

**SOCIALIZATION INFLUENCES ON SEXUAL HEALTH BEHAVIORS AMONG
AFRICAN AMERICAN MEN: UTILIZING AN INTER-GROUP AND
INTRA-GROUP APPROACH TO HEALTH DISPARITIES**

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ABSTRACT

DERRICK DESHUN MATTHEWS: Socialization Influences on Sexual Health Behaviors Among African American Men: Utilizing an Inter-group and Intra-group Approach to Health Disparities
(Under the direction of Dr. Wizdom Powell Hammond, Chair)

The large and persistent racial disparity in HIV and STD infection among men has prompted researchers to identify determinants driving differences in sexual health behaviors. However, the process which men develop sexual health behavior early in life remains an understudied factor in the production of sexual health disparities.

Additionally, the study of African American men's health behaviors is frequently limited by only comparing their experiences to men of other racial groups. This dissertation explores sources of variation in the relationship between health socialization and sexual health behaviors both across and within race.

Manuscript 1 examined racial differences in the effects that peers and fathers have on the age of first sex and condom use during adolescence and young adulthood. Using data from the National Longitudinal Study of Adolescent Health, analyses revealed that peers and fathers influenced the age of first sex. These effects did not differ by race, though African American men became sexually active more quickly than White men. There was no racial difference in rates of condom use, nor did any socialization effects from adolescence carry over to young adulthood.

Manuscript 2 explored variability in condom use among African American men using data from the African American Men's Health and Social Life Study. A latent

class approach was employed to explore the joint effects of racial and masculine identity on condom use. Analysis yielded four distinct classes of racial and masculine identity, though these profiles did not explain variability in condom use. However, early life paternal sexual health socialization was positively associated with condom behavior.

These findings suggest that those agents who shape the development of sexual health behavior, particularly fathers, play an important role in delaying sexual initiation and possibly condom use. Based on results, interventions should work with fathers to leverage their existing influence, and foster additional opportunities for father-son communication about sexual health. The large racial difference in the timing of sexual initiation, coupled with the lack of racial difference in condom use, suggests that additional research is needed into structural factors driving the racial disparity in HIV and STD infection among men.

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LIST OF ABBREVIATIONS

AAMHSL	African American Men's Health and Social Life Study
AIDS	Acquired Immunodeficiency Syndrome
HIV	Human Immunodeficiency Virus
LCA	Latent Class Analysis
MSM	Men who have sex with men
STD	Sexually transmitted disease
STI	Sexually transmitted infection

CHAPTER 1: INTRODUCTION

1.1 Problem statement

Men in the United States have a lower life expectancy than women (Arias, 2007; Kung, Hoyert, Xu, & Murphy, 2008), and higher rates of chronic disease morbidity (American Cancer Society, 2009; National Center for Health Statistics, 2009; Wong et al., 2006), particularly ones that are amenable to preventive health behaviors (American Cancer Society, 2009; Hayward, Miles, Crimmins, & Yang, 2000). Even at young ages boys engage in fewer health promoting behaviors than girls, and are also more likely to engage in health risk behavior (Eaton et al., 2008). Additionally, African Americans compared to many other racial groups experience a greater burden of disease, consequently suffering from premature mortality (Arias, 2007; Smedley, Stith, & Nelson, 2002; Ward et al., 2004). Against the backdrop of these demographic trends, perhaps it is not surprising then that African American men consistently have among the worst health outcomes of any race-gender group in the United States (Albano et al., 2007; Baskin, Ard, Franklin, & Allison, 2005; Fontaine, Redden, Wang, Westfall, & Allison, 2003; Hayward, et al., 2000). These racial and gender disparities exist in mortality rates as well. The age-adjusted death rate for African Americans is 20% greater than that of non-Hispanic Whites, while the rate for men is 38% greater than that of women (Hoyert & Xu, 2012). The life expectancy for those born in 2011 is 76.4 years for non-Hispanic White men, and 77.8 years for African American women. However, the life expectancy of an African American man born in 2011 is only 71.6 years (Hoyert & Xu, 2012).

Perhaps one of the most alarming disparities experienced by African American men is the disproportionate rate they are diagnosed with HIV and other sexually transmitted diseases (STDs). Compared to non-Hispanic White men, African American men have a 20-times greater rate of gonorrhea, almost 12-times greater rate of chlamydia, and 7-times greater rate of primary or secondary syphilis (Centers for Disease Control and Prevention, 2010). The most recent estimates of HIV incidence from the Centers for Disease Control and Prevention place the HIV incidence rate for African American men at 103.9 per 100,000, a rate 6.5 times that of White men (Prejean et al., 2011). Despite the identification of these racial differences, many factors driving them elude researchers, and disparities have increased over time. Between 2004 and 2008 African American men aged 15-24 experienced a three-fold increase in new syphilis cases, far exceeding the rate of any other race-gender group (Centers for Disease Control and Prevention, 2010). Though recent estimates of HIV incidence indicate a stable rate of new infections in the United States between 2006 and 2009, African American men continue to experience the greatest number of new HIV infections each year. The majority (61%) of new HIV infections occur among men who have sex with men (MSM), though 27% of the 48,100 new infections in 2009 were attributable to heterosexual contact (Prejean, et al., 2011). In both types of sexual transmission, African American men are disproportionately burdened by the epidemic. They comprise 37% of new infections among MSM and 67% of new infections among heterosexual men, despite African Americans only constituting 12.6% of the United States population (Centers for Disease Control and Prevention, 2011a; Humes, Jones, & Ramirez, 2011).

Even though the data are compelling, a number of health care factors are likely cause an underestimation of the prevalence of HIV and other STDs among African American men. Men are more likely to go undiagnosed with an STD as they are reluctant to admit illness and seek health care (Addis & Mahalik, 2003). Providers routinely suggest screening their male patients for STDs at levels far below recommended standards (St Lawrence et al., 2002), and mistrust of the medical system prevents many African Americans from interfacing with health care systems and providers responsible for documenting infections (Boulware, Cooper, Ratner, LaVeist, & Powe, 2003; Hammond, Matthews, Mohottige, Agyemang, & Corbie-Smith, 2010).

The epidemiologic data underscores that the youngest (13-29 years old) African American men experience the most rapid increases in HIV infection. These increases are primarily attributable sexual behavior, the majority of which occur between same-sex partners. Yet despite sexual activity remaining the predominate mode of transmission, much remains unknown about how sexual health behavior is developed during adolescence or the effect that developmental process has on sexual health behavior in young adulthood and beyond. Two health behaviors that are frequently the target of sexual interventions are sexual initiation (how soon individuals first become sexually active) and condom use consistency (how likely individuals are to use condoms consistently when having sexual intercourse). (Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Lohman & Billings, 2008). These behaviors are a key focus of this dissertation.

Though racial disparities in HIV and STD rates among men have resulted in a preponderance of behavioral interventions, with notable exceptions (e.g., Delamater,

Wagstaff, & Havens, 2000; Hightow-Weidman et al., 2011) comparatively few have focused on cultural-specific factors salient to this population (Mays, Cochran, & Zamudio, 2004; Parker, 2001; Whitaker, Furr-Holden, Floyd, Chatterjee, & Latimer, 2010). The paucity of research into determinants or other causal factors that may be relevant to the formation of sexual health behaviors for African American men is startling, particularly since other health behaviors coalesce early in life and have an enduring effect throughout the life-course (e.g., Barnes, Reifman, Farrell, & Dintcheff, 2000; Lau, Quadrel, & Hartman, 1990; Paavola, Vartiainen, & Haukkala, 2004). A review of programs aiming to alter sexual health behavior of adolescents document inconsistent effects. The authors attribute these inconsistent findings to the failure of interventions to target appropriate mediators of sexual behavior within their populations of interest (Pedlow & Carey, 2003). That result underscores the importance of identifying variables that influence sexual health behavior for African American men in order to develop classes of more effective interventions. The variables which may be the most promising candidates for intervention are likely those that not only have a strong documented association with sexual behavior, but that are also the most culturally relevant to and reflective of young African American men's lived experiences.

One understudied determinant of sexual health behavior for young African American men is health socialization, or the process by which individuals learn and acquire health attitudes, norms, and ultimately behaviors. Even among those studies of health socialization, there is a striking gap: the majority of these studies fail to discuss the role of fathers in the development of their young African American sons. Though many study the influence of parents on children's behavior, a closer examination of this

literature reveals that in the context of sexual health behavior the focus is almost exclusively placed on mother-daughter relationships (e.g., M. F. Cox, 2006; Hutchinson, Jemmott, Jemmott, Braverman, & Fong, 2003). These familial relationships are important and should not be discounted. However, given the epidemiology of HIV infection in the United States where in 2009 men accounted for 76.7% of all new HIV infections (Prejean, et al., 2011), we might expect the majority of this research to focus upon sons and the relationships they have with their parents. The relative absence of research focused on father-son relationships is just as striking since parents who share the same gender with their children play a particularly salient role in their gender role development (Galambos, Almeida, & Petersen, 1990), a fact which is especially relevant in the study of sexual behavior as these and other health behaviors are largely informed by gender norms and masculine ideology (Courtenay, 2000b).

