Health and sexuality: An examination of the influences of sexuality on mental and physical health

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Health and sexuality:  
An examination of the influences of sexuality on mental and physical health

by

Greta L. Stuhlsatz

A dissertation submitted to the graduate faculty 

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Human Development and Family Studies

Program of Study Committee:
Brenda J. Lohman, Major Professor
Tina Coffelt
Cass Dorius
Tera Jordan
Tricia Neppl

The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this dissertation. The Graduate College will ensure this dissertation is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University
Ames, Iowa

2019

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ABSTRACT

This dissertation provides critical contributions in the field of sexual health across the life course by examining the role of various contextual factors on risky sexual behavior, physical health, and mental health. Two studies were conducted. First, the longitudinal impact of hooking up at sexual debut in adolescence on risky sexual behavior among low-income, urban emerging adults was assessed. This was evaluated alongside advantages (e.g., mother/child relationship quality and parental monitoring) and disadvantages (e.g., mental health symptoms and delinquent behavior). Second, the associations between family support, community connectedness, and patient perceived comfort of medical practitioner and physical and psychological health were assessed among gender and sexual minorities (GSMs). Findings from the first study illustrate that, while hooking up in adolescence predicts risky sexual behavior at the bivariate level, factors such as mother/child relationship quality and parental monitoring had a stronger influence in reducing risky sexual behaviors in multivariate analysis. Findings from the second study illustrate that family support, LGBT community connectedness, and patient perceived comfort of medical practitioner were all positively associated with mental health and the latter two factors were associated with physical health. Limitations, implications, and future directions in the field of sexual health are discussed.
CHAPTER 1. GENERAL INTRODUCTION

The World Health Organization (WHO) defines sexual health as the “…state of physical, emotional, mental and social well-being in relation to human sexuality” (Centers for Disease Control and Prevention, 2017). There are six focus areas at the core of this definition. These include sexually transmitted diseases, reproductive health, sexual violence prevention, healthy pregnancy, HIV/AIDS prevention, and LGBT health (Centers for Disease Control and Prevention, 2017). Thus, to expand upon the understanding of sexual health, my dissertation research focuses on general sexual health as well as the specific focus area of LGBT health. Utilizing two data sets, this work expands research on sexuality and sexual health research into a less homogenous sphere through the inclusion of often underrepresented sexual minorities as well as young, urban adults from families near the U.S. federal poverty line.

In each study, I investigate the influence of gender on the associations among the variables in effort to maintain a critical examination of gendered behavior in interpersonal relationships. This research is guided by the Life Course theory (Elder, 1994; Elder, Johnson, & Crosnoe, 2003) with aspects of the Gendered Sexuality over the Life Course framework (Carpenter, 2010). GSLC is a modified framework of Life Course Theory that includes aspects of sexuality studies and feminist theories. This framework posits that sexual and social experiences at one point in life have an effect on later behaviors and beliefs (Carpenter, 2010). For example, the first study in my dissertation focuses on the impact experiences at sexual debut have on risky sexual behavior in emerging adulthood. A further component of the GSLC framework is the intersection between other social identities and sexuality (Carpenter, 2010). Therefore, the second study in my dissertation focuses on how different gender, racial, and sexuality identities intersect to affect the association between various support systems on
physical and mental health of gender and/or sexual minorities. Further, through utilizing a large, longitudinal data set (Welfare, Children, and Families: A Three-City Study) and the largest available data set focusing on experiences of LGBT people of color (Social Justice Sexuality Project), this research extends investigative work on sexual health to underrepresented populations across the life course. Finally, using Life Course Theory to guide my research and establish my analytic plan creates a more robust understanding of sexual behavior across the lifespan.

As such, this dissertation centers on sexual behaviors and sexuality over the life course. I begin by investigating the impact of experiences at sexual debut in adolescence on risky sexual behaviors in emerging adulthood; thus, focusing on the transition into having sex – virginity loss, paying particular attention to the context in which this transition occurred. Next, in the second paper, the focus shifts to the intersections of gender, sexuality, and race. I assess how people existing at the intersections of many of these identities differ in their experiences of physical and mental health associated with various support systems such as family and community. Next, I detail how each paper of my dissertation ties to Life Course Theory and the Gendered Sexuality over the Life Course framework. In addition, I summarize the research hypotheses and constructs in each paper.

**Dissertation Organization**

As detailed above, following the alternative dissertation format, this dissertation contains two research articles. The first article, contained in Chapter Two is titled “First Sexual Experiences and Hooking Up during Adolescence: Links to Risky Sexual Behaviors in Emerging Adulthood.” The third chapter contains the second article titled “Perception of Medical
Professional Comfort with Gender and Sexual Minority Identities: Impact on Mental and Physical Health.” Below I provide a more detailed explanation of the associations being considered.

**Paper 1.** With regard to the first paper, some research has begun to focus on the context of sexual debut rather than simply the timing (i.e., Lanier, Stewart, Schensul, & Guthrie, 2018; Shandra, Shameem, & Ghori, 2016). Thus, the first paper hones in on the context of an adolescent’s first sexual encounter by combining recent investigations into hooking up with sexual debut research. This is also supportive of the suggestion provided by Carpenter (2010) in the GSLC model, which calls to pay particular attention to the context and relationship at the time of sexual debut and the role of agency in Elder’s (1994) work illustrating the influence of whom the adolescent chooses to experience their sexual debut with. According to Boislard and colleagues, it is not only important to assess when an adolescent has sex for the first time, but also with whom (2016). Therefore, this paper considers the relationship an individual has with their first sexual partner and its effect on risky sexual behaviors in emerging adulthood.

A hook-up is defined in a myriad of ways. Garcia and Reiber (2008) consider hooking-up any sexual activity ranging from kissing to penetrative sex that occurs between uncommitted individuals. Paul, McManus, and Hayes (2000) further develop the definition to include the lack of expectation of a romantic relationship. Between 64% (Grello, Welsh, & Harper, 2006) and 84% (Paul & Hayes, 2002) of emerging adults in college have hooked up at some time during their college career. However, research extending into other non-college populations is lacking. Although these are staggering numbers, little is known about the longitudinal effects of hooking up across the life course. While the avoidance of romantic relationships is sometimes considered a core component of hooking up (Paul, McManus, & Hayes, 2000), one study found that 51% of
people who had hooked up did so with the intent of developing a romantic relationship (Garcia & Reiber, 2008). Indeed, some hook-ups do eventually transition into romantic relationships (Paik, 2010). Further, extant literature is inconsistent regarding the nature of a relationship to be considered a hook up (Claxton & van Dulmen, 2013).

Therefore, my research focuses on the sexual health implications in emerging adulthood of hooking up at the time of sexual debut with particular attention paid to the context (within a relationship or outside of a relationship) of that first sexual encounter. Accordingly, the first study in my dissertation, is titled *First Sexual Experiences and Hooking Up during Adolescence: Links to Risky Sexual Behaviors in Emerging Adulthood*. In this study, I analyze data from the *Welfare, Children, and Families: A Three-City Study* to conduct path analyses to determine the relationship between an individual’s first sexual experience outside of a relationship in adolescence and their involvement in risky sexual behaviors in emerging adulthood. Using these data, I extend the research on hooking up with a low income, urban sample to assess associations that may be unique to this population.

**Paper 2.** The second paper in this dissertation assesses the effects of various factors on physical and mental health. There are key components within Life Course Theory and, by extension the GSLC framework used to investigate these influences. First, the principle that states the stage in life at which individuals experience specific historical events has a differential effect on their developmental outcomes is utilized. Thus, in this paper, the age of the individual is considered as it relates to the outcome variables: mental and physical health. That is to say, the social environment in which an individual comes of age has an effect on their developmental outcomes such as physical and mental health (Elder, 1998). Specifically, gay men who have gone through puberty in different historical contexts have had unique developmental outcomes
(Cohler & Hammack, 2006). Second, the principle of linked lives is included in this paper. This principle states that human lives are interconnected with social relationships such as kin and friends over the life course (Elder, 1994). Psychosocial development relies heavily on the supportive network of an individual within which they find themselves (Elder, 1998). Thus, this study focuses on the interconnection between the individuals and the broader LGBT community as it influences mental and physical health. These support systems can manifest themselves in family, the LGBT community, supportive medical professionals.

Thus, the second study in my dissertation, *Perception of Medical Professional Comfort with Gender and Sexual Minority Identities: Impact on Mental and Physical Health* uses data from the Social Justice Sexuality project to investigate the effect of various factors on physical and mental health of gender and sexual minorities in a racially and ethnically diverse sample. To elaborate further, I am interested in constructs that influence the perception an individual has of their medical professional’s comfort with gender and sexual minorities. Additionally, my study illuminates how this perception mediates the associations between family support, sexual orientation disclosure, and LGBT+ community connectedness and physical and mental health of the individual across the life course. Further, this study utilizes a within group design to study the LGBT population on its own rather than attempting to investigate similarities to and differences from a majority group. This allows researchers to identify issues that may be unique to different subsets of a given population (Phinney & Landin, 1999). This technique extends current understanding of gender and sexual minorities through testing specific paths between constructs that may apply for some groups and not others (Phinney & Landin, 1999). These unique associations might be ignored if the population was assessed in aggregate. Thus, this dissertation provides a unique investigation into the sexual health of underserved populations.
In short, the initial article assesses the influence hooking up or casual sex at sexual debut in adolescence has on risky sexual behavior in emerging adulthood while simultaneously investigating various disadvantages and advantages experienced in adolescence. The specific disadvantages that are of interest in this study are age at sexual debut, mental health symptoms, and engagement in delinquent behaviors. These disadvantages are hypothesized, in this study, to be positively associated with risky sexual behavior in emerging adulthood. Further, I investigate advantages such as parental monitoring and mother/child relationship quality. It was expected that these aspects of adolescent will negatively influence risky sexual behavior in emerging adulthood.

The second article extends further into sexual health by examining various systems of support and their influence on mental and physical health in gender and sexual minority adults. In this study, I hypothesized that these factors would influence physical and mental health partially through patient perceived comfort of medical professionals regarding gender and sexual minority identities. Further, these associations would be moderated by the intersections of race, gender and sexual orientation.

In conclusion, this dissertation which is guided by Life Course Theory advances the research in this field in many ways. Regarding the first paper, the sample comes from three urban cities and the individuals are majority low-income and do not attend college. This advances the science because much of the research done to date is conducted with convenience samples of college students. Here, I can gain insight into the lives and behaviors of low-income, urban youth who are often at higher risk of experiencing negative health outcomes in emerging adulthood (Evans & Cassells, 2014) to further develop appropriate intervention or prevention curriculum. Regarding the second paper, very few studies have the statistical power to investigate the
differential influences on mental and physical health explicitly looking at intersections of race, gender and sexual orientation identities. This study fills a gap by doing so. Taken together, these two studies provide valuable insight into sexual health with specific attention paid to LGBT health and provides a more holistic understanding of how varieties of sexual expression influence sexual health.

References


CHAPTER 2. FIRST SEXUAL EXPERIENCES AND HOOKING UP DURING ADOLESCENCE: LINKS TO RISKY SEXUAL BEHAVIOR IN EMERGING ADULTHOOD

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Author Note

Introduction

Beginning in adolescence and continuing through emerging adulthood, individuals explore various forms of romantic and sexual partnerships both inside and outside of romantic relationships. One such type of exploration is hooking up. A hook up is generally defined as a sexual encounter ranging from kissing to intercourse that occurs between two individuals who are not in a committed relationship (LaBrie, Hummer, Ghaidarov, Lac, & Kenney, 2014; Snapp, Lento, Ryu, & Rosen, 2014) and do not expect the hook up to develop into one (Garcia & Reiber, 2008; Owen, Rhoades, Stanley, & Fincham, 2010).

While scholars have addressed the psychological and physical well-being of individuals who participate in hooking up encounters (Downing-Matibag & Geisinger, 2009; Owen & Fincham, 2011; Owen, Fincham, & Moore, 2011), very little research has addressed the consequences of hooking up behaviors in adolescence on later sexual behaviors. Within hooking up literature, there is a wealth of research addressing the correlations between both mental health symptoms (Bersamin et al., 2014; Owen et al., 2011) and risk taking behaviors such as alcohol use (Fielder & Carey, 2010). However, there exists a dearth of research addressing risky sexual behavior longitudinally and between developmental stages.

