

2022

Providers' Perspectives on Barriers Associated With Repeat Teen Pregnancies in Rural Southeastern United States

Vanessa Iheoma Iheanachor
Walden University

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Walden University

College of Education and Human Sciences

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Vanessa Iheanachor

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Walden University
2022

Abstract

Providers' Perspectives on Barriers Associated With Repeat Teen Pregnancies in Rural
Southeastern United States

by

Vanessa Iheanachor

MSPH, University of North Carolina at Charlotte, 2014

BSPH, University of North Carolina at Greensboro, 2012

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Health Education and Promotion

Walden University

May 2022

Abstract

Teen (or adolescent) pregnancy remains a significant public health problem in the United States. Rapid repeat pregnancy, defined as any pregnancy that occurs within 24 months of a previous birth, has been linked to adverse maternal and neonatal outcomes. The purpose of this quantitative, cross-sectional study was to understand the perceptions of health care providers (HCPs) regarding barriers that influence repeat pregnancies among adolescents in rural southeastern United States. The theoretical framework that guided this study was Urie Bronfenbrenner's social ecological model. A survey instrument was developed and disseminated to HCPs using Qualtrics, an online survey platform. Data (n=32) were collected, downloaded from Qualtrics, and recoded in SPSS. A 2x2 chi-square analysis was performed to examine the impact (or association) of identified barriers by HCPs and racial ethnicity of adolescents on number of repeat pregnancies. Results of the study revealed no significant association between identified barriers by HCPs belonging to the *practice* and *clinician* subgroups and racial ethnicity of adolescents on number of repeat pregnancies. However, there was a statistically significant association between identified barriers by HCPs belonging to the *family/patient*, *community*, and *sociocultural* subgroups and racial ethnicity of adolescents on number of repeat pregnancies. The results of this study could lead to implications for positive social change at the familial, organizational, and societal and policy levels, where it is essential to develop specific tailored interventions to help both HCPs and adolescents reduce repeat pregnancies.

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[last month of term you graduate] 2022

Acknowledgements

First and foremost, I would like to thank the almighty God for making this even possible. To my chair and co-chair, Dr. Karn and Dr. Latimer, thank you for your guidance and words of encouragement throughout this entire process. To Dr. Zin, thank you for your availability over the weekends to meet with students. To Dr. Tammy Root, thank you for your words of wisdom. To Dr. Kato, thank you for your continued support throughout my entire time in this program.

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Chapter 1: Introduction to the Study

Introduction

Rapid repeat pregnancy, defined as any pregnancy that occurs within 24 months of a previous birth (Reese & Halpern, 2017), has been linked to adverse maternal and neonatal outcomes (Qasba et al., 2020). For adolescents, these outcomes can be exacerbated by the geographical location where they live and influenced by their access to reproductive health services. A group of adolescents between ages 13 and 19 noted privacy, reliable information, accessible health care, and prioritizing health among the top barriers to receiving adequate health care in a rural county in the United States (Miller et al., 2018). In this study, I took a unique approach and examined relevant barriers from an HCP's perspective. Limited research in the field has been conducted to examine HCPs' perspectives on self-identified barriers associated with repeat pregnancies, particularly in a rural setting. I examined differences in barriers identified by HCPs and understood if these barriers potentially influenced repeat pregnancies among adolescents in rural southeastern United States. Findings from my research contribute to the field of health education by informing the development of targeted teen pregnancy prevention programs, influencing equitable health outcomes for all adolescents. In the current chapter, I describe the study's background, the problem statement, the purpose, the research questions and hypotheses, the theoretical framework used, the nature of the study, the study's limitations, and the significance of the study.

Background

Compared to urban cities, rural areas in the United States disproportionately lack health care services, including a lack of trained providers and insufficient public transport (Douthit et al., 2015). These challenges can increase an adolescent's risk for poor reproductive health outcomes, including unintended and repeat pregnancies. Adolescents previously noted accessible health care and privacy as challenges they face that impact obtaining the appropriate care (Miller et al., 2018). However, HCPs face unique challenges that affect the quality of care they are able to provide when they work in a rural setting. A growing body of research has identified such barriers from an adolescent's point of view (Chernick et al., 2015; Fuentes et al., 2018; Miller et al., 2018); however, limited research has been conducted to explore these barriers from the context of an HCP. Understanding identified barriers to adequate health care from both the adolescents' and HCPs' perspectives will shape the development of targeted teen pregnancy programs and ensure equitable health outcomes for all adolescents.

Problem Statement

Teen (or adolescent) pregnancy remains a significant public health problem in the United States. On a national scale, birth rates have decreased from 61.8 to 22.3 live births per 1,000 teens over the last several decades (Nandi et al., 2019). Although these rates are declining, significant disparities, such as geographical location, contribute to the overall phenomenon (Nandi et al., 2019; Summers et al., 2017). Adolescent childbearing has negative consequences for both the mother and child, including lower educational attainment, lower socioeconomic status, and generally poorer health (Conroy et al., 2016;

Dee et al., 2017; Nandi et al., 2019; Reese & Halpern, 2017). These outcomes increase with a subsequent or repeat birth, also referred to as a *repeat pregnancy* (Nandi et al., 2019). Rapid repeat pregnancy for adolescent mothers ages 19 and younger is defined as any pregnancy that occurs within 24 months of a previous birth (Reese & Halpern, 2017). For purposes of this study, adolescent age is defined as 13–19 years. In rural southeastern United States, teen birth rates have been found to be higher than the national average (Khan et al., 2017), particularly in Georgia, South Carolina, and Tennessee. Florida ranked 28th (U.S. Department of Health & Human Services, 2021-a); however, the state included counties surrounded by high teen birth rates (Khan et al., 2017). Georgia was one of five southeastern states where over 20% of teen pregnancies were repeat births between 2007 and 2010 (Nandi et al., 2019).

Rural areas have a shortage of reproductive health-care services (Nandi et al., 2019); rural communities are likely to have poor economic infrastructures and significant barriers to health care (Douthit et al., 2015). Many studies have been conducted to explore such barriers that impact reproductive health-care services from an adolescent perspective (Chernick et al., 2015; Fuentes et al., 2018). To date, however, limited research has been conducted to explore HCPs' perspectives on self-identified barriers associated with repeat pregnancies in rural southeastern United States. Findings from this research contribute to the field of health education by informing the development of targeted teen pregnancy prevention programs, which can influence equitable health outcomes for all adolescents.

Purpose of the Study

The purpose of this quantitative study was to explore differences in barriers identified by HCPs to understand if these barriers potentially influence repeat pregnancies among adolescents in rural southeastern United States. Primary data were collected through a survey used to gather responses from HCPs. Based on research in the field that has previously defined barriers from a HCP's perspective, the predictor (or independent) variables I explored included examples such as situational discomfort (uncomfortable having discussions with parent[s] in the room), lack of training in topic area, and lack of time with patient (e.g., short visits or rushed appointments). The outcome variable was repeat pregnancies. Additional variables explored included racial ethnicity of adolescent population seen, types of health care services, electronic health records (EHRs), and interoperability between health systems. This research took a unique approach in potentially contributing to the decline of teen pregnancy rates by seeking to understand what factors HCPs believe perpetuate the repeat pregnancy cycle among adolescents living in a rural area. Findings from this research contribute to achieving equitable health outcomes among adolescents who experience a repeat pregnancy, especially adolescents who reside in rural areas with limited reproductive health services.

Research Questions and Hypotheses

This research study was conducted to examine whether barriers identified by HCPs influence repeat pregnancies among adolescents in rural southeastern United States. The first research question was answered using the survey instrument that was developed. The second research question was subjectively assessed using the survey

instrument but was later confirmed using state-level data sheets related to reproductive health and teen pregnancy on the U.S. Department of Health and Human Services website. The third research question was also answered using the survey instrument that was developed. The combination of data from RQ1, RQ2, and RQ3 were used to make assumptions about barriers associated with repeat pregnancies, racial ethnic adolescent groups associated with repeat pregnancies, and impact of telehealth services across multiple states.

RQ1: Are the barriers defined by HCPs associated with repeat pregnancies among adolescents in rural southeastern United States?

H₀1: The barriers defined by HCPs are not associated with repeat pregnancies among adolescents in rural southeastern United States.

H₁1: The barriers defined by HCPs are associated with repeat pregnancies among adolescents in rural southeastern United States.

RQ2: Are there differences in racial ethnicity among adolescents with repeat pregnancies?

H₀2: There are no racial ethnic differences among adolescents in rural southeastern United States who experience repeat pregnancies.

H₁2: There are racial ethnic differences among adolescents in rural southeastern United States who experience repeat pregnancies.

RQ3: Due to the COVID-19 pandemic, is there a statistically significant association between the state HCPs practice in and telehealth appointments for adolescents?

H₀₃: There is no statistically significant association between the state HCPs practice in and telehealth appointments for adolescents.

H₁₃: There is a statistically significant association between the state HCPs practice in and telehealth appointments for adolescents.

Theoretical Framework for the Study

The theoretical framework selected for this research study was Urie Bronfenbrenner's (1979) social ecological model (SEM). The SEM theory was designed to help understand the effects of multiple levels of influence (individual, interpersonal, organizational, community, and policy) on behavioral outcomes (Bronfenbrenner, 1979). As SEM relates to this study, there are multiple factors that may influence the rise in teen pregnancy rates, specifically repeat pregnancy rates, among adolescents. Determined by circumstances and the environment, factors such as geographical location, access to transportation services, and a good social support system can affect overall health outcomes (World Health Organization [WHO], 2019). An adolescent's individual demographic characteristics, such as their racial ethnicity, can also influence health outcomes. Social and economic conditions influence barriers identified by HCPs (Douthit et al., 2015; Findholt et al., 2013), which can perpetuate the repeat pregnancy cycle. Identifying these barriers and their association with repeat pregnancies will help define strategies at various levels that may contribute to a decline in repeat pregnancy rates among adolescents in rural southeastern United States. Bronfenbrenner's SEM provides guidance for understanding the multifaceted effects of social and environmental factors that determine attitudes and behaviors, in addition to identifying organizational leverage

points at various levels for sexual health education and promotion. Additional details about SEM are explored in Chapter 2.

Nature of the Study

In this quantitative study, I used a nonexperimental design approach. Specifically, a survey instrument was developed for HCPs to complete to gather data to understand if the identified barriers are associated with repeat pregnancies among adolescents in rural southeastern United States. Using an existing survey instrument is not exhaustive, meaning the questions originally validated may not obtain the response a researcher is seeking. Developing a survey instrument gives a researcher flexibility to create questions that convey exactly what they mean to address with their research. However, a few questions from a previously validated survey were added to the survey instrument. The barriers defined in the survey are derived from specific articles that list barriers HCPs face related to providing adequate health care services to their patients (Brems et al., 2006; Douthit et al., 2015; Heaman et al., 2015; Miller et al., 2014). These barriers were tweaked for the current study population and geographical setting. The remainder of the survey questions came from an existing survey instrument (Findholt et al., 2013) and a few additional questions were included to provide additional context to the study population.

The permission letters for the instruments are included in Appendix B and provide written confirmation from the authors to use variations of their questions in the survey in this study. Some of the questions outlined in the survey included: specifically identifying the barriers (predictor variables) that HCPs believe are associated with repeat

pregnancies, understanding the racial ethnicity of the adolescent patient population seen, and understanding the types of reproductive health care services/resources available in the area. The survey collected subjective data on the HCPs' adolescent patient population that had a repeat pregnancy (i.e., outcome variable). Data were collected using an online survey tool. Data for the first two research questions were analyzed using one-way ANOVA, and data for the third research question were analyzed using a Chi-square test. A one-way ANOVA was used to determine differences in the means of the outcome variable (repeat pregnancies) broken down by two or more independent variables (i.e., identified barriers and racial ethnicity of adolescent population). A Chi-square test was used to determine the relationship or association between categorical (nominal) variables (i.e., telehealth visits by state).

Due to unforeseen circumstances recruiting HCPs, the design of this study required significant changes. My survey was launched in the field at the beginning of the COVID-19 pandemic; therefore, HCPs were faced with challenges associated with treating their patients during a pandemic. The shift in health care affected my ability to recruit HCPs in a timely fashion. Therefore, I had to submit multiple amendments to Walden University's Institutional Review Board (IRB) to expand my recruitment efforts, which included adding registered nurses (RNs) to my inclusion criteria, developing recruitment posts to share on social media, submitting open records requests to state medical board directories, and posting my research for Walden doctoral students to complete in the Walden Participant Pool.

Definitions

For consistency throughout the remaining chapters, I use the following terms and operationalized definitions:

Adolescence: A critical period in the transition from childhood into adulthood in which young people between the ages 12 and 18 experience significant physical, psychological, social, and emotional changes (Kuzma & Peters, 2016). For this study, adolescents were defined as young people between ages 13 and 19 (Miller et al., 2018; Reese & Halpern, 2017).

Barriers: Factors that make access to or use of health care services difficult or impossible (Heaman et al., 2015).

Health care provider (HCP): An HCP is a Doctor of Medicine or osteopathy, nurse practitioner (NP), nurse-midwife, or a clinical social worker who is authorized by the state to practice and performing within the scope of their practice as defined by state law (University of California, Berkeley, 2020). For this study, specialties not listed (e.g., RN or licensed practical nurse) were considered HCPs if they were allowed to practice under the direct supervision of one of the above-mentioned specialty practices.

Rapid repeat pregnancy: Any pregnancy that occurs within 24 months of a previous birth (Nerlander et al., 2015; Reese & Halpern, 2017).

Rural or rural area: An area of no more than 10,000 residents (Douthit et al., 2015).

Scope and Delimitations

The scope of this study targeted HCPs who provide reproductive health care services to adolescents in rural southeastern United States. For this study, an HCP was identified as one of the following: physician (M.D. or D.O.), physician assistant, NP, or certified nurse midwife. I examined differences in barriers previously identified by HCPs to understand if these barriers influence repeat pregnancies among adolescents in rural southeastern United States. HCPs can play an important role in contributing to the reduction of repeat pregnancy rates. Adolescents have voiced concerns that distance and their desire for privacy are reasons for lack of frequent visits to a health clinic (Miller et al., 2018). These concerns were also identified by HCPs as barriers to providing adequate health care to adolescents; however, limited research has been conducted to assess if these barriers specifically contribute to repeat pregnancies in rural areas. Barriers in access to health care significantly impact health outcomes of rural populations (Douthit et al., 2015). Therefore, understanding if these barriers identified by HCPs are associated with repeat pregnancies can provide insights to adjusting their practicing habits and improving overall health outcomes for adolescents living in rural areas.

One example of a theory that is related but was not investigated in the current study is Bandura's social cognitive theory (SCT). Previously referred to as *social learning theory*, SCT establishes that a dynamic interaction exists between an individual, their behavior, and their outside environment (Bandura, 1986). SCT emphasizes the way individuals acquire and maintain behavior, in addition to an individual's past experiences, while taking into consideration their social environment, which can influence whether the

behavioral action will occur (Bandura, 1986). Particularly in rural settings, SCT is helpful in understanding how individuals interact with their surroundings. The barriers defined by HCPs potentially contribute to the rise in repeat pregnancy rates among adolescents. These barriers become more challenging to address due to the environment where these adolescents live and the limited availability of services and resources to combat this issue. Additionally, past experiences have shaped an adolescent's behavior as we are referring to a population with at least one living child. Therefore, adolescents may continue to engage in risky sexual behaviors, thus leading to unintended and repeat pregnancies if not addressed. The challenge with using SCT is that some of the barriers are beyond an HCP and/or adolescent's ability to control. Therefore, the SEM is a better theoretical framework to use as it accounts for multiple levels of influence on behavioral outcomes. The findings of the current study can provide insight into these barriers as they relate to repeat pregnancies. Due to the nature of this quantitative research, these findings are generalizable to HCPs who work in similar geographical locations.

Limitations

One challenge with using a primary data collection method for this research was that it was a time-consuming process from developing the survey to dissemination in the field. Another challenge for me was the costly associated with recruiting HCPs and the difficult in finding providers within the targeted areas (i.e., rural southeastern United States). It can be challenging to find HCPs willing to take time out of their busy schedules to complete an online survey. Finally, the responses from the HCPs are subjective and self-reported, which tends to be biased and is a limitation in itself.

One factor that can influence internal validity is historical events, where real life events can directly influence the outcome of the current study (Creswell, 2014). Once the survey was out in the field, it was challenging to control for any outside events that could influence or persuade responses to the survey. To address this, I needed to extend the amount of time the survey was in the field to account for possible outside influences. One factor that could influence external validity in this study was selection bias. Convenience and snowball sampling approaches were used to reach select HCPs in the target areas. Using these recruitment methods limited the opportunity to generalize these results to other study populations. I made sure to overrecruit respondents to ensure I had a sufficient sample size.

Significance

The results of this research inform potential solutions to combatting teen pregnancy, particularly repeat pregnancies, among adolescents who live in rural southeastern United States. These findings can equip HCPs and their staff with the tools needed to develop, implement, and execute targeted intervention programs that address the three determinants of health: social and economic environment, physical environment, and a person's individual characteristics and behaviors (WHO, 2019). In the current study, I addressed barriers to providing adequate health care, including lack of reproductive health services (social environment), lack of transportation (physical environment), and lack of knowledge, that negatively influence an adolescent's decision to engage in risky sexual behaviors (individual characteristics and behaviors). These negative behaviors can lead to unintended, unwanted, and repeat pregnancies. In the

current study, I assessed these specific determinants of health closely to gain new insights on improving the health status of adolescents and their communities, while contributing to the decline of repeat pregnancy rates.

The findings of this study have potential implications for positive social change by providing relevant information to HCPs and their staff about determinants of health that are difficult to control by adolescent patients. HCPs can use findings from this research to adjust their practicing habits to meet the reproductive health needs of adolescents. Policy makers and community stakeholders can use this information to adopt policies in rural environments that can aid in the reduction of repeat birth rates among adolescents.

Summary

This chapter included details on the background, problem statement, and purpose of this study. I clearly stated the research questions and hypotheses; described the theoretical framework and the nature of the study; identified operational definitions; and described the study's scope, limitations, and its significance. Chapter 2 includes an in-depth review of the current literature and the search strategy used to obtain relevant articles. Chapter 2 also builds on Chapter 1 by providing additional context related to the theoretical framework.

Chapter 2: Literature Review

Introduction

The purpose of this study was to examine differences in barriers identified by HCPs and whether these barriers potentially influence repeat pregnancies among adolescents living in rural southeastern United States. Adolescents' perspectives on barriers that prevent their access to adequate health care for sexual health services have been examined (Fuzzell et al., 2016; Hubel & Moreland, 2020; Kuzma & Peters, 2016; Martyn et al., 2013; Miller et al., 2018; Yarger et al., 2017); however, there is a gap in the literature regarding the barriers HCPs believe influence the phenomenon of repeat pregnancies. This perspective is important to highlight so that a multidisciplinary approach is considered when developing prevention programs to address repeat pregnancies among adolescents. This literature review further elaborates on a national overview of teen pregnancy and rapid repeat pregnancy; strategies and interventions to reduce repeat pregnancies; barriers to accessing health care, particularly in rural areas; and HCP's attitudes and beliefs related to adolescent sexual health. Each section of this literature review provides a rationale for why these concepts are important to this study and how they are related to the research questions. The literature search strategy and the theoretical foundation that guided this study are also further explained.

Literature Search Strategy

Peer-reviewed articles from scholarly journals related to adolescent and reproductive health and barriers to accessing health care from an HCP's perspective were used to provide a thorough literature review. Peer-reviewed articles were selected for

inclusion if they were published within the last 5 years. The library databases accessed were CINAHL and MEDLINE, ProQuest, PsycINFO, Academic Search Complete, and ERIC. When I conducted the literature search in ERIC, I found most of the articles were not relevant to my study. Most of the articles found in this database focused on sexual health education in school systems, where abstinence only education is widely promoted, or the research was based in areas outside of southern United States. These findings did not support my research and therefore were not included in this literature review.

The key search terms used were *adolescent and/or teen, teen pregnancy, rapid repeat pregnancy and repeat pregnancy, interpregnancy interval, repeat birth(s), rural, health care provider, perceptions, barriers, disparities, inequalities, south, southeast, Georgia, Florida, Tennessee, and South Carolina*. I included the terms *unwanted, unintended, and unplanned* in my search as it related to *pregnancy*. The inclusion of these additional terms yielded interesting results, as these terms were frequently used to describe repeat pregnancy cases among the adolescent population. I also included the terms *telehealth* and *COVID-19 pandemic*, as the results from these terms yielded valuable information relevant and appropriate for my research.

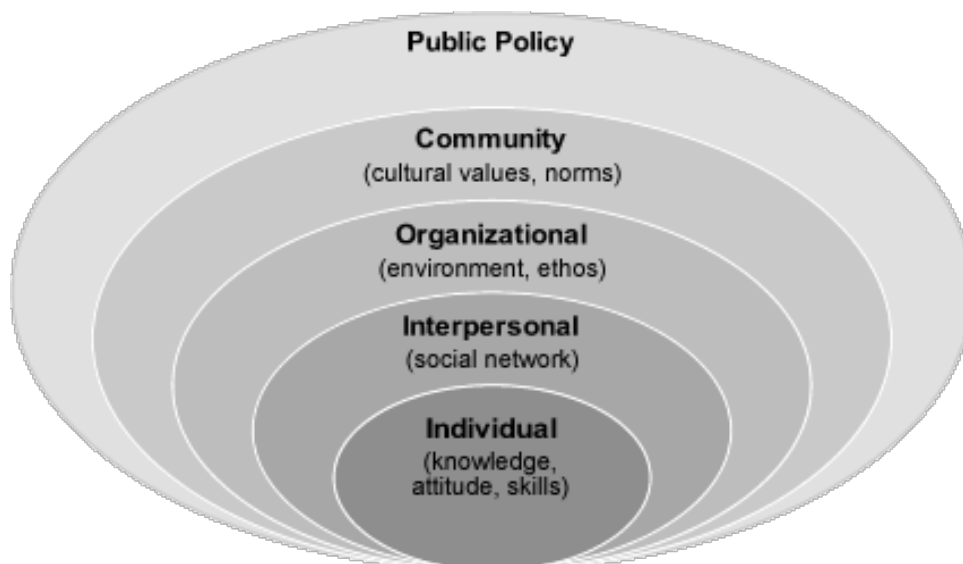
The objective of this literature search strategy was to gain a deeper understanding of literature relevant to barriers to accessing health care faced by adolescents living in rural areas from an HCP's perspective. A combination of pertinent key search terms was entered into the library databases. Every month, I entered the search terms into the same databases to capture any new articles related to my topic. I conducted a Google Scholar search to find additional articles that cited existing articles found during the initial

literature search. This additional process helped further expand the library of relevant and timely peer-reviewed articles.

The Walden University library staff played a pivotal role during my literature search. Several meetings were scheduled with librarians over the course of 2 months to brainstorm additional key search terms that would yield articles relevant to the research topic. Existing survey instruments were introduced during the meeting, which provided a list of initial questions to guide the development of the survey for the targeted group: HCPs. The Walden library document delivery system was used to request relevant articles that were not readily available in the Walden library database.

Theoretical Foundation

The theoretical foundation used for this study was the SEM. Developed by Urie Bronfenbrenner (1979), SEM was initially introduced as a conceptual model for understanding human development. The model was later formalized as a theory in the 1980s (Kilanowski, 2017). SEM is viewed through the lens of five specific domains—(a) individual, (b) interpersonal, (c) organizational, (d) community, and (e) policy—which all contribute to understanding the effects of multiple levels of influence on behavioral outcomes. One important thing to note about SEM is that each level can have an effect on one's own behavior, and multiple levels can interact with each other to affect or cause an individual's behavior. Figure 1 illustrates each of the levels of the SEM.

Figure 1*Social Ecological Model*

The individual level of SEM describes the individual's knowledge, attitude, and skills about the topic. The more knowledgeable a person is about the topic, the more likely they are to change their behavior. Being knowledgeable about a topic is not enough to change a person's behavior, but it can influence key attitudes and decisions about the behavior. The interpersonal level of SEM focuses on the individual's relationship with other people in their network, such as their family and close friends. These groups provide social support or may create barriers that affect the individual changing their behavior. The organizational (i.e., institutional) level reaches far more people in many different sectors than the interpersonal level. This level focuses on rules, regulations, policies, and structures in organizations, such as schools, churches, and workplaces, which can promote or constrain behavior change. At the community level, societal and cultural values and norms exist among individuals, groups, and organizations. The

availability and location of resources at this level, such as health care services, can impact changing the behavior. These factors do not directly impact the individual; however, they can positively or negatively support behavior change. Lastly, public policy consists of local, state, and federal policies and laws that either regulate or support healthy practices and actions.

SEM can be used as a guide to help understand factors that contribute to an individual's behavior. The theory states that an individual's health is affected by their interaction within each level of the SEM, including the physical, social, and political components (Kilanowski, 2017). The constructs of the SEM are consistent with concepts in SCT, which shows that a suitable environment is important for promoting behavior change among individuals. There are multiple factors and determinants at each level in SEM, making prevention, control, and intervention the most effective when addressed at each level (Models and Mechanisms of Public Health, n.d.). Furthermore, SEM guides the development of successful programs considering all aspects of an individual's social environment.

As SEM relates to the current study, adolescents are already a vulnerable population group, as they engage in risky sexual behaviors that put them at risk for sexually transmitted infections (STIs) and unintended pregnancies. Adolescents engage in risky behaviors with influences by their family and peers and by following what they see or hear in the media (interpersonal level). However, adolescents are not knowledgeable about repeat pregnancies nor do they have the skills needed to make good decisions about their sexual health (individual level). Rules and regulations put forth by the school

systems prevent adolescents from taking a course around sex education or even seeking out sexual health services (organizational level).