The father-son relationship may have particular salience for African American men warranting additional study. Discussed in more detail in Chapter 2, I articulate how the simultaneous socialization of masculine and racial identities uniquely positions African American fathers to not only teach their sons about the formation of these aspects of identity, but also puts them in the unique role of embedding messages about health behavior throughout this process. Nevertheless, much of the published literature examining the role of African American fathers fails to appreciate the full complexity of their roles as agents of socialization. The scope of inquiry concerning African American paternal roles is frequently limited to that of financial or economic provider, or their parental function is articulated from a deficit model in which non-residential fatherhood is implicated in deviant behavior (Garfield & Isacco, 2006; Teitler, 2001). Because

23.6% of all children in the United States live in households where the mother is the single parent (Krieder & Ellis, 2011), I consider the role of non-residential fatherhood through a normative lens. This is particularly important for African American fathers, as 50.4% of African American children are raised in households without their father living in the same location (Krieder & Ellis, 2011).

1.2 Application of an inter- and intra-group approach to health disparities

The inter-group or comparative approach is the most common means of examining health disparities. An inter-group approach involves the identification and documentation of unjust differences between groups. The strategy also alerts researchers to the existence of disparities, and allows for continual monitoring of how well interventions reduce them. As applied in addressing this dissertation's problem statement, the strategy of identifying between group differences is an important component of health disparities research. By contrasting African American and White men, we can seek answers to questions concerning the shared and discordant sources of sexual health disparities. Additionally, an examination of how socialization processes differ can better inform interventions aimed at delaying sexual initiation and increasing condom behavior.

However, while the inter-group approach has great utility, it can too easily oversimplify the diversity inherent within groups. Studies that examine within-group diversity are important to understand group-specific factors to which there may not be an appropriate analog or comparison. With few exceptions, masculine identity and racial identity are two factors that are rarely considered together as playing a role in the

development of sexual health behavior among African American men, despite growing amounts of literature illustrating their association with a variety of other health behaviors among African American men (Addis & Mahalik, 2003; Brook & Pahl, 2005; Caldwell, Kohn-Wood, Schmeelk-Cone, Chavous, & Zimmerman, 2004; Caldwell, Sellers, Bernat, & Zimmerman, 2004; Courtenay, 2000a, 2000b; Hammond, et al., 2010; Resnicow, Soler, Braithwaite, Selassie, & Smith, 1999).

The focus on racial differences in both sexual initiation and condom use is important but explored alone obscures intra-group sources for African American men's higher incidence of HIV and STDs (Centers for Disease Control and Prevention, 2008b; Prejean, et al., 2011). To complement this focus, we also need a careful examination of within-group differences in African American men's acquisition of sexual health behaviors. Attention towards these within-group differences can assist in the creation of appropriately tailored interventions for African American men. Through the union of an inter- and intra-group approach to the study of sexual health behavior, this dissertation examines differences in behavior as well as explores which factors most strongly influence sexual health behaviors for African American men.

Though we frequently assess health disparities by examining the independent effects of race and gender, done too often this approach reduces these important characteristics to simple control variables. This common analytic approach also suffers from two fundamental conceptual shortcomings. First, it implies the influences of race and gender are simply additive. Second, it ignores the underlying assumptions of controlling for variables in statistical models. When statistically controlling for a variable, we are in fact attempting to answer the following question: All other variables

in the model held constant, what is the difference of the effect of an individual possessing trait A on an outcome, compared to the exact same individual having had possessed trait B instead of A on that outcome? The awkward nature of the language is itself illustrative of the fact this approach will never yield an answer to this question. Nevertheless, this logic commonly referred to as the counterfactual conditional is necessary and useful logic underlying how we measure the effects of variables in some instances. However, there is no true counterfactual to race or gender, as we cannot hold constant all aspects of a person's life with the sole exception of these variables. Membership in any race or gender group is comprised of elements so fundamentally unique to that group, and so interlaced with the totality of social experience, that counterfactual logic cannot effectively accommodate these variables. It is difficult if not impossible to imagine a circumstance in which two people could be identical on all psychosocial dimensions except race or gender. Since these two variables influence and interact with almost all other psychosocial factors responsible for health (e.g., income, education, health care), Kaufman and Cooper (1999) caution researchers to pay special attention to the information produced by inter-group analysis of health disparities.

Unlike a comparative approach to health disparities, an intra-group perspective applied to an examination of sexual health behaviors among African American men facilitates research designed to identify relevant sociocultural factors, acknowledge diversity and strength among African American men, and perhaps most importantly identify mechanisms through which sexual health outcomes can be readily improved (Bediako & Griffith, 2007). These studies also address many of the gaps that inter-group studies cannot. Finally, intra-group studies also produce research findings that are more

amenable to public health intervention. These studies acknowledge cultural strengths that can be leveraged in interventions, while also being poised to more readily identify other modifiable variables that result in relatively poor health among racial or ethnic minorities (Bediako & Griffith, 2007).

Nevertheless, even with the myriad strengths of intra-group approaches, they alone cannot wholly address health disparities. Inter-group studies provide the necessary starting point from which researchers can proceed to a more nuanced examination of what produces health disparities, and can identify differences in both outcomes of interest, as well as “exposures” that may facilitate those outcomes. Recognizing the unique strengths and weaknesses of inter-group and intra-group studies, the goal of this dissertation is to utilize both an inter- and intra-group approach to health disparities. Through using both perspectives, combined with empirical methods to match the theoretical rationale for my hypotheses, I aim to leverage their strengths in order to arrive at a more full understanding of the ways in which African American men develop sexual health behavior.

1.3 Study aims

Aim 1: Examine the longitudinal association between peer and paternal agents, and sexual initiation and condom use in adolescence.

Aim 2: Determine if the association between peer and paternal health socialization, and sexual initiation and condom use differs by race.

Aim 3: Explore the role of masculine and racial identity on condom use through the development of latent class profiles.

Study aims 1 and 2 correspond to the inter-group manuscript of this dissertation, and are addressed through secondary analysis of data from the National Longitudinal Study of Adolescent Health, a nationally representative longitudinal study of adolescents and young adults in the United States. The goal of this analysis is to: 1) examine the roles of peers and fathers on the timing of sexual initiation; 2) determine if the effect of peers and fathers on condom use in adolescence persists into young adulthood; and 3) assess whether or not these health socialization effects on sexual initiation and condom use differ by race.

Study aim 3 corresponds to the intra-group manuscript of this dissertation, and is addressed through the analysis of data collected through the African American Men's Health and Social Life (AAMHSL) Study, a cross-sectional non-probability sample of African American men recruited from barbershops, academic institutions, and community spaces. The goal of this analysis is to: 1) examine the effect of masculine and racial identity on condom use through the development and application of latent class profiles which reflect the mutually constitutive nature of identity formation; 2) determine how these profiles influence the relationship between paternal socialization and condom use.

The unifying goal of this dissertation study rests in determining if and how agents of sexual health socialization influence the development of African American men's sexual health behaviors. Applying both an inter-group and intra-group lens to the study of health disparities, this dissertation is uniquely poised to present a richer contextualization of sexual health behaviors among African American men by examining behavior from three distinct perspectives: 1) racial differences in the timing of sexual

initiation and frequency of condom use; 2) racial differences in the effect peers and fathers have on the timing of sexual initiation and frequency of condom use; 3) differences among African Americans in the effect that masculine and racial identity have on condom use. Each of these differences are important lines of inquiry into sexual health disparities, and together they can yield information to inform the development of more precise interventions and public health strategies that promote the health of African American men, and reduce their burden of new HIV/STD infections.