This study utilized a Life Course Theory (Elder, 1994; Elder, Johnson, and Crosnoe, 2003) and Gendered Sexuality over the Life Course (Carpenter, 2010) framework to reveal the impact of consensual hooking up at the first time of sexual intercourse during adolescence on risky sexual behaviors in emerging adulthood. Theoretically, sexual debut may have a stronger influence on later sexual scripts than other sexual encounters throughout adolescence because it serves as a transition within the life course (Carpenter, 2010). Specifically, this study addresses the longitudinal impact of first-time sexual intercourse during adolescence that occurred outside of a romantic relationship (hooking up) on risky sexual behavior in emerging adulthood. Further,
this study aims to show the longitudinal influence of advantages across the life course (positive parent-adolescent relationship and parental monitoring) and disadvantage (age at sexual debut, mental health problems, and delinquent behavior) on risky sexual behavior. Further, I control for a host of demographics that have been linked to risky sexual behaviors including, age, age at sexual debut, family income (Dinkelman, Lam, & Leibbrandt, 2007; Weiss, Walsh, DiLillo, Messman-Moore, & Gratz, 2019), race (Meston & Ahrold, 2010), and gender (Kerpelman, McElwain, Pittman, & Adler-Baeder, 2016). Finally, I explore these relationships in a sample of urban, youth living in poverty who primarily hold a racial minority status; thus, extending an understudied research topic to an understudied population.

**Theoretical Framework**

The lasting effect of early sexual experiences can be understood through Life Course Theory (Elder, 1994; Elder, Johnson, & Crosnoe, 2003) and an extension of this theory – Gendered Sexuality over the Life Course (Carpenter, 2010). There are five basic elements of Life Course Theory addressed in this study (see Table 2.1). The first element, life-span development, posits that human development is a process which occurs over an individual’s entire life. Over the life course, early life events impact later life events. This element is included in the study in the idea that early events such as hooking up at sexual debut will have an influence on risky sexual behavior in emerging adulthood. The second element, agency, considers the ability of an individual to construct their own life course within the confines of historical and social constraints. This is illustrated in the study through the consensual encounters of participants’ sexual debut within or outside of romantic relationships. Third, the element of time and place illustrates that an individual’s life course will be affected by the historical times they experience throughout their life. Data used in this study were collected from low income families in Boston, San Antonio, and Chicago following the welfare reform. Fourth, timing considers the differential
consequences a life transition or event may have based on the timing in which it occurs. This aspect of Life Course Theory is included in this study through the consideration of the impact of age at sexual debut on risky sexual behavior. The final element is the concept of linked lives. This concept indicates that lives are interdependent and experiences over the life course are influenced by an individual’s network of relationships such as, in this study, an individual’s relationship with their mother and the impact on risky sexual behavior.

Literature Review

Risky Sexual Behavior

Risky sexual behavior includes low rates of condom use and high rates of partner change, including having multiple casual partners (Centers for Disease Control and Prevention, 2015) and has been linked to depression and anxiety (Grello, Welsh, Harper, & Dickson, 2003) and engagement in nonconsensual extramarital sex (O’Connor, 2001). For the purposes of this study, risky sexual behavior is operationally defined to include number of different sex partners, frequency of sexual behavior, and frequency of unprotected sex.

Ethnic minority adults are disproportionately represented in STD statistics across the United States (Centers for Disease Control and Prevention, 2018). Indeed, Hispanic and black adolescent women are found to be at the greatest risk for contracting sexually transmitted infections (Pflieger, Cook, Niccolai, & Connell, 2013). It is therefore imperative to recognize which factors in adolescence are related to risky sexual behaviors for urban, low-income youth during emerging adulthood in an effort to target intervention efforts and prevent detrimental effects of sexual risk taking in emerging adulthood.

Relationship Status of Sexual Debut in Adolescence

Adolescence is theoretically defined as the stage between the onset of puberty and adulthood (Steinberg, 2014) and chronologically defined by the American Psychological
Association as the age between 12 and 18 (2010). While definitions of sexual intercourse are influenced by sexual experience (the more sexually experienced one is, the more specific their definition of sexual intercourse), at this stage most adolescents agree that one is no longer a virgin if they engage in vaginal sex (Bersamin, Fisher, Walker, Hill, & Grube, 2007). Studies of adolescents have shown that high numbers of first sexual encounters are within dating relationships. However, around 25% of first sexual encounters are not in committed dating relationships (Manning, Longmore, & Giordano, 2000). These encounters could be defined as a hookup. Yet, few studies have examined if the first sexual experience occurring in a hook up has long-term implications on risky sexual behaviors.

**Hook ups.**

Of adolescents aged 12-21, 70% report having uncommitted sex within the past year while Fortunado, Young, Boyd, and Fons (2010) found that 28% of seventh through twelfth graders had engaged in a hook up. However, compiling results on adolescent hook-up behavior is complicated by the broad range of definitions used to determine a hook-up encounter. Thus, Rowley and Hertzog (2016) suggest that vernacular surrounding the way adolescents are experiencing relationships should be specifically operationalized. As stated above, a hook up is defined as a sexual encounter that occurs between two individuals who are not in a committed relationship (LaBrie et al., 2014; Snapp et al., 2014) and do not expect the hook up to develop into one (Garcia & Reiber, 2008; Owen et al., 2010; Paul & Hayes, 2002). For this study and to further operationalize specific aspects of the definition within the context of adolescent behavior, I look at lack of a committed relationship aspect of hooking up. This is a consistent aspect of the definition used in many studies investigating hooking up, (Claxton & van Dulmen, 2013; Garcia, Reiber, Massey, & Marriwether, 2012; Lewis, Atkins, Blayney, Dent & Kaysen, 2013; Paul & Hayes, 2002; Stinson, 2010). This paper further enhances the literature in this area because,
where most of the research conducted about hooking up utilizes a college sample, this research investigates a sample of urban, low-income emerging adults. In addition, I explore not only hooking up in adolescence but if a youth’s first sexual encounter or debut was in a hook up relationship or a committed relationship. Thus, I use partner familiarity as a specific aspect indicating hook up behavior – sexual debut outside of a relationship is considered a hook-up.

While relatively little is known about the long-term, longitudinal impact of hooking up in adolescence on risky sexual behavior in emerging adulthood, Fielder and Carey (2010) have found that hooking up before attending college predicted hooking up in the first semester of college. This study acts as an extension of the existing literature on hooking up in college in two important ways. First, much of the hooking up literature is based on convenient college samples that are predominantly white and middle class. I explore these associations for urban, youth under the age of 18 living in poverty. Second, much of the literature is cross-sectional and explores these relationships during the young adult years. I expand the literature by assessing the longitudinal effects of hooking up during the first sexual encounter during adolescence on risky sexual behaviors in young adulthood, six years later. Next, I explore specific risky sexual behaviors.

**Disadvantages Influencing Risky Sexual Behavior**

Gendered Sexuality over the Life Course identifies disadvantageous aspects experienced over time that can negatively influence later life course trajectories (Carpenter, 2010). There is currently a wide body of literature illuminating these disadvantageous factors associated with participation in risky sexual behavior. First, age at first sexual intercourse or sexual debut is often considered an aspect of sexual risk taking behavior in cross sectional research and has been shown to be associated with risky sexual behavior in women over many years (Greenberg, Magder, & Aral, 1992; Magnusson, Nield, & Lapane, 2015). Thus, individuals with earlier ages
of sexual debut and other risk-taking behaviors in adolescence are at higher risk of long-term sexual risk taking than their later engaging peers. However, more recent research suggests that while early sexual debut predicts later sexual risk behavior, these associations disappear when controlling for a host of other confounding variables such as behavior and peer influences (Epstein, Bailey, Manhart, Hill, & Hawkins, 2014).

Second, mental health symptoms, specifically, depressive symptoms are often linked to risky sexual behavior. Depressive symptoms have been negatively associated with condom use (Schuster, Mermelstein, & Wakschlag, 2013) generally and also, specifically among African American girls (Jackson, Seth, DiClemente, & Lin, 2015). Further, in a study of U.S. middle and high school students, depressive symptoms predicted not using condoms or birth control at last sex, and an increased number of sexual partners (Lehrer, Shrier, Gortmaker, & Buka, 2006).

Adolescent delinquent behavior is predictive of increased sexual risk behavior in emerging adulthood (Lansford, Dodge, Fontaine, Bates, & Pettit, 2014). Specifically, level of severity of drug use, an aspect of delinquency, has been positively related to sexual risk (Malow, Dévieux, Rosenberg, Samuels, & Jean-Gilles, 2006). Moreover, in one study, individuals who report using drugs while having sex were found to be less likely to use a condom with new sexual partners (Schafer, Blanchard, & Fals-Stewart, 1994). A second aspect of adolescent delinquency, alcohol use in adolescence, is consistently reported in conjunction with risky behavior at first sexual encounters (Halpern-Felsher, Millstein, & Ellen, 1996). In addition, in a review of ten years of longitudinal research on risky sexual behavior in adolescence, no one type of problem behavior predicted sexual intercourse behavior in every study (Zimmer-Gembeck & Helfand, 2008).
**Advantages Influencing Risky Sexual Behaviors**

According to the Gendered Sexuality over the Life Course model, there are certain advantages that can influence trajectories (Carpenter, 2010). There is currently a body of literature illuminating many of these advantages negatively associated with participation in risky sexual behavior. First, the relationship between parent and child has been shown to be associated with risky sexual behavior in many ways. Steinberg (2004) found that parents are highly influential in developing the behavior of a child, indicating that parental monitoring and the relationship between the parent and the child had an influence on the child’s behavior. One study found that mother/child relationship quality in adolescence is associated with fewer reports of hooking up during young adulthood (Johnson, 2013). The National Longitudinal Study of Adolescent and Adult Health, Resnick, Bearman, Blum and colleagues (1997) found that parent connectedness was protective against most health risk behaviors including sexual risk. Some research, however, has found no relationship between parental closeness and risky sexual behavior (DiLorio, Dudley, Soet, & McCarty, 2004; Roche et al., 2005). Second, level of parental monitoring clearly has an influence on sexual risk behavior. Reports show high parental monitoring is linked to lower risky sexual behavior (Lansford et al., 2010; Wight, Williamson, & Henderson, 2006) and others show lower parental monitoring or supervision increased sex frequency (Benda, 2003; K. S. Miller, Forehand, & Kotchick, 1999) and number of partners (DiClemente et al., 2001; B. C. Miller, Benson, & Galbraith, 2001; K. S. Miller et al., 1999).

**Covariates**

In the literature, a host of demographic and individual factors have been linked to hooking up and risky sexual behaviors including age at sexual debut, age, family income, race, and gender. First, family income has been shown to associate with risky sexual behavior in emerging adulthood. Specifically, males aged 17 – 22 from lower economic strata are less likely
to report condom use (Dinkelman et al., 2007). While some studies have found links between hooking up and parental income (Miller et al., 2001), others have shown that there is no association (Manning, Longmore, & Giordano, 2005).

Next, risky sexual behaviors and hooking-up behaviors have been found to vary by the gender and race of adolescents. Specifically, men tend to be more comfortable than women with all hooking-up behaviors (Reiber & Garcia, 2010). Further, male youth report having sex at earlier ages, more partners across their lifetime, and engagement in multiple risky behaviors whereas female adolescents report higher rates of STIs (Murphy, Rotheram-Borus, & Reid, 1998). African American youth tend to report earlier ages of sexual debut than White, Latina/o, and Asian youth (Upchurch, Levy-Storms, Sucoff, & Aneshesel, 1998). There is also reason to believe that race has an influence on engagement in hooking up behaviors. For instance, African Americans tend to have more permissive attitudes toward casual sex than their White counterparts (Weinberg & Williams, 1988). While it is only the third fastest growing racial/ethnic group, Hispanics are projected to account for 29% of the US population by the year 2060. This will be the largest racial/ethnic group with the exception of non-Hispanic whites in 2060 (Colby & Orman, 2015). Moreover, Latina women are at higher risk of teen pregnancy than their non-Hispanic white counterparts (Guttmacher Institute, 2017), are less likely to use contraceptives, and are disproportionately represented in reports of STI/Ds (Centers for Disease Control and Prevention, 2018). However, in research conducted by Soler and colleagues, Black and Hispanic women reported more consistent condom use (2000). Finally, age at sexual debut plays a role in these associations in that individuals who experience sexual debut at younger ages are more likely to be casually (i.e., just friends) related to their partner than their older peers. (Elo, King, & Furstenberg, 1999)
The Current Study

This study investigates longitudinal influences on risky sexual behaviors in emerging adulthood. It fills a gap in the literature by illuminating the longitudinal impact of hooking up at sexual debut during adolescence (prior to age 18) on risky sexual behaviors while controlling for other potentially influential risky behaviors including age at sexual debut, family income, gender, and race. I also investigate the influence of advantageous factors and disadvantageous factors on the association between relationship status at sexual debut and risky sexual behavior in emerging adulthood. Finally, I explore these relationships in a sample of urban, primarily minority, youth living in poverty. As demonstrated in Figure 2, three Research Questions are posed:

1. Does experiencing first sexual intercourse in adolescence as a hook up predict risky sexual behaviors among low-income, urban emerging adults?
   a. Hypothesis: experiencing a first sexual encounter in adolescence as a hook up will be predict greater risky sexual behavior.