At the community level, many adolescents have different opinions about risky sexual behaviors and unwanted or unintended pregnancies based on their cultural values and norms. Different norms are based on different rationales. For instance, abortion is more common among those groups that focus on avoiding risky sexual behaviors because it can create problems in the future, whereas antiabortion norms are ideal for those individuals who focus on the morality of premarital sex and abortion (Mollborn, 2016). Additionally, norms in many communities discourage sexual intercourse among adolescents, pregnancy, and sometimes contraception (Mollborn, 2016). However, once teens are sexually active, behavioral choices, such as whether to use a contraceptive method, are discouraged (Mollborn, 2016). Lastly, enforcing a policy at either the federal, state, or local level where contraceptive methods (e.g., birth control pill and condoms) can be available to adolescents free of charge would support the decline of rapid repeat pregnancy rates among adolescents. Understanding how different levels of SEM influences adolescents to engage in sexual behaviors will aid in the development of targeted prevention programs designed to reduce repeat pregnancies.

Literature Review Related to Key Variables and/or Concepts

This literature review is focused on a summary of studies related to teen pregnancy and rapid repeat pregnancy; strategies and interventions to reduce repeat pregnancies; barriers to accessing health care, particularly in rural areas; and HCP's attitudes and beliefs related to adolescent sexual health. Previous researchers have

examined the perspectives of adolescents living in rural areas on health issues and needs particularly for reproductive health services (Fuzzell et al., 2016; Hubel & Moreland, 2020; Martyn et al., 2013; Miller et al., 2018; Kuzma & Peters, 2016; Yarger et al., 2017); however, there remains a gap in the literature in understanding these challenges from the perspectives of the HCP. For this study, I reviewed existing literature that has shown a need to explore the barriers identified by HCPs and understand if these barriers potentially influence the phenomenon of repeat pregnancies among adolescents living in rural southeastern United States. The gap in the literature is highlighted within the constructs of interest identified and supports the need for future studies.

Teen Pregnancy and Rapid Repeat Pregnancy

Teen pregnancy remains a major public health issue (Danawi et al., 2016; Lin et al., 2019; Maravilla et al., 2016; Nandi et al., 2019; Parks & Peipert, 2016), with rates having passed many developed countries, such as Canada, Japan, and Switzerland (Danawi et al., 2016). Approximately one million pregnancies occur every year in the United States among adolescents under the age of 19 (Lin et al., 2019). In 2017, almost 194,000 babies were born to adolescent women ages 15–19 (Centers for Disease Control and Prevention, 2019). Teen births account for 13% of all births in the United States, and most are unplanned (Sonfield et al., 2015). Particularly in the South, teen birth rates have been found to be higher than the national average (Khan et al., 2017). In one study, researchers used spatial outliers to confirm hot and cold spots of teen birth rates across several southern states (Khan et al., 2017). In 2003, hot spots, or clusters of counties in these states surrounded by high teen birth rates, appeared in Tennessee, Florida, and

Georgia (Khan et al., 2017). South Carolina was identified as a low–high outlier, meaning teen birth rates were low, but certain counties within the state were surrounded by a hot spot (Khan et al., 2017). Nine years later, the state of South Carolina no longer contained a low–high county (Khan et al., 2017).

In 2016, among females ages 15-19 years and using the number 1 to represent the state with the highest teen birth rate and 51 to represent the state with the lowest teen birth rate, the state of Georgia ranked 19th out of 51 (U.S. Department of Health & Human Services, 2021-b). Florida ranked 28th, South Carolina ranked 17th, and Tennessee ranked 10th (U.S. Department of Health & Human Services, 2021-a; U.S. Department of Health & Human Services, 2021-c; U.S. Department of Health & Human Services, 2021-d). Georgia, South Carolina, and Tennessee’s average teen birth rate surpassed the national average, while Florida was slightly shy of meeting that mark.

Although research has shown teen pregnancy rates have declined over the last several years (Conroy et al., 2016; Damle et al., 2015; Hubel & Moreland, 2020; Kumar & Brown, 2016; Nandi et al., 2019; Reese & Halpern, 2017; Thompson et al., 2018), research has shown rapid repeat pregnancies are an even greater public health concern (Damle et al., 2015; Hubel & Moreland, 2020; Reese & Halpern, 2017). For adolescent mothers age 19 and younger, a rapid repeat pregnancy is defined as any pregnancy that occurs within 24 months of a previous birth (Reese & Halpern, 2017). In fact, one in six teen births are considered a repeat pregnancy (Joyce et al., 2018; Nandi et al., 2019). Rapid repeat pregnancies account for approximately 18% of teen births (Conroy et al.,

2016; Damle et al., 2015; Nerlander et al., 2015). In 2019, this number slightly increased to 20% (Lin et al., 2019).

Teen pregnancy is associated with adverse health, maternal and neonatal, educational, developmental, and socioeconomic outcomes for both mother and child (Conroy et al., 2016; Lin et al., 2019; Maslowsky et al., 2019; Nerlander et al., 2015; Parks & Peipert, 2016; Qasba et al., 2020; Reese & Halpern, 2017). A repeat pregnancy exacerbates these factors already faced by adolescents and contributes to the cycle of poverty (Conroy et al., 2016; Damle et al., 2015; Hubel & Moreland, 2020; Maravilla et al., 2016; Nandi et al., 2019; Reese & Halpern, 2017). Adolescent mothers suffer from lower educational attainment, lack of opportunities to excel in society, and worse health outcomes than their counterparts (Nandi et al., 2019). In addition, adolescent mothers with repeat pregnancies are more likely to belong to a minority group, not finish high school, have low income, and are unemployed (Maslowsky et al., 2019). In fact, research shows that teens who live in poor environments are more likely to have higher birth rates due to limited educational opportunities (Danawi et al., 2016). Repeat teenage mothers are also more likely to live in geographic areas with fewer publicly funded family planning clinics (Maslowsky et al., 2021). Adolescent mothers struggle with economic independence and face challenges raising and caring for their child (Hubel & Moreland, 2020). Adolescent mothers are also more likely to experience parenting stress and neglectful behavior towards their child (Conroy et al., 2016). Research shows children of adolescent mothers also have an increased risk of behavioral problems (Conroy et al., 2016).

Reese & Halpern (2017) examined factors associated with repeat pregnancies among adolescents. Specifically, the researchers looked at associations between attachments to conventional institutions (such as family, peers, and religion or church) and the probability of a repeat pregnancy. The study found adolescent mothers who had a strong relationship with their parents were less likely to have a repeat pregnancy. Adolescent mothers who never prayed nor were active participants in church related youth activities had increased odds of a repeat pregnancy. Anticipating fewer negative social consequences of sex was also associated with a greater risk of repeat pregnancy.

Geographic and racial/ethnic disparities in teen births and repeat births have been defined over the last few years. Studies have shown female adolescents living in rural areas have higher birth rates than those living in urban areas (Brakman et al., 2017; Thompson et al., 2018; Yarger et al., 2017). Additionally, racial and ethnic minority groups have been found to have higher birth rates than their counterparts (Danawi et al., 2016). In a recent study examining both birth rates and racial disparities in the state of Georgia, African American rural teens had the highest birth rates as compared to white urban teens (Nandi et al., 2019). This finding is consistent with another study that found teen birth rates for African American teens were almost double that of white teens in the United States (Danawi et al., 2016). Overall, birth rates for Hispanic/Latina and African American adolescents are twice as much as white adolescents (Joyce et al., 2018; Parks & Peipert, 2016), with half of all Hispanic/Latina and African American adolescents giving birth before the age of 20 (Parks & Peipert, 2016). However, Hispanics were found to have higher birth rates than whites (Hubel & Moreland, 2020). As it relates to repeat

births, one study found black women also had significantly higher odds of a repeat birth than their white counterparts (Isquick et al., 2017). However, Latina women, Native American women, and Asian/Pacific Islander women were found to have lower risk of a repeat birth as compared to their white counterparts (Isquick et al., 2017). Latinx adolescents (relating to individuals of Latin American origin or descent) had a higher risk for a repeat birth, especially if they lived in a rural community (Ruiz et al., 2019). Latinx adolescents were also found to have higher repeat births than their white counterparts (Dee et al., 2017).

In this section, I expanded upon the literature by addressing the prevalence of teen pregnancy and rapid repeat pregnancy among adolescents, the associated risks, and racial/ethnic disparities that exist. Understanding the prevalence of teen pregnancy and rapid repeat pregnancy provided justification for why this public health issue is important to address. It is important to understand the racial/ethnic disparities to ensure cultural differences are considered when creating programs to mitigate repeat pregnancy rates. My second research question addressed whether there were any racial ethnic differences among adolescents who experienced a repeat pregnancy; however, I will only look at adolescents who live in rural areas of southeastern United States. The next section of my literature review addresses strategies and interventions proven to reduce repeat pregnancies.

Strategies/Interventions to Reduce Repeat Pregnancies

Studies have shown long-acting reversible contraception (LARCs), including intrauterine devices (IUDs) and the etonogestrel subdermal implant (i.e., ENG implant or

Implanon), and the utilization of community health workers (Maravilla et al., 2016) are the most effective strategies to reduce repeat pregnancies among adolescents (Conroy et al., 2016; Damle et al., 2015; Isquick et al., 2017; Kumar & Brown, 2016; Murphy et al., 2016; Parks & Peipert, 2016; Ruiz et al., 2019; Sackeim et al., 2019). The use of LARCs, particularly the ENG implant, has been found to reduce repeat pregnancy rates within the first 2 years after successfully giving birth (Damle et al., 2015; Qasba et al., 2020). One study found that women who were prescribed a short acting contraceptive method (e.g., progestin-only pill) immediately after giving birth were at highest risk for a repeat pregnancy as compared to those adolescents who were administered LARCs (Sackeim et al., 2019).

Oral contraceptive pills (OCPs), the most frequently prescribed and commonly used contraceptive among adolescents (Parks & Peipert, 2016; Pritt et al., 2017), have a much higher discontinuation rate upon starting as compared to LARCs (Damle et al., 2015). OCPs require a regimented schedule for users to adhere to for maximizing effectiveness. However, with a failure rate less than 1% (Kumar & Brown, 2016; Murphy et al., 2016; Parks & Peipert, 2016) compared to that of 9% for OCPs (Parks & Peipert, 2016), LARCs' effectiveness are not controlled by the user as the methods do not require additional steps to maintain (Kumar & Brown, 2016). LARCs are the preferred contraceptive method for adolescents because they are safe, they have been proven effective, and they require little to no manipulation (Pritt et al., 2017). LARCs also do not contain any estrogen; therefore, making this contraceptive method optimal for women with underlying medical conditions (Parks & Peipert, 2016).

Damle et al. (2015) examined the effect of both IUDs and subdermal implants in the postpartum period following a repeat pregnancy. Approximately 340 adolescents aged 19 and younger who received prenatal care and successfully delivered their first child were recruited for this retrospective study. Adolescent participants of this study were mostly African American. Within the 2 year follow up period, these adolescents were placed into 2 categories, dependent on whether they did or did not have a repeat pregnancy. The study found adolescents who successfully delivered a child and left the hospital without beginning any contraception method was associated with an increased risk of a repeat pregnancy. However, a follow up within 8 weeks of giving birth and initiating a LARC method was associated with a decreased risk of a repeat pregnancy. This study further supports that LARCs are an effective strategy to reducing repeat pregnancies among adolescents.

Harrison et al. (2020) sought to understand the association of postpartum contraceptive use and repeat deliveries among adolescents. Researchers conducted a retrospective, observational analysis of electronic medical records to dissect this data. Young women who attended their prenatal visits were more likely to begin a contraceptive method postpartum. Also, the young women who began contraceptives postpartum were of Hispanic descent. LARC use was higher among adolescents younger than 15 years and lower among adolescents ages 18-19. The placement of LARC in the hospital setting after giving birth was higher than an outpatient placement. Findings from this research showed young Hispanic adolescents were more likely to begin using LARCs postpartum, which contributed to the increased gap in time to the next delivery. This

study also supports that postpartum LARC is associated with a reduced risk of a repeat pregnancy.

As previously mentioned, the overall use of LARCs among the adolescent population is relatively low and/or nonexistent (Murphy et al., 2016; Pritt et al., 2017). Research has shown approximately 3% of 15-19-year-old adolescents who had sexual intercourse at least once had used an IUD and only 2% had used a hormonal implant, such as Implanon (Martinez & Abma, 2015). Two years later, these estimates increased slightly up to 4.3% (Pritt et al., 2017). The reason for the decline in LARC use among adolescents is due to a combination of patient, provider, and system level barriers (Parks & Peipert, 2016). Some of these factors that contribute to low LARC use among adolescents include cost and access, consent and confidentiality, HCP's attitudes and beliefs about LARCs, and lack of awareness among adolescents (Kumar & Brown, 2016; Parks & Peipert, 2016; Pritt et al., 2017).

Cost and Access

One challenge contributing to low use of LARCs is related to the financial burdens (Eisenberg et al., 2013) and the ability to access the contraceptive method (Ruiz et al., 2019). The up-front cost of the LARC device and insertion can be burdensome and not ideal for most women (Eisenberg et al., 2013; Parks & Peipert, 2016). Even with an affordable health insurance plan, out of pocket expenses can be difficult to obtain. It has been estimated the total bill for a patient who begins a LARC method is more than \$1000 (Eisenberg et al., 2013). Almost all insurance plans cover traditional oral contraceptive pills as a contraceptive method; however, a little over half of the states in the United

States require insurers to cover all U.S. Food and Drug Administration (FDA) approved contraceptives, which includes LARC methods (Kumar & Brown, 2016). Therefore, even with insurance coverage, LARC may not be a viable option for adolescents. Additionally, the total expenses for stocking contraceptive devices in hospitals can be costly and prohibit patients from accessing LARCs (Pritt et al., 2017; Qasba et al., 2020). Office hours and policies set forth were less convenient for adolescents accessing LARCs. One survey on accessibility and provision of contraceptive services to adolescents at publicly funded family planning centers found that inconvenient office hours and set appointments were barriers to receiving LARC treatment (Pritt et al., 2017). Additionally, LARCs are not available for same day implementation, which may discourage adolescents from using this type of contraception (Lunde et al., 2014). One study found adolescents were being recommended by their provider to come back 4 to 6 weeks after delivery for a LARC insertion instead of immediately after giving birth, which is what was preferred by the adolescent (Ruiz et al., 2017). Eliminating the issues around cost and access would increase LARC usage among adolescent patients.

Consent and Confidentiality

Consent and confidentiality concerns around adolescents seeking LARCs are controversial. Because adolescents are considered minors, parental and ethical issues arise. Federal law permits minors to seek contraceptive services from federal sources without parental consent (Eisenberg et al., 2013; Kumar & Brown, 2016). However, these rules vary by state when adolescents are seeking contraceptive services using private insurance and their parents are the policyholders (Eisenberg et al., 2013). Half of all

states in the United States allow adolescents to seek contraceptive services without parental consent under certain circumstances while the other half explicitly state there are no stipulations (Kumar & Brown, 2016). Therefore, adolescents may fear using LARCs for fear that their parents will be notified by the private insurance and confidentiality is breached (Eisenberg et al., 2013; Kuzma & Peters, 2016). Using private insurance to pay for contraceptive services can be avoided if the patient were to pay out of pocket. However, adolescents already face financial burdens which makes this option less likely for this population group. Defining strategies to combat consent and confidentiality issues will increase LARC usage among adolescents.

Health Care Providers' Attitudes and Beliefs About LARCs

HCPs are instrumental for raising awareness and increasing knowledge around LARCs for adolescents. However, their own perceptions and beliefs about LARCs can affect their recommendations to provide this method to their patients. These perceptions vary, but include adolescent decisions-making around LARCs, the medical safety of IUDs, and their level of comfortability and training with LARCs (Kumar & Brown, 2016). Providers believe that adolescents may be more likely to discontinue using LARCs if they experience side effects (Kumar & Brown, 2016; Murphy et al., 2016). Their concerns around the medical safety of an IUD stems from previous research that shows IUDs increased the risk of an ectopic pregnancy; however, current studies show IUDs are not linked to an increased risk of this condition (Kumar & Brown, 2016). Swanson et al. (2013) interviewed 120 pediatricians in Chicago and found 22% thought IUDs were appropriate for their patients and another 26% thought implants were

appropriate. Even more interesting is that approximately 10% of these physicians actually prescribed IUDs and implants to their patients (Swanson et al., 2013). HCPs also assume that adolescent patients will request LARC methods when it is desired (Pritt et al., 2017). However, because adolescents may not be familiar with LARCs, the provider may neglect to counsel patients on appropriate contraceptive methods (Pritt et al., 2017).

Murphy et al (2016) identified context-specific barriers associated with the use of LARCs by interviewing individuals who directly care for adolescents. A total of 16 experienced pediatricians, family medicine physicians, and advanced practice nurses (APNs) were recruited for these semi-structured interviews. Research found that providers were less likely to offer LARCs to adolescents because they felt adolescents were not interested in the method and would prefer an alternate, more common contraceptive method. All providers agreed that effective counseling is imperative, and it should emphasize the advantages of LARCs over other contraceptive methods to adolescents. Research confirms effective contraceptive counseling by providers is necessary to improve the use of effective contraceptive methods (Parks & Piepert, 2016). Additionally, all providers agreed adequate training on LARC insertion and access to LARC devices in their clinics would aid in providing LARCs to adolescents.

Current and up-to-date guidelines on LARCs would encourage providers to incorporate this discussion into their everyday practice when counseling adolescents on contraceptive methods. The American Academy of Pediatrics recommends LARCs as the first-line contraceptive option for adolescents (Ott & Sucato, 2014). These guidelines further recommend pediatricians should use a “tiered” approach when counseling their

adolescent patients about contraceptives, offering the most effective method (i.e., LARCs) as the top option (Ott & Sucato, 2014; Parks & Piepert, 2016). Research shows adolescents are significantly influenced by their providers' opinions on contraceptive methods, particularly LARCs (Kumar & Brown, 2016; Pritt et al., 2017). By putting aside their misconceptions about LARCs, providers can increase adolescent patients' awareness and knowledge around LARCs, improve their contraceptive decision-making, and contribute to the decrease of repeat pregnancies.

Lack of Awareness Among Adolescents

Research has shown awareness of LARCs among adolescents is almost nonexistent. One study found 41% of women had never heard of the implant, and 47% of those women believe it is an appropriate contraceptive method for women who have never given birth (Bachorik et al., 2015). Some adolescents believe they are not eligible to receive LARCs unless they have given birth to a child (Murphy et al., 2016). Another study found that 76.4% of adolescents were sexually active but only 21% even knew that an IUD was a form of a contraceptive method (Barrett et al., 2012). Because adolescents are not familiar with LARCs as a contraceptive method, they are less likely to inquire and equip themselves with the knowledge needed to make conscious decisions about their reproductive health. Research has shown awareness around LARCs differs based on the age of the adolescent. One 2015 study found that there were no statistically significant differences among young women ages 10-19 and young women ages 20-24 related to awareness and knowledge of the contraceptive method; however, the level of awareness was less than half across both groups (Bachorik et al., 2015). Fear of pain (Murphy et al.,

2016), expulsion, having a foreign object in the uterus, and potentially having the IUD stuck in the body are all common misconceptions about LARCs from adolescents (Hubel & Moreland, 2020; Pritt et al., 2017; Ruiz et al., 2017). These misconceptions further support the need to educate adolescents on accurate information about LARCs.

Increasing awareness around LARCs for young adolescents can support the increased use of this contraceptive method and contribute to the decrease in repeat pregnancies.

Qasba et al. (2020) explored rapid repeat pregnancy rates in the state of Indiana based on the selected contraception method by the adolescent after giving birth. Approximately 227 adolescents ages 12-18 years who gave birth in Indiana were selected for this retrospective study. The study found 54.5% of adolescent patients were discharged without any form of contraception. Roughly 10% of patients were administered an ENG implant and almost 20% were administered a Depo injection, which is another form of birth control. Adolescent patients who were given the ENG implant immediately after giving birth had lower repeat pregnancy rates than those patients who never received any contraception after the 2 years. Therefore, this study confirmed timely use of a LARC immediately following giving birth can decrease the odds of a repeat pregnancy among adolescents. The data gathered in this study informed policy change to improve access to LARCs for all women statewide.

Research shows community health workers (CHWs) can aid in the reduction of repeat pregnancies and births among adolescents (Maravilla et al., 2016). WHO (2015) has defined a CHW as “any health worker who performs functions related to health-care delivery; was trained in some way in the context of the intervention; but has received no

formal professional or paraprofessional or tertiary education, should be members of the communities where they work, be selected by the communities, be answerable to the communities for their activities and should be supported by the health system”. CHWs can increase access to reproductive health services for adolescents and provide accurate health information to hard-to-reach adolescents (Maravilla et al., 2016). Because CHWs come from the same communities as the individuals they are helping, the idea is that the encounters will be more relatable and personal. This alleviates the issue with adolescents feeling like they are unable to talk with their parents, physicians, or even their teachers about more personal problems. Home visitations were found to be effective against repeat pregnancies among adolescents. Consistent functions and interactions between the CHW and the assigned adolescent aided in reducing subsequent births (Maravilla et al., 2016). Adolescent mothers visited by CHWs had lower rates of a repeat pregnancy within the first 2 years of successfully giving birth (Maravilla et al., 2016). Overall, CHWs play integral roles in contributing to the reduction of repeat pregnancies among adolescents.

The current section expanded on the literature by addressing strategies and interventions proven to reduce repeat pregnancies among adolescents. Specifically, this section reviewed existing literature on LARCs, the utilization of CHWs, and how both contribute to the decrease of repeat pregnancy rates. Understanding proven strategies and interventions that can aid in reducing repeat pregnancies will be useful when developing targeted health education programs for rural adolescents. Integrating what is known about LARCs and CHWs into the program’s curriculum will give HCPs the tools needed to address the gaps when counseling patients on appropriate contraceptive methods. The

next section of my literature review provided a deeper understanding of barriers to accessing health care, particularly in rural areas.

Barriers to Accessing Health Care, Particularly in Rural Areas

Individuals who live in rural communities are often faced with unique challenges that prevent access to quality health care. A number of things contribute to these barriers, including the lack of health care facilities, shortage of providers, lack of mental health services, and greater out of pocket services, which creates poorer health outcomes among rural community members (Douthit et al., 2015; Miller et al., 2018; Sundstrom et al., 2019). Going to the doctor poses a challenge, as patients are less likely to see a doctor if they have to travel far away (Douthit et al., 2015). In fact, patients who live in rural communities and do not have access to community health centers are more likely to be hospitalized for conditions that would otherwise be treated in those facilities (Douthit et al., 2015). Patients who are seen in the hospital for non-life-threatening injuries takes away medical care from patients who need to be hospitalized. People living in rural communities are heavily influenced by their social environment and the multiple systems involved, including family, school, peers, and HCPs (Miller et al., 2018). Based on these systems in place, rural community members are not equally afforded the opportunities to thrive in their environment as compared to their urban counterparts.

Rural adolescents face far greater challenges due to their vulnerability and lack of available information needed to make conscious decisions related to their reproductive health. Adolescent rural women were more likely to have a higher rate of teenage pregnancy and a lower rate of preventative care services, such as cervical cancer

screenings (Douthit et al., 2015). In fact, one study (Yarger et al., 2017) found disparities among adolescents based on age and racial ethnic backgrounds, as young female Hispanic adolescents were less likely to be aware of or use family planning services (Yarger et al., 2017). Rural communities typically have very few publicly funded clinics, and of those few clinics available, adolescents may face issues with transportation and access (Yarger et al., 2017). In addition, adolescents are less likely to know the location of these family planning services as compared to their urban counterparts (Yarger et al., 2017). Adolescents living in rural communities also lack accurate and comprehensive sex education. Research shows adolescents living in rural areas are more likely to engage in sexual activity and give birth to a child as compared to those who live in urban communities (Yarger et al., 2017). Additionally, compared to their counterparts in urban communities, adolescents living in rural communities are less likely to use contraceptives upon their first sexual encounter with another mate (Ng & Kaye, 2015). This is likely due to the lack of recreational opportunities and sexual and reproductive health resources available to adolescents living in these communities (Miller et al., 2018; Yarger et al., 2017). In order to create strategic targeted prevention programs for adolescents in rural communities, their personal perspectives must be considered, heard, and addressed. The following section went into detail on their perspectives.

Adolescents' Perspectives on Barriers, Including Sexual Health

Adolescents are a vulnerable population with unique health care needs, particularly as it relates to their sexual and reproductive health. During this phase of their lives, adolescents begin to explore their sexual identity through experimentation. At this

point, they become more susceptible to high-risk sexual behaviors, such as teen pregnancy and STIs, as a result of influences from different levels of their social environment. Understanding their perspective on these barriers allows educational staff to develop programs with strategies that will address each of the challenges identified.

Miller et al. (2018) examined the health issues and needs of adolescents, particularly living in rural communities. Adolescents between the ages of 13-19 were recruited and focus group interviews were conducted. Two themes related to health issues emerged: making healthy choices and lack of prosocial, health promoting role models. Four themes emerged related to health needs: privacy, reliable information, accessible health care, and prioritizing health. Most adolescents shared they would prefer privacy, and this was difficult to achieve living in a rural community. Adolescents feared going to the health clinic for reproductive services and someone they knew would see them or that it would get back to someone they were familiar with (Yarger et al., 2017). Adolescents feared being judged by their parents for accessing information, even if it was from a health care professional; however, they preferred peer educators as they could more closely relate to them. Cost and affordability were another challenge noted by adolescents, in addition to resources, such as healthy foods, that would help achieve and maintain good health. If adolescents are on their parents' insurance policy, confidentiality could be threatened and potentially breached. To avoid this, adolescents may choose for HCPs not to bill services to their parent's insurance policy but then be exposed to some expensive out of pocket costs. Lastly, adolescents agreed that prioritizing a healthy lifestyle was a challenge, but they were not exactly clear on how to make their health a

priority. For example, many rural adolescents are not able to access preventative care services because of the lack of HCPs. Therefore, it is imperative that educators and policy holders work together to put systems in place that allow adolescents to access such services.