1.4 Organization

This dissertation consists of six chapters. Chapter 1 outlines the public health significance and the rationale behind the application of an inter-group and intra-group approach to health disparities as a guiding framework of the empirical studies presented within this dissertation. Study aims of this dissertation are presented in Chapter 1. Chapter 2 provides a review of the literature concerning both sexual initiation and condom use among African American men in the United States. Additionally, Chapter 2 provides a review of the literature on health socialization broadly, its application to sexual health behavior, and the role played by peers and notably fathers in this developmental process. Finally, Chapter 2 concludes with a description of the literature linking masculine identity and racial identity to health outcomes, health behavior, and sexual health behavior. Chapter 3 introduces the theoretical frameworks used throughout the dissertation to justify the relevance of factors identified in Chapter 2's examination of sexual health behavior. The chapter then articulates proposed relationships between these factors to allow for the development of testable hypotheses within each of the two following empirical manuscripts. Chapter 4 is a manuscript titled "Longitudinal

Investigation of Racial Differences in Paternal and Peer Sexual Health Socialization and Behaviors of Young Men” and Chapter 5 is a manuscript titled “Cross-Sectional Investigation of Paternal Sexual Health Socialization, Masculine and Racial Identity, and Sexual Health Behaviors Among African American Men.” These chapters correspond to the inter- and intra-group approach to health disparities, respectively, and represent the original empirical components of this dissertation. Methods, results, and discussion specific to each of these manuscripts are within these chapters. Chapter 6 concludes the dissertation study by synthesizing the results from Chapters 4 and 5, summarizing key findings, and outlining the contributions of this dissertation while acknowledging important limitations. Finally, I conclude with implications for research and practice, and offer suggested next steps.

CHAPTER 2: REVIEW OF THE LITERATURE

2.1 Definition of sexual activity

Recognizing the diversity of sexual activity, the scope of this dissertation limits its consideration to activity including penetration of the vagina or anus. The imprecision with which oral sex is frequently assessed, and its comparatively lower risk for HIV/STD infection preclude it from being considered alongside vaginal or anal intercourse.

This dissertation will examine two different health behaviors specific to sexual activity as defined. Sexual initiation is a health behavior that refers to if and when an individual has their first sexual experience. Previously in the literature, those who have not yet experienced sexual initiation were referred to as “virgins”, but the variety of sexual experiences renders its application problematic – the word holds several different meanings for adolescents. The second behavior of study is condom use, and specifically refers to the consistent application and use of a male condom throughout the entirety of an experience of either vaginal or anal intercourse.

2.2 Overview of sexual initiation

The timing of sexual initiation is an important determinant of sexual health behaviors and ultimately sexual health, as early sexual initiation has been associated with a host of health-damaging outcomes (Madkour, Farhat, Halpern, Godeau, & Gabhainn,

2010). For example, findings from a nationally representative study of adolescents indicate that the odds of having an STI were over twice as high for 18 year olds who became sexually active by 13 as compared to those 18 year olds who had only become sexually active a year earlier (Kaestle, Halpern, Miller, & Ford, 2005). Early sexual initiation is also associated with other negative health behaviors such as alcohol use, cigarette smoking, and perpetrating violence (Coker et al., 1994). Data from the National Survey of Family Growth shows that the trend over the last two decades has been a marked delay in sexual initiation: whereas 60% of men were sexually active by 19 in 1998 only 43% reported sexual activity in 2008 (Abma, Martinez, & Copen, 2010). Yet, these data obscure that 38% of non-Hispanic White men were sexually active while 60% of non-Hispanic African American men were sexually active at this same age.

Research into factors associated with sexual initiation is extensive, ranging from intrapersonal determinants such as attitudes and outcome expectations (Beadnell et al., 2007) to the role of preventive interventions and policies such as sexual education programs within schools (Kirby, 2008; Tortolero et al., 2010). However, a great deal of this literature is characterized by its focus on individuals within social networks who influence sexual initiation - A cursory examination of this literature reveals that both peers and parents are among the most frequently studied social influences on sexual initiation (e.g., Busse, Fishbein, Bleakley, & Hennessy, 2010; Coker, et al., 1994; Karofsky, Zeng, & Kosorok, 2001). Yet perhaps the most notable characteristic of the research on sexual initiation is that even among the studies which include young African American men, relatively limited attention is paid to race or gender-specific variables

(e.g., racial and masculine identity) that may also play a role in the decision of when to become sexually active. This dissertation addresses this scientific gap.

2.3 Overview of condom behavior

Though sexual initiation is an important behavioral determinant, the goal is not to stop sexual initiation altogether but rather to delay it until individuals are developmentally equipped to engage in healthy sexual decision-making. When men do become sexually active, failing to consistently use condoms is a primary sexual health behavior of concern. Consistent condom use is one of the most proximal determinants of sexual health. Any discussion of HIV/STD disparities requires attention to both condom behavior and those factors that influence it. While some studies report that compared to White men, African American men are less likely to report consistent condom use (Fullilove et al., 1990; Maxwell, Bastani, & Warda, 1999), others report no difference (Catania et al., 1992), and in some instances a greater likelihood to use condoms consistently (Doherty, Schoenbach, & Adimora, 2009; Sonenstein, Pleck, & Ku, 1989). The results in the literature are show greater uniformity for MSM than heterosexuals, however. Despite having the highest HIV incidence and prevalence among any population subgroup, the emerging consensus is that African American MSM use condoms at the same frequency, and in some instances more, than their White MSM counterparts (Millet, Flores, Peterson, & Bakeman, 2007; Millett et al., 2012).

2.4 The relationship between sexual initiation and condom use

Though many studies investigate sexual initiation or condom behavior in isolation, other research more appropriately articulates these sexual health behaviors as co-occurring and influencing additional risky practices. For example, among adolescents, earlier sexual initiation can result both in greater numbers of sexual partners and an increased likelihood of having sex while under the influence of alcohol (Sandfort, Orr, Hirsch, & Santelli, 2008). Additionally, failure to use a condom during the initial sexual encounter sets individuals on a trajectory for reduced condom use throughout adolescence (Shafii, Stovel, Davis, & Holmes, 2004; Shafii, Stovel, & Holmes, 2007). Some researchers suggest the quality and context of the first sexual experience itself may either confound or mediate the relationship between sexual initiation and condom behavior (Laumann, Gagnon, Michael, & Michaels, 1994; Laumann & Michael, 2001; Nicole, Hyde, & DeLamater, 2005), further strengthening the evidence which links sexual initiation and subsequent condom use. These previously mentioned studies move the literature forward from the investigation of sexual initiation and condom use in isolation, towards the identification of mechanisms that connect the two in a causal pathway. However, sexual initiation and condom use are associated not only because of a causal relationship, but also because they are shaped by common sources. In the next section, I review health socialization and articulate it as a mechanism that serves to influence the development of both sexual initiation and condom use.

2.5 Health socialization

2.5.1 Definition

One important determinant of sexual health behaviors, and the primary focus of this dissertation, is the process by which an individual develops health behaviors, referred to as health socialization (Tinsley, 2003). Socialization is a general concept not specific to health, largely referring to the progression through which individuals acquire attitudes, norms, beliefs, and behaviors (Clausen, 1968). Tinsley (1992) describes in detail how children acquire attitudes, norms, beliefs, and behaviors specific to health - or health socialization. Health socialization starts early in life, and the process influences children through a variety of sources, including the school and media, as well as their family and peers. The sources that shape attitudes, norms, beliefs, and ultimately behaviors are referred to as health socialization agents.

Researchers offer several definitions of health socialization, a function of varying perspectives on this construct. Earlier scholarship often treats socialization agents as molders of attitudes, knowledge, and behavior through a one-way transfer process in which children are framed simply as receivers (Erikson, 1950). This dissertation, however, builds on more recent conceptualizations which frame socialization as a transactional process (C. Hart, Olsen, Robinson, & Mandlco, 1997; Pomerantz & Eaton, 2001; Sameroff & MacKenzie, 2003). Examining health socialization as a transactional process acknowledges both the role of multiple influential agents, and individuals' active participation in their behavioral development.

2.5.2 Health socialization as a determinant of health behavior

Health socialization is perhaps most frequently studied as a determinant of health behavior in children. Studies frequently focus on the association between health socialization factors as diverse as the social environment (Ashford & LeCroy, 2010), media consumption (Baranowski, Buday, Thompson, & Baranowski, 2008; J. L. Harris, Bargh, & Brownell, 2009), health status (Levy, Kronenberg, & Carter, 2008) and children's health behavior. Though much of the conceptual basis for health socialization starts early in the developmental process, the empirical basis for health socialization acquired during adolescence is greater. This focus does not likely reflect disproportionate scientific interest in children's health behavior, but rather the increasing autonomy demanded by adolescents that makes it easier to observe their health behavior independent of parental control. This distinction is important because it raises the issue that agents of health socialization during earlier developmental periods, where much of the health socialization work is conceptualized, may not be the same or function similarly in adolescence where the empirical work is concentrated. The relatively limited social interactions of young children results in their primary socialization agents being family members, most usually parents. Nevertheless, increased exposure to health socialization agents outside the family such as peers and media arguably has an equally important role influencing health behaviors during adolescence, as evidenced by its linkage to a variety of health behaviors including smoking (Villanti, Boulay, & Juon, 2011), alcohol use (Anderson, De Bruijn, Angus, Gordon, & Hastings, 2009), and physical activity (Kahn et al., 2008).

