objet : autorisation d'enquêter

Madame / Monsieur le Directeur,

Madame **Ouattara Moussokoura Epse Assoumou, étudiante en PhD de Santé Publique, option Epidémiologie** est inscrite à Walden University aux USA, sous le numéro de carte d'étudiant : A00614841. A ce titre, elle a entrepris des travaux de recherche dont le thème est : **Association entre la grossesse chez les adolescentes et la performance académique parmi les jeunes filles scolarisées en Côte d'Ivoire**. "[The Association Between Teen Pregnancy and Academic Performance Among Schoolgirls in The Ivory Coast]. Pour la réalisation de cette recherche, il est indispensable de procéder à des investigations au sein de votre direction.

Je vous saurais gré de toutes les dispositions que vous et vos collaborateurs voudrez prendre en vue de lui faciliter l'accès aux sources d'information disponibles sur le sujet de ce travail.

Vous remerciant pour votre soutien constant à la recherche, veuillez agréer, Madame / Monsieur le Directeur, l'expression de mes sentiments distingués.

P/Le Ministre et par délégation
Le Directeur de Cabinet Adjoint

Raoul KONE

Appendix F: Letter of Approval, Saint Mary, English Version

MINISTRY OF EDUCATION NATIONALE, TECHNICAL
AND VOCATION TRAINING

LYCEE SAINT MARIE
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04 BP 343 ABIDJAN 04

REPUBLIQUE DE CÔTE D'IVOIRE

Union - Discipline - Travail

Abidjan December 2nd, 2019

to

Madam Ouattara Moussokoura
Epse ASSOUMOU

Subject: **Authorization to investigate.**

Madam,

Following the instructions of the Director of Staff, I have the honor to inform you that my team and I are ready to assist you in the collection of data from the girls in my school, as part of your research on the theme: "Association between Teen Pregnancy and Academic Performance among Girls In School in Côte d'Ivoire", [The Association Between Teen Pregnancy, Academic Performance Among Schoolgirls in the Ivory Coast]. There is no doubt that your results can help decision-makers guide their actions to prevent the issue.

In the hope of receiving you, I beg you to receive, Mrs ASSOUMOU, the expression of my distinguished feelings.

The Director

Madam ALLOU Fatima Marie Christ

Appendix G: Letter of Approval, Saint Mary, French Version

MINISTERE DE L'EDUCATION NATIONALE, DE L'ENSEIGNEMENT
TECHNIQUE ET DE LA FORMATION PROFESSIONNELLE

REPUBLIQUE DE CÔTE D'IVOIRE

Union - Discipline - Travail

**LYCEE SAINTE MARIE
ABIDJAN**

04 BP 343 ABIDJAN 04

Abidjan le 2 Décembre 2019

A

**Madame Ouattara Moussokoura
Epse ASSOUMOU**

<u>**Objet**</u> : autorisation d'enquêter

Madame,

Suivant les instructions de Monsieur le Directeur de Cabinet, j'ai l'honneur de vous porter à votre connaissance que mon équipe et moi sommes disposées à accompagner dans le recueil de données auprès des jeunes filles de mon établissement, dans le cadre de votre travail de recherche qui porte sur le thème : ''Association entre la grossesse chez les adolescents et la performance académique parmi les jeunes filles scolarisées en Côte d'Ivoire'', *[The Association Between Teen Pregnancy, Academic Performance Among Schoolgirls in the Ivory Coast]*,. Nul doute que vos résultats pourront aider les décideurs à orienter leurs actions pour prevenir ce fléau.

Dans l'attente de vous recevoir, je vous prie de recevoir, **Madame ASSOUMOU**, l'expression de mes sentiments distingués.

La Directrice

Madame ALLOU Fatima Marie Christ

Appendix H: Letter of Approval English Version

MINISTRY OF EDUCATION NATIONALE, TECHNICAL AND VOCATION TRAINING	REPUBLIQUE DE CÔTE D'IVOIRE
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LYCEE MODERNE DE JEUNES FILLES DE YOPOUGON	Union - Discipline - Travail

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Yopougon Banco nord groupement
Foncier 23 Abidjan

Abidjan December 3rd, 2019

to
Madam Ouattara Moussokoura
Epse ASSOUMOU

Subject: authorization to investigate

Madam,

Following the letter from the Director of Staff, referenced no. 4949/MENETFP of November 26, 2019, I inform you that you have permission to collect data for your research from the girls of my school on the theme: "Association between pregnancy among adolescents and academic performance among schoolgirls in Côte d'Ivoire'. [The Association Between Teen Pregnancy, Academic Performance Among Schoolgirls in the Ivory Coast].

Please, Mrs ASSOUMOU, to accept the expression of my distinguished feelings.

The Director

Madam Albertine Tiemoko

Appendix I: Letter of Approval French Version

MINISTERE DE L'EDUCATION NATIONALE, DE L'ENSEIGNEMENT TECHNIQUE ET DE LA FORMATION PROFESSIONNELLE

REPUBLIQUE DE CÔTE D'IVOIRE

Union - Discipline - Travail

LYCEE MODERNE
DE JEUNES FILLES
DE YOPOUGON

Abidjan le 3 Décembre 2019

Yopougon Banco nord groupement
Foncier 23 Abidjan

A
Madame Ouattara Moussokoura
Epse ASSOUMOU

Objet : autorisation d'enquêter

Madame,

    Faisant suite au courrier de Monsieur le Directeur de Cabinet, référencé n° 4949/MENETFP du 26 novembre 2019, je vous informe que vous avez autorisation de recueillir des données pour votre recherche, auprès des jeunes filles de mon établissement sur le thème : ''Association entre la grossesse chez les adolescents et la performance académique parmi les jeunes filles scolarisées en Côte d'Ivoire''. [The Association Between Teen Pregnancy, Academic Performance Among Schoolgirls in the Ivory Coast].

Je vous prie, **Madame ASSOUMOU**, d'agréer l'expression de mes sentiments distingués.

La Directrice

Madame Albertine Tiemoko