2. How do other factors such as mother/child relationship, parental monitoring, delinquency, mental health symptoms, age at sexual debut, family income, race, and gender influence risky sexual behavior in emerging adulthood?
   a. Hypothesis: mother/child relationship quality and parental monitoring will predict lower risky sexual behavior. These factors will have a greater magnitude of influence than other adolescent factors (delinquency, mental health symptoms, age at sexual debut, family income, race, and gender.
   b. Hypothesis: the association between risky sexual behavior in emerging adulthood and hooking up in adolescence will not exist net of other adolescent factors.
Method

Participants.

Data were analyzed using information from Welfare, Children, and Families: A Three-City Study. The Three-City Study individuals come from a stratified-random-sample of children and their caregivers in low-income neighborhoods in Boston, Chicago, and San Antonio. This study collected four different types of data to further understand the effects of welfare reform on low-income children and families. In 1999, professional, trained interviewers screened over 40,000 households to identify eligible families. Inclusion criteria consisted of each family having a child between the ages of zero and four or a child between the ages of ten and fourteen years of age, with a woman as the primary caregiver. Eighty-two percent of the eligible families agreed to participate in the study, with an overall response rate of 74%. The first part of data collection or survey included information from 2,402 families that were recruited to collect survey data. Of these families, 40% (N=960) were on TANF, 80% (N=1922) of the families had an income below the poverty threshold and 8% (N=205) of the families were between the poverty line and 200% of the poverty line. Second, a subsample of 700 children age two to four consented to in home observations of the child and their caregivers. The third portion of this data included web-based surveys with teachers of 816 of the children in the study collected from 2005 to 2006. This data includes over 1,100 students’ school records and test scores from 1999 to 2006. The fourth portion of data collection included ethnographic data for 256 families with a target child between the ages of two and four.

This study focuses on caregiver and focal child responses (ages 10 to 14 in wave one) from the survey portion of the data collection. Data collection for wave one of the study began in 1999. Wave two data collection occurred between September 2000 and June 2001 (11 to 15 years old). Wave three was collected in 2005 (15 to 21 years old). In wave one, a 75% response
rate resulted in a sample of 2,402 children. The response rate for wave two was 87.8% resulting in a sample of 2,158 children. The third wave of data collection took place four years later in 2005. An 80% response rate resulted in 1,944 children. Because the focus of this study is on risky sexual behavior in emerging adulthood, I included in the analyses only those individuals who, at wave three, had their sexual debut prior to age 18, were between the ages of 18 and 21 years, had provided responses for risky sexual behavior, and did not have a history of sexual abuse ($N = 210$).

**Procedure.**

In each wave of data collection, the primary caregiver and one focal child were selected from the eligible households to complete cognitive assessments and in-person interviews. Primary caregivers completed two-hour interviews regarding themselves, their families, households, and children. Demographic information, such as race and income, was collected from the caregivers using the survey. Adolescent children participated in 30-minute in-person interviews separate from their mother. They were asked about several things such as school performance, and relationships with their parents. Both mothers and adolescents completed surveys using a Computer Assisted Personal Interview (CAPI), which enables trained field interviewers to enter responses into a laptop during the interview process. Furthermore, adolescents and mothers used an Automated Computer Assisted Survey Interview (ACASI) when answering potentially sensitive questions like those related to alcohol use. ACASI allows the respondents to enter answers directly into the laptop computer, while listening to questions on headphones, and has been shown to increase the response rate and validity of reporting on sensitive topics (Turner, Miller, & Rogers, 1997). IRB approval was obtained and is attached in Appendix A (IRB ID: 03-805; see Appendix A).
Measures

Emerging adult risky sexual behaviors, Ages 18 – 21.

In wave three, each participant was asked to report, in the past twelve months, the number of partners with whom they had sexual intercourse, how many times they had sexual intercourse, and how often they had engaged in unprotected sex without using any type of birth control or protection against STI transmission (Lohman & Billings, 2008). Responses to the second question, number of different partners, ranged from one to more than 20 and were coded to reflect the following: one partner (1), two partners (2), three to five partners (3), six to ten partners (4), eleven to twenty partners (5), and more than 20 partners (6). Responses for the second question regarding frequency of sexual intercourse ranged from once to more than 100 times and were coded to reflect the following: once (1), twice (2), three to ten times (3), eleven to 25 times (4), 26 to 100 times (5), and more than 100 times (6). Responses to the third question asking about safe sex practices ranged from never to always and were coded to reflect the following: never in the past 12 months (1), less than half the time (2), about half of the time (3), more than half the time (4), and always (5). These questions were not asked of participants who had been sexually active in the past twelve months. Thus, for each of these questions, participants were coded as such (0). Responses were standardized across the three questions and then summed to assess risky sexual behaviors in emerging adulthood.

Hooking up at Sexual Debut in Adolescence.

During the wave three interview, each participant who had already experienced sexual debut was asked to describe their relationship with their first sexual partner. Options provided were had just met; were just friends; went out once and awhile; were going together or going steady, but not living together; were engaged, but not living together; were living together in a marriage-like relationship; were married; other relationship; and don’t know. These responses
were coded into distinct categories to reflect two groups of individuals: those that were in a
romantic relationship (coded as 0, \( N = 129 \)) and those that had hooked up for their first sexual
encounter (coded as 1, \( N = 80 \)). Individuals who described their relationship with their first
sexual partner as *don’t know; had just met; were just friends; went out once in a while; or other*
were coded as having a hook up for their first consensual sexual experience all others were coded
as experiencing their sexual debut in a relationship. All of the responses included in this analysis
were consensual sexual encounters.

**Advantages, Wave 1.**

*Mother/child relationship quality* (\( \alpha = .72 \)) was measured using the 12-item Inventory of
Parent and Peer Attachment for mothers (Armsden & Greenberg, 1987). Examples of items on
this measure include *my mother understands me, my mother can tell when I am upset about
something, and I trust my mother.* Responses to the twelve items were averaged to result in a
composite score ranging from 1 (never true) to 5 (always true). This scale is valid as evidenced
in previously published work (i.e., Lohman & Billings, 2008). Items investigated include
warmth, communication, and trust. Responses to the scale items were combined into an averaged
composite.

*Parental Monitoring* (\( \alpha = .66 \); used in Lohman & Billings, 2008) was measured through
the use of an abbreviated version of a scale developed by Steinberg, Mounts, Lamborn, and
Dornbusch (1991) to measure various parenting behaviors. Items included mothers’ awareness of
friendships, knowledge of location of the adolescent, and knowledge of how free time and
money were spent. Consistent with suggested coding of this measure (Steinberg et al., 1991),
items were recoded by dividing the response given by the total number of response categories for
each and then taking the averaged composite.
Disadvantages, Wave 1.

Delinquent behaviors were measured using an adaptation from the National Longitudinal Study of Youth and the Youth Deviance Scale (Borus, Carpenter, Crowley, & Daymont, 1982; Gold, 1970). Responses ranged from never (1) to often (4) on a variety of items regarding the adolescent’s behavior in the past 12 months. Items include but are not limited to *how often have you carried a weapon, how often have you skipped a full day of school, have you smoked marijuana or hashish*. The total delinquency scale consists of 12 items. Responses on eight of the twelve items were necessary to calculate a total delinquency score for each participant. To calculate this, first the mean of the z-scores for each item were computed. Due to the skewed distribution in responses for this scale, a transformed score was created by adding one and taking the natural log. Higher scores are indicative of more delinquent behavior in adolescence.

Mental health symptoms were analyzed using the Brief Symptom Inventory (BSI-18: (Derogatis, 2000). Scoring on this scale is based on the BSI 18 scoring manual (α = .89; (Derogatis, 2000). Children age 10 and up were administered this measure. A sum of scores on the 18 items including measures of depression, anxiety, and somatization represent each participant’s mental health symptoms scores. Item responses ranged on a Likert-type scale from not at all (1) to extremely (5) to such questions regarding the extent to which the individuals have been bothered by feelings of loneliness (depression), faintness or dizziness, or stomach aches (somatization), and spells of panic (anxiety). High scores reflect high frequencies of experiencing mental health symptoms. This scale has shown good overall validity in various populations (Li et al., 2018; Recklitis, Blackmon, & Chang, 2017).

Control Variables, Wave 1.

*Age* was calculated based on the birth date and the month and year in which the data for each wave was collected. Age at wave three was used for these analyses.
Age at first sexual intercourse. At each wave, individuals over the age of 10 were asked if they had ever had sexual intercourse. Prior to providing their responses, individuals were shown a statement that sexual intercourse is sometimes referred to as having sex, making love, or going all the way. If they answered yes, they were asked how old they were the first time they had sexual intercourse. Only individuals who had consensual sex in adolescence (before age 18) were included in the analysis.

Family Income was measured in the form of an income-to-needs ratio. This is calculated using two values. First, information on family income was collected through the mother’s report of her previous month’s income before taxes and deductions. She also reported on the source of the income including unemployment insurance, food stamps, supplemental security income, cash welfare income, child support payments, social security disability, worker’s compensation, disability, social security retirement or survivor payments, other pension or retirement income, income from relatives, income from friends, and any other source of income. Poverty is defined by using the income-to-needs ratio, a standard measure of a family’s economic situation (US Census Bureau, 2018). This is computed by taking the summed family income and dividing this by the federal poverty threshold for that family. The threshold for a family of four with three children in year one of the study (1999) was $16,954. The threshold for a family of four with two children was $16,895 (US Census Bureau, 2019). If the resulting ratio is less than one (meaning the poverty threshold is greater than their income) the family is considered poor.

Race, youth reported their race in Wave 1. These responses are collapsed into three categories including Non-Hispanic white, Non-Hispanic black, and Hispanic. Three dummy variables were created from these categories. Due to the rapid increase in the proportion of Latina/o population in the United States and the higher risk of teen pregnancy in this population
in concert with the high proportion of Hispanic respondents in this sample, Latino/a was used as the reference category in this analysis. The large sample size of this referent group allows for a more robust analysis and understanding of these comparisons.

Gender of the focal child is obtained from the parent interviews at wave one. Respondents answered one question and responses were coded as male = 1 and female = 0.

Analysis

Data and initial descriptive analyses were managed in SPSS 21. First, descriptive statistics were conducted to explore means and standard deviations and to assess for outliers, normality, linearity, and homoscedasticity in the variables. Second, correlation analyses among the study variables were conducted. Next, a series of path analyses were conducted in Mplus using full information likelihood. This is a missing data analysis in which an unbiased estimate of the population parameters is used within the model to produce the most likely estimates from the sample data analyzed. This method of missing data provides more unbiased and efficient estimations than similar response pattern imputation, listwise deletion, and pairwise deletion (Enders & Bandalos, 2001).

To answer research question one, a path analysis was conducted estimating the direct effect of hooking up at sexual debut on risky sexual behaviors in emerging adulthood net of confounding factors (income to need ratio, age, age at first sex, race, and gender). Next, to answer research question two, advantageous (mother/child relationship quality and parental monitoring) and disadvantageous (mental health symptoms and delinquency) factors were added to the model to investigate the effects of these variables on the adolescent’s trajectory to risky sexual behavior in emerging adulthood. Through this analytic strategy I was able to ascertain the
unique variance in the dependent variable that is explained by each predictor variable, specifically, the hook up variable, in an effort to further understand the longitudinal impacts of hooking up in adolescence.