We must also broaden how we think about agents of health socialization lest we rely solely on earlier models that purport one-way transfers of information from agent to individual (Erikson, 1950). The sheer diversity of socialization agents suggest the importance of identifying and focusing attention on those which are most salient during a specific developmental period since agents that hold influence at one point may be more or less relevant in another. Health socialization is not merely transactional but continually changing and adaptive as individuals become more and less receptive to different influences. In addition to observing multiple agents of health socialization, studies must examine within-person associations over time to understand sufficiently the process in which people develop health behavior. By doing so, investigations will provide answers to a looming question: do sources in adolescence maintain their importance in young adulthood and beyond? Recognizing the potential importance health socialization has on not just health behavior, but health outcomes throughout the life course, I focus upon those influential agents who facilitate the process in adolescence and examine if they maintain their influence in young adulthood.

2.5.3 Peers as agents of health socialization

As individuals with whom adolescents have frequent contact, peers are incredibly important agents of health socialization. Adolescence is marked by a time in which many argue that familial influences over behavior diminishes and individuals become more easily shaped by, and shape behaviors of those in their peer networks (Gardner & Steinberg, 2005). For this reason, norms, attitudes, and even the behaviors of peers can have profound influence on a variety of health behaviors. Peers shape many health behaviors, including tobacco and alcohol use (Prinstein, Boergers, & Spirito, 2001),

physical activity (Brustad, 2012), and most recently evidence shows they also strongly influence texting while driving (Elliott, Jacobsohn, Winston, & Ginsburg, 2012). Other studies confirm the association between peer influence and the development of health behaviors among young men specifically (e.g., Brown, Dolcini, & Leventhal, 1997; Dishion, McCord, & Poulin, 1999; Kiuru, Burk, Laursen, Salmela-Aro, & Nurmi, 2010).

Whether or not researchers correctly attribute the mechanism through which peers influence one another remains an important tension in the literature. Many researchers point out that cross-sectional associations between individual and peer attitudes, norms, and behaviors held by a peer group, and the attitudes, norms, and behaviors are frequently mislabeled as peer socialization. These associations may instead exist due to peer selection, and in such instances the causal direction would actually be reversed. In other words, rather than peers influencing health behavior, peers may select their friends partially because they engage in, or have the same dispositions to engage in, similar health behaviors (Prinstein, et al., 2001). While many studies are unable to disentangle these effects, others confirm the effect of peer selection. In one study of adolescent tobacco use, peer socialization is not associated with smoking behavior, though peer selection is (Simons-Morton, Chen, Abroms, & Haynie, 2004). Another study confirms results reported by Simons-Morton et al. (2004), but adds that both peer selection and socialization play a role in determining adolescent alcohol use (Kiuru, et al., 2010). However, other studies of adolescent behavior support peer socialization as the dominant way through which peers influence substance use (Wills & Cleary, 1999) as well as condom behavior (Henry, Schoeny, Deptula, & Slavick, 2007). Together these findings

suggest we reject uniformly favoring peer selection or socialization, but rather acknowledging each has varying importance depending on the health behavior studied.

2.5.4 Fathers as agents of health socialization

Despite the acknowledged importance of peers as key health socialization agents, parents still maintain a powerful influence over the health behaviors adopted by their children during adolescence (Kliewer, Fearnow, & Miller, 1996; Lau, et al., 1990). However, a preponderance of research on health outcomes in early childhood and adolescence focuses on the role of mothers exclusively, or uses maternal involvement as a proxy for parental involvement (Coley, 2001; Russell & Radojevic, 1992). This illustrates a problematic exclusion of fathers not only from new lines of scientific inquiry, but also ignores existing empirical literature pointing to the unique and important paternal influences on children's health outcomes (Diener, Isabella, Behunin, & Wong, 2008; Rubin et al., 2004).

In one study of father involvement with their children in two-parent homes, researchers found that paternal involvement style varied by race, such that compared to White fathers, African American fathers were found to monitor their children more, and claim a greater amount of responsibility for their children's well-being (Hofferth, 2003). To be certain, African American fathers are less likely than White fathers to live with their children in two-parent homes (Fields et al., 2004). Even still, non-residential African American fathers maintain relationships with their children (Caldwell et al., 2004; Pan & Farrell, 2006), and compared to non-residential fathers of other racial groups, appear to be more likely to visit their children (Lerman, 1993). This dissertation moves away from a prevalent notion in the research literature, which articulates the role

of fathers, especially African American or non-residential fathers, in a limited fashion. Following the work of others, I extend the role of fathers as more than merely providers of instrumental and economic support (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Garfield & Isacco, 2006; Hammond, Matthews, Cooper, Johnson, & Caldwell, 2011; Levant, Wimer, Williams, Smalley, & Noronha, 2009; Teitler, 2001). Instead, the dissertation builds on recent theoretical work which situates African American fathers as primary agents of socialization for other health behaviors (e.g., health care visits, fruit and vegetable consumption) (Hammond, et al., 2011).

Due to the increased importance of same-gender parental socialization as children enter adolescence (Galambos, 2004), it is plausible that this also translates into an increased importance of fathers' roles in shaping the health behaviors of their sons. Increasing amounts of literature also points to masculine role socialization as a powerful mechanism through which father-son relationships are made particularly salient (Courtenay, 2000b; Levant, 1996). Of additional importance for African American fathers and sons, the process of racial identity development may additionally strengthen the salience of the father-son relationship and partially be responsible for increased paternal involvement (Coard, Wallace, Stevenson, & Brotman, 2004; H. P. McAdoo, 2002). I discuss the roles of both masculine and racial socialization further in this chapter, and examine them empirically within Chapter 5. Despite these theoretical and empirical considerations, much work remains to increase understanding about the extent African American fathers have on the health behavior of their sons.

2.5.5 Health socialization as a determinant of health disparities

Health socialization plays a role not only in the development of health behaviors, but has been conceptualized as a contributor to racial health disparities (Singh-Manoux & Marmot, 2005; Tinsley, 1992). Singh-Manoux and Marmot, specifically, note that individual responses to social structures and conditions that pattern health disparities often result in a set of health-harming attitudes, beliefs, and behaviors. Individuals then transmit these health behaviors within and across generations, serving to perpetuate those health disparities rooted in health behavior. Race and gender also play an important role in how health socialization messages are transmitted and received (see Chapters 2.8 and 2.9). There is an undeniably robust link between race and social advantage in the United States, the latter of which is consistently associated with better health outcomes and health behaviors (Braveman, 2006; Marmot, 2004). The enduring quality of this link and the suppositions made by researchers (Singh-Manoux & Marmot, 2005; Vagero & Illsley, 1995) suggest that racial differences in health socialization may also help to explain racial disparities in sexual health behaviors and outcomes, providing further impetus for its study.

2.6 Sexual health socialization

According to a recent nationally representative study, 38.3% of non-Hispanic White men ages 15-19 reported ever having a sexual experience, compared to 60.6% of non-Hispanic Black men the same age (Abma, et al., 2010). These data reflect the continuation of a trend in prior studies documenting earlier sexual initiation among African Americans as compared to Whites (Carvajal et al., 1999; Upchurch, Levy-

Storms, Sucoff, & Aneshensel, 1998). These racial differences in sexual initiation may be related to the racial disparities in sexual health outcomes that already exist in the 15-19 year age group. For men this age, the rate of new syphilis infections alone is an alarming 25 times greater for African Americans than non-Hispanic Whites (Centers for Disease Control and Prevention, 2010). Health disparities are frequently characterized and explained by an accumulation of disadvantage and disproportionate burden that diminishes health over the life-course. However, the emergence of such stark differences as early as ages 15-19 suggests the causes of sexual health behavior may be more immediate and proximal in nature.