Access is another barrier adolescents face when accessing sexual health services. However, access can be interpreted a number of ways, including access to confidential services with an HCP, access to available times for an appointment, and access to transportation services to get to their appointment (Kuzma & Peters, 2016). Providers may not be willing to see adolescent patients privately without the presence of a parent, which is not conducive for the adolescent. Additionally, adolescents may not feel comfortable seeking sexual health services in a pediatric clinic but are not aware of or have access to a clinic that sees adult patients. Access to transportation can be challenging as health clinics may not be located near the adolescent's home, and if they were nearby, adolescents may not have the financial means to afford these services.

As previously mentioned and similar to confidentiality concerns adolescents identified with LARC usage, adolescents fear confidentiality and privacy may be breached when accessing reproductive services. Adolescents reported concerns with being recognized by a familiar face in the waiting room and concerns about providers engaging in casual conversations with other parents and then mentioning their encounter (Fuzzell et al., 2016; Kuzma & Peters, 2016). One study found younger adolescents (15 years) were more likely to report confidentiality issues than older adolescents (17 years) (Miller et al., 2018). Adolescents who were covered by private insurance (under their

parent or legal guardian) were more likely to report confidentiality issues than those who are on federally funded insurance plans (e.g., Medicaid) (Miller et al., 2018). Education levels among their parents seemed to influence their stance on issues with confidentiality. Adolescents whose mothers had graduated from college were more likely to have concerns with confidentiality than those adolescents whose mothers graduated from high school (Miller et al., 2018). This is likely due to increased knowledge of the reproductive topics based on years of education. Additionally, living with two parents in the home was found to be statistically significant for confidentiality issues as compared to living in a one parent home (Miller et al., 2018). Adolescents mentioned they feared their parents finding out they were accessing sexual health services, stating if their parents found out, they would stop accessing these services (Kuzma & Peters, 2016). The following section expands on adolescents' perspectives on barriers to health care, primarily focusing on general sexual health.

Hubel & Moreland (2020) interviewed adolescent parents to understand what they needed to avoid a repeat pregnancy. Adolescents reported they wanted more education on pregnancy prevention. Specifically, they thought it would be helpful to learn about the different types of birth control, risks and benefits, and pros and cons of using contraceptives. Adolescents reported their decision to use birth control was heavily influenced by their peers, stating the side effects their friends experienced swayed their decision. As it relates to LARCs, adolescents reported they did not want a foreign object in their body and complained that the length of effectiveness was too long. Consistent with findings in previous studies, adolescents endorsed misconceptions about

contraceptive methods, lacked the knowledge needed to make rational decisions about their health, and are influenced by multiple levels within their social environment.

Effective communication between the provider and the patient is essential for establishing rapport and building trust. Martyn et al. (2013) found adolescents expressed a willingness and desire to discuss sensitive topics with their HCP, but the communication style of the provider would determine how much information the adolescent would choose to share. The relationship between the provider and the patient can be severed if the provider judges or blatantly ignores the patient. This could result in the patient not following up for her next appointment. Therefore, it is imperative HCPs listen to the concerns of their patients and they are able to address all issues and keep the patient coming back to the clinic.

In a study examining young adolescents' experiences talking about sexuality with HCPs, many adolescents reported not feeling comfortable having conversations related to sex and sexuality with their HCP (Fuzzell et al., 2016). Adolescents reported feeling embarrassed and judged by providers when they had conversations about sex, particularly engaging in sexual activity. One adolescent reported having a difficult conversation with her provider that made her feel uncomfortable and that she was being judged, and that resulted in this individual seeking reproductive health care services elsewhere with another provider. Adolescents interviewed in this study also felt that physical space was important. They reported the waiting rooms and exam rooms were catered to young children (e.g., kid friendly décor) and lacked relevant brochures about sexual health

topics. Improving the physical space with which adolescents see providers would make adolescents feel more comfortable and encourage mature conversations within the clinic.

Telehealth

Telehealth interventions have been proven to help mitigate health disparities faced among rural community members (Douthit et al., 2015; Sundstrom et al., 2019).

Telehealth uses telecommunications technology to deliver health services to patients who live in remote areas and to facilitate information exchange between medical providers and patients, as well as between medical providers (Brakman et al., 2017). Telehealth should not be confused with telemedicine, as telehealth involves both clinical care and provider education while telemedicine only involves clinical care. Telehealth includes other health related services using electronic information and communication technologies, such as health information sharing, patient education, improved communication between health providers, policy makers, and rural communities, innovations in women's health, and remote or mobile patient monitoring (Committee on Pediatric Workforce, 2015; Douthit et al., 2015). Telehealth takes a unique approach in addressing health disparities and meeting identified needs to improve access to health care, such as improving access to contraceptive methods, which is a known barrier identified among rural adolescents. For adolescents who live in rural areas and face additional barriers such as transportation, access, and/or confidentiality concerns, using telehealth services could lessen these burdens (Committee on Pediatric Workforce, 2015). The remaining section explores telehealth services and its impact on accessing contraception among rural women, some while during the COVID-19 pandemic.

Sundstrom et al (2019) explored women's contraceptive needs and perceptions of accessing contraception methods using telehealth services. A total of 52 in-person interviews were conducted among women ages 18-44 years living in five rural counties in South Carolina. Most participants noted various benefits to accessing contraceptive methods through telehealth. They believed video conferencing with a provider would be an easy and convenient way to access contraception. Although most contraceptives are not administered without a physical exam, telehealth allowed the patient and provider to skip this step. Overall, participants felt telehealth services would benefit them as it cut down significantly on travel time, costs, and wait times in person at the clinic. Aside from the advantages of telehealth services, participants noted some barriers. Although the Health Insurance Portability and Accountability Act (HIPAA) laws are in place which prohibits and protects sensitive patient health information from being shared without the patient's consent or knowledge, participants did not feel confident that those laws would be upheld. Participants were concerned that other familiar faces would end up recognizing them while using telehealth services. Some participants noted credibility of the doctor was important; however, they felt concerned about receiving contraceptive counseling through the service. They valued those personable relationships with their HCP and feared that they would lose that using telehealth services. Overall, participants felt their views, including both benefits and barriers, should be incorporated into telehealth interventions to improve access to contraceptive methods.

Yoost et al. (2017) evaluated the use of telehealth to teach reproductive health to rural areas with high rates of teen pregnancy. This prospective cohort study recruited 55

high school female students who attended telehealth sessions in rural West Virginia. Reported from 37 students from baseline to 6 months, reported condom use increased from 20% to 40% and hormonal contraception use increase from 22% to 38%. HPV vaccination increased from 38% to 70% among all participants. During an evaluation, almost 93% of students reported that telehealth services were “very effective” as a method to teach the material. To conclude, this study found that telehealth services would be an effective strategy for delivering reproductive health classes to adolescents in rural areas.

Telehealth and the COVID-19 Pandemic

The novel coronavirus SARS-CoV-2 has caused the COVID-19 pandemic, which drastically transformed the way health systems provide health care services and the way patients receive these services around the world. In order to continue to provide adequate health services to patients during this challenging time, health care systems were forced to develop innovative ways to assess and treat patients, while keeping in mind the guidance to practice safe social distancing and decrease the number of face-to-face visits. Particularly in rural settings, access to subspecialty care can be challenging as the nearest location may be several hours away (Nagata, 2020). Therefore, telehealth services were successfully implemented to overcome these barriers. Specifically, HCPs who regularly see adolescent patients struggled with telehealth services for several reasons. First, patient confidentiality can be difficult to adhere to when using virtual and/or digital communication (Wood et al., 2020). Second, several adolescent conditions, such as eating disorders and contraception, require a multidisciplinary team to provide adequate

health care services, which is difficult to coordinate using virtual services (Wood et al., 2020). Lastly, gathering patient vitals and assessments required for medical decision making are rather challenging to obtain while using telehealth services (Wood et al., 2020). These challenges create burdens to offering telehealth services to adolescents. However, several studies have assessed the impact of telehealth services on adolescents during the COVID-19 pandemic.

Wood et al. (2020) assessed the feasibility of rapid adolescent telehealth services in response to the coronavirus (COVID-19) pandemic. The Children's Hospital of Philadelphia (CHOP) Division of Adolescent Medicine specialty clinical program began offering telehealth consultations for adolescent patients for approximately one month. There were a total of 392 telehealth visits scheduled and 324 confirmed between March 16 and April 15, 2020. Overall, the implementation of telehealth services at this large academic medical center was successful. System updates allowed for up to five individuals on a virtual visit at a time, allowing for collaboration across multiple multidisciplinary team members. As far as confidentiality concerns, providers verified that adolescents were sitting alone without their parent/guardian before discussing sensitive health topics. Medical assistants helped "room" patients by verifying important information, such as vitals and allergies, 30 minutes before the telehealth visit. Then, the provider was notified by an automated EHR message when the adolescent was ready to be seen. The ability to overcome these challenges allowed for a successful implementation of telehealth services for youth.

Carlson and Goldstein (2020) examined the use of the EHR to conduct adolescent health visits during the COVID-19 pandemic. In order to efficiently complete a telehealth appointment within an EHR, two major access points must be accessible to patients: the patient portal and the “upcoming appointment” view. With parental consent, adolescents who are 12 years or older can access their own portal account, which allows viewing of messages, appointments, lab results, and after-visit summaries. Upon turning 13 years old, adolescents may sign up for a basic account, which requires no parental consent. Giving adolescents the autonomy to control access to their own health information improves telehealth services for youth during this challenging time. Access to available appointments in the “upcoming appointment” view section of the EHR is important. Moving forward, access to view specific appointments were filtered based on the type of appointments (e.g., confidential family planning services, in-person psychiatry, etc.) in order to maintain confidentiality. Additionally, before engaging in a virtual medical appointment, providers would ask their adolescent patients (a) if there is a private space nearby they can take this virtual visit, and (b) if they could provide a 360 degree spin using their video camera to ensure only the patient and provider are present in the space. Providers further encouraged their adolescent patients to use headphones to block out any excess sound. Adhering to these policies allowed the clinic to maintain approximately 90-95% of their typical adolescent patient volume. Therefore, despite the challenges faced during the COVID-19 pandemic, the careful development of these policies further supports adolescent telehealth services.

In this section, I expanded upon the literature by addressing barriers to accessing health care, particularly in rural areas, and further elaborated on existing literature surrounding adolescents' perspectives on these barriers, particularly around sexual health. I provided additional details on the benefits of telehealth services, particularly how telehealth services have affected adolescent sexual health visits during the COVID-19 pandemic. It is important for HCPs to understand the barriers identified by adolescents themselves so they can adapt their workflow to accommodate for these challenges. By understanding the barriers faced by adolescents themselves, HCPs can improve on the type of care they provide to their patients. The information around telehealth services, especially during the COVID-19 pandemic, is critical for providers to understand how their adolescent patients can benefit from telehealth services in their practice or clinic. The first research question addressed the barriers identified by HCPs, which are consistent with some of the barriers identified by adolescents themselves in this section. The following section took a deeper look at HCP's attitudes and beliefs, particularly related to adolescent sexual health.

Health Care Providers' Attitudes and Beliefs on Adolescent Sexual Health

HCPs play a critical role in addressing adolescent health care needs and reducing barriers to care; however, research shows their needs are not fully accommodated in traditional health care settings (Miller et al., 2014; Murphy et al., 2016). For instance, lack of access to sexual and reproductive health services can increase an adolescent's risk of STIs and unplanned/unwanted pregnancies (Kuzma & Peters, 2016; Miller et al., 2014). Youth-friendly care is warranted among adolescents, which entails providing a

safe, comfortable, and confidential environment for adolescents to be seen, offering flexible and convenient hours for adolescents, and offering HCPs who are specially trained to treat adolescents in reproductive health (Kuzma & Peters, 2016). HCPs should engage in conversation in a nonjudgmental, respectable manner when discussing sexual health issues with their patient. HCPs should also provide the most up-to-date information to their patients, which supports healthy sexual development (Farrisi, 2012). Interestingly enough, one report found adolescents more likely to consider their parents or peers good sources of sexual information as compared to physicians, and they reported low rates of sexual health discussions during routine health maintenance visits (Alexander et al., 2014). While providers have noted they feel comfortable addressing their patient's sexual history, they reported not feeling confident discussing sex and sexuality with their patients (Alexander et al., 2014). The remaining section further explains HCP's attitudes and beliefs around sexual health care to adolescents.

Alexander et al. (2014) examined the frequency and duration of sexual health conversations between physicians and adolescents during routine health maintenance visits and factors associated with the likelihood the event would take place. Audio-recorded conversations transpired among 49 physicians and 253 adolescents across 11 clinics located throughout the Raleigh/Durham, North Carolina area. The study found sexuality talk was identified in 65% of health maintenance visits, with talk time averaging at about 36 seconds. During each conversation with the patient, the topic was initiated by the physician. Adolescents were hesitant to engage in further discussions beyond what the physician asked. Additionally, physicians were almost twice as likely to

engage in conversation related to sex and sexuality when their patients were girls.

Overall, adolescent patients were receiving very little counseling and education on sex related topics during their encounter with their providers, and when they did, the conversations were brief. Being aware of this information gives HCPs an opportunity to engage in more productive conversations with their patients, which contributes to the decrease in STIs and unwanted/unplanned pregnancies among adolescents.

Miller et al. (2014) explored HCP's attitudes and beliefs about adolescent sexual health care from the perspective of an emergency department provider and identified their perspectives on barriers to care. Semi structured interviews with HCPs (i.e., RNs, NPs, physicians, and social workers) from an academic children's hospital were conducted. Many HCPs felt patient safety was concerning and providing a safe, comfortable environment for their patients is valuable. Providers reported that if an adolescent believes that an HCP is uncomfortable or can be judgmental, they are less likely to have truthful discussions related to sex and sexuality. The most common barriers to care reported by this group of HCPs were related to time and emergency department patient flow issues. Additional barriers noted included issues around adolescent confidentiality and the presence of a parent(s), which affected the type of information providers can discuss and obtain from the patient. Some HCPs noted provider discomfort, mentioning it takes some time to build rapport with their patients so they can feel comfortable discussing sensitive topics. Specifically, some providers admitted to not being knowledgeable about LARC methods, claiming it is not their area of expertise. Despite

the setting where this study took place, the barriers identified are relevant and consistent with the barriers identified by HCPs in the proposed survey.

In this section, I expanded upon the literature by examining HCP's attitudes and beliefs as it relates to adolescent sexual health. Overall, research showed HCPs understand there are barriers that prevent them from providing adequate sexual health care to their adolescent patients (Alexander et al., 2014; Kuzma & Peters, 2016; Miller et al., 2014). However, there is a gap in the research that examines barriers specifically linked to repeat pregnancies among adolescents. HCPs should be conscious of such barriers linked to repeat pregnancies so they can create strategies to combat these challenges during their encounters with adolescent patients. The first research question gained a deeper understanding of these barriers identified by HCPs, which are consistent with the barriers identified in this section by HCPs as it relates to adolescent sexual health.

Summary and Conclusions

Chapter 2 addressed existing literature on teen pregnancy and rapid repeat pregnancy; strategies and interventions to reduce repeat pregnancies; barriers to accessing health care, particularly in rural areas; and HCP's attitudes and beliefs related to adolescent sexual health. Studies have shown effective strategies to reduce repeat pregnancies (Conroy et al., 2016; Damle et al., 2015; Kumar & Brown, 2016; Isquick et al., 2017; Maravilla et al., 2016; Murphy et al., 2016; Parks & Peipert, 2016; Sackeim et al., 2019); however, barriers exist which prevent HCPs from providing adequate sexual health care services to adolescents (Kuzma & Peters, 2016; Miller et al., 2014).

Particularly in rural areas, these barriers are exacerbated. Telehealth interventions have been shown to improve reproductive health care access among adolescents (Douthit et al., 2015; Sundstrom et al., 2019; Yoost et al., 2017), especially during the COVID-19 pandemic (Carlson & Goldstein; 2020; Nagata, 2020; Wood et al., 2020). According to the literature, adolescents have shared their perspectives on barriers preventing their access to adequate health care for sexual health services (Fuzzell et al., 2016; Hubel & Moreland, 2020; Kuzma & Peters, 2016; Martyn et al., 2013; Miller et al., 2018; Yarger et al., 2017). The gap in the literature has found limited research on barriers contributing to repeat pregnancies from the perspective of the HCP. Therefore, there is a need for further analysis to determine the relationship between these barriers and repeat pregnancies among adolescents. Chapter 3 describes the research methodology for this study, including the research design and rationale, the role of the researcher, instrumentation and operationalization of constructs, and threats to validity.

Chapter 3: Research Methodology

Introduction

The purpose of this study was to examine differences in barriers identified by HCPs and to understand if these barriers potentially influence repeat pregnancies among adolescents in rural southeastern United States. In Chapter 1, I described the significance of this research, the research questions and hypotheses, the theoretical framework, and potential implications for social change. In Chapter 2, I provided a concise summary of major themes in the literature that supports the research problem and described the search strategy used to conduct the literature review; I also elaborated on the theoretical framework as it relates to the study.

In the current chapter, I explain the research design and its connection to the research questions. In the methodology section, I further describe the target population, the sampling strategy, and how I recruited and collected my data. In this section, I also display each question in the survey and provide additional detail about the correlating variables, the response category, and the type of measure and value for each variable. The identified barriers are explicitly stated in this section. Each barrier fits into one of five broader categories: barriers related to (a) the practice, (b) the clinician, (c) the family/patient, (d) the community, and (e) sociocultural environment (Findholt et al., 2013). These barriers have been previously identified by HCPs as barriers they face related to providing adequate health care services to their patients, with some barriers linked specifically to care in rural settings (Douthit et al., 2015; Heaman et al., 2015;

Miller et al., 2014). In this chapter, I also describe the role of the researcher, data analysis plan, threats to validity, and ethical procedures related to data collection.

Research Design and Rationale

In the current study, I used a nonexperimental, cross-sectional design to examine differences in barriers identified by HCPs. The purpose of this research was to understand HCPs' perceptions of barriers that influence repeat pregnancies among adolescents in rural southeastern United States. Some of the barriers assessed included (a) lack of time spent with the adolescent patient during appointment visit, (b) lack of training in the topic area, (c) lack of familial/social support, and (d) lack of awareness of resources/services for adolescents. The following research questions were addressed:

RQ1: Are the barriers defined by HCPs associated with repeat pregnancies among adolescents in rural southeastern United States?

RQ2: Are there differences in racial ethnicity among adolescents with repeat pregnancies?

RQ3: Due to the COVID-19 pandemic, is there a statistically significant association between the state HCPs practice in and telehealth appointments for adolescents?

I developed and administered a survey to HCPs to gather their perceptions of these barriers, the racial ethnicities most affected by repeat pregnancies in the geographical location where they routinely see adolescent patients, and their perspectives on whether telehealth appointments have increased in their clinic.

A cross-sectional design was appropriate for this study because the identified variables are measured as they occur naturally at one point in time, with no manipulation conducted by the researcher (Creswell, 2014; Mertler, 2019). One example of this approach is using survey research, where a survey or questionnaire is administered to a group of individuals to further describe attitudes, opinions, behaviors, experiences, or other characteristics of a population (Mertler, 2019). For the current study, a survey for HCPs was developed to understand their perceptions of barriers that potentially contribute to repeat pregnancies among adolescents in rural southeastern United States. The independent variables were the identified barriers. The dependent variable, or the outcome variable, was repeat pregnancies.

One advantage of using a survey design is that it is a quick and efficient way to collect and turn around data collection. Surveys can be administered in various formats, they are cost effective, and they can gather significant data that will directly answer a researcher's questions. Surveys allow respondents—in this case HCPs—to be open and candid with their responses. In addition, surveys require little time to complete. A survey design was most appropriate for obtaining the information needed for RQ1, which described barriers outlined by HCPs associated with repeat pregnancies. For RQ2, a survey design is also appropriate because it allowed me to examine the differences between two or more subgroups of a population. For RQ3, a survey design allowed me to determine the association between variables.

Role of the Researcher

The role of the researcher in this study was to create the survey instrument, pilot test the survey, and distribute the survey in the field. The survey included specific questions to collect data to answer all three research questions and to provide an overview of resources available for the adolescent population. Upon completing the survey, I conducted a pilot study among five HCPs to test the survey instrument for clarity and to ensure the questions asked would answer the research questions. Pilot studies are a critical element of good study design because they allow a researcher to address and correct any issues in the survey instrument before it is disseminated, thus increasing the likelihood of a successful study (Van Teijlingen & Hundley, 2001). Ideally, pilot studies allow a researcher to test the survey instrument before applying it on a much larger scale. Once the survey was confirmed reliable and valid, I disseminated the survey via email to HCPs within the identified target states.

Methodology

Population

This study was conducted in four rural southeastern states: Georgia, South Carolina, Tennessee, and Florida. An area is considered rural if the county population is less than 50,000 (Georgia Department of Community Health, n.d.a). In these states, HCPs were either recruited from rural health organizations that serve a large number of rural counties or a medical center that specifically serves rural populations. In Georgia, HCPs were recruited from a medical center in a small city in rural Georgia. Approximately five HCPs (three NPs and two certified nurse midwives) work at medical center site and

provide health care services to adolescents in the city and in nearby rural counties. Initial recruitment efforts took place via an email blast to the director of women's services who then forwarded my survey along to HCPs. HCPs were also recruited from a nonprofit organization serving rural HCPs in South Carolina. In South Carolina, 36 of the state's 46 counties are outside a metropolitan area; a majority of residents living in these counties are medically underserved (Health Sciences South Carolina, 2020). Initial recruitment efforts occurred via a newsletter that was distributed electronically to approximately 1,000 HCPs. In the state of Tennessee, HCPs were recruited from a nonprofit organization focused on health care in rural Tennessee. Approximately 500 members received the survey via email and opted to participate. In the state of Florida, HCPs were recruited from a health education center that services 12 rural counties in north central Florida. For recruitment purposes, an announcement was drafted and sent via email to approximately 100 members.

Sampling and Sampling Procedure

The sampling strategy for this study included a combination of convenience and snowball sampling. Convenience sampling is appropriate because participants opt to fill out a survey based on their availability (Health Knowledge, 2020). Snowball sampling is a method used when trying to reach participants who are difficult to identify or recruit (Health Knowledge, 2020). Given that this research was aimed toward HCPs, snowball sampling was an appropriate method to reach this population.

Four contacts were identified in each of the target states. Contacts were identified through a Google search of rural health clinics and federally qualified health centers in

the target states. Federally qualified health centers are similar to community health centers and provide comprehensive services that address the major health care needs of a target population, in addition to ensuring the availability and accessibility of essential primary and preventive health services (Georgia Department of Community Health, n.d.b). Each contact agreed to distribute my survey to their respective HCP colleagues once the survey was ready for dissemination.

The inclusion criteria for this study were as follows: (a) currently certified and licensed to practice as an HCP in Georgia, South Carolina, Tennessee, or Florida; (b) credentialed licensing as a physician (M.D. or D.O.), physician assistant, NP, or certified nurse–midwife (CNM); (c) provides patient care in one of the target states; (d) works at least part-time (i.e., 20 hours a week); and (e) routinely sees adolescent patients. For purposes of this study, a provider who routinely sees adolescent patients sees this population group more than they would see an adult population group. The exclusion criteria excluded any individual who did not fit the inclusion criteria as mentioned above.

Response rates in an online survey are a critical factor to assessing the value of research findings. However, HCPs are a difficult group to contact and recruit. A survey administered on the internet is advantageous to this group because it does not conflict with work schedules and allows for more open and honest answers that may be answered differently during a face-to-face interview. In one study conducted to assess the effects of incentives and prenotification on response rates, results showed response rates were the highest when a monetary incentive was included (Dykema et al., 2011). Specifically, 25.4% of HCPs responded when offered a check for \$100, 13.4%–15.4% responded

when offered \$50, 6.6%–8.6% responded for inclusion in a \$200 lottery, and 3.0%–6.2% responded when there was no promised incentive (Dykema et al., 2011). For the current research, the lowest possible response rate with a proposed monetary incentive (6.6%) was considered. There were approximately 1,605 HCPs that could have been reached within the target states in the proposed medical centers and organizations. Therefore, I aimed to obtain approximately 106 responses from HCPs to the web-based survey.

Procedures for Recruitment, Participation, and Data Collection

As previously stated, the four identified contacts in the four target states were able to assist with recruitment efforts. Specific demographic information collected in the survey included racial ethnicity, gender, years in practice, and the state the HCP practices in. However, these data were collected for informational purposes only and certain responses did not exclude any other responses in the survey.

The survey was disseminated using Qualtrics, an online survey platform. Once an HCP opened the survey link, they were screened using the inclusion criteria and deemed either ineligible or eligible to participate in the survey. If eligible, they were asked to complete and sign the informed consent form to advance to the first question in the survey. Because the survey responses were collected in the online survey platform, I was able to view the results immediately after they completed the survey. After completion of the survey, participants received a thank you and a small token of appreciation for their time spent taking the survey. There was no additional follow up after the conclusion of the survey. Additional data for this study were extracted from the state-level data sheets

related to reproductive health and teen pregnancy on the U.S. Department of Health and Human Services website to complement RQ2.