Results

Zero Order Correlations

Table 3.2 shows descriptive statistics of the study variables. The majority (62%) of the sample experienced their sexual debut within a relationship (N=131). Eighty-one (38%) experienced their sexual debut outside of relationship. Table 3.3 shows the zero order correlations among the hooking up variable, protective factors (mother/child relationship, and parental monitoring, mental health), adolescent delinquency, the outcome variable (risky sexual behavior in emerging adulthood) and confounding variables (income to need ratio, age, age at first sex, race, and gender). Risky sexual behavior was positively, significantly correlated with hooking up at sexual debut ($r=.18, p \leq .01$) supporting RQ1. Further, risky sexual behavior was significantly, negatively correlated with mother/child relationship ($r=.18, p \leq .01$) and parental monitoring ($r=-.22, p \leq .001$) indicating moving forward with the analysis.

Path Analyses

In further support of the influence of hooking up at first sexual intercourse and risky sexual behavior in emerging adulthood, the initial model tested the influence of hooking up at first sex on risky sexual behavior in emerging adulthood while controlling for family income, age at first sex, gender, age, and ethnicity. After controlling for these factors, hooking up remained a significant predictor of risky sexual behavior in emerging adulthood ($\beta=0.17$, $p=0.02$). Table 2.4 contains coefficients of the confounding variables tested. None of the covariate variables (family income, age at first sex, gender, age, and ethnicity) were significant in predicting risky sexual behavior in emerging adulthood. To address research question two,
four additional variables were added to the analysis. The association between hooking up and risky sexual behavior did not remain significant net of the combination of other factors contributing to risky sexual behavior in emerging adulthood. In this model, the risky sexual behavior is predicted by mother/child relationship ($\beta=-0.15, p \leq .05$) and parental monitoring ($\beta=-0.18, p \leq .05$) during adolescence. This final model explained 12% of the variance in risky sexual behavior ($R^2=.12, p \leq .01$). Fit indices are not reported because the model is fully recursive and thus cannot be ascertained.

**Discussion**

The purpose of this study was to combine hooking up research with consensual sexual debut research and thus understand the longitudinal implications of the relationship one has with their first sexual partner or hooking up at sexual debut. According to Gendered Sexuality over the Life Course theory, the first time an adolescent has sex, they experience a transition that has lasting implications on later life sexual beliefs and behaviors (Carpenter, 2010). Thus, the nature of the relationship at this first sexual encounter is influential in the sexual trajectory of the adolescent. Initial analyses, indeed, indicated that hooking up in adolescence, at sexual debut, predicted greater sexual risk behavior in emerging adulthood.

This finding is supportive of cross-sectional research illustrating the connection between hooking up and risky sexual behavior such as more concurrent sexual partners (Paik, 2010), lack of concern in contracting STIs and therefore low condom use (Downing-Matibag & Geisinger, 2009) and unprotected sex (Olmstead, Roberson, Pasley, & Fincham, 2015). In addition, retrospective and longitudinal studies have found that hooking up at prior ages or stages predicts more hook-up encounters later (Fortunato et al., 2010; Olmstead et al., 2015) supporting the notion that these early experiences influence behaviors and beliefs regarding sexual behavior.

However, it is important to consider these findings within the larger context of
advantages in adolescence. Specifically, after including the advantages of mother/child relationship quality and the involvement of the adolescent’s mother through parental monitoring, the associations between hook up at first sex and later risky behaviors was minimized and no longer significant. Indeed, mother/child relationship quality and greater parental monitoring predicted lower risky sexual behavior in emerging adulthood. This finding indicates that, mother/child interactions have a stronger lasting effect on sexual trajectories than simply sexual debut alone. These findings support prior research indicating lower parental monitoring increased sex frequency (Benda, 2003; Miller et al., 1999) and number of partners (DiClemente et al., 2001; Miller et al., 2001; Miller et al., 1999).

Limitations and Future Research

This study extends hooking up literature into a thus far unexplored area – hooking up at sexual debut – and has provided useful insight into the longitudinal influences of hooking up and mother/child relationships in adolescence. It is, however, not without limitations. Most notably, in an effort or ensure no involuntary sexual acts were included in the hooking up variable, anyone with a history of sexual abuse or forced sexual behavior was excluded from the analysis. This, along with other inclusion criteria, resulted in a small sample size limiting the generalizability of this study. However, while the research is not broadly generalizable, it is more accurate to in understanding the influences of consensual sexual debut, an aspect of sexual debut that is not often specified in research. Considering the importance of agency within Life Course Theory, it was important to ensure each of the first sexual encounters were consensual. This was a necessary precaution in an effort to not conflate the associations between hooking up and risky sexual behavior given the disproportionate rates of violence experienced by persons in households below the poverty limit (Harrel, Langton, Berzofsky, Couzens, & Smiley-McDonald, 2014). All of the initial sexual experience included in this analysis were consensual.
Further, while an important aspect of adolescent development, this study did not consider the influence of peer behavior on risky sexual behavior. Given the influence of an individual’s perception of their peers’ behavior as it relates to sexuality (Potard, Courtois, & Rusch, 2008), future research will include measure of peer behavior and/or perceptions of peer behavior to further develop an understanding of influences of risky sexual behavior.

In sum, this research contributes to existing literature in a few ways. First, understanding the longitudinal impact of hooking up is slowly emerging and mostly limited to college samples. This study expands the literature into adolescence and investigates hooking up at sexual debut. These findings begin to illuminate associations between hooking up and risky sexual behavior and expand the reach of this research into different stages of the life course (e.g., adolescence). In finding that mother/child relationship quality and parental monitoring are more influential in impacting risky sexual behavior in adolescence, various practical implications are provided. First, medical providers may ask patients about relationship status at sexual debut in sexually active adolescents in effort to provide catered medical information focusing on prevention of risky sexual behavior. Second, considering the strong interplay between sexual behavior and mother/child relationships, sex education courses should incorporate family relationship literature in addition to any romantic relationship modules provided.

References


O’Connor, M. L. (2001). Men who have many sexual partners before marriage are more likely to engage in extramarital intercourse. International Family Planning Perspectives, 27(1), 48–49.


Table 2.1. Elements to Consider when Employing the GSLC Model

<table>
<thead>
<tr>
<th>Element</th>
<th>Definition</th>
<th>Aspect of this Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life-Span Development</td>
<td>Human development is a lifelong process where later life events and processes are linked to earlier years.</td>
<td>The influence of early events such as hooking up at sexual debut on later life behaviors such as risky sexual behavior.</td>
</tr>
<tr>
<td>Agency</td>
<td>An individual has the ability to construct their own life course through the actions and choices they take within historical and social constraints.</td>
<td>Consensual sexual debut in a relationship or outside of a relationship (i.e., hook up).</td>
</tr>
<tr>
<td>Time and Place</td>
<td>An individual’s life course is affected by the historical times they experience throughout their life.</td>
<td>Data were collected from low income families following the welfare reform.</td>
</tr>
<tr>
<td>Timing</td>
<td>Consequences of a life transition or event vary based on the timing in which they occur.</td>
<td>Considering the impact of age at sexual debut on risky sexual behavior.</td>
</tr>
<tr>
<td>Linked lives</td>
<td>Lives are interdependent and experiences over the life course are influenced by an individual’s network of relationships.</td>
<td>Parental monitoring and mother/child relationship influences on risky sexual behavior.</td>
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</tbody>
</table>
Table 2.2. Descriptive Statistics of Study Variables

<table>
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<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
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</thead>
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<td>.49</td>
<td>0-1</td>
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<tr>
<td>Hook up</td>
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<td>.38</td>
<td>.49</td>
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<tr>
<td>Had just met</td>
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<tr>
<td>Were just friends</td>
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<tr>
<td>Went out once and awhile</td>
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<td>Going steady</td>
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<td>9.02</td>
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<tr>
<td>Adolescent Advantages</td>
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<td>Mother/Child Relationship</td>
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<td>1.42-4.75</td>
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<td>Parental Monitoring</td>
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<td>.47-1</td>
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<td>Control Variables</td>
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<td>Income to Needs Ratio</td>
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<td>Age</td>
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<tr>
<td>Age at First Sex</td>
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Table 2.3. Correlations Among Study Variables (N=210)

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<td>2</td>
<td>Hook up at First Sex</td>
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<td>-</td>
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<td>3</td>
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<td>-.18**</td>
<td>-.09</td>
<td>-</td>
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<td>.13</td>
<td>-</td>
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<td>-.02</td>
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<td>Mental Health</td>
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<td>.04</td>
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<td>.41***</td>
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<td>Needs Ratio</td>
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<td>8</td>
<td>Age</td>
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<td>.22***</td>
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Table 2.4. Predicting Risky Sexual Behavior

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<td>Hook up</td>
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Standardized coefficients reported; model is fully recursive
Figure 2.1 Conceptual Model

RQ2

- Hooking up at Sexual Debut Adolescence W1-W3
- Mother/Child Relationship W1
- Parental Monitoring W1
- Delinquency W1
- Mental Health Symptoms W1

RQ1

Risky Sexual Behavior Emerging Adulthood Wave 3

Confounding Variables: Age, Age at Sexual Debut, Family Income, Race, and Gender
CHAPTER 3. PECEPTIONS OF MEDICAL PROFESSIONAL COMFORT WITH GENDER AND SEXUAL MINORITY IDENTITIES: IMPACT ON MENTAL AND PHYSICAL HEALTH

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Introduction

According to recent estimates, there are about 10 million (4.1% of the total population) lesbian, gay, bisexual or transgender individuals in the United States (Gallup, 2017); of this 10 million, an estimated 1.4 million, are transgender (Flores, Herman, Gates, & Brown, 2016). Gender Sexual Minorities (GSMs) are at greater risk of experiencing adverse health outcomes than their straight and/or gender majority counterparts. Indeed, research illustrates that lesbian, gay, bisexual and individuals who have a “history of same-sex sexual partners” have a higher all-cause mortality rate than their heterosexual counterparts (Cochran, Björkenstam, & Mays, 2016, p. 918). Further, transgender individuals have markedly higher rates of somatization, depression, anxiety and overall psychological distress as compared to community norms (Bockting, Miner, Swinburne Romine, Hamilton, & Coleman, 2013).

Moreover, there are various factors specific to the lives of GSMs that may have an influence on their mental and physical health. For example, family support has been shown across studies to positively influence mental health especially within GSM populations (Bockting et al., 2013; McConnell, Birkett, & Mustanski, 2016). Indeed, across various predictors, family support has the strongest impact on both mental and physical health (Ryan,
Russell, Huebner, Diaz, & Sanchez, 2010). Further, among transgender and gender non-conforming individuals, community connectedness is associated with lower instances of depression and anxiety (Pflum, Testa, Balsam, Goldblum, & Bongar, 2015). Additionally, among LGBT+ individuals, community connectedness has positive influences on mental health (Puckett, Levitt, Horne, & Hayes-Skelton, 2015). Finally, until 1973, homosexuality was considered a mental health disorder in the Diagnostic and Statistical Manual (Drescher, 2015). This has influenced the level of distrust for medical professionals (Brotman, Ryan, Jalbert, & Rowe, 2002). However, few studies have examined the role of comfort with the medical professional with family and community factors to predict health outcomes. Thus, continued research on health disparities and various components of the lives of GSMs that may influence physical and mental health is important, specifically considering the heterogeneity within groups of individuals who hold gender and sexual minority identities (Shipherd, 2015).

Through assessing family support, community connectedness, perceived medical practitioner comfort together as they are associated with physical and mental health in GSMs, this study aims to augment this research by investigating paths between two commonly assessed protective measures – family support and community connectedness – and their association with physical and mental health outcomes of GSMs. Further, this study investigates the role of the relationship between the patient and their medical provider in influencing physical and mental health. Recognizing the heterogeneity of GSM populations, this study intends to illuminate how the aforementioned associations differ based on the various intersections of race, gender, and sexual orientation as guided by Gendered Sexuality over the Life Course (Carpenter, 2010) and intersectionality (Crenshaw, 1991).
Literature Review

Theoretical Framework

Disparities in physical and mental health of GSMs are not simply caused by holding an identity within this group. One attempt to explain these differences can be found using the Life Course perspective (Elder, 1994; Elder, Johnson, Crosnoe, 2003). There are five principles to consider within this perspective. These include life-span development, agency, time and place, timing, and linked lives.