Peers are most frequently implicated as a “negative” influence on sexual initiation, where they are often found to facilitate earlier age of first sex (Busse, et al., 2010; Kinsman, Romer, Furstenberg, & Schwarz, 1998). Many studies also explore the role of parents in sexual initiation, examining characteristics such as level of parental supervision (Browning, Leventhal, & Brooks-Gunn, 2005), general parenting style (Longmore, Manning, & Giordano, 2001), and parental communication (e.g., Karofsky, et al., 2001; Lammers, Ireland, Resnick, & Blum, 2000; Miller, Levin, Whitaker, & Xu, 1998). Recognizing the importance of socialization from both peer and parental influences several interventions have leveraged the social networks of adolescents to delay sexual initiation (e.g., Caron, Godin, Otis, & Lambert, 2004; Gavin, Catalano, David-Ferdon, Gloppen, & Markham, 2010), though substantially more have sought to utilize parental influence to encourage delayed sexual initiation (Wight & Fullerton, 2012). Such a differential focus may be attributable to a concern that peer-dominated interventions could actually accelerate, rather than delay, age of first sex. This concern is

also articulated in studies that situate parental influence as a buffer of the relationship between peer influence and sexual initiation (Fasula & Miller, 2006). Similarly to sexual initiation, there is an abundance of literature on the role that both peers and parents play in condom behavior, as illustrated through intervention studies alone which aim to leverage existing social networks to increase consistent condom use (Wang, Brown, Shen, & Tucker, 2011; Wight & Fullerton, 2012).

Investigating racial differences in sexual health socialization may provide a way to understand how disparities in sexual health behaviors and outcomes arise in early adolescence, even in the increasing presence of sexual education campaigns (Shtarkshall, Santelli, & Hirsch, 2007). Relatively few studies take a prospective approach in the examination of race-differences in sexual health behavior acquisition. This dissertation addresses this oversight by examining if racial differences in sexual health socialization account for racial differences in sexual initiation and condom use.

2.7 Peers and fathers as agents of sexual health socialization

Sexual health socialization largely includes indirect messages communicated about sexual health behavior – for young men sexual initiation and condom use are arguably the most important. Puberty and the onset of physical maturity mark adolescence and the time when sexual health socialization is likely to be more salient. Though individuals receive health messages from a variety of sources, peers may be among the primary agents of sexual health socialization during adolescence. Supporting their comparative influence are studies finding adolescents who have sexually active

peers more likely to engage in sex themselves (Bears, 2009; Biglan et al., 1990; Metzler, Noell, Biglan, Ary, & Smolkowski, 1994).

A substantial number of parents report discomfort with, and consequently low rates of, talking to their children about sexual health matters (Diiorio, Kelley, & Hockenberry-Eaton, 1999; Hutchinson & Cooney, 1998). Adolescents, as a result, rely on peers as agents of sexual health socialization. However, sexual health socialization from peers is often health-harming as peers can perpetuate incorrect information (e.g., coitus interruptus is an effective form of birth control) and problematic attitudes about sexual health behavior (e.g., becoming sexually active is necessary to be regarded favorably) (Holtzman & Robinson, 1995). Even the mere perception that their peers do not use condoms increases an adolescent's likelihood of not using a condom (Leland & Barth, 1993). Exacerbating concerns over the negative influence of peers on sexual health behavior is that peer sexual health socialization occurs in adolescence. As the developmental stage in which other youth risk behaviors are also developing (Haugaard, 2001; Holm et al., 2009; Thornton, Craft, Dahlberg, Lynch, & Baer, 2002; Turner, Irwin, Tschann, & Millstein, 1993), adolescence not only heralds an increase in a myriad of health risk behaviors but may also signal waning parental influence to promote healthier choices (Aseltine, 1995; Hawkins, Catalano, & Miller, 1992; Hu, 1995).

While several studies have examined the role played by parents in child sexual health development, this research is often limited to maternal influences (e.g., Guilamo-Ramos, Jaccard, Dittus, & Collins, 2008; Miller et al., 2009; Miller, et al., 1998), and constricted to mother-daughter pairs (e.g., M. F. Cox, 2006; Hutchinson, et al., 2003). A 2004 review of interventions to reduce sexual risk behaviors in adolescents identified 24

randomized-control trials, only two of which focused on parental communication with adolescents about sexual activity (Pedlow & Carey, 2004). Though this analysis omits those studies not evaluated via randomized control trial, it is emblematic of a need to understand the role of parents, including fathers, on sexual behavior. Rather than maintaining the common notion that fathers play a secondary role relative to mothers in health socialization (see Garfield & Isacco, 2006; Teitler, 2001), this dissertation considers in greater detail the contribution made by fathers to their sons' sexual health socialization.

Literature also points to racial variation among the influences peers and fathers wield as agents of sexual health socialization (Furstenberg Jr, Morgan, Moore, & Peterson, 1987; Lottes & Kuriloff, 1994). Shah and Zelnik (1981) discovered that peers influenced the likelihood of premarital sex in young women, but this was true to a lesser extent among African Americans. More recently, a study of urban adolescents found that peer socialization accounted for a greater amount of variance in sexual behavior among Whites than African Americans (Doljanac & Zimmerman, 1998). Holtzman and Robinson (1995) find that male adolescents are more influenced by peer socialization than female adolescents. While evidence demonstrates racial differences in effects of peers as agents of sexual health socialization (though none explore racial differences among men), other research similarly indicates African American fathers may have a more pronounced effect on the sexual health socialization of their sons than White fathers (Coard, et al., 2004; Hofferth, 2003; Lerman, 1993; H. P. McAdoo, 2002). Whether or not African American fathers wield comparatively greater influence over their son's sexual health behaviors than peers, or if their influence is maintained over time, is less

clear (Ali & Dwyer, 2010; Hutchinson & Cooney, 1998). A primary objective of this dissertation is to address these gaps in our knowledge of racial differences in peer and paternal sexual health socialization among young men.

2.8 Masculinity and health

2.8.1 Defining masculinity

Masculinity is a multidimensional construct that researchers have operationalized in a variety of ways. Masculine ideology generally refers to a set of traits or characteristics traditionally prescribed and proscribed to being a man. These ideologies encompass a host of qualities regarded as positive (e.g., self-sacrifice, rational thought) and negative (e.g., aggression, acceptance of violence) (Fischer & Good, 1998; E. Thompson & Pleck, 1995). Men's subscription to these ideologies are articulated through a variety of lenses such as gender role theory and the uniquely "male" sex role (Harrison, Chin, & Ficarroto, 1992), and the male-gender role strain paradigm (O'Neil, 2008). Masculine ideologies manifest as behaviors demonstrated most often in the ways men transact with individuals and social institutions. Men engage in sets of behaviors and other social scripts in a ritualistic manner to portray their masculine identity to the outside world (Butler, 1997; Majors & Billson, 1993).

Though conceptualizations of masculinity are numerous and varied, they are not mutually exclusive. Rather, they extend from the common perspective that society actively constructs gender roles. In other words, masculinity is not inherent to being biologically male, instead it is something that society and men create transactionally. Because masculinity is socially constructed, it is also something men learn from

observing others. Individuals, culture, and social structures teach socially appropriate gender behavior by instructing boys and girls to enact gender-specific attitudes, behaviors, and norms (Courtenay, 2000c; Levant & Pollack, 1995). This process of learning gendered attitudes, norms, and behaviors, is referred to as gender-role socialization, and is the predominate means through which I examine the effect of masculinity and its resulting impact on health behavior throughout the dissertation.

Both men and women, and society as a whole, act as agents of gender-role socialization every time they reinforce associations between a trait or behavior and a specific gender (e.g., strength is male, nurturing is female) (Courtenay, 2000b). The ability for most people in society to identify typically male or typically female characteristics is a testament to the pervasiveness of gender-role socialization (Williams & Best, 1990). One of the strongest agents of gender-role socialization are parents, particularly the same-gender parent (Eccles, Jacobs, & Harold, 1990; Witt, 1997); fathers serve a primary role in shaping beliefs about masculinity among their sons. The focus in this dissertation on paternal health socialization then requires an examination of the role of gender-role socialization and masculinity in the lives of men.

2.8.2 Masculinity and the formation of health behavior

A substantial body of literature documents associations between being male and failure to engage in a variety of preventive health behaviors (Courtenay, 2000c; Garfield, Isacco, & Rogers, 2008; Mahalik, Burns, & Syzdek, 2007; Waldron, 1988), as well as an increased likelihood of engaging in a variety of harmful health behaviors (Eaton, et al., 2008; Pleck, Sonenstein, & Ku, 1994). Research conducted among men, however, reveals that it is not simply being male, but rather endorsing aspects of masculine identity

that are largely responsible for these observed behaviors. Ironically, men's desire to display their masculinity through the acquisition of power and social standing, factors generally associated with greater health, frequently manifest as health-harming behaviors (e.g., excessive alcohol consumption) (Courtenay, 1998). Though a body of evidence documents a negative association between masculinity and health behaviors, other studies demonstrate the opposite. Increasing amounts of literature suggest masculinity can in fact be positively associated with health-promoting behaviors (Annandale & Hunt, 1990; Hammond, et al., 2010; Wade, 2009). For example, a study of college men found that traditional masculine ideology was negatively associated with health-risk behaviors (Levant, et al., 2009). Samples consisting exclusively of African American men also replicate these findings. African American men with high levels of masculine identity salience and masculine self-reliance are less likely to delay blood pressure or cholesterol screening (Hammond, et al., 2010), and non-traditional masculinity is positively associated with wellness and associated behavior (Wade, 2008, 2009).