Instrumentation and Operationalization of Constructs

Instrumentation

The current study used a combination of new survey questions and questions from an existing survey instrument to form the survey instrument (Appendix A). Previously used survey questions were extracted from a 2003 *Journal of Rural Health* publication titled “Perceived Barriers, Resources, and Training Needs of Rural Primary Care Providers Relevant to the Management of Childhood Obesity”. This article explored the perceived barriers, resources, and training needs of rural primary care providers as it relates to the management of childhood obesity (Findholt et al., 2013). I obtained permission from Dr. Nancy Findholt, Dr. Melinda Davis, and Dr. Yvonne Michael to use their survey questions in my survey. Full permission was granted on January 23, 2020, and the permission letters are included as Appendix B. Due to the qualitative nature of the 2003 study, the survey questions were not designed to be generalizable to other studies and therefore, could not test for reliability and validity. However, emergent themes or recurring issues were identified and discussed during bi-weekly meetings to maintain a certain degree of structure and account for any new information heard during the semi-structured interviews (Findholt et al., 2013).

The remaining survey questions addressed the proposed research questions. Existing literature found previously defined barriers from an HCP’s perspective as it relates to providing adequate health care services to their patients (Douthit et al., 2015;

Heaman et al., 2015; Miller et al., 2014). The defined barriers made up answer choices for one of the survey questions. HCPs were asked to identify the racial ethnicity of adolescents with repeat pregnancies that they routinely see in their practice. These responses were compared and confirmed with data collected from the state level data sheets on the health and human services website. The survey was piloted to five HCPs to obtain their overall feedback and confirm that the questions measured what they intend to measure. Roughly five participants were needed to detect over 80% of issues in the survey (Aiyegbusi, 2020). The five HCPs who agree to take the survey during the initial pilot testing phase were not recruited to take the final survey once it was out in the field.

Operationalization of Constructs

Table 1 shows each variable pulled out of the research questions, in addition to other variables explored in the survey. The proposed survey included questions that identified potential barriers that contribute to repeat pregnancies among adolescents, the racial ethnicity of adolescents with repeat pregnancies seen in the clinic, and types of reproductive health care services/resources offered in the clinic. Additional survey questions gathered information on trainings attended as it relates to adolescent sexual health, where HCPs obtain information about adolescent sexual health, use of electronic health records in the clinic, telehealth services, and interoperability to share medical records between health systems. Table 1 captured the survey question and the corresponding variable(s), response categories for each survey question, and details about each response category, such as type of measure and value. The independent, or predictor, variables were the identified barriers. The dependent variable, or the outcome

variable, was repeat pregnancies. The demographic variables were: state HCP practices in, years in practice, race, and gender.

Table 1*Description of Operational Measures*

Variables	Survey questions	Response category	Type of measure and value
RQ1 Barriers/repeat pregnancy	From the perspective of a health care provider practicing in a rural area, please check the following barriers you feel potentially contribute to repeat pregnancies among adolescents. (Please select all that apply)	1 = Lack of time with patient (short visits, rushed appointments)-PRACTICE 2 = Inadequate financial reimbursement-PRACTICE 3 = Inconvenient hours/extended wait time-PRACTICE 4 = Lack of training in topic area-CLINICIAN 5 = Lack of knowledge, particularly on long-acting reversible contraception (LARCs)-CLINICIAN 6 = Situational discomfort (uncomfortable having discussions with parent (or guardian) in the room, interfering with patient confidentiality)-CLINICIAN 7 = Lack of familial/social support -FAMILY/PATIENT 8 = Insurance coverage (particularly for long-acting reversible contraception (LARCs)-FAMILY/PATIENT 9 = Lack of community resources (e.g., health educator, Community Health Worker (CHW), social worker, counselor) -COMMUNITY 10 = Lack of trained providers-COMMUNITY 11 = Lack of transportation-COMMUNITY 12 = Lack of awareness of resources/services (e.g., mobile bus)-COMMUNITY 13 = Limited access to colleagues for consultations, referrals, etc.-COMMUNITY 14 = Contact with client/patient in non-professional settings - COMMUNITY 15 = Sociocultural influences (i.e., traditions, habits, patterns, beliefs, attitudes)-SOCIOCULTURAL 16 = Prevalence of teen pregnancy -SOCIOCULTURAL	Nominal 14 items
Training course on specific barriers	Are there any specific barriers listed above you would be interested in receiving a training course on? (If so, please select from the list)	*Same list as above*	Nominal 14 items
RQ2 Racial ethnicity of adolescent/repeat pregnancy	What is the racial ethnicity of adolescents you see routinely in practice with repeat pregnancies?	1 = White 2 = Black or African American 3 = American Indian or Alaska Native 4 = Asian 5 = Hispanic or Latino 6 = Native Hawaiian or Other Pacific Islander 7 = Other	Nominal 4 items
Types of health care services	What reproductive health care services/resources are available in your clinic for adolescents? (Please select all that apply)	1 = Abortion 2 = Comprehensive care (including STD/STI, contraception, and pregnancy) 3 = Counseling (e.g., abstinence) 4 = Preconception health 5 = None of the above	Nominal 5 items

Variables	Survey questions	Response category	Type of measure and value
Trainings	Other than during required trainings in school, have you participated in any additional trainings on adolescent sexual health?	1 = Yes 2 = No	Nominal 2 items
Adolescent sexual health information	Where do you find information on adolescent sexual health to make informed decisions in your everyday practice?	1 = Credible organizational websites (CDC, WHO, etc.) 2 = Journal articles 3 = Other colleagues 4 = Work-related trainings	Nominal 4 items
COVID-19/comfortability	Due to the COVID-19 pandemic, many practices have transitioned from in-person visits to telehealth services. On a scale of 1-5 with 1 being not comfortable at all to 5 being completely comfortable, please rate your level of comfortability conducting an adolescent telehealth visit.	1 = Very uncomfortable 2 = Somewhat uncomfortable 3 = Neutral 4 = Somewhat comfortable 5 = Very comfortable	Ordinal 5 items
RQ3 COVID-19/telehealth	Due to the COVID-19 pandemic, have you seen an increase in telehealth appointments for an adolescent reproductive health visit?	1 = Yes 2 = No	Nominal 2 items
EHRs	Do you use Electronic Health Records (EHRs) in your practice?	1 = Yes 2 = No	Nominal 2 items
Interoperability	Is there interoperability between systems to share medical records with other surrounding health care facilities?	1 = Yes 2 = No	Nominal 2 items
RQ3 State of practice	In which state do you provide reproductive health services to adolescents?	1 = Georgia 2 = South Carolina 3 = Tennessee 4 = Florida	Nominal 4 items
Years in practice	How many years have you been in practice?	1 = < 1 year 2 = 1-5 years 3 = > 5 years	Nominal 3 items
Racial ethnicity of HCP	What is your racial ethnicity?	1 = White 2 = Black or African American 3 = American Indian or Alaska Native 4 = Asian 5 = Hispanic or Latino 6 = Native Hawaiian or Other Pacific Islander 7 = Other	Nominal 4 items
Gender of HCP	What is your gender?	1 = Male 2 = Female	Nominal 2 items

Data Analysis Plan

Data were collected and analyzed using Statistical Product and Service Solutions (SPSS) software, version 27. The current study explored the following research questions:

RQ1: Are the barriers defined by HCPs associated with repeat pregnancies among adolescents in rural southeastern United States?

H_01 : The barriers defined by HCPs are not associated with repeat pregnancies among adolescents living in rural areas in rural southeastern United States.

H_11 : The barriers defined by HCPs are associated with repeat pregnancies among adolescents living in rural areas in rural southeastern United States.

RQ2: Are there differences in racial ethnicity among adolescents with repeat pregnancies?

H_02 : There are no racial ethnic differences among adolescents in rural southeastern United States who experience repeat pregnancies.

H_12 : There are racial ethnic differences among adolescents in rural southeastern United States who experience repeat pregnancies.

RQ3: Due to the COVID-19 pandemic, is there a statistically significant association between the state HCPs practice in and telehealth appointments for adolescents?

H_03 : There is no statistically significant association between the state HCPs practice in and telehealth appointments for adolescents.

*H*₁₃: There is a statistically significant association between the state HCPs practice in and telehealth appointments for adolescents.

Descriptive statistics were used to assess the frequencies, percentages, and means of the study population. To assess RQ1, a univariate analysis of variance (ANOVA) (i.e., one-way ANOVA) statistical test was performed. A one-way ANOVA examines statistically significant differences in the means using categorical information, or groups, for two or more independent variables and continuous information for the dependent variable (Creswell, 2014). For RQ1, the continuous dependent variable was repeat pregnancies, and the independent variables were the barriers, as defined in Table 1. Each *barrier* was recoded as the numerical value noted in Table 1. A one-way ANOVA was an appropriate test for this research question to determine if there are any statistically significant differences between the barriers as it relates to repeat pregnancies. The results were interpreted by evaluating the outcome of the homogeneity of variances test (i.e., Levene's test), interpreting the between groups p-value to assess if there are differences between the groups, and calculating the effect size (Allwright, 2019). If there are differences between the groups, those differences will be confirmed with a post hoc test (Allwright, 2019).

To assess RQ2, another one-way ANOVA statistical test was performed. The continuous dependent variable was repeat pregnancies, and the independent variables were the racial ethnicity of the adolescents, as defined in Table 1. *Racial ethnicity of adolescents* was recoded as the numerical values noted; however, data collected in both categories 3 and 4 was merged to form an "other" category. The purpose of this research

question was to further understand whether there were any statistically significant differences among racially diverse adolescents living in rural areas with repeat pregnancies. The results of this test were confirmed with the state level data sheets on the health and human services website and interpreted similarly to RQ1.

To assess RQ 3, a Chi-square test was performed. Chi-square tests are used to determine whether there is a relationship or association between two or more categorical variables. The dependent variable was whether HCPs saw an increase in telehealth appointments (i.e., yes or no). The independent variables were the states where HCPs were providing health care services (i.e., Georgia, South Carolina, Tennessee, and Florida). *State of Practice* and *COVID-19/telehealth* was recoded as the numerical values noted in the survey table above. The key result for a Chi-square test is the Pearson Chi-square value. If this value is greater than the chosen significance level (usually 0.05), then the null hypothesis can be rejected.

Threats to Validity

External Validity

Factors within a study that can affect the generalizability of results can be a threat to external validity (Torre & Picho, 2016). The largest threat to external validity in this study was selection bias. Convenience and snowball sampling was performed in order to reach select HCPs in the target areas. Although this method makes it easy to reach study participants, the results may not be generalizable to other study populations. To address this, I overrecruited to ensure that I have a large enough sample size.

Internal Validity

Internal validity refers to the degree which inferences from the data about the population are threatened (Torre & Picho, 2016). One factor that can influence internal validity is historical events, where real life events can directly influence the outcome of the current study (Creswell, 2014). Once this survey was out in the field, I was mindful of outside factors that could influence the study participants' responses.

Construct and Statistical Conclusion Validity

Construct validity refers to whether the instrument or test used actually measures what it intends on measuring. To achieve construct validity, adequate definitions and measures of variables have to be carefully developed based on existing knowledge (Creswell, 2014). Due to the fact that the barriers were defined from existing literature and several questions in the survey were adaptations of existing survey questions, I was confident that construct validity was not threatened.

Statistical conclusion validity is simply issues related to inaccurate inferences from the data because of inadequate statistical power or the violation of statistical assumptions (Creswell, 2014). Although impossible to have perfect results, statistical conclusion validity refers to whether reasonable conclusions were made based on the data. To address this threat, I ensured that my power levels were greater than 80% to achieve finding statistically significant differences in addition to ensuring that no assumptions for statistical tests are violated.

Ethical Procedures

Institutional Review Board (IRB) approval was sought through Walden University in order to conduct this study. Before a survey participant could take the online survey, they had to sign an informed consent form which outlines the purpose of the study and their consent to participate. I informed participants that all data being collected was deidentified and could not be traced back to them. Participants were informed that their consent to participate in this survey was completely voluntary and at their own discretion. Their responses were confidential and no sensitive information was collected.

Accessing responses to the survey was password protected. I was the only person that knew this password and therefore, I was the only person able to access the survey results. As required by Walden University's Institutional Review Board, the survey data will be kept on my personal computer for 5 years. After this time, the survey data will be permanently deleted from my personal computer.

Summary

This chapter expanded on the selection of a quantitative non-experimental, cross sectional research design and methodology for the current study. Data collected from the survey instrument was analyzed to (1) examine differences in barriers identified by HCPs and understand if these barriers influenced repeat pregnancies among adolescents in rural southeastern United States, (2) understand if there were any racial ethnic differences among adolescents in rural southeastern United States who experienced repeat pregnancies, and (3) understand if there was an association between the targeted states

HCPs practice in and telehealth appointments. Findings from the proposed analyses are presented in chapter 4.

Revised Study Design

The current study required significant changes from the original data collection procedures. The COVID-19 pandemic, which began in early 2020, significantly affected the ability to collect my data in a timely fashion. HCPs were at the forefront taking care of patients and their families dealing with COVID-19 and therefore, were not able to devote their full attention to completing my survey. Due to this unforeseen circumstance, I had difficulty reaching the desired number of participants to take my survey within an appropriate timeframe. Therefore, I had to submit multiple amendments to IRB to modify my recruitment strategy. The initial request involved sending a total of 3 reminder letters to the clinic system's contacts in order to have my survey out in the field on a continuous basis and obtain additional responses. After the 3rd reminder letter was distributed, I still was not able to reach the desired number of responses. Therefore, I submitted another amendment to further broaden my recruitment strategy. I developed a social media recruitment post including details about my study and posted this in several social media platforms, including Facebook health care professional groups and directly to HCPs on LinkedIn. I broadened my inclusion criteria to also include RNs as potential participants with the hopes that I would reach the desired number of participants sooner. Additionally, I submitted open records requests to state medical board directories to obtain email addresses for HCPs in the desired target states, submitted my social media recruitment post to multiple health care organizations' list serves to reach HCPs directly, and reached

out to partner organizations named by the existing organizations I was already working with for my data collection. After continued challenges with reaching the desired number of participants, a month and a half later, I submitted an additional amendment to expand my recruitment efforts to Walden University doctoral students who volunteer to participate in doctoral students' research through the Walden Participant Pool.

Despite the significant changes to my recruitment efforts and multiple amendments submitted, I continued to have trouble reaching my desired number of participants. I brainstormed alternative solutions with my committee members and the academic research coordinator of my program. The purpose of those discussions was to determine ways I could reduce the proposed sample size and run analyses based on the data I already collected. As a collective group, it was recommended I run a G Power analysis to understand what my desired sample size should be. The G Power analysis determined I should recruit at least 300 participants, which was a lot more participants than my initial desired sample. After discussing those results with my committee, it was recommended I discuss the G Power analysis and persistent challenges I have faced with my research with one of Walden's quantitative methodologists. Dr. Reggie Taylor suggested I could move forward with the number of participants I already have data for if I condense my research questions to only focus on the question(s) that would answer my problem statement. Therefore, I simplified my research questions from 3 to 1.

My new research question became "What is the impact of identified barriers by HCPs and racial ethnicity of adolescent on the number of repeat pregnancies?" The most appropriate analysis to run based on the data I had readily available was a 2x2 Chi-square

analysis. This required me to condense my independent variables (“barriers by HCPs” and “racial ethnicity of adolescents”) down to 2 groups for each variable. I combined barriers that belonged to the *practice* and *clinician* subgroups into one category and barriers that belonged to the *family/patient*, *community*, and *sociocultural* subgroups into another category. I combined barriers belonging to *practice* and *clinician* subgroups into one group as providers have more control over addressing and changing these barriers during their day-to-day practice. Barriers that belonged to the *family/patient*, *community*, and *sociocultural* subgroups would involve more effort to see change in an HCP’s practicing habits, which supported my rationale for grouping those three subgroups together. Multiple studies found that birth rates for Hispanic/Latina and African American adolescents were twice as much as white adolescents (Joyce et al., 2018; Parks & Peipert, 2016). For this reason, I combined “Black or African American” and “Hispanic or Latino” into one category and combined the other responses for racial ethnic groups into an “other” category.

A sensitivity analysis determines effect size for a Chi-square analysis. Effect size indicates the practical significance of a research outcome, or how meaningful the relationship between variables is, independent of sample size, which determines statistical significance (Oxford Reference, 2022). The larger the effect size, the more likely findings of the research would have practical significance. Cohen’s *d*, an effect size measure, determines the difference between two means (Oxford Reference, 2022). The size is considered to be small if $r = 0.10$, medium if $r = 0.30$, and large if $r = 0.50$ (Oxford Reference, 2022). For purposes of this research, considering the proposed

sample size of 49 participants, an alpha level of 0.05, and a power of 0.80, an effect size of 0.40 was determined, meaning we would expect findings from this research to have a medium to large effect.

Chapter 3 included details on the research design and rationale, role of the researcher, methodology details, instrumentation and operationalization of constructs, data analysis plan, and threats to validity. Chapter 3 also included details on the revised study design. In Chapter 4, results of the findings are presented.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to examine differences in barriers identified by HCPs and to understand if these barriers potentially influence repeat pregnancies among adolescents in rural southeastern United States. I used a quantitative approach to understand the impact of identified barriers by HCPs and racial ethnicity of adolescents on the number of repeat pregnancies. The following research questions and hypotheses were developed to address this research.

RQ1: What is the impact of identified barriers by HCPs and racial ethnicity of adolescents on number of repeat pregnancies?

H_01 : There is no impact (or association) among identified barriers by HCPs and racial ethnicity of adolescents on number of repeat pregnancies.

H_11 : There is an impact (or association) among identified barriers by HCPs and racial ethnicity of adolescents on number of repeat pregnancies.

In this chapter, I further describe results from the pilot study, data collection procedures, descriptive and demographic characteristics of participants, analyses of the data, and a conclusion of results.

Pilot Study

A pilot study was conducted to obtain feedback on the survey instrument. I asked five HCPs if they would be willing to complete my survey and provide any feedback. The five HCPs who took the survey were exempt from participating in the study once it launched. Overall, the five HCPs reported that my survey was quick and easy to follow;

however, they recommended providing more specific details around the identified barriers by HCPs as some were confusing upon initially reading. The pilot study participants also suggested a few edits to demographic questions, including asking a question identifying the specialty of the HCP (i.e., M.D., D.O., PA) and providing additional responses for gender identification other than male and female. Due to these suggestions, I edited my survey instrument to refine the identified barriers, added a question asking providers to self-identify their profession, and added additional options such as *gender nonconforming* and *prefer not to say* to the gender identification question.

Data Collection

Data collection started in March 2021 after gaining approval from IRB (approval #03-23-21-0672311). The data collection period took much longer than anticipated due to challenges reaching and recruiting the desired number of participants. I fielded my survey in March 2021 and reached an appropriate number of responses to move forward with analyzing data in January 2022. Data were collected from a total of 49 participants with 17 incomplete responses. Consent was secured by participants via the online survey platform prior to answering the first survey question. A \$25 Amazon gift card was emailed to each initial contact at the partner organization prior to providers completing the survey as a small token of appreciation. Data were recorded within the online survey platform, transferred to an Excel spreadsheet, and then uploaded in SPSS. To prevent any errors in transferring, the data were triple checked once populated.

Frequencies and percentages were captured for all nominal variables. The sample included a total of 32 HCPs, including seven physicians (six MDs and one DO), 17 NPs,

five certified nurse midwives, and three RNs (see Figure 2). Of the 32 providers, 27 were female providers, four were male providers, and one provider identified as gender nonconforming (see Figure 3). Three providers reported practicing for less than 1 year, 12 providers reported practicing between 1 and 5 years, and more than half (17) reported practicing greater than 5 years (see Figure 4). Ten providers performed adolescent health services in Georgia, 12 providers practice in South Carolina, four providers in Tennessee, and six in Florida (see Figure 5).

Figure 2

Frequency Distribution of Health Care Providers' Professional Background

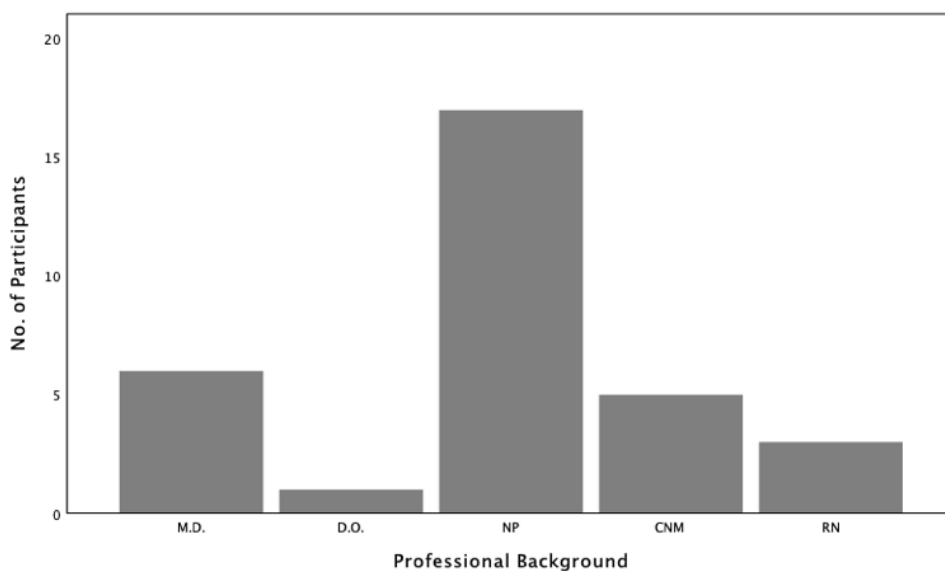
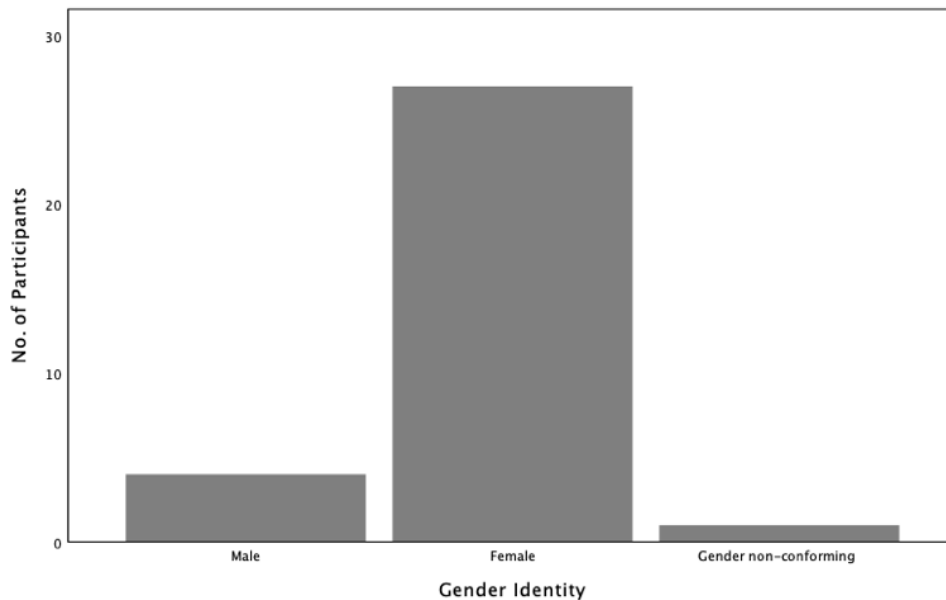


Figure 3

Frequency Distribution of Health Care Providers' Gender Identity

**Figure 4**

Frequency Distribution of Number of Years Health Care Provider is in Practice

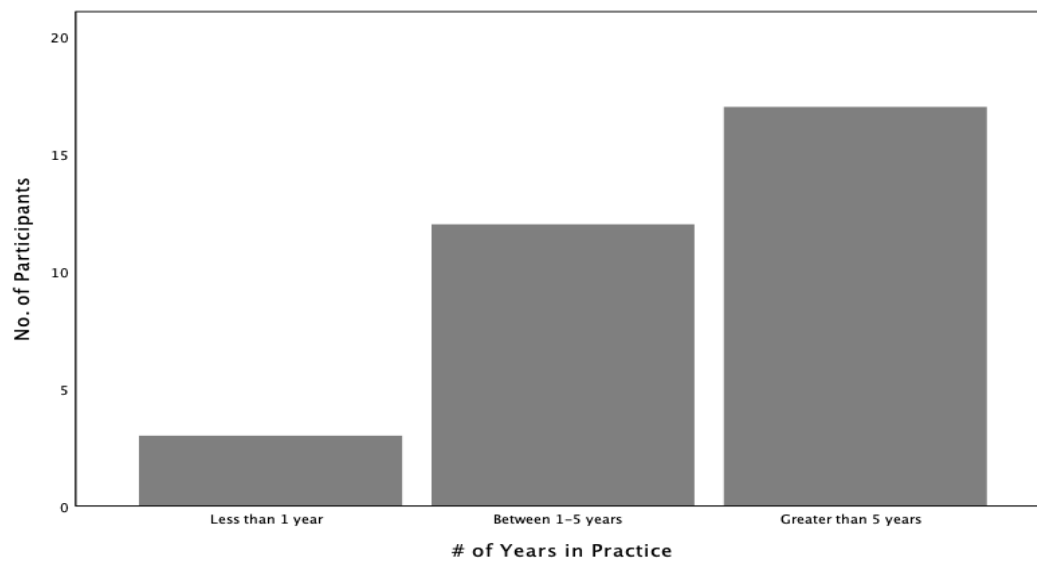
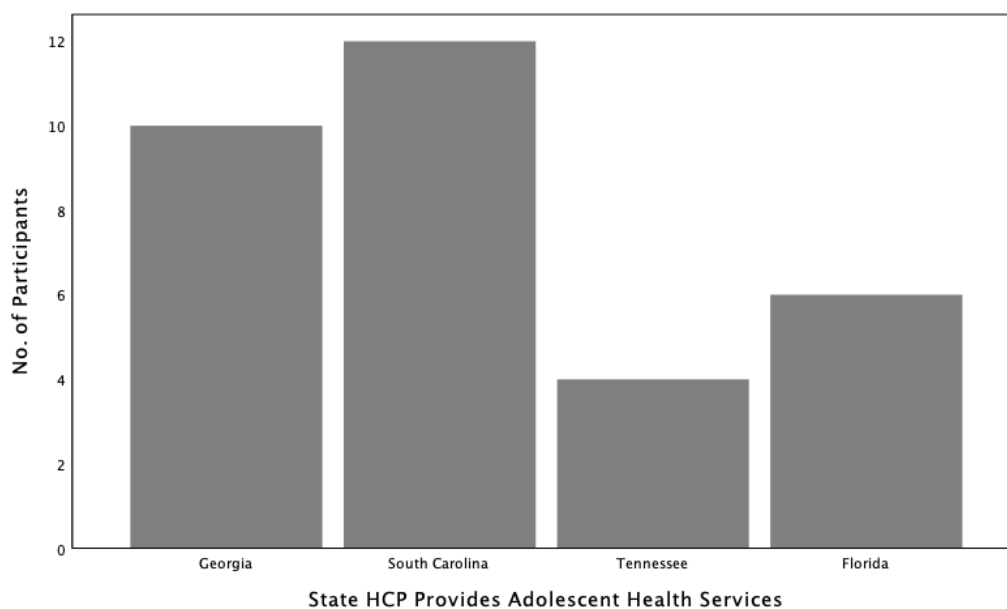


Figure 5

Frequency Distribution of State HCPs Provide Adolescent Health Services



HCPs perceived two barriers—lack of familial/social support (see Figure 12) and sociocultural influences (see Figure 17)—as potentially contributing to repeat pregnancies among adolescents (49.0%, $n = 24$ and 57.1%, $n = 28$, respectively). The following barriers were perceived not to contribute to repeat pregnancies among adolescents: (a) lack of time with patient (55.1%, $n = 27$, see Figure 6); (b) inadequate financial reimbursement (67.3%, $n = 33$, see Figure 7); (c) inconvenient hours/extended wait time (57.1%, $n = 28$, see Figure 8); (d) lack of training in topic area (65.3%, $n = 32$, see Figure 9); (e) lack of knowledge on LARCs and reimbursement (57.1%, $n = 28$, see Figure 10); (f) confidentiality concerns at time of visit (55.1%, $n = 27$, see Figure 11); (g) lack of awareness of community resources/services (44.9%, $n = 22$, see Figure 13); (h) lack of trained providers in adolescent reproductive health (55.1%, $n = 27$, see Figure

14); (i) limited ability to collaborate with colleagues (71.4%, $n = 35$, see Figure 15); (j) contact with client/patient in nonprofessional settings (71.4%, $n = 35$, see Figure 16); and (k) prevalence of teen pregnancy (49.0%, $n = 24$, see Figure 18).