This particular study assesses four of the five principles of Life Course Theory (see Table 1). First, the principle of life-span development posits that human development is a lifelong process wherein later life events and processes are linked to events, decisions, or actions that occurred in earlier years. This study considers the age of the participant and includes a broad range of ages. Second, the principle of time and place considers the affect the historical times at certain points over the life course and how these times and places may differentially influence individuals throughout their life. Data for this study were collected in 2010. At this point only five states had legalized gay marriage (Pew Research Center, 2015). Third, the principle of timing states that consequences of a life transition or even vary based on the timing in which they occur. This study includes the age at which an individual came out to themselves. Finally, the principle of linked lives posits that lives are interdependent and experiences over the life course are influenced by an individual’s network of relationships. Thus, the influence of medical practitioner, family, and, most importantly, community connectedness is considered as it relates to the physical and mental health of GSMs.

Carpenter (2010) expands on the Life Course framework by also emphasizing elements particularly useful in applying Life Course theory to research with GSM populations. Specifically, Carpenter includes the elements of doing gender and sexual identity and other
aspects of social identity indicating the importance of illuminating the different ways in which individuals exhibit gender roles, beliefs and behaviors as well as evaluating intersections of identities influencing life course trajectories. This study incorporates these aspects by investigating the indicators of mental and physical health differently based on gender and sexual orientation group as well as the intersections of race, gender, and sexual orientation identity.

It is important to note that the terms monosexual and plurisexual are used throughout this study. Monosexual refers to identities wherein one is attracted to only one sex/gender such as lesbian or gay. Plurisexual refers to identities wherein one is attracted to more than one sex and/or gender such as bisexual (Galupo, Mitchell, & Davis, 2015). Plurisexual is used rather than the more common “non-monosexual” to situate plurisexual as its own group/identity rather than one in opposition to the linguistically ideal “monosexual” as discussed in Galupo, Davis, Gryniewicz, and Mitchell (2014). Intersectionality is specifically noted in the GSLC framework as it posits that nuances between various identities, and specifically within marginalized identities, cannot be ignored as identity has an impact on events and life transitions over the life course.

Thus, identifying specific differences between marginalized sexual orientation or gender groups is important. Indeed, in a longitudinal study of mortality rates in GSMs, Cochran and colleagues (2016), found that after controlling for a host of demographics, women with a history of same sex sexual partners, lesbians, and bisexual men all experience elevated mortality risk compared to gay men and/or bisexual women. This illustrates the need to investigate more than simple differences by gender, race, and sexual orientation. Indeed, group differences based on intersecting identities may illuminate factors that would otherwise be neglected if analyzed in aggregate based on race, gender, or sexual orientation alone. For example, black, plurisexual
women and Black monosexual men may experience different health outcomes that may not be shown based on gender differences between men and women, or sexual orientation differences between plurisexual and monosexual individuals.

Indeed, the construct of intersectionality has been implicated in understanding the experience of holding multiple stigmatized identities (Cole, 2009; Conwill, 2010). As mentioned above, there are clear disparities in both physical and mental health of GSMs. Below, I outline specific disparities and factors associated with physical and mental health, starting with the importance of medical professionals. Then, I turn to describing two main correlates of these outcomes: family support and community connectedness.

**Physical and Mental Health**

There is conflicting research concerning the physical health disparities among GSMs and straight adults. In one study, lesbian (monosexual) and bisexual (plurisexual) women were found to have no significant differences in physical health outcomes (Meyer, Rossano, Ellis, & Bradford, 2002). However, Case and colleagues (2004) found lesbian and bisexual women to have higher presence of certain risk factors associated with breast cancer than straight women.

Physical health differs across racial/ethnic groups, gender, and sexual orientations. One study found that black women experience the lowest levels of health compared to their white and/or male counterparts (Cummings & Jackson, 2008). With varying results of subjective physical health based on intersections, it is important to include these identities when investigating health. Many of the aforementioned studies compare GSMs to their straight counterparts. There is mounting evidence that, among GSMs, bisexual adults are at heightened risk for various physical health outcomes such as obesity and cardiovascular disease (Dyar et al., 2019).
Indeed, there is well documented evidence demonstrating various influences on mental health for GSMs. For example, lesbian and bisexual women show significantly poorer mental health than their straight counterparts (Meyer et al., 2002), and gay and bisexual men exhibit higher rates of depression, panic attacks, psychological distress than their heterosexual counterparts (Cochran, Mays, & Sullivan, 2003). Compared to straight women, lesbians and bisexual women are more likely to report and take medication for depression (Case et al., 2004). As illustrated here, many of the studies investigating GSM mental health compares various GSM identities with their heterosexual counterparts. However, within the GSM population, there are differences in mental health. Most specifically, there is a wealth of evidence indicating people who are bisexual or plurisexual experience more detrimental mental health than their other GSM peers (see Persson & Pfaus, 2015 for a review). In addition, closeted men are less likely to be depressed than their out counterparts whereas closeted women are more likely to be depressed than their out counterparts (Pachankis, Cochran, & Mays, 2015). Therefore, research into the aspects across the life course influencing these associations is warranted specifically delving into the group differences of intersecting identities within the GSM community.

**Importance of the Medical Professional**

Professionals should develop cultural competencies respecting GSMs including creating environments that appear welcoming to individuals of all sexual orientations (Hutchinson, Thompson, & Cederbaum, 2006). Indeed, a meta-analysis of the influence of specific professional behavior (such as increased empathy, improved eye contact, sitting down) indicates that changes in medical professional behavior have a significant influence on healthcare outcomes such as pain scores and blood pressure (Kelley, Kraft-Todd, Schapira, Kossowsky, & Riess, 2014). Behaviors of medical professionals can illustrate a warm and welcoming environment in which someone with a GSM identity may feel more at ease in sharing their
sexual orientation and getting the necessary screenings which may, in turn, influence their mental and physical health. Therefore, the perception of the medical professional’s comfort with GSMs, by the patient, is an important aspect to consider with respect to the influence of various factors on well-being and physical health.

However, studies have shown that health professionals lack the proper training to provide specialized care to GSMs (Carabez et al., 2015; Yingling, Cotler, & Hughes, 2017). Specifically, cultural competence pertaining to GSMs is not a component of required education for many health professionals (Hutchinson et al., 2006). In fact, to date, there has been no discernable guidance from leadership and curriculum developers on medical training in cultural competency regarding treating LGBT people (Yingling et al., 2017). Few primary care services are openly welcoming to GSMs and create an environment that demonstrates awareness and respect for LGB patients as a group (Hutchinson et al., 2006). While research can help identify disparities within this population as compared to heterosexual and cisgender individuals, scholars know relatively little about the mental and physical health implications of health professional comfort with LGBT identities.

Medical professionals are integral in addressing the unique physical and mental health needs of GSMs (see Mayer et al., 2008 for a review). They may serve as a resource to explain some of the associations between factors such as community connectedness and family support described below. Families and LGBT communities, regardless of the support provided, are not positioned to address health care needs.

**Family support and Community Connectedness**

Family support is an important influence in the lives of GSMs. Indeed, it is the most important factor of support in predicting the mental health of an individual who holds a GSM identity (Ryan et al., 2010). In fact, youth who have support from their immediate family have
higher rates of self-acceptance and general health status (Ryan et al., 2010). For transgender individuals, strong family support shows decreases in mental health disorders (Ryan et al., 2010). Conversely, when an individual experiences family rejection, rates of suicide attempts increase (Klein & Golub, 2016). However, very little is known about how family support influences patient perception of medical health professional’s comfort with GSM identities.

In addition to family support, the LGBT community is generally a supportive place for GSMs, and it provides an environment in which individuals can find appropriate peer to peer recommendations for health professionals. Further, feeling connected to an LGBT community allows individuals to meet those with similar life experiences which has an influence on their mental health. Indeed, feeling connected to the LGBT community can provide an affirming environment which, in turn, can lead to more positive self-regard (Meyer, 2003). For example, while high rates of depression and anxiety have been reported by transgender persons, support from other transgender people moderated the association between various predictors and these negative mental health outcomes (Bockting et al., 2013). Thus, community connectedness has been shown to have an influence on mental health and should be considered in any investigation of GSMs.

**Confounding Factors**

There are a host of factors that may confound the associations among variables including age and age of coming out to self. One must consider age when investigating this population as the coming out and identity process is unique for various individuals at different developmental periods. Indeed, age has been shown to be positively associated with both physical and mental health in the LGBT community in that older adults have more adverse physical and mental health outcomes (Fredriksen-Goldsen, Kim, Shiu, Goldsen, & Emlet, 2015).
There is literature describing differences experienced in mental health by different identities within the broader United States population. For example, women are more likely than men to develop mental health symptoms such as depression and anxiety (Eaton et al., 2012) and most racial/ethnic minorities show about the same or fewer mental health disorders than their white peers (American Psychiatric Association, 2017). Further, people who are bisexual experienced heightened mental health symptoms than their GSM peers (Persson & Pfau, 2015). And, while the field of GSM POC health is growing, few studies examine the effect of intersecting identities of race, gender and sexual orientation. It is, therefore, imperative that these associations are investigated further by considering intersections of race, gender and sexual orientation such as monosexual Black men or plurisexual Latinas.

**The Current Study**

The purpose of this study is to understand the influence of three proximal factors on the physical health and mental health of GSMs paying particular attention to the role that their medical-professional plays in these associations. In addition, based on GSLC theory, I explored how the relationships may vary based on the individuals’ intersecting identities of race, gender, and sexual orientation. Four hypotheses were proposed for this study of GSMs:

H1. Greater family support and community connectedness would be associated positively with physical and mental health;

H2. Higher levels of perceived comfort of medical professionals would be positively associated with physical and mental health;

H3. The associations between mental and physical health and the independent variables - family support and community connectedness - would be partially mediated through perceived medical-professional comfort; and
H4. Associations between these variables would be influenced by racial, sexual orientation, and gender group membership as well as the intersections between these identities.

**Participants**

Data come from the Social Justice Sexuality Project. Collected in 2010, this project aims to investigate experiences of LGBTQ people of color in the United States (Battle, Pastrana, & Daniels, 2012). The original sample consisted of over 5,000 respondents who are majority POC and LGBT+ identified from all 50 states including Washington, DC and Puerto Rico. The data consists of individuals of a variety of ages, racial/ethnic identities, sexual orientations and gender identities. The project used venue-based sampling at strategic events such as Pride events, snowball sampling, respondent-driven sampling, and the internet.

Because this study aims to illuminate experiences of gender and/or sexual minorities, individuals who identify as both cisgender and straight or heterosexual are excluded from the analysis. Due to small representation in the sample, some of the sexual orientation identities were collapsed into a non-gender binary category. These categories included two spirit, in the life, and macha/o. While historically, two spirit has been used to identify someone who has both masculine and feminine “spirits” within them (Anguksuar, 1997), it is used currently as a term indicating diverse sexual and gender identities especially among First Nation (Balsam, Molina, Beadnell, Simoni, & Walters, 2011). This resulted in a final sample of 3,150 GSMs. The sample ranges in age between 18 and 60 years (M = 34.87) with a median income between $20,000 and $29,000.

**Measures**

**Dependent Variables**

*Physical Health* was assessed using a self-assessment of physical health in which the individuals responded from *poor* (1) to *excellent* (5) to “In general, would you say that your
**health is…**”. This item is the General Health Rating from the 12-item Short form of the Medical Outcomes Survey (Ware, Kosinski, & Keller, 1996). The General Health Rating has been shown to be a valid and reliable predictor of mortality (Idler & Benyamini, 1997) and is therefore a robust and succinct measure. Higher scores reported on this item indicated better physical health.

**Mental Health** was measured using a manifest variable. The averaged composite score of four items from the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was utilized to create this measure. This includes responses to “Over the past week, how often have you felt: that you were just as good as other people”, “…hopeful about the future”, “…happy”, and “…that you enjoyed life.” Each response ranged from never (1) to most of the time (4). Cronbach’s alpha for the scale was .86 and high scores indicate good mental health.