Both theoretical and empirical literature also implicates men's endorsement of masculine ideology as being associated with reduced condom use and earlier sexual initiation. Most studies indicate an association between masculinity and less health-promoting sexual behavior (Amaro, 1995; Noar & Morokoff, 2002; Pleck, Sonenstein, & Ku, 1993; Smith, 1996). Whitehead (1997) proposes that African American men use sexual behavior as a vehicle to enact masculinity in light of their increased difficulty in meeting those goals associated with traditional masculinity such as providing for family. To compensate, exaggerated sexual behavior and demonstrating sexual prowess through having multiple sexual partners or forgoing consistent condom use are among the primary

ways in which African American men enact masculinity (Whitehead, 1997; Wolfe, 2003). Several qualitative studies of African American men support this articulation of African American masculinity (Bowleg, 2004; Bowleg et al., 2011; Wolfe, 2003). However, to my knowledge, only one quantitative study has confirmed these results in a sample of African American men (Santana, Raj, Decker, La Marche, & Silverman, 2006).

Other studies demonstrate positive relationships between masculinity and sexual behavior. One study of college men found, albeit with marginal statistical significance, that men who hold traditional ideas about being male are less likely to have ever had sex without using a condom (C. L. Shearer, S. J. Hosterman, M. M. Gillen, & E. S. Lefkowitz, 2005). Blome (2004) similarly finds in a sample of African American men those who endorse strong beliefs in masculinity are more likely to report consistent condom use in the future. Together these findings demonstrate that while associations between masculinity and sexual health behavior exist, the literature has not yet consistently established their effect on sexual health behavior.

Even as we acknowledge the importance of masculinity in health behaviors, including those specific to sexual activity, we are missing a critical link in the literature. As detailed in Chapter 2.5.4, as agents of health socialization, fathers play a critical role in their sons' health behavior development. However, fathers also communicate messages to their sons about masculinity, and as they do so they impart lessons about health behavior, further reinforcing their roles as agents of health socialization (Courtenay, 2000b; Levant, 1996; Pleck, 1997; Tinsley, 1992). Just as masculinity and health behavior are linked, implicit within the messages that teach men to value traits such as strength, resilience, and independence, are instructions that often devalue

healthful behaviors (Addis & Mahalik, 2003); masculinity itself is demonstrated in part through health behavior. Understood this way, gender-role socialization and paternal health socialization are bound together (Courtenay, 2000b; Tinsley, 1997). This socialization can be both explicit and implicit, and is already pervasive in childhood and preadolescence (Hammond, et al., 2011). Nevertheless, masculinity is but one relevant aspect of identity that shapes sexual health socialization and behaviors among African American men. In the next section I consider the role racial identity plays on health behavior, and how African American fathers facilitate its development.

2.9 Racial identity

2.9.1 Defining racial identity

Racial identity refers to the importance and meaning individuals ascribe to their self-definitions of race (Sellers, Smith, Shelton, Rowley, & Chavous, 1998). Sellers et al. (1998) propose a multidimensional model of racial identity for African Americans that includes both the common elements that accompany any group's identity (e.g., the importance of belonging to that group), as well as those elements that acknowledge the unique historical and cultural experiences of African Americans (e.g., the value placed on African American culture specifically). I utilize Sellers et al.'s model in the discussion of racial identity because it acknowledges three important concepts: 1) there is no inherently "good" or "bad" version of racial identity; 2) an individual's perception of racial identity is the most accurate assessment of racial identity; and 3) racial identity is but one of many components of identity that comprise an individual's notion of self.

This multidimensional model proposes four distinct dimensions of racial identity. Salience is concerned with the relevance of race in self-identity at a specific moment. Centrality, on the other hand, refers to the degree to which individuals define themselves with regard to race, but unlike salience is a stable component of identity. Regard denotes a person's judgment about their race in terms of being either positive or negative. Finally, ideology is the dimension that speaks to an individual's philosophy about the most appropriate way for African Americans to interact with and exist within society (Sellers, Smith, et al., 1998). This dissertation focuses on the racial centrality dimension and the nationalist ideology subscale of the ideology dimension. These facets of racial identity were chosen based on availability of data and their links to health behavior, detailed in the next section.

Before continuing, I draw attention to the distinction between racial and ethnic identity. Just as race and ethnicity are distinct concepts that are problematically conflated with one another, so too are racial identity and ethnic identity. Despite being frequently grouped together or interchanged in literature (Phinney, 1990), these two represent distinct concepts. Specifically, ethnic identity refers to that aspect of identity concerned with one's self-concept and social awareness that arises from the knowledge of membership within an ethnic group, as well as the significance placed on that membership (Tajifel, 1981). Furthermore, ethnic identity taps into one's identity surrounding ethnicity, or the broadly construed cultural group to which an individual belongs. This is in contrast to race, which though plays a critical role in shaping cultural experience, is an aspect of social identity typically ascribed upon individuals based upon real or perceived genetic or phenotypic similarities. Though I acknowledge the potential

role for ethnic identity to also influence health and health behavior, this dissertation focuses exclusively upon racial identity.

2.9.2 Racial identity and health

Like masculine identity, racial identity is an aspect of selfhood that African American men are socialized to enact (Demo & Hughes, 1990). Here I draw the distinction between two related but separate concepts: racial socialization and racial identity development. Racial socialization is the process of delivering messages about the meaning of being a member of a racial group, and racial identity development is the process whereby an individual develops an identity about membership within a racial group (Neblett, Smalls, Ford, Nguyễn, & Sellers, 2009; Stevenson, 1995). This dissertation only focuses on racial identity development and does not explicitly talk about theories of racial socialization. Nevertheless, I acknowledge that it is largely a consequence of racial socialization (which I do not measure) that African American males develop their racial identity.

Parents play a critical role in the development of racial identity via the socialization process (Neblett, et al., 2009). As agents of health socialization, fathers exert an influence on their sons' health behaviors. At the same time, paternal health socialization is tied to expressions of their masculine identity as detailed in Chapter 2.8. African American fathers, however, contribute to the socialization and development of their sons' racial identity as well (Hughes et al., 2006; C. P. Thompson, Anderson, & Bakeman, 2000). The strong links between masculine identity and health behavior, and the connection racial identity shares to masculine identity through paternal health socialization, warrant the exploration of racial identity to health behavior.

The majority of literature concerning racial identity and health is concentrated in the psychological literature, particularly as it applies to it being a moderator of the relationship between racial discrimination and various aspects of mental health functioning (e.g., Barbarin, 1999; Caldwell, Wright, et al., 2004; Sellers & Shelton, 2003). Other studies demonstrate positive associations between racial identity and several psychological antecedents of health behaviors such as attitudes, self-esteem, and social functioning (Gary & Berry, 1985; Resnicow, Soler, Braithwaite, Ahluwalia, & Butler, 2000; Resnicow, et al., 1999). Though fewer in number, some studies also demonstrate a positive association between racial identity and health behaviors, such as avoidance of drugs and alcohol (Brook & Pahl, 2005; Burlew et al., 2000; Caldwell, Sellers, et al., 2004).

However, because racial identity is multifaceted, the research does not always indicate its positive influence on health outcomes. Of particular note is the role of nationalist ideology, defined as the extent to which African Americans value having a strong identification with members of their own race, and value the uniqueness of the African American lived experience. While some studies document its importance in facilitating positive health behavior change for African Americans (Harvey & Afful, 2011; Oliver, 1989), others provide examples of its negative association with outcomes such as academic achievement (Sellers, Chavous, & Cooke, 1998). Interestingly, contradictory findings are exemplified not just across different studies of African Americans but within them as well. While nationalist ideology buffers the harmful effect of perceived discrimination on psychological distress, it also increases the likelihood of perceiving discrimination in the first place (Sellers & Shelton, 2003).

Few studies examine the role of racial identity on sexual health socialization and behaviors among African American men. However, one study of African American men finds that men whose racial identity was more central to their self-identity were less likely to have concurrent sexual partners (Oparanozie, Sales, DiClemente, & Braxton, 2011). Additionally, men with more positive feelings about African Americans and being African American had fewer sexual partners (Oparanozie, et al., 2011). Two things about this study warrant specific mention. First, it utilized more than one dimension of racial identity in its study of sexual behaviors, which recognizes the possibility for this multidimensional construct to operate in complex ways. Second, according to the authors this quantitative study is among one of the few documenting the relationship between racial identity and sexual behavior in African American men. The gap in the literature examining the role of racial identity and sexual health behavior among African American men is an important one addressed in this dissertation.