Figure 6

Frequency Distribution of Barrier: Lack of Time With Patient

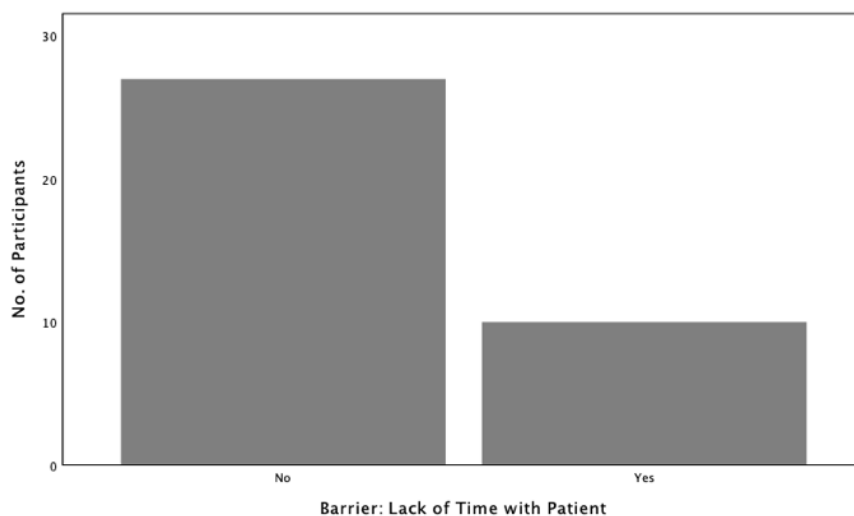
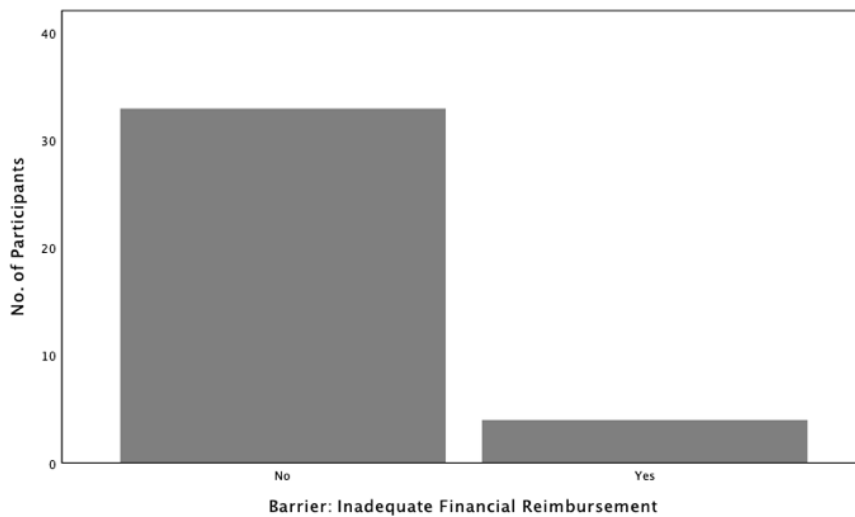


Figure 7

Frequency Distribution of Barrier: Inadequate Financial Reimbursement

**Figure 8**

Frequency Distribution of Barrier: Inconvenient Hours/Extended Wait Time

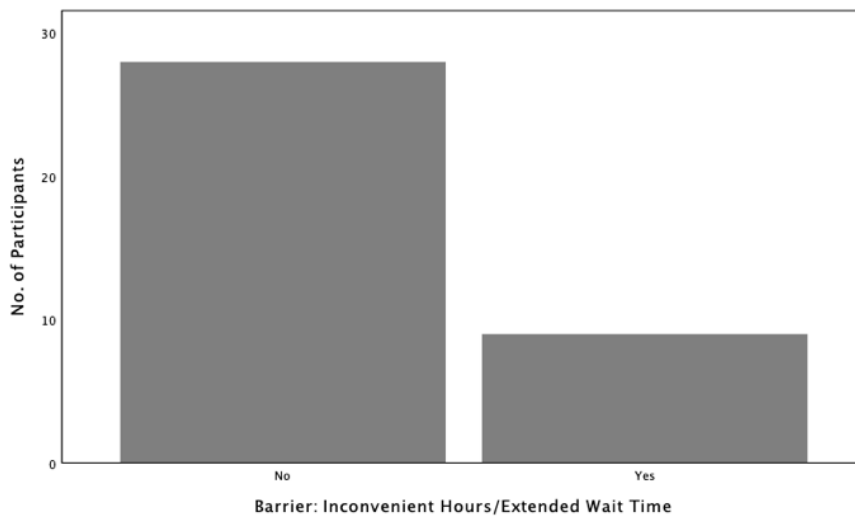
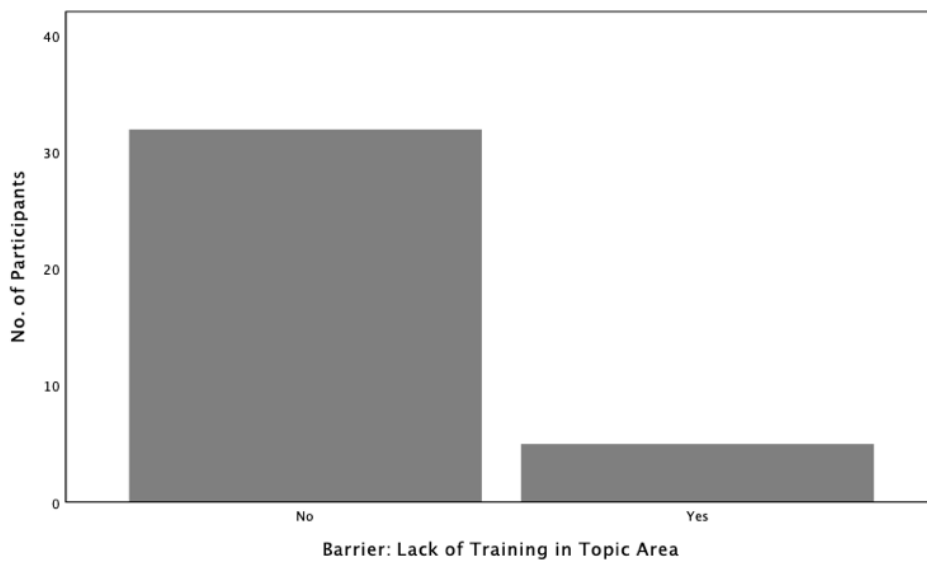


Figure 9

Frequency Distribution of Barrier: Lack of Training in Topic Area

**Figure 10**

Frequency Distribution of Barrier: Lack of Knowledge on LARCs and Reimbursement

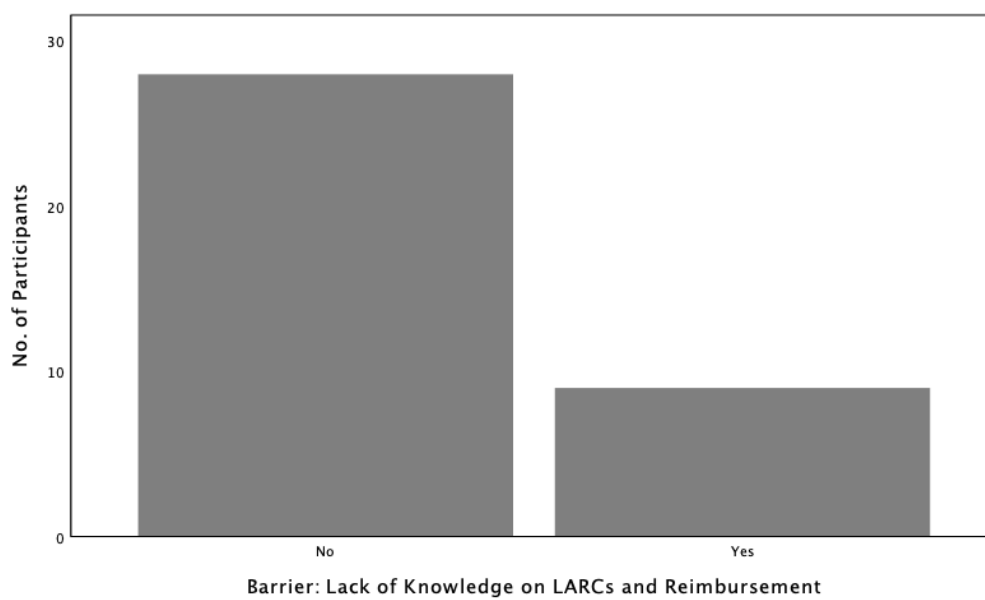
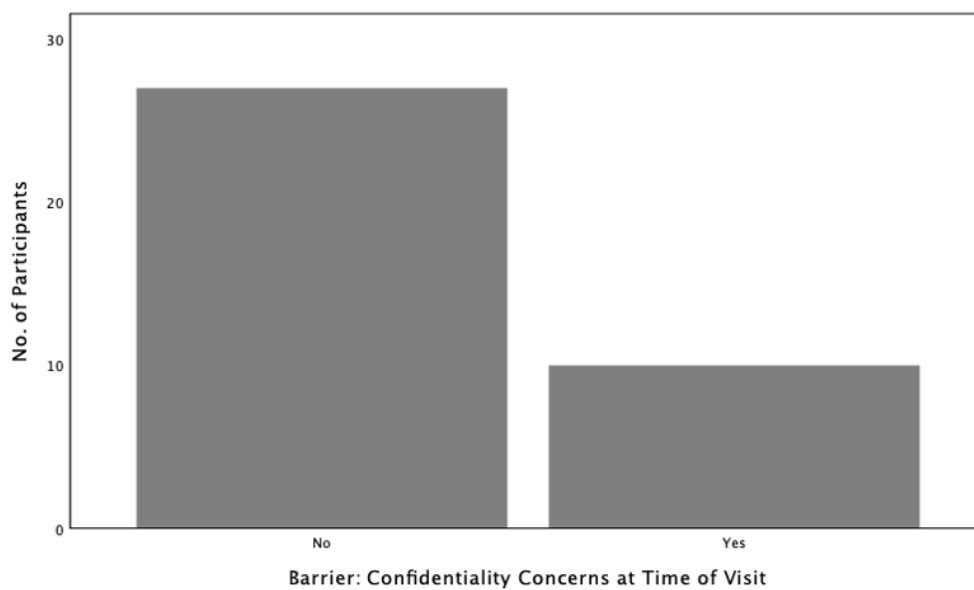


Figure 11

Frequency Distribution of Barrier: Confidentiality Concerns at Time of Visit

**Figure 12**

Frequency Distribution of Barrier: Lack of Familial/Social Support

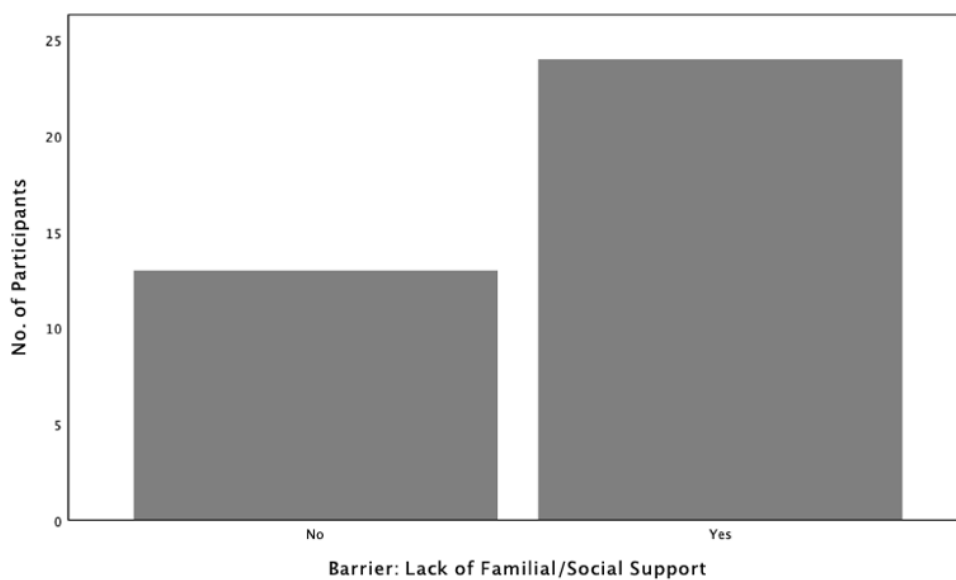
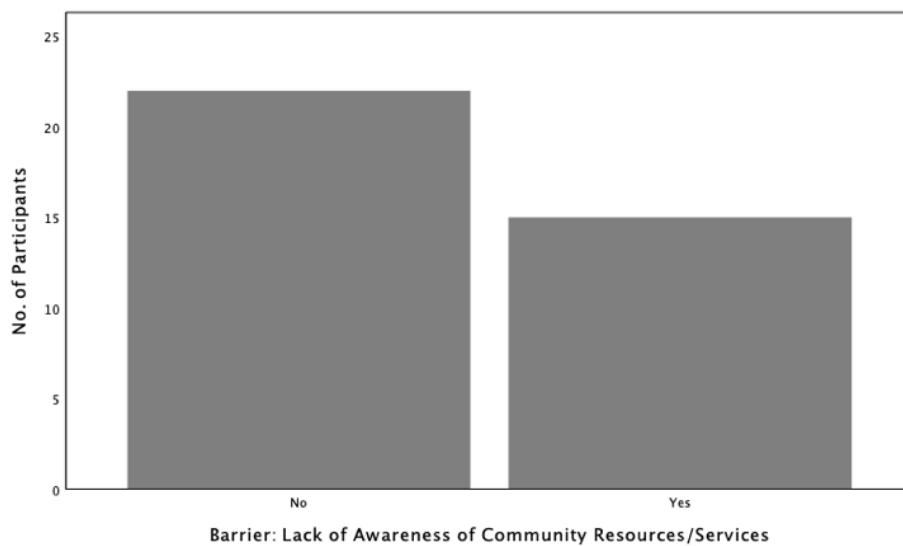


Figure 13

Frequency Distribution of Barrier: Lack of Awareness of Community Resources/Services

**Figure 14**

Frequency Distribution of Barrier: Lack of Trained Providers in Adolescent Reproductive Health

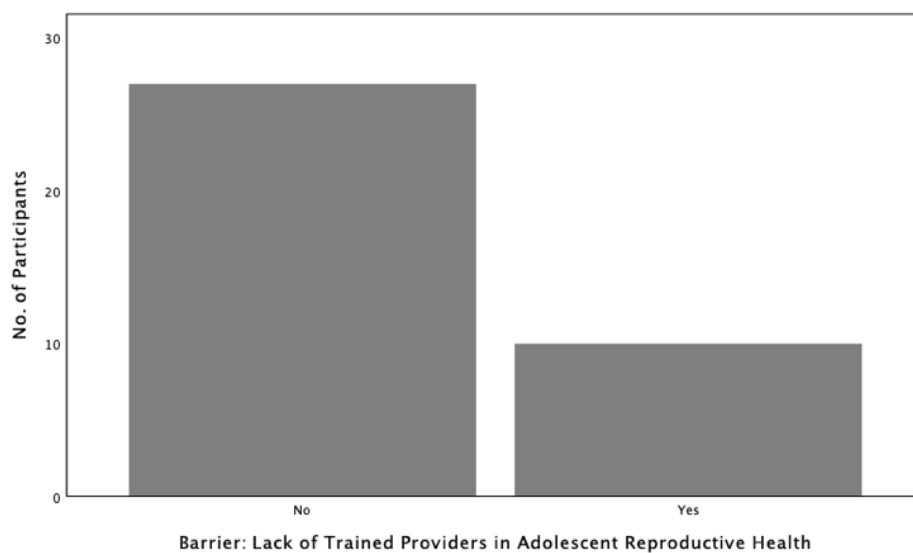
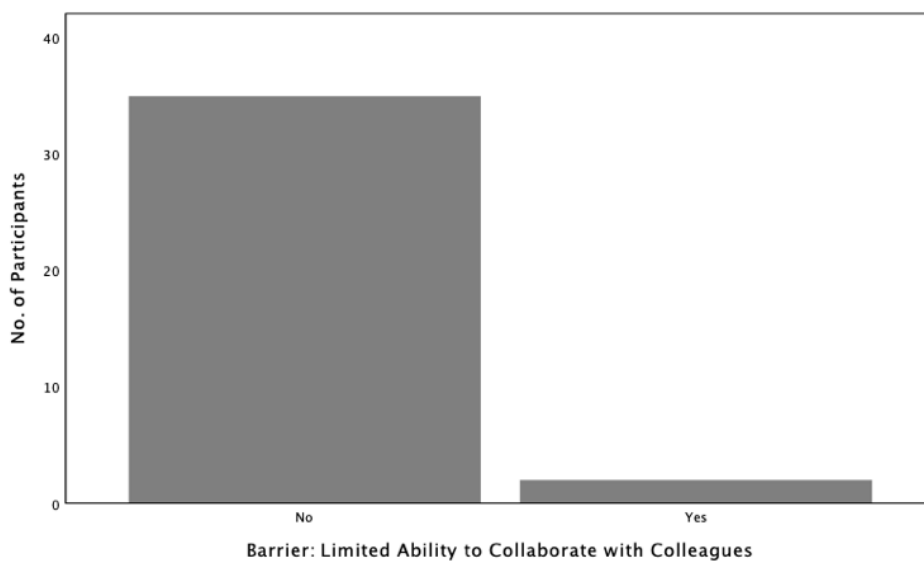


Figure 15

Frequency Distribution of Barrier: Limited Ability to Collaborate With Colleagues

**Figure 16**

Frequency Distribution of Barrier: Contact With Client/Patient in Nonprofessional Settings

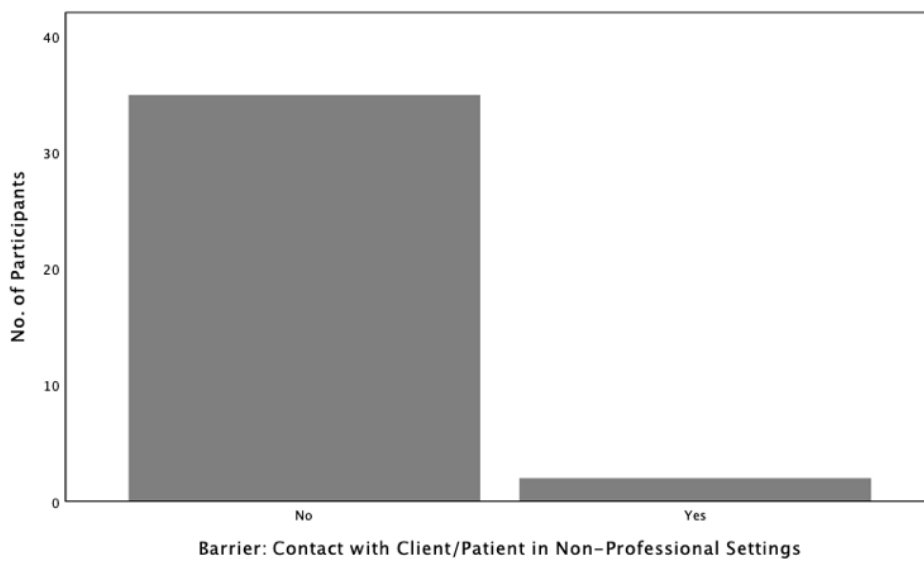
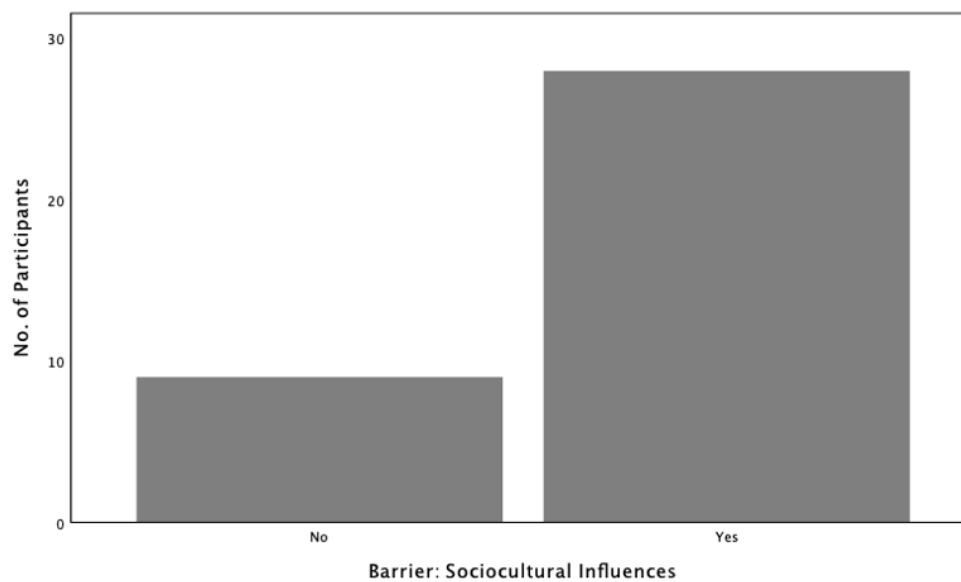
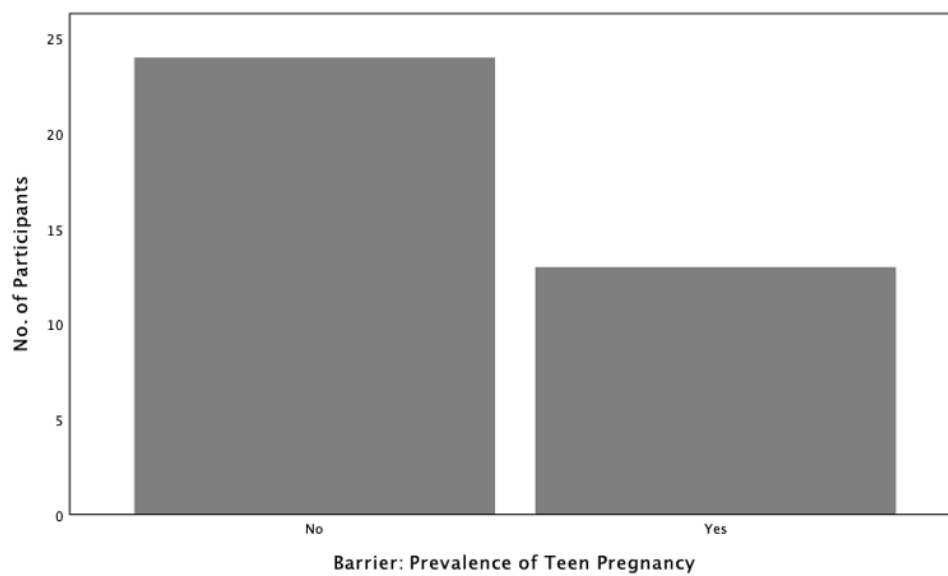


Figure 17

Frequency Distribution of Barrier: Sociocultural Influences

**Figure 18**

Frequency Distribution of Barrier: Prevalence of Teen Pregnancy



In Figures 19–23, frequency distributions for barriers HCPs feel contribute to repeat pregnancies among adolescents are grouped by the following subgroups: (a) practice, (b) clinician, (c) family/patient, (d) community, and (e) sociocultural. Results show HCPs perceive at least one or more barriers belonging to the sociocultural subgroup (59.2%, $n = 29$, see Figure 23) potentially contribute to repeat pregnancies among adolescents. Most HCPs do not perceive one or more specific barriers belonging to the practice subgroup (65.3%, $n = 32$, see Figure 19), clinician subgroup (63.3%, $n = 31$, see Figure 20), family/patient subgroup (51.0%, $n = 25$, see Figure 21), and community subgroup (57.1%, $n = 28$, see Figure 22) may contribute to repeat pregnancies among adolescents.