**Predictors**

**Family support** was represented by a manifest variable and created using one item from the original survey: “as a LGBT person, how much do you now feel supported by your family?” This included six options for participants to record their level of support from not supported at all (1) to completely supported (6). For this measure, higher scores reflect more family support, and lower scores reflect less family support. If an individual reported that their family did not know that they were LGBT, they were excluded from the analysis.

**LGBT Community Connectedness** was created by combining a three-item scale in which respondents were asked to rate their level of agreement with the following statements: “I feel connected to my local LGBT community”; “I feel that the problems faced by the LGBT community are also my problems”; and “I feel a bond with other LGBT people.” Items were rated on a six-point Likert scale from Strongly disagree (1) to Strongly agree (6). Scores from each item were averaged to create a composite score for LGBT Community Connectedness (α = .78).
Perceived Medical Professional Comfort was measured using answers to the question “Thinking about the last medical professional you saw, do you feel that s/he...?”. Responses provided were “seemed comfortable with your sexual identity”, “seemed uncomfortable with your sexual identity”, “seemed to ignore your sexual identity”, and “did not know your sexuality”. These categories are not necessarily mutually exclusive; an individual may think that their medical professional was both comfortable with their sexual identity but also did not know their sexuality. Therefore, this variable was coded such that responses to “seemed comfortable with your sexual identity” was coded as one (1) with all other responses coded as zero (0) to capture the perceptions of the individual.

Covariates

Age was calculated using the birth dates reported on the survey to reflect age in 2010 when the study was conducted. Each participant provided the age of orientation awareness, or, the age at which they came out to themselves or knew they were “not straight.” Finally, income was ascertained using individual responses to the question, “Including all income sources, what do you estimate was your total household income last year?” Respondents recorded their income on a scale ranging from 1 (less than $8,500) to 12 ($100,000 and over).

Intersectionality

To identify gender, individuals were asked “What is your current gender identity (check all that apply)” options provided include “male”, “female”, “transgender (male to female)”, “transgender (female to male)”, and “other.” Because of sample size and to maintain power in our analyses, when including this variable as a control, the variable was dummy coded such that the groups included male, female, and gender minority (transgender, other gender, and multiple identities was collapsed into one category). Individuals were also asked to identify which racial group(s) came closest to the way they identified. Options provided included “Black,” “Hispanic
or Latino/a”, “Asian or Pacific Islander”, “Native American”, “White”, “Multiracial” and “Other.” Because of the limited sample in various groups, the final model includes Black, Hispanic or Latino/a, Multiracial, and Other as controls. These groups were dummy coded. To assess sexual orientation individuals were provided the following options from which to select the label that came closest to how they identified: gay, lesbian, bisexual, two spirit, queer, in the life, same gender loving, straight/heterosexual, macha/o, activa/o, pasiva/o, and other. Given the nature of how sexual orientation is categorized, there is some overlap between gender and sexual orientation such that gender often determines how sexual orientation is categorized (Bohan, 1996). Due to sample size, and to negate the overlapping nature of gender and sexual orientation participant responses were collapsed into monosexual (i.e., gay, lesbian, same gender loving, straight/heterosexual) and plurisexual (i.e., bisexual, two spirit, queer). This decision is appropriate given the differences in mental and physical health of bisexual GSMs and people who have sexual experiences with both genders compared to their monosexual (i.e., gay and lesbian) peers (Cochran et al., 2016; Dyar et al., 2019; Persson & Pfaus, 2015).

**Analytic Plan**

Basic descriptive analyses and correlations among study variables were conducted to develop an understanding of basic trends in SPSS version 21. Next, I conducted correlation analyses to ensure that each of the variables in this model are associated without causing issues of collinearity. Next, path analysis modeling was employed using Mplus Version 7 software (Muthén & Muthén, 2012). Full Information Maximum Likelihood (FIML) estimation was utilized to handle missing data. Using this method for model estimation produces the most accurate results because FIML limits bias by using estimations based on all of the available data (Newsom, 2015) rather than deleting cases that contain missing data (Duncan, Duncan, & Strycker, 2013). It should be noted, while causality and directionality cannot be obtained with
cross-sectional data, given the dearth of research on this process, the cross-sectional data provide initial associations to expand upon in future, longitudinal research.

The model was tested in multiple ways. First, a direct path model was employed testing the associations between family support and physical and mental health as well as community connectedness and mental health. The path between community connectedness and physical health was not included in the model. Correlation analyses as well as a thorough review of the literature support this decision. Second, Comfort of Medical Professional was added to the model, and indirect effects of family support and community connectedness through comfort of medical professional was examined. Models were tested with covariates included as well as without the covariates included. Following this step, the analysis was moderated by race, gender, and sexual orientation. This was done by multiple-group analyses in Mplus.

The final step in the process, to enhance our understanding of intersecting identities and within group differences among gender and sexual minorities, was to conduct a multiple group analysis of various groups of individuals with common intersecting identities. To test the influence of intersectionality, after testing a baseline model of all the variables, I moderated by individual group identities. These groups include gender (male, female, gender non-conforming), race (Black, White, multiracial, Latina/o, other), and sexual orientation (monosexual, plurisexual). Second, moderation analyses were conducted by intersecting identities. Due to the interconnectedness of gender identity and sexual orientation (i.e., gender determines many of the categorizations of sexual orientation such that a categorization as “lesbian” typically depends on the participant identifying as a woman; Bohan, 1996). Instead, sexual orientation and ethnicity were used to categorize individuals based on their unique intersecting identity such that
individuals who were monosexual and Black would be in one group while individuals who were plurisexual and Latinx would be in a second group. The groups included in this multiple group analysis are found in Table 2.

**Results**

Basic descriptive and zero order correlations among the study constructs are shown in Tables 2 and 3, respectively. Associations demonstrated therein were consistent with theoretical predictions. Specifically, mental health was positively and significantly correlated with all other study variables: physical health ($r=.32, p≤.001$), comfort ($r=.13, p≤.001$), family support ($r=.21, p≤.001$), and community connectedness ($r=.13, p≤.001$). Physical health was correlated with comfort ($r=.08, p≤.001$) and family support ($r=.09, p≤.001$) but not community connectedness. These correlations partially supported H1 and fully supported H2 at the bivariate level; indicating testing the path model in Mplus, as described above, was justified.

The initial path model shown in Figure 1, fit the data well ($x^2(1)=1.85, p=.17$, RMSEA = 0.02, CFI=1, TLI=0.97, SRMR = 0.002). Standardized coefficients are reported. Physical health remained positively associated with family support ($\beta=0.07, p≤.001$) and perceived medical practitioner comfort ($\beta=0.06, p≤.001$). Additionally, mental health was positively associated with family support ($\beta=0.17, p≤.001$), community connectedness ($\beta=0.11, p≤.001$), and medical practitioner comfort ($\beta=0.07, p≤.001$). Finally, medical practitioner comfort was positively associated with family support and connectedness ($\beta=0.16, p≤.001$ and $\beta=0.04, p≤.05$), respectively.

**Indirect Effects**

The hypothesis (H3) that the perception of medical professional comfort would partially mediate the association between family support and connectedness to physical and mental health was supported. First, family support was indirectly associated with physical health through
perceived medical professional comfort ($\beta=0.12, p \leq 0.01$) indicating that a small portion of the association between family support and physical health can be explained through medical practitioner comfort. Both family support and community connectedness were indirectly associated with mental health through perceived medical profession comfort ($\beta=0.02, p \leq 0.01$ and $\beta=0.11, p \leq 0.05$, respectively) illustrating the mediational effect of perceived medical practitioner comfort in explaining a very small portion of the association between mental health and both community connectedness and family support. The direct effects between these variables remained significant. Indeed, the unique, direct association between family support and physical health was significant ($\beta=0.08, p \leq 0.01$) as were the direct associations between family support and connectedness with mental health ($\beta=0.18, p \leq 0.01, \beta=0.11, p \leq 0.01$, respectively).

Given the cross-sectional nature of the data and the minimal mediation effect of medical practitioner, a model was tested with medical practitioner comfort as a predictor variable along with family support and community connectedness. This model indicated a slightly better fit to the data ($x^2(1)=1.67, p=.96$, RMSEA = 0.02, CFI=1, TLI=0.98, SRMR = 0.002); see Figure 2. Family support and perceived medical professional comfort were significantly associated with both physical health and mental health, after controlling for age, income, age out to self, sexual orientation, gender, and race. In addition, community connectedness was significantly, positively associated with mental health. Beyond these variables, various other factors are significant in understanding the physical and mental health needs of this population.

Specifically, age was negatively associated with physical health such that older individuals had poorer physical health ($\beta=-.15, p \leq 0.01$). Income, and age of coming out to self were both significantly, positively associated with physical health ($\beta=.16, p \leq 0.001; \beta=.07, p \leq 0.01$) such that individuals with greater income, and older age of coming out to self also had better
physical health. Compared to white, monosexual men, being female or non-gender binary was negatively associated with physical health ($\beta=-.12$, $p \leq .001$; $\beta=-.08$, $p \leq .001$). Further, Latinx individuals had better physical health ($\beta=.05$, $p \leq .05$) while all other ethnicities showed no significant difference. With regard to mental health, income ($\beta=.11$, $p \leq .05$), and age of coming out to self ($\beta=.04$, $p \leq .05$) were positively associated. Compared to their monosexual, white, male counterparts, non-gender binary individuals had lower mental health ($\beta=-.05$, $p \leq .01$) while black ($\beta=.08$, $p \leq .001$), Latinx ($\beta=.09$, $p \leq .001$), and multiracial ($\beta=.04$, $p \leq .05$) individuals reported better mental health. Sexual orientation was not associated with either physical or mental health.

**Moderation Analyses**

Moderation by sexual orientation, gender, and race was conducted. Each moderation model estimated with the paths unconstrained followed by constraining the paths to equality across sexual orientation, gender, and race. First, moderation by sexual orientation was conducted. The model was freely estimated followed by testing for equality across sexual orientation groups. Two groups were tested, plurisexual (N=755) and monosexual (N=2395). The hypothesis that sexual orientation would moderate the associations between the variables was not supported ($\Delta \chi^2(11)=17.73$, $p=.09$).

Next, a moderation by race analysis was conducted. As before, the model was initially tested allowing for free estimates across groups and then constrained to equality. Five groups were tested, Black (N=1067), Latino/a (N=478), White (N=715), Multiracial (N=440), and Other (N=450). The hypothesis that race would moderate the associations between variables was not supported ($\Delta \chi^2(44)=56.04$, $p=.11$).

Finally, a moderation analysis by gender was conducted. Three groups were analyzed, male (N=1600), female (N=1384) and non-gender binary (N=186). Moderation by gender was supported ($\Delta \chi^2(22)=45.59$, $p=0.00$) such that the paths and associations between study variables
differed significantly for male, female, and non-gender binary individuals. Group size can bias results of a multiple group analysis toward the group with the largest sample size (e.g., men). Thus, it is advisable to create random samples of each group categorizations to conduct multiple group analyses (Kenny, 2011). Based on this suggestion and the vastly different sample sizes between genders, three groups of equal sample size (each N=180) were created and the test was conducted a second time. After this second analysis, the difference test did not remain significant ($\Delta \chi^2(22)=32.22, p=0.07$).

**Intersectional Analysis**

Gender and sexual orientation are interconnected (i.e., gender determines many of the categorizations of sexual orientation; Bohan, 1996). Thus, it is difficult to create unique, equal comparison groups by gender, sexual orientation, and race/ethnicity. Therefore, further analyses on intersecting identities investigated only the differences in the associations between the study variables by intersection of race and sexual orientation. Table 2 outlines the group memberships for this analysis. Initial analyses indicated that differences based on group membership by the intersection of sexual orientation and race was statistically significant ($\Delta \chi^2(15)=59.25, p=.01$). As above, group size can bias results of a multiple group analysis toward the group with the largest sample size, in this case, monosexual and Black individuals. Thus, random samples of each group categorizations were used to conduct multiple group analyses (Kenny, 2011) a second time. Thus, a random sample, as shown in table 4, of individuals from each of these categories (N=110) was selected. Based on this new sample comprised of groups equal in number, analyses were conducted a second time to ensure these differences were not based on sample size alone as suggested by Kenny (2011). Group differences were no longer supported ($\Delta \chi^2(45)=49.41, p=.30$).
Discussion

The purpose of this study was to provide an analysis of the influence of medical family support, community connectedness, and medical practitioner comfort on the physical and mental health of GSMs. Particularly, this study enhanced literature on GSM health by considering the influence of perceived comfort of a medical professional in the associations with physical and mental health. Results indicate a significant association between physical and mental health with family support and medical practitioner comfort. Testing the association between community connectedness and physical health was not supported by the literature (Shilo & Mor, 2014) nor correlation analysis. However, community connectedness was shown to be associated with mental health.