2.10 Summary and synthesis

The relationships between racial identity and health behavior, and masculine identity and health behavior, highlight the significance of examining linkages between racial and masculine identity in the context of health behavior. As Schulz and Mullings (2006) write, “Whiteness and blackness are gendered, and masculinity and femininity are ‘raced.’” (p. 6). In a study of racial/ethnic minority men, racial identity completely mediated the relationship between gender role conflict and psychological symptoms among African Americans, while only partial mediation was found for Asians and Latinos (Carter, Williams, Juby, & Buckley, 2005). The authors interpret this finding as

evidence for the importance of considering racial and masculinity identity in tandem when considering correlates of mental health among racial/ethnic minority men. It is likely for this reason that Oparanozie et al. (2011) discuss the need for additional empirical work on the association between racial identity and sexual behavior that is inclusive of masculine identity. In Chapter 3, I discuss Intersectionality theory as a guiding framework that appreciates this interaction, and in Chapter 5 utilize an empirical method that employs this perspective analytically.

To summarize, the manifestation of racial disparities in HIV/STD infection early in the life course among men has spurred the development of behavioral interventions aimed at delaying sexual initiation and increasing condom use. Interventions have not yet managed to maintain consistent effects, a fact largely attributable to a failure in the research literature of identifying a complete set of determinants that influence these sexual health behaviors.

An important determinant of health behaviors is health socialization. Peers play a vital role in shaping the sexual health behavior of adolescents, as their influence on a variety of health behaviors increases during this developmental period. At the same time, the reluctance on the part of parents to discuss sexual activity with their children likely bolsters the impact of peer sexual health socialization. Nevertheless, as important socialization agents, parents still share a role in shaping health behavior. As the same-gender parent, fathers may have a pronounced role in this process. Fathers simultaneously communicate messages about health behavior as they socialize their sons to their masculine gender role. African American fathers additionally engage in the process of racial identity development with their sons, though it remains to be seen if this

results in an increased health socialization effect on their young sons. Furthermore, it is unclear if peer or paternal influences in adolescence maintain effects through to adulthood. If so, it could strengthen even further the need to influence the sexual health behaviors of young African American men. I explore these questions in the manuscript presented in Chapter 4.

Masculine identity, and to an increasing extent racial identity, have been implicated in the health behaviors of young and adult men. Unfortunately, the need to eliminate racial health disparities often leads us to examine differences between racial groups at the expense of studies among racial groups. A sole reliance on inter-group examinations of health disparities precludes the study of those constructs that may shape the health behaviors of one group but do not exist in a comparable manner within another. To address this gap, this dissertation also considers the joint role of masculine and racial identity and how they are formed alongside each other, by using an empirical approach that respects this theoretical orientation. By continuing to examine the role of fathers and their role on sexual health behaviors, the second analysis proposes a framework to unite paternal sexual health socialization, masculine identity, and racial identity. This study of variables and relationship specific to African American men is contained in the manuscript presented in Chapter 5.

The following chapter provides the theoretical rationale for the set of proposed relationships between variables identified within this literature review, and that I will empirically test in Chapters 4 and 5.

CHAPTER 3: THEORETICAL FRAMEWORKS

3.1 Intersectionality theory

Intersectionality is a feminist theory that highlights intersections between multiple facets of identity. Some commonly examined components of identity include race and gender, but others such as class, religion, sexual orientation, and disability are also included. Intersectionality theory argues that these socially constructed identity classifications are not independent, but rather interact with one another to produce social inequalities (Crenshaw, 1989). Though Crenshaw (1989, 1991) originally introduced intersectionality theory to explicate the experiences of women of color, it has since been applied to health in a variety of marginalized populations (Schulz & Mullings, 2006). Application of this theory mirrors the increasingly accepted notion that experiences as a member of one group (e.g., male gender) are influenced by and cannot be separated from membership in another (e.g., African American race). Researchers are also increasingly applying intersectional approaches to the study of health disparities, particularly as a way to understand the production of health disparities among those who fall into more than one category independently associated with comparatively poor health outcomes (e.g., Dworkin, 2005; Hankivsky & Christoffersen, 2008; Young & Meyer, 2005).

In this dissertation, I invoke intersectionality theory not to guide the development of relationships between variables, but rather as way to ground and unify the intra- and inter-group approach to health disparities outlined in Chapter 1.4. The impetus behind

intersectionality theory is rooted in the existence of social inequality. As such, the inter-group approach appropriately mirrors the origins of intersectionality through identifying evidence of health inequity between groups. Additionally, the lived experiences of African American men are largely shaped by their masculine and racial identity. Intersectionality theory is particularly appealing for intra-group exploration as it acknowledges the uniqueness of African American men as a group, while also articulating masculine and racial identity as shaping one another.

Intersectionality theory also allows us to consider the possibility for masculinity to function differently among African American men than it does in socially dominant groups of men (i.e., heterosexual, upper-class, White men) (Connell, 1995; Courtenay, 2000b). The historical experiences of African American men in the United States have left many unable to fulfill those conditions traditionally considered necessary to “achieve” masculinity, such as earning high income and providing for family (Aronson, Whitehead, & Baber, 2003; Boyd-Franklin & Franklin, 2000; Chae, 2001; Hammond & Mattis, 2005). Messner (1997) also takes note that African American men are unable to fully benefit from the social advantages associated with masculinity. Others argue that such an inability may result in African American men turning to high risk sexual behaviors to cope with a social environment that leaves few other options to enact masculinity (Spencer, Fegley, Harpalani, & Seaton, 2004; Wolfe, 2003). Spencer et al. (2004) explain these behaviors as byproducts of hypermasculinity, an exaggerated endorsement of certain values considered to be traditionally male in order to compensate against an inability to fulfill other aspects typically prescribed to being male. Conversely, however, African American men may have developed more flexible scripts

for gender roles than those of White men (Hammond & Mattis, 2005). This possibility seems to be at least partially supported empirically – African Americans are among the least likely to endorse traditional male norms (Abreu, Goodyear, Campos, & Newcomb, 2000; Wade & Brittan-Powell, 2001).

Because African American men's experiences with masculinity are bound by race (Courtenay, 2000b; Hammond & Mattis, 2005; Wester, Vogel, Wei, & McLain, 2006), this dissertation follows the claims of Crook et al. (2009) that an exploration of African American men's sexual behaviors necessitates an examination of both their racial and gender identity simultaneously. Furthermore, though much of the theoretical literature argues that multiple facets of identity are mutually constitutive (i.e., can't be independently extracted from one another) (Crenshaw, 1989, 1991), most empirical research continues to treat various elements of identity as independent constructs despite calls to employ methods that more adequately model the interaction between racial and masculine identity (Oparanozie, et al., 2011). This dissertation will empirically reflect intersectionality theory through: 1) the use of an inter- and intra-group approach and 2) the modeling of masculine and racial identity as mutually dependent variables.

3.2 Models of health socialization

Though intersectionality theory provides a useful guiding framework, it requires theories that are more substantively oriented to guide the development of testable hypotheses. To accomplish this task, I augment intersectionality theory in this dissertation with theories of health socialization.

Several theories and models exist in the scientific literature to describe the process by which people acquire health behaviors. Lau et al. (1990) examined the effect of differing sources of socialization on the acquisition of four different health behaviors: alcohol consumption, nutrition, physical activity, and seat belt use. Utilizing prior literature, they propose two alternative models for the development of health behavior: 1) The Lifelong Openness Model; and 2) The Enduring Family Socialization Model. The Lifelong Openness Model suggests that extra-familial influences, such as peers and social networks, are largely responsible for the formation of health behaviors (Brim & Kagan, 1980; Lau, et al., 1990; Lerner, 1984). By contrast, the alternative Enduring Family Socialization Model postulates that health behaviors are determined by childhood experiences and the influence of parents or other family members, and remain largely stable throughout life (Barnes, et al., 2000; Lau, et al., 1990).

The Lifelong Openness Model does not discount the influence of parents. In fact, this model posits that the health behavior of children and early adolescents are likely similar to those of their parents, but only because parents are thought to be primary agents of socialization at this time. The primary difference between the Lifelong Openness Model and the Enduring Family Socialization Model is that parents receive no *de facto* importance as agents of socialization (Lau, et al., 1990). As discussed in Chapter 2, the literature demonstrates that parents are not the only agents of sexual health socialization, but it is likely they become less important as an individual develops and matures.

Empirical work makes clear that one model or pattern of socialization does not necessarily hold true across health behaviors (e.g., Anderssen, Wold, & Torsheim, 2006).