Figure 19

Frequency Distribution of Barriers: Practice Subgroup

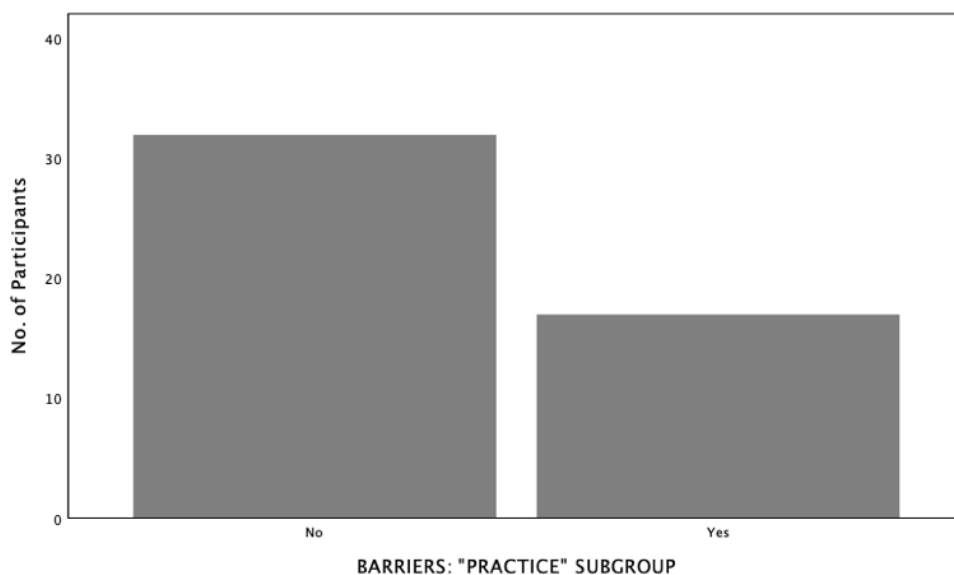
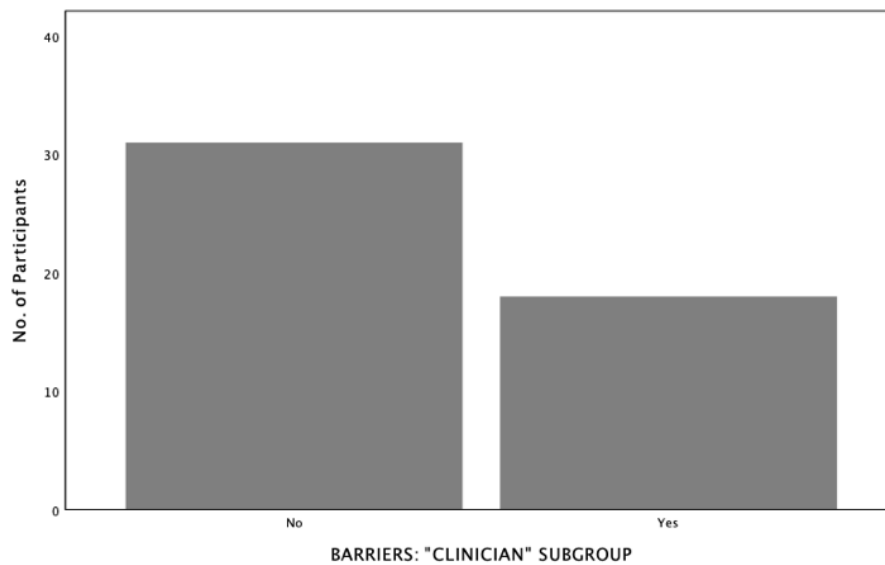


Figure 20

Frequency Distribution of Barriers: Clinician Subgroup

**Figure 21**

Frequency Distribution of Barrier: Family/Patient Subgroup

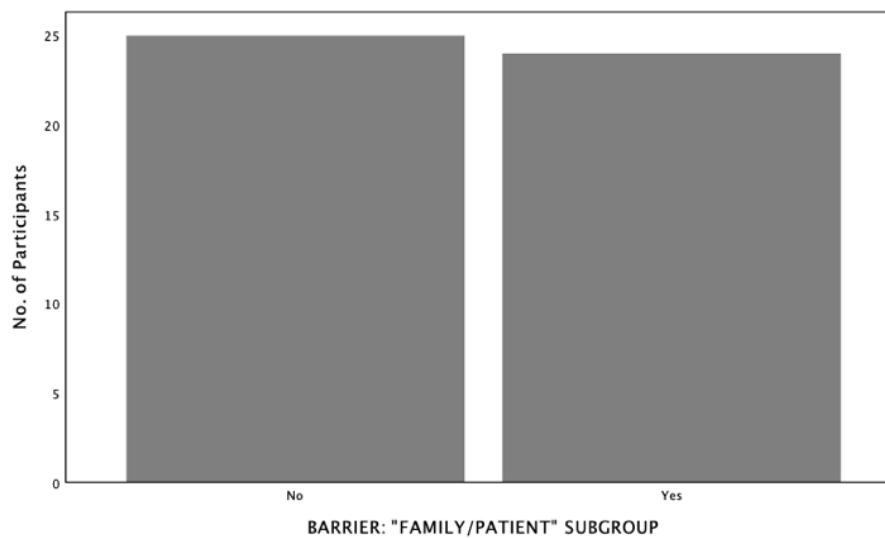
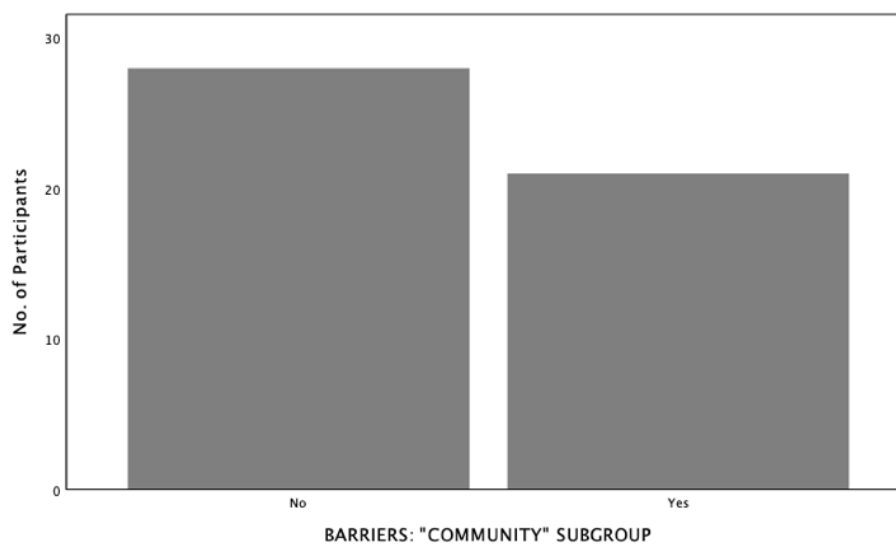
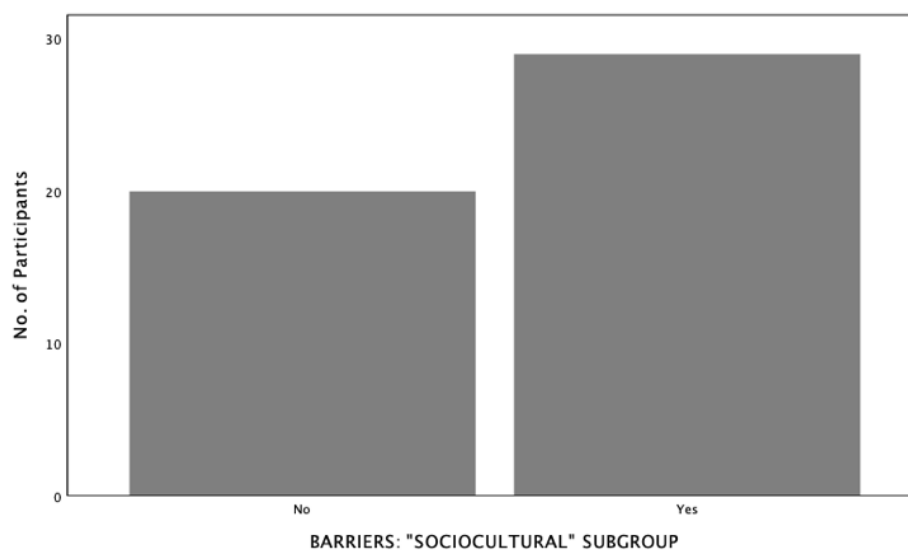


Figure 22

Frequency Distribution of Barriers: Community Subgroup

**Figure 23**

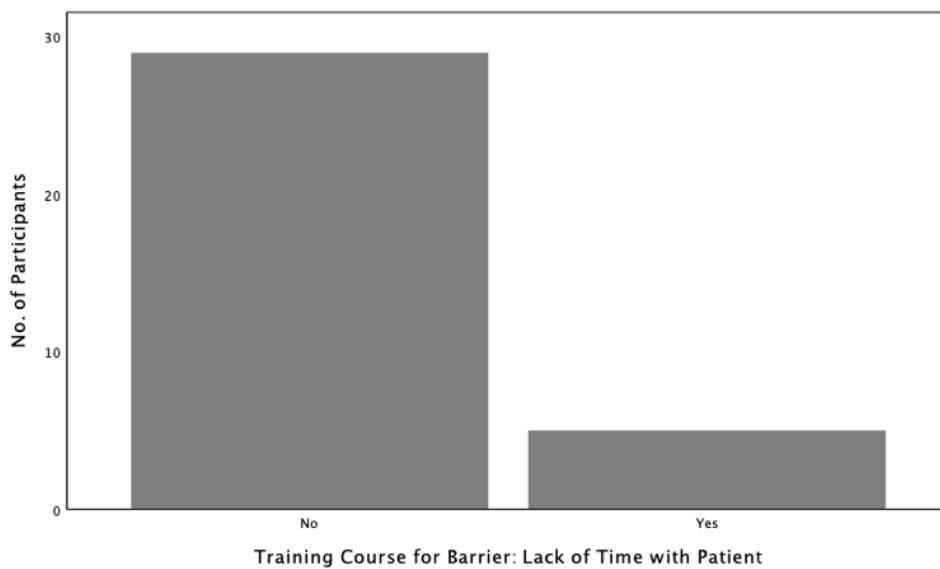
Frequency Distribution of Barriers: Sociocultural Subgroup



In Figures 24-36, frequency distributions are displayed below for specific barriers HCPs would be interested in receiving a training course on. At the individual level, HCPs were not interested in receiving a training course on any of the identified barriers: (a) lack of time with patient (59.2%, $n = 29$, see Figure 24), (b) inadequate financial reimbursement (57.1%, $n = 28$, see Figure 25), (c) inconvenient hours/extended wait time (69.4%, $n = 34$, see Figure 26), (d) lack of training in topic area (63.3%, $n = 31$, see Figure 27), (e) lack of knowledge on LARCs and reimbursement (61.2%, $n = 30$, see Figure 28), (f) confidentiality concerns at time of visit (63.3%, $n = 31$, see Figure 29), (g) lack of familial/social support (57.1%, $n = 28$, see Figure 30), (h) lack of awareness of community resources/services (46.9%, $n = 23$, see Figure 31), (i) lack of trained providers in adolescent reproductive health (57.1%, $n = 28$, see Figure 32), (j) limited ability to collaborate with colleagues (65.3%, $n = 32$, see Figure 33), (k) contact with client/patient in non-professional settings (67.3%, $n = 33$, see Figure 34), (l) sociocultural influences (36.7%, $n = 18$, see Figure 35), and (m) prevalence of teen pregnancy (67.3%, $n = 33$, see Figure 36).

Figure 24

Frequency Distribution of Training Course for Barrier: Lack of Time With Patient

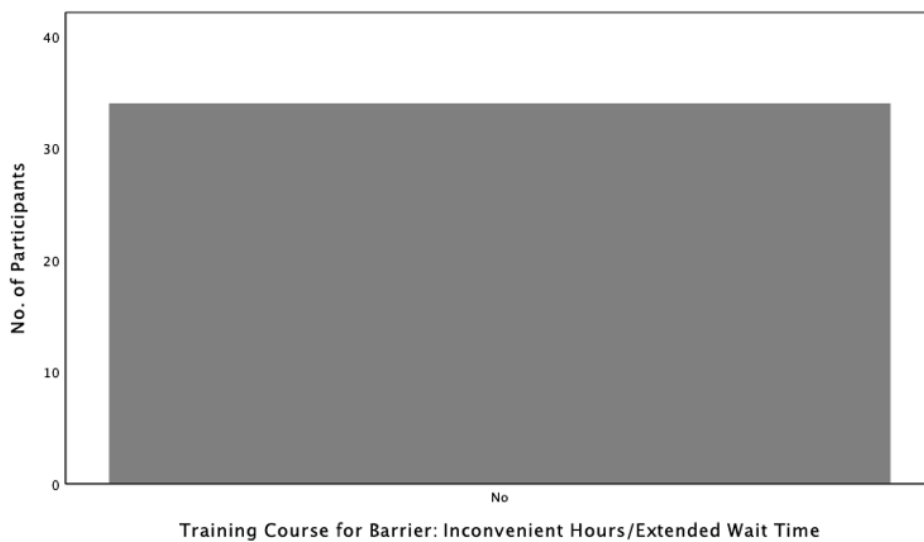
**Figure 25**

Frequency Distribution of Training Course for Barrier: Inadequate Financial Reimbursement



Figure 26

Frequency Distribution of Training Course for Barrier: Inconvenient Hours/Extended Wait Time

**Figure 27**

Frequency Distribution of Training Course for Barrier: Lack of Training in Topic Area

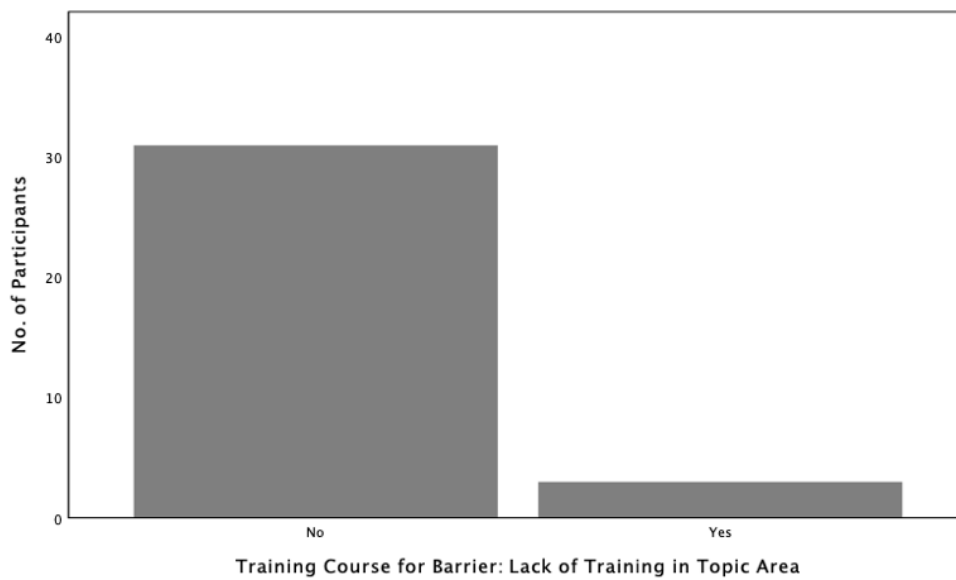
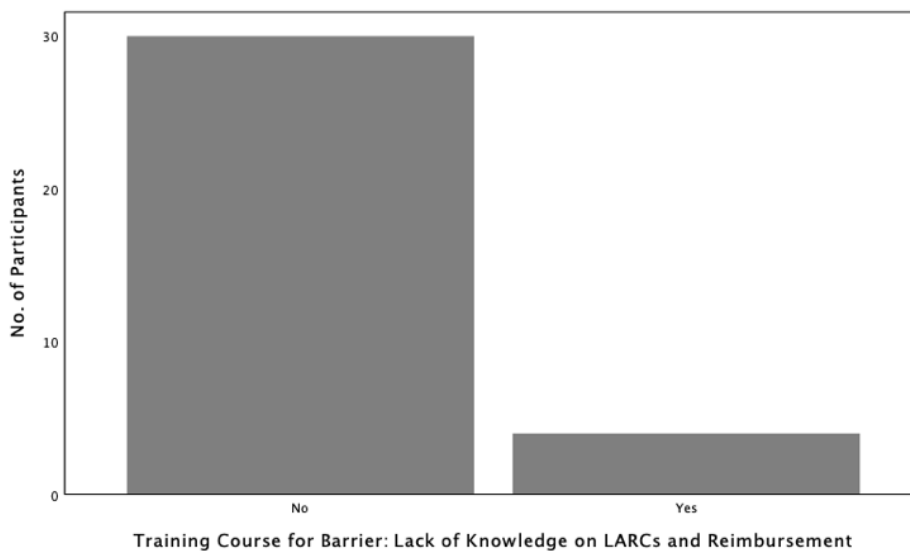


Figure 28

Frequency Distribution of Training Course for Barrier: Lack of Knowledge on LARCs and Reimbursement

**Figure 29**

Frequency Distribution of Training Course for Barrier: Confidentiality Concerns at Time of Visit

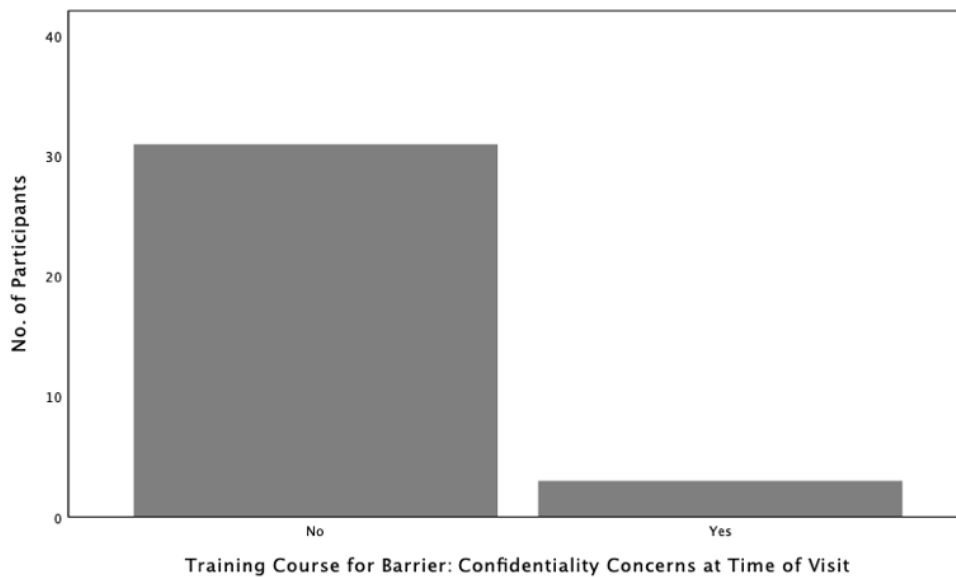


Figure 30

Frequency Distribution of Training Course for Barrier: Lack of Familial/Social Support

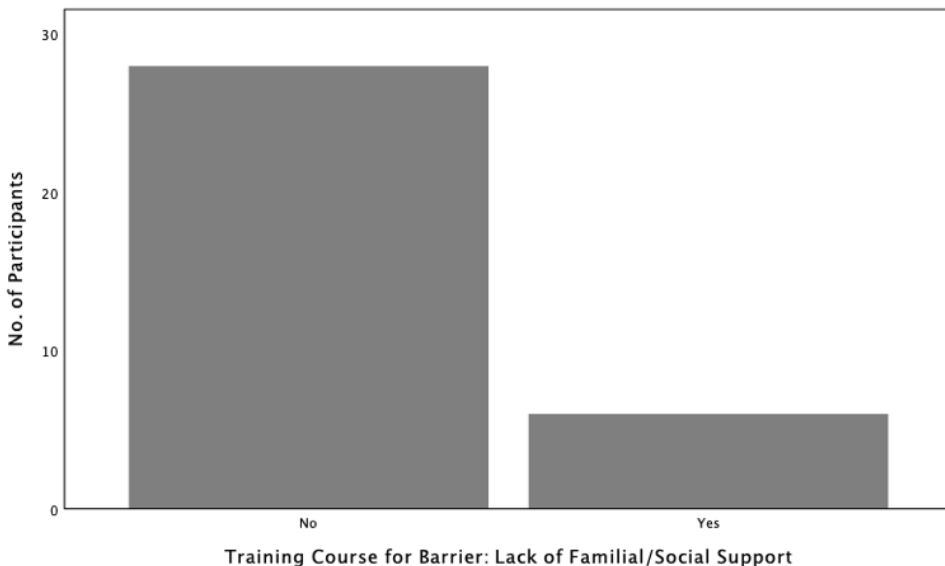


Figure 31

Frequency Distribution of Training Course for Barrier: Lack of Awareness of Community Resources/Services

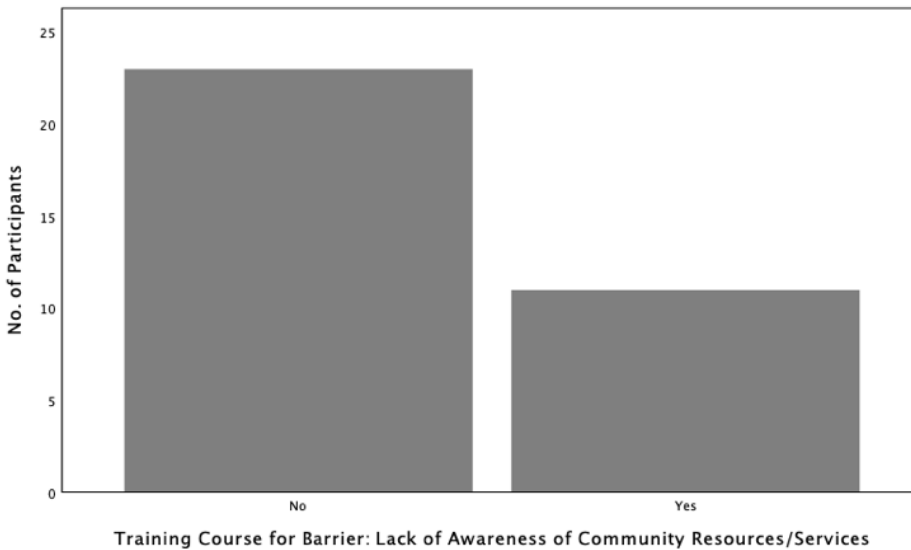
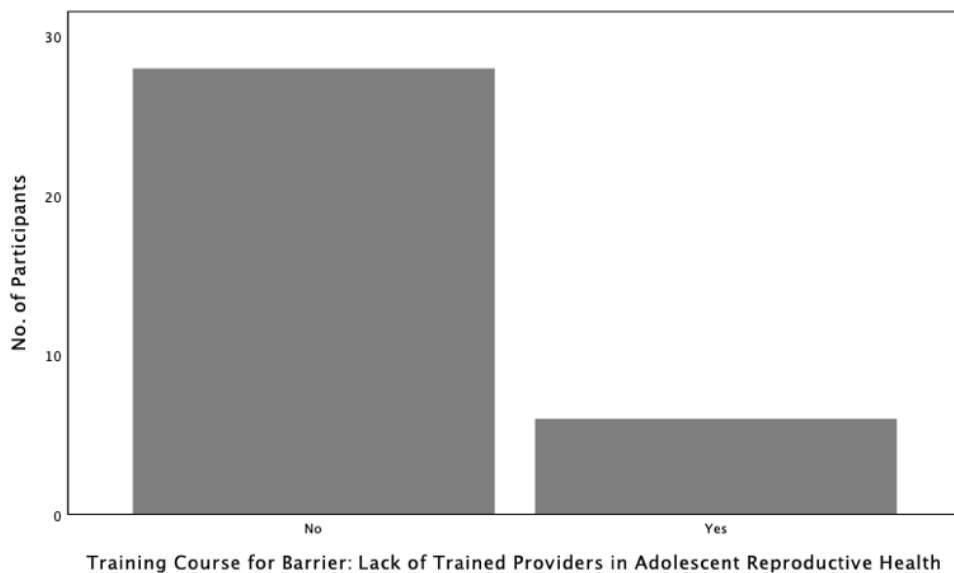


Figure 32

Frequency Distribution of Training Course for Barrier: Lack of Trained Providers in Adolescent Reproductive Health