This study provides further evidence to the well-established connection between health and family support among GSMs (Bockting et al., 2013; McConnell et al., 2016; Ryan et al., 2010). Additionally, the results of this study connect family support with perception of medical professional comfort. While there is very little research on the latter, McConnell, Birkett, and Mustanski (2015) found that individuals with high family support also perceived high support in other social domains. While not a domain considered in their research, it stands to reason that, given high support from the family, the perception of social support could extend into the medical practitioner domain. Thus, family support is associated with perception of medical practitioner comfort which is then associated with mental and physical health. This finding is very small and therefore should be interpreted and generalized with future considerations of other factors that may provide more insight into the association between family support and physical health.

Further, results of this study show that community connectedness is associated with mental health. This finding is in line with previous research by Meyer (2003) and Bockting et al.
(2013) indicating that connecting to the broader LGBT community has positive effects on mental health such that a deeper or greater connection to the LGBT community may, itself, influence positive well-being. In addition to the positive feeling of connection and group identity development, the networks developed within these communities may aid in providing resources to connect to supportive LGBT medical practitioners.

Finally, differences based on ethnicity, gender, and sexual orientation were not supported through these analyses. As mentioned above, the associations between family support and both physical and mental health have been well established across studies and contexts and continues to have the strongest influence on mental health (Ryan et al., 2010) as indicated in this study. Given the strength of this association across contexts, it is understandable that no differences would be found based on ethnicity, gender, or sexual orientation.

Implications

The results of this study have implications for the Gendered Sexuality over the Life Course Model. Considering the elements of transitions, turning points, and physiological processes the age at which individuals came out to themselves or realized they were “not straight” was positively associated with mental and physical health indicating that an older age of realizing one was a gender or sexual minority would imply greater physical and mental health. There can be a few explanations for this finding. These results also show that older individuals showed better physical health and that age was not associated with mental health. Individuals in this study were between the ages of 18 and 60 and data was collected at Pride events. Thus, these individuals would not be representative of the general population between those ages. Additionally, given the wide range of ages included, there may be unidentified cohort affects which may, in future research, illuminate different associations between age, age of coming out to self, and health. These individuals are exercising agency in being involved in their LGBT
community which is shown to have a positive influence on their mental health. According to the GSLC, this would be an example of identity agency in that they are connecting to an aspect of their identity which in turn, positively influences their health.

These findings in this study illustrate a positive association between perceived medical practitioner comfort and both physical and mental health. This supports previous research which found that the behavior of a medical professional in an appointment with someone who holds a gender or sexual minority identity has an influence on various physical health outcomes such as blood pressure (Kelley et al., 2014). Thus, professionals in the medical field should be trained on cultural competencies respecting GSMs as suggested by Hutchinson, Thompson and Cederbaum (2006).

Further, our study found no differences based on intersecting identities within this sample. However, extant literature has documented intersectional differences across various identities and constructs. Further theoretical models continue to indicate that between group differences in processes across the life course exists based on intersecting identities. Thus, future research is necessary to continue to develop theoretical models and our understanding of the nuances of intersecting identities. In our intersectional analysis here, initial results indicated differences between groups, however, after holding the sample size equal across groups, these results no longer held. Therefore, this body of work may benefit form purposeful sampling of intersecting identities to ensure group sizes that provide enough power to make substantive comparisons across groups. In line with this goal, further development of non-cisnormative, comprehensive, and mutually exclusive ways to categorize gender enhances the rigor of research in this area and is a necessary next step in this field.
Limitations

While this study provided valuable new insights on physical and mental health of people who identify as gender or sexual minorities, it is not without limitations. First, while this is one of the largest data-sets available including a large number of LGBT POC, it is not a representative sample thus limiting its generalizability. Further, the data collected are cross-sectional and therefore causal pathways cannot be determined. The different conceptualizations of gender, sexuality, and race may not encompass the full range of identities within this population. While global measures of physical health have been shown to be valid, discrepant findings related to associations between physical health and other variables may be attributed to the vast array of possible “physical health” outcomes. Thus, future research may incorporate specific markers of physical health to deepen the understanding of physical health in this population.

Conclusion

In conclusion, this study provides valuable insights into the various factors influencing mental and physical health of GSMs including an often-overlooked aspect of support – perceived medical professional comfort. Greater family support, community connectedness and perception of medical practitioner comfort are associated with mental health indicating the importance of these factors in the well-being of GSMs. Further, family support and medical practitioner comfort are also positively associated with physical health. These findings provide additional support for the importance of family support and community connectedness as it relates to GSM health. Differences in the connections between these variables were not supported by sexual orientation, ethnicity or the intersection of these identities. However, these associations did differ
by gender including non-gender binary individuals. This research was beneficial in providing insight to possible trainings or outreach efforts for medical professionals in treating GSMs to increase the patient perceived comfort of the medical professional and thus their physical and mental health.

References


Notes: These estimates were obtained while controlling for age, income, age out to self, sexual orientation, gender, and race. Standardized coefficients reported. $X^2(1)=1.850$, $p=0.1738$; RMSEA=0.016; CFI=0.999; TLI=0.969; SRMR=0.002. $***p \leq 0.001$, $**p \leq 0.01$, $*p \leq 0.05$.

Figure 3.1. Initial Model
Notes: These estimates were obtained by also controlling for age, income, age out to self, sexual orientation, gender, and race. Standardized coefficients reported. $\chi^2(1) = 1.67, p = 0.96$; RMSEA = 0.015; CFI = 1; TLI = 0.98; SRMR = 0.00. *** $p \leq 0.001$

Figure 3.2. Modified Model
<table>
<thead>
<tr>
<th>Element</th>
<th>Definition</th>
<th>Aspect of this Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life-Span Development</td>
<td>Human development is a lifelong process where later life events and processes are linked to earlier years.</td>
<td>Age of coming out to self and influence on physical and mental health. Age of the participant.</td>
</tr>
<tr>
<td>Agency</td>
<td>An individual has the ability to construct their own life course through the actions and choices they take within historical and social constraints.</td>
<td>Data were collected in 2010 prior to marriage equality bill being passed.</td>
</tr>
<tr>
<td>Time and Place</td>
<td>An individual’s life course is affected by the historical times they experience throughout their life.</td>
<td></td>
</tr>
<tr>
<td>Timing</td>
<td>Consequences of a life transition or event vary based on the timing in which they occur.</td>
<td></td>
</tr>
<tr>
<td>Linked lives</td>
<td>Lives are interdependent and experiences over the life course are influenced by an individual’s network of relationships.</td>
<td>LGBT community connectedness and the influence on physical and mental health. Influence of family support and perceived medical practitioner comfort on physical and mental health.</td>
</tr>
</tbody>
</table>
Table 3.2. Descriptives of the Variables used in Analysis (N=3150)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjective Health</td>
<td>3.65</td>
<td>(.93)</td>
<td>1-5</td>
</tr>
<tr>
<td>Mental Health</td>
<td>3.26</td>
<td>(.72)</td>
<td>1-4</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Support</td>
<td>4.38</td>
<td>(1.64)</td>
<td>1-6</td>
</tr>
<tr>
<td>Community</td>
<td>4.18</td>
<td>(1.25)</td>
<td>1-6</td>
</tr>
<tr>
<td>Connectedness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived MP Comfort</td>
<td>0.59</td>
<td>(0.49)</td>
<td>0-1</td>
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<tr>
<td><strong>Grouping Variables</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>1067</td>
<td>33.9%</td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latina/o</td>
<td>478</td>
<td>15.2%</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>715</td>
<td>22.7%</td>
<td></td>
</tr>
<tr>
<td>Multiracial</td>
<td>440</td>
<td>14.0%</td>
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</tr>
<tr>
<td>Other</td>
<td>450</td>
<td>14.3%</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>3150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1600</td>
<td>50.8%</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>1384</td>
<td>43.9%</td>
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<tr>
<td>Non-Gender Binary</td>
<td>186</td>
<td>0.06%</td>
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<tr>
<td>Sexual Orientation</td>
<td>3150</td>
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<tr>
<td>Monosexual</td>
<td>2385</td>
<td>75.7%</td>
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</tr>
<tr>
<td>Plurisexual</td>
<td>765</td>
<td>24.3%</td>
<td></td>
</tr>
<tr>
<td><strong>Control Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>34.87</td>
<td>(11.35)</td>
<td>18-60</td>
</tr>
<tr>
<td>Income</td>
<td>7.83</td>
<td>(3.43)</td>
<td>1-12</td>
</tr>
<tr>
<td>Age out to Self</td>
<td>16.18</td>
<td>(6.97)</td>
<td>0-54</td>
</tr>
</tbody>
</table>
Table 3.3. Correlations among Study Variables (N=3150)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Subjective Health</td>
<td>1</td>
<td>.322***</td>
<td>.075***</td>
<td>.089***</td>
</tr>
<tr>
<td>2.</td>
<td>Mental Health</td>
<td></td>
<td>1</td>
<td>.132***</td>
<td>.212***</td>
</tr>
<tr>
<td>3.</td>
<td>Comfort</td>
<td></td>
<td></td>
<td>1</td>
<td>.205***</td>
</tr>
<tr>
<td>4.</td>
<td>Family Support</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Connectedness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: ***p ≤ .001

Table 3.4. Group Membership by Sexual Orientation and Racial Intersections

<table>
<thead>
<tr>
<th></th>
<th>Monosexual</th>
<th>Plurisexual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial</td>
<td>Equal</td>
</tr>
<tr>
<td>Black</td>
<td>965</td>
<td>110</td>
</tr>
<tr>
<td>Latinx</td>
<td>429</td>
<td>110</td>
</tr>
<tr>
<td>White</td>
<td>588</td>
<td>110</td>
</tr>
<tr>
<td>Multiracial</td>
<td>338</td>
<td>110</td>
</tr>
</tbody>
</table>
CHAPTER 4. GENERAL DISCUSSION

The purpose of this dissertation was to broaden our understanding of sexual health. Sexual health is defined by the World Health Organization (WHO) as the “…state of physical emotional, mental and social well-being in relation to human sexuality.” (Centers for Disease Control and Prevention, 2017). The studies herein investigated sexual health broadly as well as focused on the core area of LGBT health – guided by Gendered Sexuality over the Life Course (GSLC). First, chapter two focused on the context at sexual debut, specifically if an adolescent’s sexual debut occurred in a hook-up scenario and how this influenced risky sexual behavior in emerging adulthood in a low-income, urban sample. The second study investigated the unique contributions of various factors (such as patient perceived medical professional comfort, family support, and LGBT community connectedness) on physical and mental health of gender and sexual minorities (GSMs)

In paper one, initial bivariate analyses indicated that hooking up in adolescent predicted risky sexual behavior (operationalized as number of sexual partners, frequency of sex, and frequency of unprotected sex) in emerging adulthood. This association was consistent in initial multi-variate analyses controlling for various other factors such as family financial need, age, age at sexual debut, gender and race. Finally, however, after considering advantages such as mother/child relationship quality and parental monitoring and disadvantages such as delinquency and mental health symptoms, mother/child relationship quality and parental monitoring in adolescence had a much stronger affect in predicting risky sexual behavior in emerging adulthood than relationship status at sexual debut.

Findings from paper two indicate that family support, community connectedness, and patient perceived comfort of medical practitioner are all associated with mental health. The
association between family support and community connectedness was partially mediated by patient perceived medical practitioner comfort with GSM identities. It was also found that family support and perceived comfort of medical practitioner was associated with physical health. The association between family support and physical health was also partially mediated through perceived comfort of medical practitioner. Despite my hypotheses, these paths did not vary based on gender, sexual orientation, race, not any intersection of race and sexual orientation.

**Theoretical Implications**

Taken together, these studies provide a broader understanding of sexual health and the processes through which health is achieved. As shown in Table 4.1, guided by Life Course Theory, these two studies, addressed each element to consider when utilizing this theory. Further, in addition to the Life Course Theory proposed by Elder (1994), most of the elements included in the GSLC framework are also included in this study. These elements include transitions, turning points, cumulative (dis)advantages, agency, physiological processes, intersections among trajectories, doing gender and sexual identity, sexual scripts, historical contexts and gender, and other aspects of social identity (Carpenter, 2010). This dissertation addresses all elements within the study design and analysis except intersections among trajectories and historical context and generation.

First transitions and turning points are addressed. Included in both studies was information on important life events in a participant’s life, namely age of coming out (paper two) and context/age of sexual debut (paper one). Both of these events, or transitions are times in which the decision to engage in sex for the first time, or confronting a GSM identity with self-acceptance, are transitions that have an impact on other areas of their lives. Because of the longitudinal design of paper one, hooking up at sexual debut can be seen in bivariate and initial multi-variate results as a turning point which affects the sexual trajectory of the participant such
that individuals who hooked up at the first sexual encounter had higher rates of risky sexual behavior in adolescents. However, these results differed when including other contextual factors.

Specifically, another important aspect to consider when employing the GSLC model is cumulative advantages and/or disadvantages. Thus, in paper one, I also considered the effect of disadvantages (e.g., poor mental health and engagement with delinquent behaviors) and advantages (e.g., mother/child relationships quality and parental monitoring). When including these factors, mother/child relationship quality and parental monitoring in adolescence had a much stronger impact on risky sexual behavior in emerging adulthood supporting the notion that cumulative advantages early in the life course have a lasting impact on sexual trajectories. However, this study does very little to investigate the cumulative advantages or disadvantages and how many advantageous or disadvantageous transitions are necessary to influence a negative or positive trajectory change. Future studies may investigate possible cut offs for these factors in influencing the sexual trajectory and decreasing or increasing risky sexual behavior in emerging adulthood or further across the life course.

Next, agency, or control cycle (Elder, 1998) in GSLC and Life Course theory is the idea that individuals take action to effect and develop one’s self. This is exemplified in both studies. First, in study one, only those who had consensual sexual intercourse are included in the study thus ensuring each of the individuals had exercised agency in that transition. Therefore, these findings apply specifically to individuals who did take agency in that aspect of their sexual trajectory. Second, in study two, LGBT community connectedness was shown to be an influential factor with regard to mental health. This is an area in which GMS can enact agency by creating social support networks through the community. Indeed, all of the data for study two was collected at GSM friendly and/or focused events such as Pride parades.
Next, physiological processes, which refer to the physiological changes that occur based on movement through the life course (Carpenter, 2010) is considered in paper three by including age as a covariate. This allows interpretation of results without conflating any associations with, specifically physical health, that could be caused by physiological changes due simply to aging. In this study, age was negatively associated with physical thus supporting the inclusion of age in GSLC framework.

Doing gender and sexuality and sexual scripts are two interconnected aspect of the GSLC framework. Doing gender and sexuality refers to the ways in which an individual enacts their gender or sexuality (Carpenter, 2010). And sexual scripts refer to developed expectations and norms surrounding sexuality and sexual behavior. The influence of gender and sexuality were considered through inclusion as a confounding variable in study one and a moderating variable in study two. Women and nongender binary (NGB) individuals in the first study were found to have poorer physical health than their male counterparts and NGB individuals were found to have poor mental health than their male counterparts. However, moderation by gender was not supported. In study one, gender was also shown to be nonsignificant in the association with risky sexual behavior. While these analyses show varying gender differences in the influence of gender on the outcome variables at the bivariate level, further analyses are necessary to consider the underlying cause of the significant associations. Specifically, whether or not these associations are in fact due to the agency of the participant enacting their gender or sexuality roles in an effort to adhere to sexual scripts.

Finally, other aspects of social identity are illustrated in paper two through the use of intersectional multiple group analysis to illuminate the ways in which intersections of race and sexual orientation influence health trajectories. Intersectional difference in these processes was
not supported. While this is an integral aspect of GSLC, based on results in study two, intersecting identities do not influence paths in the health trajectory. However, this could be due to the ways in which I classify gender and sexual orientation. Specifically, gender and sexual orientation are interconnected in that gender determines many of the social categorizations that are used in the United States to classify sexual orientation (i.e., generally only women are lesbians; Bohan, 1996). Future research should consider different ways to categorize gender and sexual orientation to address this measurement issue. One such way was employed in this study. Specifically, rather than comparing across many different sexual orientations categorizations that are influenced by gender, our categories included monosexual and plurisexual. Monosexual includes individuals who identify with a sexual orientation categorization that typically is only attracted to one gender (i.e., only attracted to women or, only attracted to men). Alternatively, plurisexual includes individuals who are attracted to more than one individual (i.e., attracted to both men and women and/or other genders). This is largely a methodological flaw that has been addressed throughout the history of sex research. Starting with Kinsey identifying a way to heterosexual and homosexual desires (Kinsey, Pomeroy, & Martin, 1948) to Klein’s sexual orientation grid recognizing different behavioral indicators (i.e., feelings of love, sexual attraction) beyond sexual behavior (Klein, Sepekoff, & Wolf, 1985) and more recently Sexual Configurations Theory (van Anders, 2015). These new theories and conceptualizations of gender and sexuality continue to adapt as the populations classifications of gender and sexuality continue to broaden.

**Practice Implications**

Parent and family support were important factors in influencing health in both of these studies. Parent education providers can use this research to cater curriculum for parents. Specifically, parents whose children are sexually active may benefit from curriculum designed to
help them in enhancing their relationship quality with their child as well as resources to appropriate parental monitoring. In families with GSM youth, emphasizing how important family support is to the health and well-being of their child and providing resources that speak directly to these parents addressing how to accurately and appropriately support their child would be helpful in decreasing mental and physical health problems among this population. Given the continued empirical support of the importance of family support in the physical and mental health of GSMs, it may be beneficial to include resources for parents of LGBT children in general education parenting classes. Further, given the association between patient perceived medical professional comfort with GSM identities and mental and physical health training modules on the unique health needs of GSMs might increase the experienced comfort of medical practitioners. Further, trainings and resources addressing not only the importance of practitioner comfort but also appropriate ways to convey this comfort may be beneficial. LGBT community connectedness was also associated with mental health. Leaders in these communities can use this information to use their role in these communities to provide resources further influencing mental health also work on outreach to GSMs who might not otherwise organically connect to an LGBT community.

Limitations and Future Directions

While this dissertation provides valuable insight on the sexual health underrepresented populations, it is not without limitations. First, the cross-sectional nature of study one is limiting in making causal assumptions based on the results. Second, while longitudinal, paper two included a very limited sample size which reduces the broad generalizability of the results. However, despite the small sample size, the specific inclusion criteria allow for a more accurate generalization to specific populations. In relation to the limited sample size, there was not enough representation in certain groups to make worthwhile comparisons across identities and
intersections of these identities as suggested in GLSC (Carpenter, 2010). Future studies should oversample for underrepresented groups within LGBT populations, such as those identifying as asexual - a group not represented in our study. Additionally, future studies should employ the GSLC model in designing data collection methods so as to include all of the aspects into one study.

Given the importance of timing and time and place in Life Course Theory (Elder, 1994; Elder, Johnson, Crosnoe, 2003) these factors should be looked at over time investigating the differential impact on outcome variables based on cohorts or generations. For example, while we have a deeper understanding of these associations among GSMs prior to federal marriage equality and low income, urban families shortly after welfare reform, because we did not assess different cohorts in the same study, our understanding of how these historical timepoints affect these groups in comparison to others is limited.

This research included individuals in all ages and stages of life. Considering this research on physical and mental health of GSMs, it may be beneficial to parcel out the differential influence of family support, community connectedness, and medical practitioner comfort based on age or cohort. Further, considering risky sexual behavior across the life course, while this study investigates the influence of factors in adolescence on risky sexual behavior in emerging adulthood, future research may investigate longer term influences by extending research into adulthood or later stages of life.

Conclusion

Taken together, these studies provide valuable insight into influences of sexual health in various life stages. Paper one indicated efforts to reduce risky sexual behavior in emerging adulthood might benefit from educating adolescents on the importance of their relationship with their first sexual partner but, more importantly, should focus on the mother/child relationship and
appropriate parental monitoring. Paper two illustrated the importance of patient perceived medical comfort and family support in developing positive physical and mental health among GSMs. Additionally, paper two elucidated the link between LGBT community connectedness positive mental health. Parents, educators, LGBT community leaders, and medical practitioners can use this information to ensure GSM youth, adolescents, and adults get the care and support that has been shown to be beneficial in promoting healthy sexual behavior and both physical and mental health.

References


Table 4.1 Elements of the GSLC Considered in this Dissertation

<table>
<thead>
<tr>
<th>Element</th>
<th>Definition</th>
<th>Chapter 2</th>
<th>Chapter 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life-Span Development</td>
<td>Human development is a lifelong process where later life events and processes are linked to earlier years.</td>
<td>The influence of early events such as hooking up at sexual debut on later life behaviors such as risky sexual behavior.</td>
<td>Age of coming out to self and influence on physical and mental health. Age of the participant.</td>
</tr>
<tr>
<td>Agency</td>
<td>An individual has the ability to construct their own life course through the actions and choices they take within historical and social constraints.</td>
<td>Consensual sexual debut in a relationship or outside of a relationship (i.e., hook up).</td>
<td>Age of coming out to self and influence on physical and mental health.</td>
</tr>
<tr>
<td>Time and Place</td>
<td>An individual’s life course is affected by the historical times they experience throughout their life.</td>
<td>Data were collected from low income families following the welfare reform.</td>
<td>Data were collected in 2010 prior to marriage equality bill being passed.</td>
</tr>
<tr>
<td>Timing</td>
<td>Consequences of a life transition or event vary based on the timing in which they occur.</td>
<td>Considering the impact of age at sexual debut on risky sexual behavior.</td>
<td>Involvement and connection to LGBT communities as measured through LGBT community connectedness and its influence on health.</td>
</tr>
<tr>
<td>Linked Lives</td>
<td>Lives are interdependent and experiences over the life course are influenced by an individual’s network of relationships.</td>
<td>Parental monitoring and mother/child relationship influences on risky sexual behavior.</td>
<td>LGBT community connectedness and the influence on physical and mental health. Influence of family support and perceived medical practitioner comfort on physical and mental health.</td>
</tr>
</tbody>
</table>
APPENDIX. IRB APPROVAL FOR THREE CITY STUDY

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
2400 Lincoln Way, Suite 302
Ames, Iowa 50011
515-294-5666

Date: 08/09/2018
To: Brenda J. Lohman, Ph.D.
From: Office for Responsible Research
Title: Welfare, Children, and Families: A Three-City Study
IRB ID: 03-805
Submission Type: Continuing Review
Review Type: Expedited
Approval Date: 06/07/2018
Date for Continuing Review: 08/05/2019

The project referenced above has received approval from the Institutional Review Board (IRB) at Iowa State University according to the dates shown above. Please refer to the IRB ID number shown above in all correspondence regarding this study.

Based on the information you provided in the IRB application, we have determined this study as being open only for data analysis.

Even though enrollment of subjects has ended, continuing review is required until human subjects are no longer involved and all data are completely de-identified. Check the IRB website for further guidance on continuing review requirements.

To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- Retain signed informed consent documents for 3 years after the close of the study, when documented consent is required.
- Obtain IRB approval prior to implementing any changes to the study. If you wish to re-open enrollment or initiate research-related interaction with subjects, IRB approval must be in place prior to contacting subjects for research.
- Inform the IRB if the Principal Investigator and/or Supervising Investigator end their role or involvement with the project with sufficient time to allow an alternate PI/supervising investigator to assume oversight responsibility. Projects must have an eligible PI to remain open.
- Immediately inform the IRB of (1) all serious and/or unexpected adverse experiences involving risks to subjects or others; and (2) any other unanticipated problems involving risks to subjects or others.
- Stop all human subjects research activity if IRB approval lapses, unless continuation is necessary to prevent harm to research participants. Human subjects research activity can resume once IRB approval is re-established.

IRB 03/2010