**Figure 33**

Frequency Distribution of Training Course for Barrier: Limited Ability to Collaborate With Colleagues

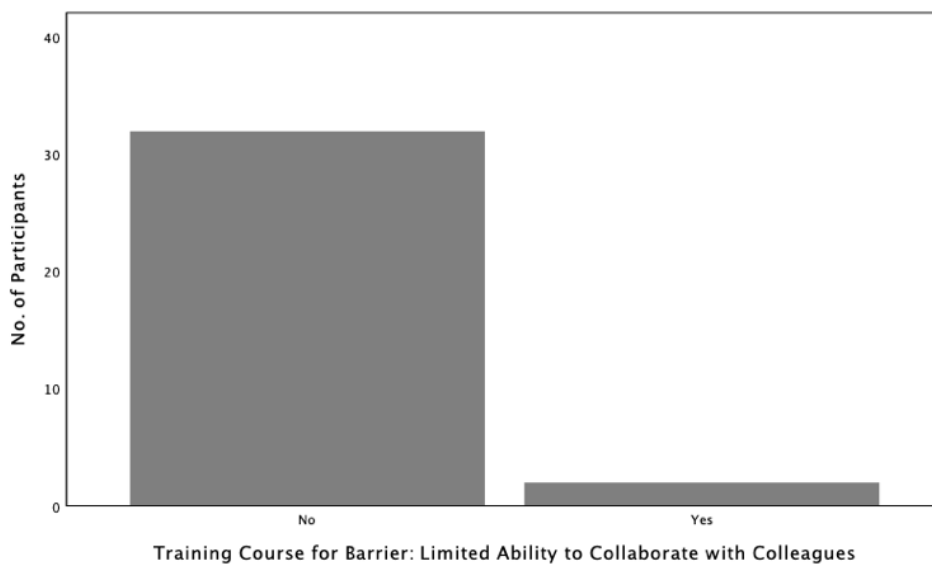
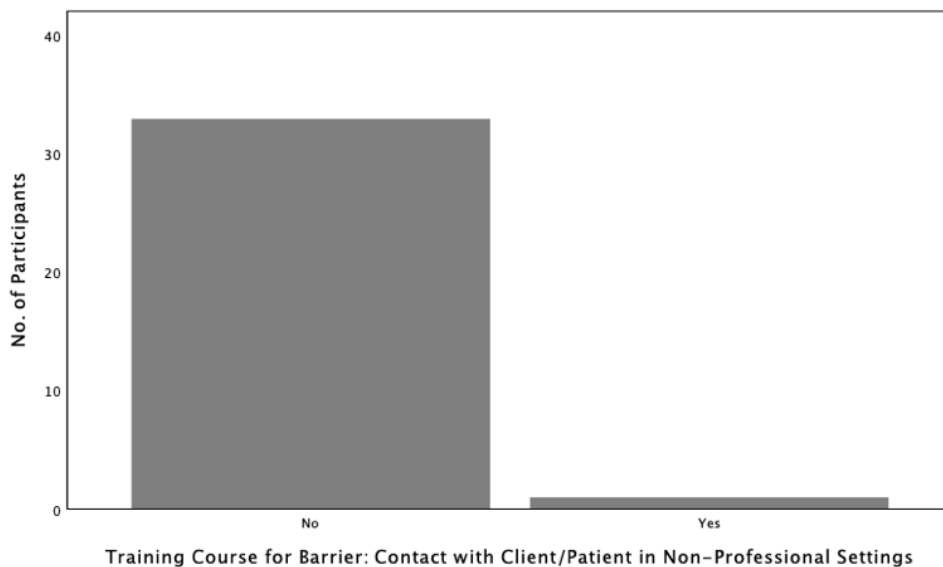


Figure 34

Frequency Distribution of Training Course for Barrier: Contact With Client/Patient in Nonprofessional Settings

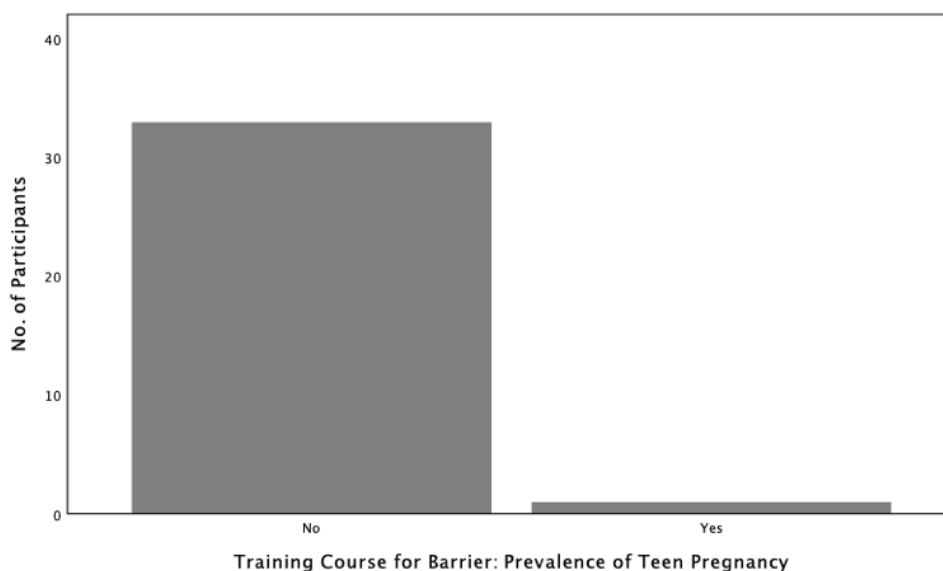
**Figure 35**

Frequency Distribution of Training Course for Barrier: Sociocultural Influences



Figure 36

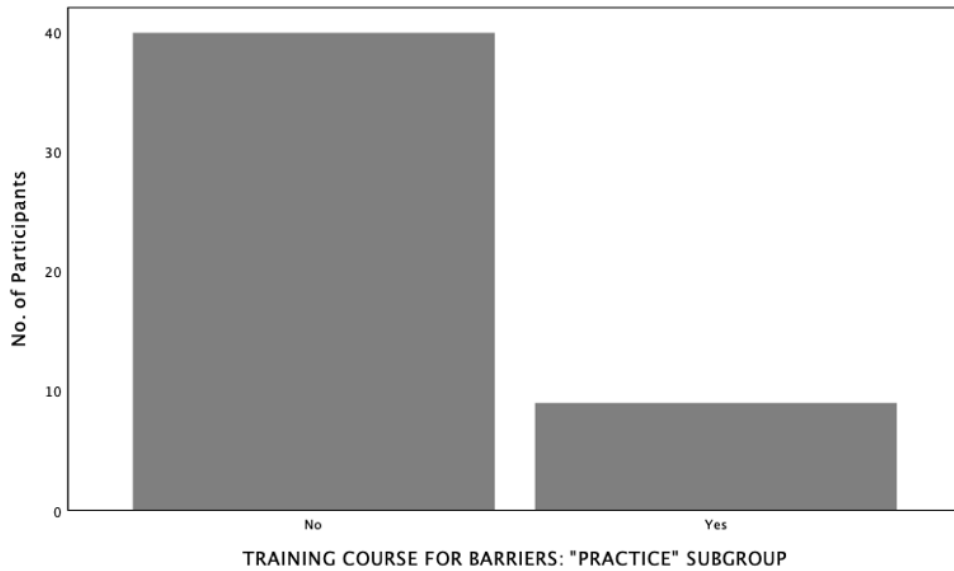
Frequency Distribution of Training Course for Barrier: Prevalence of Teen Pregnancy



In Figures XX-XX, frequency distributions are displayed below for barriers HCPs would be interested in receiving a training course on, grouped by the following subgroups: (a) practice, (b) clinician, (c) family/patient, (d) community, and (e) sociocultural. Results show all HCPs were not interested in receiving a training course on specific barriers that fell in the following subgroups: practice (81.6%, $n = 40$, see Figure 37), clinician (85.7%, $n = 42$, see Figure 38), family/patient (87.8%, $n = 43$, see Figure 39), community (65.3%, $n = 32$, see Figure 40), and sociocultural (65.3%, $n = 32$, see Figure 41).

Figure 37

Frequency Distribution of Training Course for Barriers: Practice Subgroup

**Figure 38**

Frequency Distribution of Training Course for Barriers: Clinician Subgroup

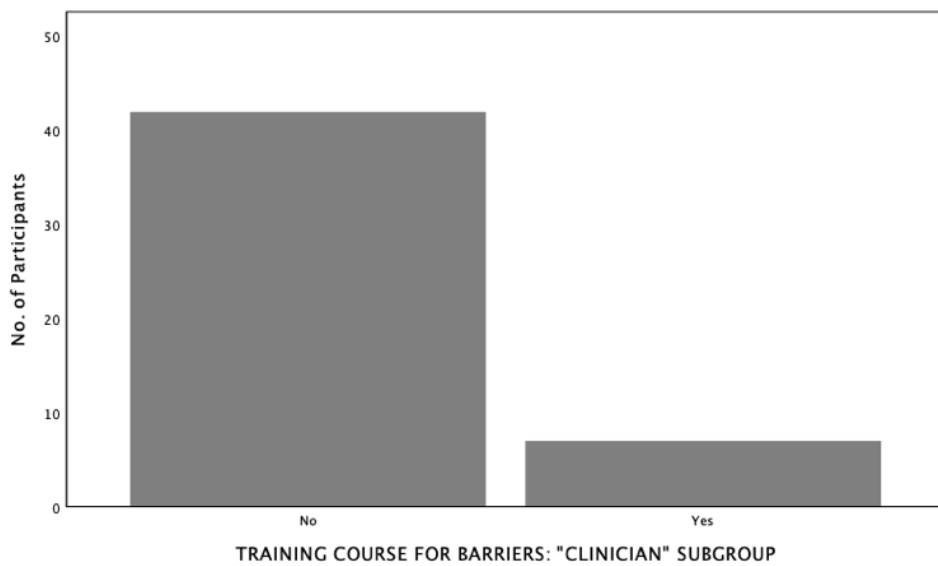
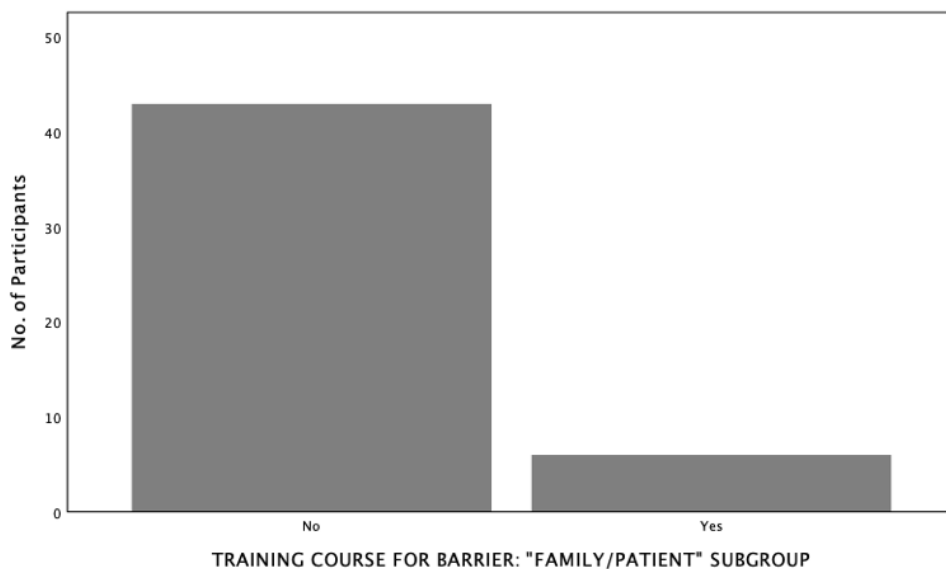


Figure 39

Frequency Distribution of Training Course for Barrier: Family/Patient Subgroup

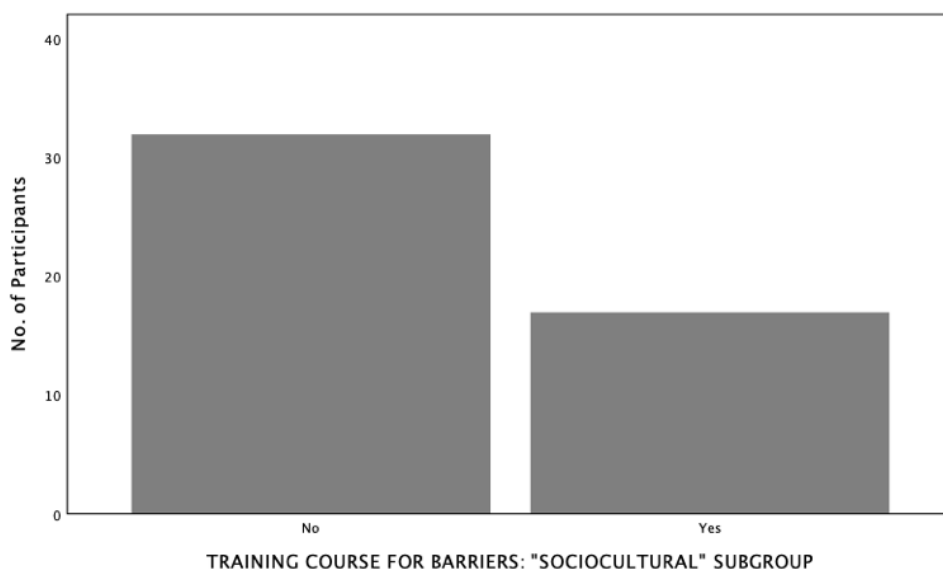
**Figure 40**

Frequency Distribution of Training Course for Barriers: Community Subgroup



Figure 41

Frequency Distribution of Training Course for Barriers: Sociocultural Subgroup

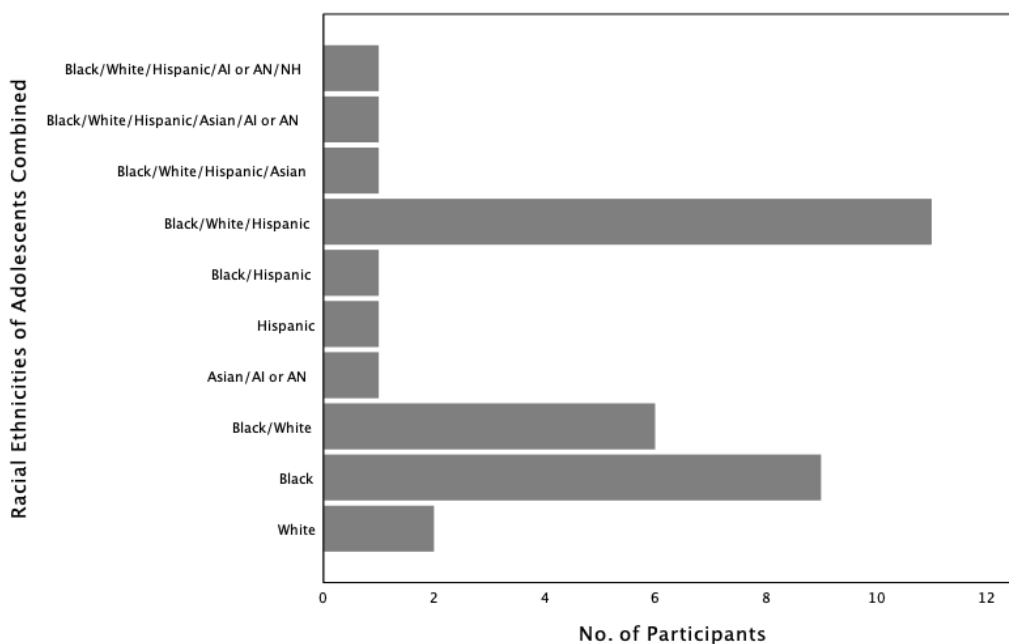


The majority of HCPs reported adolescents who were Black or African American, White, and/or Hispanic make up the most common racial ethnicities of adolescents they see routinely in their practice seeking reproductive health services (22.4%, $n = 11$), followed by Black or African American adolescents exclusively (18.4%, $n = 9$), a combination of Black or African American and/or White adolescents (12.2%, $n = 6$), and then White adolescents exclusively (4.1%, $n = 2$) (see Figure 42). HCPs reported the following individual or combinations of racial ethnicities among adolescents they routinely see in their practice: Asian and/or American Indian or Alaska Native; Hispanic or Latino exclusively; Black or African American and/or Hispanic or Latino; Black or African American, White, Hispanic or Latino, and/or Asian; Black or African American, White, Hispanic or Latino, Asian, and/or American Indian or Alaska Native; and Black or

African American, White, Hispanic or Latino, American Indian or Alaska Native, and/or Native Hawaiian or Other Pacific Islander (2.0%, $n = 1$ for each).

Figure 42

Frequency Distribution of Racial Ethnicities of Adolescents Combined

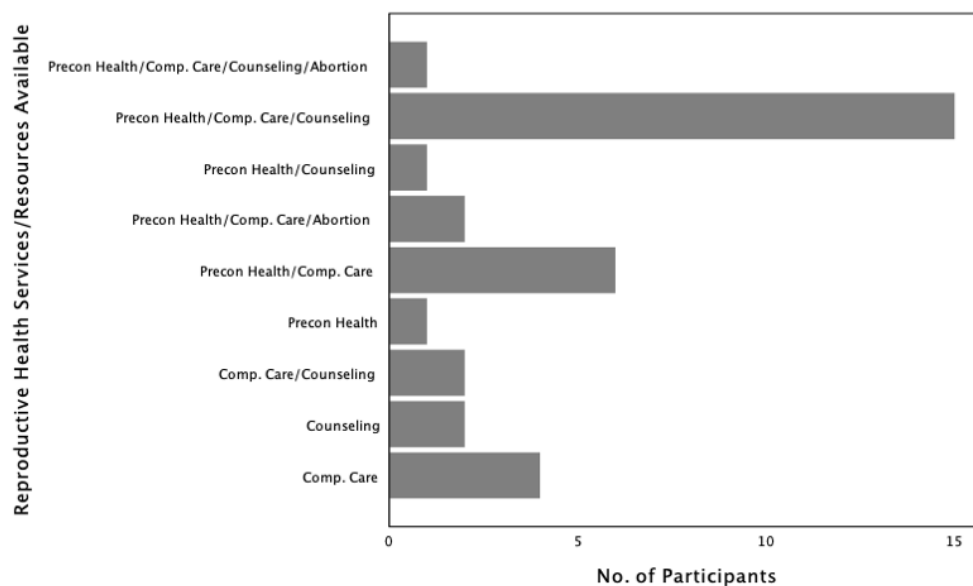


Most HCPs reported a combination of preconception health (“Precon Health”), comprehensive care (“Comp. Care”), and counseling are available resources/services for adolescents at their clinic (30.6%, $n = 15$) (see Figure 43). HCPs also reported preconception health and comprehensive care are available (12.2%, $n = 6$); comprehensive care exclusively (8.2%, $n = 4$); and counseling exclusively, comprehensive care and counseling, and preconception health, comprehensive care, and abortion (4.1%, $n = 2$ for each). HCPs reported the following individual or combinations of available resources/services for adolescents at their clinic: preconception health;

preconception health and counseling; and preconception health, comprehensive care, counseling, and abortion (2.0%, $n = 1$ for each).

Figure 43

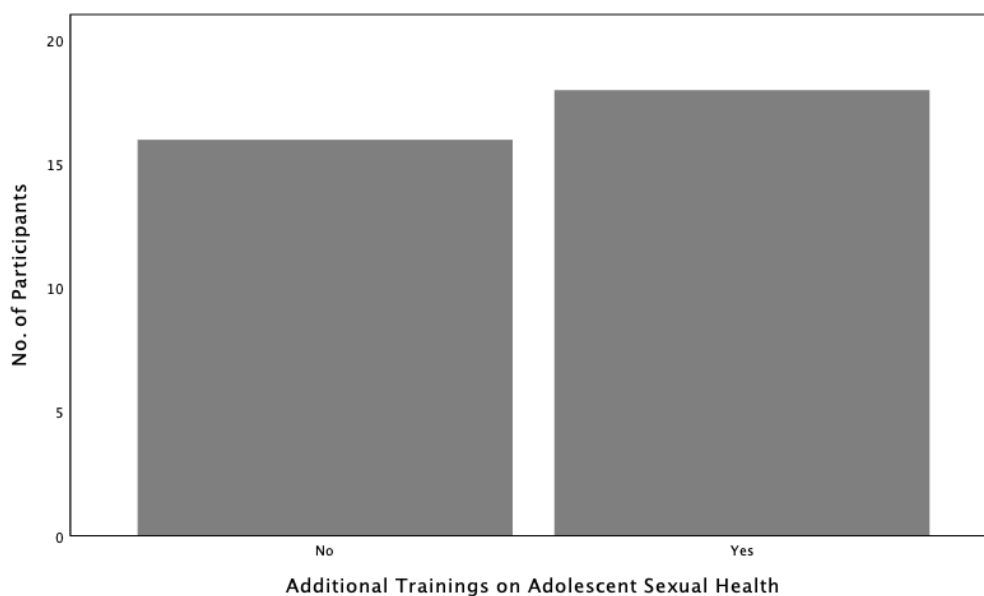
Frequency Distribution of Reproductive Health Services/Resources Available in Clinic



Most HCPs reported they participated in additional trainings on adolescent sexual health aside from the typical trainings they were required to complete in school (36.7%, $n = 18$) (see Figure 44).

Figure 44

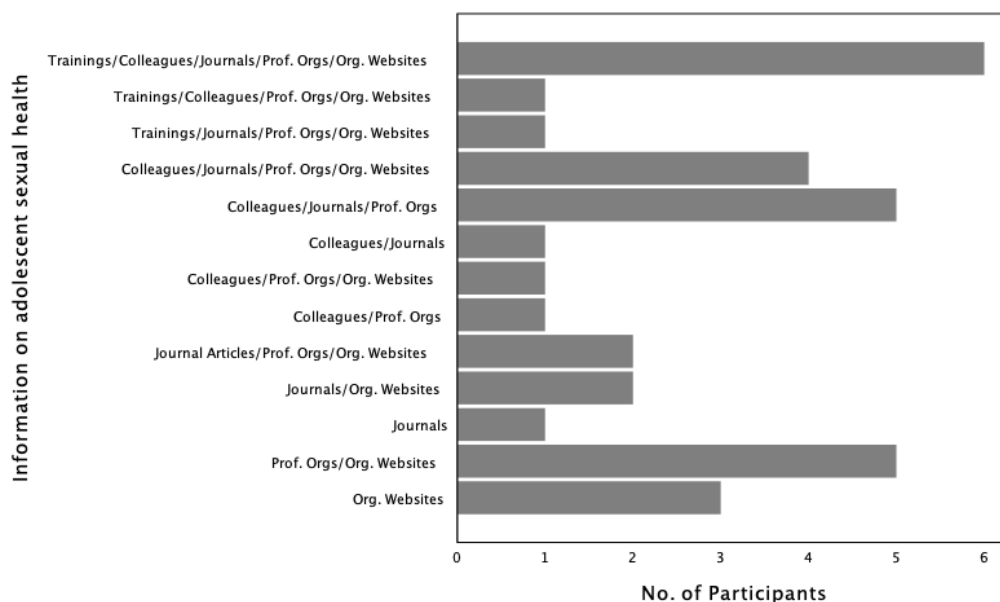
Frequency Distribution of Health Care Providers' Additional Trainings on Adolescent Sexual Health



Most HCPs reported finding information on adolescent sexual health to make informed decisions during their everyday practice using all of the work-related trainings, other colleagues, journal articles, professional organizations, and organizational websites (12.2%, $n = 6$) (see Figure 45). The same number of HCPs reported they obtain information about adolescent sexual health using professional organizations and organizational websites, as well as other colleagues, journal articles, and professional organizations (10.2%, $n = 5$). Very few HCPs reported using organizational websites (6.1%, $n = 3$) or journal articles (2.0%, $n = 1$) exclusively. No HCP reported using professional organizations, other colleagues, or work-related trainings exclusively.

Figure 45

Frequency Distribution of Where Health Care Providers Receive Information on Adolescent Sexual Health

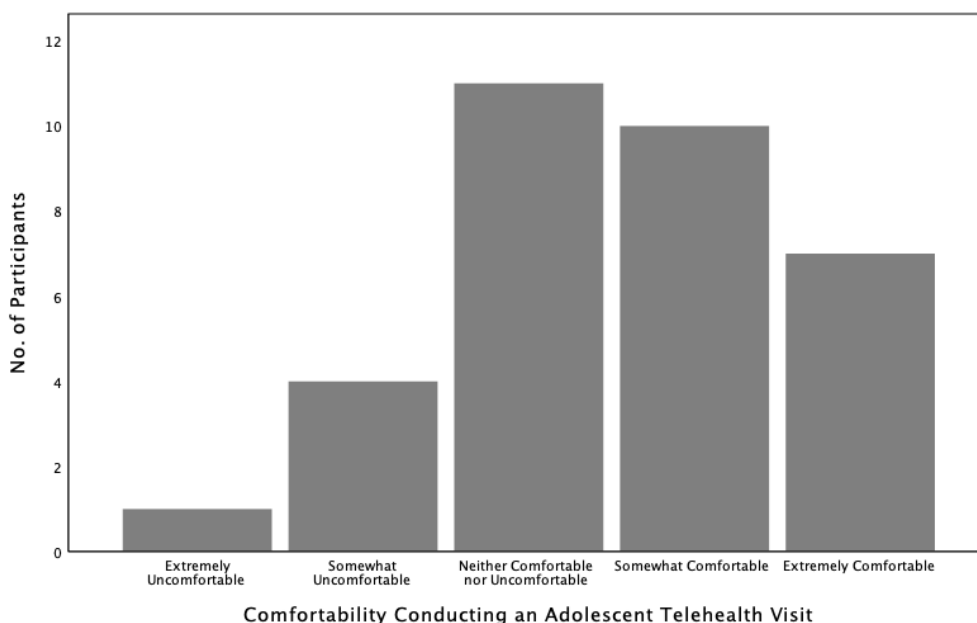


Due to the COVID-19 pandemic, most HCPs reported feeling neither comfortable nor uncomfortable when conducting an adolescent telehealth visit (22.4%, $n = 11$), somewhat comfortable (20.4%, $n = 10$), extremely comfortable (14.3%, $n = 7$), and somewhat uncomfortable (8.2%, $n = 4$). Only one provider reported feeling extremely uncomfortable (2.0%) (see Figure 46). On a similar note, most providers reported they did not see an increase in telehealth appointments for an adolescent reproductive health visit due to the COVID-19 pandemic (44.9%, $n = 22$). Most HCPs reported using EHRs in their practice (63.3%, $n = 31$), while one provider reported not using EHRs (2.0%). HCPs shared there is some level of interoperability between systems to share medical

records with other surrounding health care facilities (30.6%, $n = 15$), while 34.7% ($n = 17$), reported no.

Figure 46

Frequency Distribution of Health Care Providers' Comfortability Conducting an Adolescent Telehealth Visit



Summary statistics were captured for the scale, or dependent, variable. Responses for “Number of repeat pregnancies” had an average of 938.63 (SD = 412.84, SEM = 72.98, Min = 492, Max = 1588) (see Table 2).

Table 2

Summary Statistics Table for Dependent Variable: Number of Repeat Pregnancies

# of Repeat Pregnancies		Mean	Std. Error of Mean	Median	Mode	Std. Deviation	Range	Minimum	Maximum	Sum
Valid	Missing									
32	17	938.63	72.980	985.50	492	412.838	1096	492	1588	30036

Based on the challenges faced with recruitment for this study, a representative sample of rural HCPs across the United States could not be determined. This study was limited to four southeastern states and did not obtain data from every rural HCP in every rural county in each target state. However, because convenience and snowball sampling was used, findings from this research can be generalizable to HCPs who work in similar organizations in southeastern United States.

Results

Descriptive statistics display demographic characteristics that appropriately characterizes the sample of this study (see Tables 3–6).

Table 3

Descriptive Statistics: Demographic Characteristics – Professional Background of Health Care Provider

Professional Background

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	M.D.	2952	9.8	9.8	9.8
	D.O.	851	2.8	2.8	12.7
	NP	18958	63.1	63.1	75.8
	CNM	4075	13.6	13.6	89.3
	RN	3200	10.7	10.7	100.0
	Total	30036	100.0	100.0	

Table 4

Descriptive Statistics: Demographic Characteristics – Gender Identity of Health Care Provider

Gender Identity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	1968	6.6	6.6	6.6
	Female	27217	90.6	90.6	97.2
	Gender non-conforming	851	2.8	2.8	100.0
	Total	30036	100.0	100.0	

Table 5

Descriptive Statistics: Demographic Characteristics – Number of Years Health Care Provider Has Been in Practice

of Years in Practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	2572	8.6	8.6	8.6
	Between 1-5 years	14306	47.6	47.6	56.2
	Greater than 5 years	13158	43.8	43.8	100.0
	Total	30036	100.0	100.0	

Table 6

Descriptive Statistics: Demographic Characteristics – State in Which HCP Provides Adolescent Health Services

State HCP Provides Adolescent Health Services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Georgia	11200	37.3	37.3	37.3
	South Carolina	5904	19.7	19.7	56.9
	Tennessee	3404	11.3	11.3	68.3
	Florida	9528	31.7	31.7	100.0
	Total	30036	100.0	100.0	

Inferential Statistics using Pearson Chi-square test was performed to examine the impact (or association) of identified barriers by HCPs (categorical independent variable) and racial ethnicity of adolescents (categorical independent variable) on number of repeat pregnancies (dependent variable). The results of the crosstabulations and Chi-square tests are displayed below (see Tables 7 – 10).

RQ1: What is the impact of identified barriers by HCPs and racial ethnicity of adolescents on number of repeat pregnancies? The results of the first Chi-square analysis revealed a non-significant association between identified barriers by HCPs belonging to the *practice* and *clinician* subgroups and racial ethnicity of adolescents (primarily Black

or African American and Hispanic or Latino) on number of repeat pregnancies [$\chi^2(1, N = 30036) = 0.58, p = 0.45$] (see Table 8). Therefore, we can conclude that there is not a statistically significant association between identified barriers by HCPs belonging to the *practice* and *clinician* subgroups and racial ethnicity of adolescents (primarily Black or African American and Hispanic or Latino), and the null hypothesis that there is no impact (or association) among identified barriers by HCPs and racial ethnicity of adolescents on number of repeat pregnancies cannot be rejected.

RQ1: What is the impact of identified barriers by HCPs and racial ethnicity of adolescents on number of repeat pregnancies? The results of the second Chi-square analysis revealed a statistically significant association between identified barriers by HCPs belonging to the *family/patient*, *community*, and *sociocultural* subgroups and racial ethnicity of adolescents (primarily Black or African American and Hispanic or Latino) on number of repeat pregnancies [$\chi^2(1, N = 30036) = 418.66, p < .001$] (see Table 10). Therefore, we can conclude that there is a statistically significant association between identified barriers by HCPs belonging to the *family/patient*, *community*, and *sociocultural* subgroups and racial ethnicity of adolescents (primarily Black or African American and Hispanic or Latino), and the null hypothesis that there is no impact (or association) among identified barriers by HCPs and racial ethnicity of adolescents on number of repeat pregnancies can be rejected.

Table 7

Results of the Relationship (Crosstabulation) Between Barriers – Practice + Clinician Subgroups and Racial Ethnicity of Adolescents – Black or African American + Hispanic or Latino Versus Other

				Racial Ethnicity of Adolescents		Total
				Black or African American, Hispanic or Latino	Other (White, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, Other)	
Barriers - Practice + Clinician	No	Count	8395	851	9246	
		Expected Count	8377.3	868.7	9246.0	
		% within Barriers - Practice + Clinician	90.8%	9.2%	100.0%	
	Yes	Count	18819	1971	20790	
		Expected Count	18836.7	1953.3	20790.0	
		% within Barriers - Practice + Clinician	90.5%	9.5%	100.0%	
Total	Count	27214	2822	30036		
	Expected Count	27214.0	2822.0	30036.0		
	% within Barriers - Practice + Clinician	90.6%	9.4%	100.0%		

Table 8

Chi-square Tests of the Relationship Between Barriers – Practice + Clinician Subgroups and Racial Ethnicity of Adolescents – Black or African American + Hispanic or Latino Versus Other

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.575 ^a	1	.448		
Continuity Correction ^b	.543	1	.461		
Likelihood Ratio	.577	1	.448		
Fisher's Exact Test				.453	.231
Linear-by-Linear Association	.575	1	.448		
N of Valid Cases	30036				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 868.70.

b. Computed only for a 2x2 table

Table 9

Results of the Relationship (Crosstabulation) Between Barriers – Family/Patient, Community + Sociocultural Subgroups and Racial Ethnicity of Adolescents – Black or African American + Hispanic or Latino Versus Other

		Racial Ethnicity of Adolescents		Total	
		Black or African American, Hispanic or Latino	Other (White, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, Other)		
Barriers - Family/Patient, Community, + Sociocultural	No	Count	3559	0	3559
		Expected Count	3224.6	334.4	3559.0
		% within Barriers - Family/Patient, Community, + Sociocultural	100.0%	0.0%	100.0%
	Yes	Count	23655	2822	26477
		Expected Count	23989.4	2487.6	26477.0
		% within Barriers - Family/Patient, Community, + Sociocultural	89.3%	10.7%	100.0%
Total		Count	27214	2822	30036
		Expected Count	27214.0	2822.0	30036.0
		% within Barriers - Family/Patient, Community, + Sociocultural	90.6%	9.4%	100.0%

Table 10

Chi-square Tests of the Relationship Between Barriers – Family/Patient, Community + Sociocultural Subgroups and Racial Ethnicity of Adolescents – Black or African American + Hispanic or Latino Versus Other

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	418.664 ^a	1	.000		
Continuity Correction ^b	417.413	1	.000		
Likelihood Ratio	750.040	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	418.650	1	.000		
N of Valid Cases	30036				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 334.38.

b. Computed only for a 2x2 table

Summary

Chapter 4 expanded on data collection procedures, descriptive and demographic characteristics of study participants, and a thorough analysis of the data collected. Findings from this research showed there was no significant association between identified barriers by HCPs belonging to the *practice* and *clinician* subgroups and racial ethnicity of adolescents (primarily Black or African American and Hispanic or Latino) on number of repeat pregnancies; however, there was a statistically significant association between identified barriers by HCPs belonging to the *family/patient*, *community*, and *sociocultural* subgroups and racial ethnicity of adolescents (primarily Black or African American and Hispanic or Latino) on number of repeat pregnancies. An interpretation of the findings is presented in greater detail in chapter 5. Cross-cutting recommendations and implications for social change are also discussed.

Chapter 5: Discussions, Conclusions, and Recommendations

Introduction

The purpose of this quantitative cross-sectional design study was to examine differences in barriers identified by HCPs and to understand if these barriers potentially influence repeat pregnancies among adolescents in rural southeastern United States. Previous researchers have explored adolescents' perspectives on barriers that contribute to inadequate health care for reproductive health services (Fuzzell et al., 2016; Hubel & Moreland, 2020; Kuzma & Peters, 2016; Martyn et al., 2013; Miller et al., 2018; Yarger et al., 2017). Rural areas in particular have a shortage of reproductive health care services (Nandi et al., 2019) and are likely to have poor economic infrastructures and significant barriers to health care (Douthit et al., 2015). To date, there has been limited research conducted in the field to examine HCPs' perspectives on self-identified barriers associated with repeat pregnancies, particularly in a rural setting. I aimed to explore this gap in the literature.

Key findings of this study revealed specific barrier groups that HCPs perceive contribute to the cycle of repeat pregnancies among adolescents, and these findings are largely influenced by the racial ethnicity of the adolescent. Barriers belonging to the *practice* and *clinician* subgroups, or otherwise barriers that the HCP would have more control over addressing, were found to have no significant association on repeat pregnancies with racial ethnicity of the adolescent. Barriers belonging to the *family/patient*, *community*, and *sociocultural* subgroups, or barriers that required a little more effort to address, were found to have a statistically significant association with the

racial ethnicity of the adolescent on number of repeat pregnancies. In this chapter, I provide my interpretation of the findings and discuss limitations of my study, cross-cutting recommendations, and potential implications for positive social change.

Interpretation of the Findings

Findings from this research align with what has previously been shared in the literature and further extend knowledge in the discipline. The research questions addressed the impact of identified barriers by HCPs and racial ethnicity of adolescents on number of repeat pregnancies. Findings show barriers belonging to the *practice* and *clinician* subgroups have no statistical association with racial ethnicity of the adolescent, or specifically Black or African American and Hispanic or Latino. Barriers belonging to the *family/patient*, *community*, and *sociocultural* subgroups, or barriers that require a little more effort to address, were found to have a statistically significant association on number of repeat pregnancies combined with race/ethnicity of the adolescent, specifically Black or African American and Hispanic or Latino.

This research confirms HCPs perceived prevalence of teen pregnancy (a barrier in the *sociocultural* subgroup) to be associated with repeat pregnancies among Black or African American and Hispanic or Latino adolescents. This is consistent with previous literature analyzed by Joyce et al. (2018), Parks and Peipert (2016), Dee et al. (2017), and Ruiz et al. (2019). The current research also confirmed that many community-level barriers, such as lack of awareness of community resources/services and limited ability to collaborate with colleagues, are associated with repeat pregnancies among Black or African American and Hispanic or Latino adolescents. Previous literature determined

HCPs' needs to adequately care for an adolescent patient in a traditional health care setting are barriers, including community health workers, lack of health care facilities and resources, lack of mental health services, and a shortage of providers (Kuzma & Peters, 2016; Miller et al., 2014; Murphy et al., 2016; Yarger et al., 2017). These findings are consistent with the barriers identified by HCPs in the current study. The SEM is used to examine multiple levels of influence on outcomes. As it relates to this study, these community-level barriers can impact behavior change, although this level of SEM does not directly impact the provider. Each level of SEM builds upon each other. Providers need support from all levels to successfully drive behavior change in their practicing habits that may contribute to a decrease in repeat pregnancies among adolescents.

In previous studies, researchers found that adolescents are not using LARCs due to HCP's attitudes and beliefs about the contraception (Kumar & Brown, 2016; Murphy et al., 2016; Parks & Peipert, 2016; Pritt et al., 2017). The findings of the current study support this theme, as sociocultural influences (i.e., traditions, habits, patterns, beliefs, and attitude) were one of the barriers determined to be associated with repeat pregnancies among Black or African American and Hispanic or Latino adolescents. The community level of SEM addresses cultural values and norms. These traits influence not only an adolescent's ability to engage in risky sexual behaviors that can lead to repeat pregnancies, but providers can also inadvertently play a role in perpetuating this phenomenon. Providers are viewed as trusted sources of information so it is especially important, when working with this vulnerable population, to be able to separate personal beliefs from their ability to do their job. Providers can connect with other providers in

surrounding health organizations, school systems, and local health care partners to become better informed about LARCs and to address the negative connotation that comes with usage among adolescents.

Previous literature showed many adolescents fear going to a health clinic for reproductive services as they may get recognized by a familiar face and/or the provider may choose to discuss the encounter with a family member (Fuzzell et al., 2016; Kuzma & Peters, 2016; Yarger et al., 2017). The current research confirmed this is true as “conflict with client/patient in non-professional setting” (“Community” subgroup) was found to also be associated with repeat pregnancies among Black or African American and Hispanic or Latino adolescents. This particular barrier affects multiple levels of SEM, including organizational, community, and public policy. Rules and laws should be in place to protect adolescents and inform them of their rights when it comes to accessing their health information. Organizations, such as health centers and school systems, should support adolescents when they come to their facilities and ensure them that those conversations will be kept confidential. These same organizations can offer support and resources to adolescents detailing how to handle and address similar situations.

Limitations of the Study

One limitation to successfully executing my study was the inability to generalize these results to similar populations. The COVID-19 pandemic began in March 2020 and similarly, my survey was launched in the field at this time. It was difficult to get HCPs to complete my surveys as they were so busy dealing with COVID patients. I had significant challenges with recruitment, so my final sample size was even less than the

proposed sample. Additionally, I did not collect my data on a national level and therefore, my results cannot be generalizable to rural health centers/rural HCPs in other areas of the United States.

Another limitation of this study is that the survey results were self-reported by HCPs. There is a possibility that responses may have been biased and HCPs responded in a way that would paint them in a positive light, particularly the questions around perceived barriers and their comfortability conducting an adolescent telehealth visit. Additionally, the small tokens of appreciation provided to each identified contact of the health organization was an added cost, exporting the data out of Qualtrics required additional resources, and re-coding the variables in the dataset to provide descriptive statistics and address the research questions was time consuming.

Recommendations

Recommendations for further research are grounded in the strengths and limitations of the current study as well as the literature previously reviewed. The survey was piloted before it was disseminated out in the field to ensure reliability and validity and the identified barriers were defined based on previous research in the discipline. However, there were many challenges faced with my study design and recruitment efforts. Due to these challenges, only a few of my survey questions were used as part of my analysis. However, there may be interest to further explore other responses from HCPs and how it contributes to repeat pregnancies among adolescents, such as telehealth visits during the COVID-19 pandemic, electronic health record (EHR) usage, and interoperability between other health systems. The COVID-19 pandemic forever changed

how patients receive health care services in today's society. My recommendation would suggest exploring how the COVID-19 pandemic influenced or contributed to repeat pregnancies by analyzing these responses more closely and understanding if barriers improved due to the COVID-19 pandemic by conducting a similar analysis.

Another recommendation would include expanding this research to be able to duplicate efforts in other rural based areas in other parts of the United States. If this is pursued, I would consider other factors that may be influential, such as Abstinence based education or familial influences. A future researcher could also consider the story behind the numbers. An additional recommendation would be to conduct a qualitative analysis to understand why these barriers are the most influential and further discuss with HCPs their perspective on strategies to address these barriers.

Implications for Positive Social Change

Implications for positive social change are essential to develop specific tailored interventions that will help both HCPs and adolescents reduce repeat pregnancies. Findings revealed there was no significant association between identified barriers by HCPs belonging to the *practice* and *clinician* subgroups and racial ethnicity of adolescents on number of repeat pregnancies; however, there was a statistically significant association between identified barriers by HCPs belonging to the *family/patient*, *community*, and *sociocultural* subgroups and racial ethnicity of adolescents on number of repeat pregnancies.

Positive social change involves a multifaceted approach, similar to the SEM. At the societal and policy levels, laws should be in place to protect adolescent's rights when

it comes to their reproductive health. By establishing these laws, adolescents will feel more comfortable seeking reproductive health services and HCPs will feel confident providing the appropriate services. At the organizational level, school systems, health organizations, and local partners should work together to offer preconception health, comprehensive care, and counseling services, as defined in the findings of this research. These organizations should also make efforts to broadcast these services are available to adolescents. Resources should be offered to HCPs to counsel them about contraceptive methods, such as LARCs, and separating their personal beliefs/opinions from their ability to appropriately care for adolescents.

At the familial level, the opportunity to provide adequate services to adolescent patients can be heavily influenced by the support they receive from family and friends. In the current study, some HCPs reported they would be interested in receiving a training course on how to address this barrier. Within the organizations where these HCPs work, trainings could be offered that cover this specific barrier and continuing education credits could be offered as a bonus incentive for HCPs. To reiterate, taking a multifaceted approach to combating repeat pregnancies will help drive behavior change among HCPs. Findings from this study will add to the current body of knowledge in this discipline and inform future studies to help address additional gaps in repeat pregnancies among adolescents.

Conclusions

The purpose of this study was to understand HCPs' perceptions of barriers that influence repeat pregnancies among adolescents in rural southeastern United States. The

current study filled a gap in the literature by providing context around perceived barriers identified by HCPs. The SEM provided a framework in understanding how multiple levels of influence can impact behavioral outcomes. Findings from this research equips HCPs, public health professionals, community workers, stakeholders, and policy makers with the necessary tools to develop targeted health education intervention programs for adolescents in rural settings, contributing to the reduction of repeat pregnancies overtime.

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Appendix A: Barriers to Care and COVID-19 Survey Final

1. From the perspective of a health care provider practicing in a rural area, please check the following barriers you feel potentially contribute to repeat pregnancies among adolescents. (Please select all that apply)
 - Lack of time with patient (short visits, rushed appointments)
 - Inadequate financial reimbursement
 - Inconvenient hours/extended wait time
 - Lack of training in topic area
 - Lack of knowledge on long-acting reversible contraception (LARCs) and reimbursement
 - Confidentiality concerns at the time of visit (uncomfortable having discussions with parent (or guardian) in the room, interfering with patient confidentiality)
 - Lack of familial/social support
 - Lack of awareness of community resources/services (e.g., health educator, community health worker (CHW), social worker, counselor, mobile bus/transportation)
 - Lack of trained providers in adolescent reproductive health
 - Limited ability to collaborate with colleagues for consultations, referrals, etc.
 - Contact with client/patient in non-professional settings
 - Sociocultural influences (i.e., traditions, habits, patterns, beliefs, attitudes)

- Prevalence of teen pregnancy
2. Are there any specific barriers listed above you would be interested in receiving a training course on? (If so, please select from the list)
- Lack of time with patient (short visits, rushed appointments)
 - Inadequate financial reimbursement
 - Inconvenient hours/extended wait time
 - Lack of training in topic area
 - Lack of knowledge on long-acting reversible contraception (LARCs) and reimbursement
 - Confidentiality concerns at the time of visit (uncomfortable having discussions with parent (or guardian) in the room, interfering with patient confidentiality)
 - Lack of familial/social support
 - Lack of awareness of community resources/services (e.g., health educator, community health worker (CHW), social worker, counselor, mobile bus/transportation)
 - Lack of trained providers in adolescent reproductive health
 - Limited ability to collaborate with colleagues for consultations, referrals, etc.
 - Contact with client/patient in non-professional settings
 - Sociocultural influences (i.e., traditions, habits, patterns, beliefs, attitudes)
 - Prevalence of teen pregnancy

3. What is the racial ethnicity of adolescents you see routinely in practice with repeat pregnancies? (Select all that apply)
 - White
 - Black or African American
 - American Indian or Alaska Native
 - Asian
 - Hispanic or Latino
 - Native Hawaiian or Other Pacific Islander
 - Other

4. What reproductive health services/resources are available in your clinic for adolescents? (Please select all that apply)
 - Abortion
 - Comprehensive care (including STD/STI, contraception, and pregnancy)
 - Counseling
 - Preconception Health
 - None of the above

5. Other than during required trainings in school, have you participated in any additional trainings on adolescent sexual health?
 - Yes or No

6. Where do you find information on adolescent sexual health to make informed decisions in your everyday practice?

- Organizational websites (e.g., Centers for Disease Control and Prevention (CDC), World Health Organization [WHO], etc.)
 - Professional Organizations (e.g., American College of Obstetricians and Gynecologists (ACOG), American Academy of Pediatrics (AAP), Society for Adolescent Health and Medicine (SAHM), etc.)
 - Journal articles
 - Other colleagues
 - Work related trainings
7. Due to the COVID-19 pandemic, many practices have transitioned from in-person visits to telehealth services. On a scale of 1-5 with 1 being not comfortable at all to 5 being completely comfortable, please rate your level of comfortability conducting an adolescent telehealth visit.
- Likert scale 1, 2, 3, 4, or 5
8. Due to the COVID-19 pandemic, have you seen an increase in telehealth appointments for an adolescent reproductive health visit?
- Yes or No
9. Do you use Electronic Health Records (EHRs) in your practice?
- Yes or No
10. Is there interoperability between systems to share medical records with other surrounding health care facilities?
- Yes or No
11. What is your profession?

- Doctor of Medicine (M.D.)
- Doctor of Osteopathic Medicine (D.O.)
- Physician Assistant (PA)
- Nurse Practitioner (NP)
- Certified Nurse Midwife (CNM)
- Nurse (RN)

12. In which state do you provide health care services to adolescents?

- Georgia
- South Carolina
- Tennessee
- Florida

13. How many years have you been in practice?

- < 1 year
- 1-5 years
- > 5 years

14. Which gender identity do you most identify with?

- Male
- Female
- Gender Non-Conforming
- Prefer not to say

Appendix B: Permission to Use Existing Survey Questions

From: Nancy Findholt
Sent: Thursday, January 23, 2020 8:07 PM
To: Michael,Yvonne; Vanessa Iheanachor
Cc: Melinda Davis;
Subject: Re: Permission to use interview questions from published research

Dear Vanessa,

Thank you for reaching out to us - and, yes, you may use the questions from our survey. I have retired, but can be reached via the email address that Yvonne provided.

Best wishes for a successful study!

Nancy

Nancy Findholt, PhD, RN
 Professor Emerita
 Oregon Health & Science University School of Nursing

From: Melinda Davis;
Sent: Tuesday, January 21, 2020 8:35 PM
To: Vanessa Iheanachor; michaely@drexel.edu
Subject: Re: Permission to use interview questions from published research

Vanessa: Best of luck with your dissertation! I don't have any concerns with you modifying the questions for your project. I don't have Nancy Findholt's current email, unfortunately.

Yvonne: I hope you are doing well at Drexel. I think of you often and am grateful for all the support you provided during my dissertation research. I understand now what you were managing as a faculty member at OHSU – and am even more thankful for your kindness, encouragement, and generosity with your time. If you have Nancy's personal email, I'd love to reach out and say thank you.

Melinda

Melinda Davis, PhD
 Associate Director
 Associate Professor, Department of Family Medicine & OHSU-PSU School of Public Health
 Oregon Health & Science University (OHSU)

From: Michael,Yvonne
Sent: Wednesday, January 22, 2020 6:45 AM
To: Vanessa Iheanachor
Cc: Melinda Davis; Michael,Yvonne; Nancy Findholt
Subject: Re: Permission to use interview questions from published research

Dear Vanessa: I've added Nancy (or the email address I've used most recently) to this email. As Nancy was PI of this project, I think it best if she respond but I would add my OK, as long as she approves. Best, Yvonne

On Jan 21, 2020, at 8:08 PM, Vanessa Iheanachor wrote:

External.

Good evening Dr. Davis and Dr. Michael,

My name is Vanessa Iheanachor and I am a PhD candidate at Walden University currently in my dissertation phase.

I am writing in regards to a paper (cited below in red) that you both authored with Nancy E. Findholt, although I was not able to find her contact information to include her on this email.

Findholt NE, Davis MM, Michael YL. Perceived Barriers, Resources, and Training Needs of Rural Primary Care Providers Relevant to the Management of Childhood Obesity. *The Journal of Rural Health*. 2013. DOI: 10.1111/jrh.12006 33.

My dissertation research will explore health care providers' perspectives on barriers associated with repeat pregnancies among adolescents in rural areas of Georgia.

I would like to draw your attention to the questions you used to conduct your research – noted in Table 2 of this article.

I would like to use/alter some of these questions in a survey I am developing to gather HCPs thoughts on barriers associated with repeat pregnancies and I am seeking your permission to do so.

Please let me know if you approve and if you have the contact information for Dr. Findholt so she can be aware of this request as well.

Thank you in advance.

-Vanessa Iheanachor, MSPH