Agents of socialization for one health behavior may have diminished or increased roles for another. Regarding sexual health behaviors, this may be particularly true given parental reluctance to talk explicitly about sexual behaviors with their children. It is precisely because many messages about sexual behavior are not communicated explicitly (Courtenay, 2000b; Tinsley, 1992) that fathers may have particular salience. Fathers also instruct their sons about masculinity through non-explicit means such as behavioral modeling or through the attitudes they hold. Embedded in these implicit messages about masculinity are also messages about what constitute appropriate attitudes, beliefs, and behaviors regarding sexual activity.

The social ecological framework is a useful way to organize thinking about how health behaviors and health outcomes are produced. Briefly, it refers to the idea that multiple levels of influence ranging from the individual, interpersonal, all the way to the social and political, can influence health. Furthermore, these levels have the ability to reinforce and interact with one another. (For a more detailed explanation of this framework see McLeroy, Bibeau, Steckler, & Glanz, 1988.) Researchers point to evidence of varying strength implicating factors at all levels of the social ecological framework as being influential in individual decisions to use condoms. These influences range from socioeconomic status (Ku, Sonenstein, & Pleck, 1992; Santelli, Lowry, Brener, & Robin, 2000), and sexual networks (Adimora, Schoenbach, & Doherty, 2006) to socio-historical factors (Thomas, 2006; Thomas et al., 1999). McLeroy et al. (1988) define the interpersonal level of the social ecological framework as “formal and informal social network and social support systems, including the family, work group, and friendship networks” (p. 355). Application of the interpersonal level of this framework

provides space where multiple theories of health socialization interface to inform conceptualizations of sexual health behavior correlates.

Bronfenbrenner and others were among the early researchers who situated the roles of parents and peers into one theoretical framework, noting that while peers and parents both played powerful roles on the development of young people, these effects were often in opposite directions (Bronfenbrenner, 1967, 1986; Devereux, Bronfenbrenner, & Rodgers, 1969). To invoke Bronfenbrenner's ecological systems theory and its language (which is widely considered a precursor to the now widely used social ecological framework), the independent effects of peers and fathers are characterized in this model as components of the microsystem. How multiple contexts interact with and influence one another, or more specifically how the effects of peer and paternal socialization interact, would be attributable to what he labeled the mesosystem (Bronfenbrenner, 1979). Applying ecological systems theory, the Lifelong Openness Model, and the Enduring Family Socialization Model to the study of sexual health behaviors can be useful in hypothesis generation. All three perspectives acknowledge the roles that peers and parents play. However, if data supports the Lifelong Openness Model we might expect to see the waning of parental influence while the influence of the more salient socialization agents such as peers, increases over time. Conversely, support for the Enduring Family Socialization Model does not dismiss the role of peers, but rather we might expect to see that the influence of parents in adolescence would still maintain some degree of significance into a later developmental period. Lastly, those determinants that exist within the mesosystem of the ecological systems theory may argue for an interaction between peer and parental influence. The effect of peers would be a function

of paternal socialization, or otherwise stated the (presumed harmful) effect of peers would be blunted in the presence of paternal socialization.

An underexplored consideration in the previously mentioned theoretical frameworks is the role of race. Just as the utility of any model of health socialization varies by health behavior, these models likely differ by race given varying peer and paternal dynamics. Fathers may have a more prominent role in health socialization for African American men because they also function as agents of racial identity development. Theories of health socialization must acknowledge the potential role for African American fathers to hold additional influence for their sons because of this additional socialization function (Coard, et al., 2004; H. P. McAdoo, 2002). Though this remains largely a gap in the literature, the use of health socialization theories in tandem with the application of intersectionality theory as a guiding empirical lens provides a fertile space to explore the group-specific factors of masculine and racial identity.

3.3 Theoretical synthesis and description of conceptual framework

I present a conceptual framework (Figure 3.1) that serves to unite the determinants identified within the literature review and integrates them using the aforementioned theoretical perspectives. This framework serves as the overarching conceptualization of this dissertation research and guides the two manuscripts presented in Chapters 4 and 5. In summary, theories outlined in this chapter are applied in following manner:

- **Intersectionality Theory.** Health inequities between African American and White men reflect social inequality that informs the development of

intersectionality theory. Additionally, both masculine and racial identity influence health behavior, and are mutually formed and constructed alongside one another. The use of intersectionality theory is mirrored in the use of an inter- and intra-group analysis, and also informs the decision to model masculine and racial identity together instead of independently.

- **Enduring Family Socialization and Lifelong Openness Models.** Both peers and fathers are situated as agents of health socialization. These theories stipulate that peers and fathers vary in their relative importance, and that this variability may or may not change as individuals progress through development.
- **Ecological Systems Theory.** Above and beyond the independent effects both peers and fathers have as agents of health socialization on sexual health behavior (the microsystem), these agents influence the effect each other have (the mesosystem) on sexual initiation and condom use.

Naturally these theories do not exist within isolation and have important overlap and connections with one another. Peers and fathers are agents of health socialization, precisely because of their role as influential elements within the social environment that communicate implicitly and explicitly about sexual health. Invoking the need to incorporate group-specific factors into health disparities research, I position African American fathers as having specific and unique roles. In addition to functioning as key agents of health socialization, they are also important agents of both masculine identity and racial identity development. In other words, fathers socialize their sons about aspects of their social identity associated with sexual health behavior. Furthermore, embedded

within the communication about masculine and racial identity are messages about what constitutes normative and appropriate health behavior as well.

To reiterate, the primary aims guiding this dissertation are:

Aim 1: Examine the longitudinal association between peer and paternal agents, and sexual initiation and condom use in adolescence.

Aim 2: Determine if the association between peer and paternal health socialization, and sexual initiation and condom use differs by race.

Aim 3: Explore the role of masculine and racial identity on condom use through the development of latent class profiles.

The next two chapters empirically test the relationships within these study aims. Study-specific conceptual models are presented within these chapters as Figures 4.1 and 5.1 and represent specific hypotheses and associated analyses.

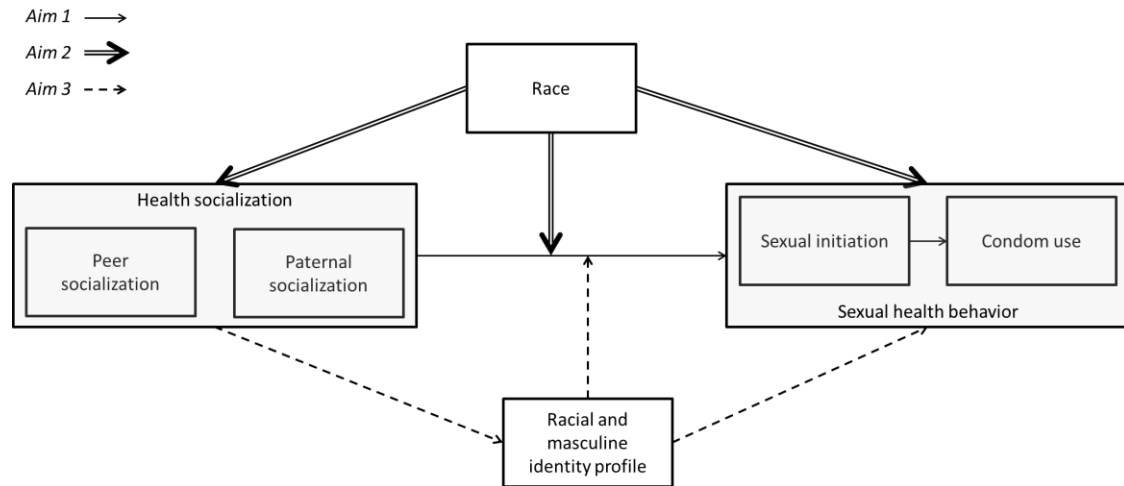


Figure 3.1. Comprehensive conceptual model depicting relationships of interest within both dissertation studies.

CHAPTER 4: LONGITUDINAL INVESTIGATION OF RACIAL DIFFERENCES IN PATERNAL AND PEER SEXUAL HEALTH SOCIALIZATION AND BEHAVIORS OF YOUNG MEN

4.1 Introduction

Peers are important agents of sexual health socialization. They can influence when an individual becomes sexually active, as well as their likelihood of condom use (Holtzman & Robinson, 1995; Leland & Barth, 1993). Fathers also play a critical and distinct role in shaping sexual health behaviors (Lehr, DiIorio, Dudley, & Lipana, 2000). Fathers are influential agents in delaying sexual initiation among their children (Jordahl & Lohman, 2009; Lohman & Billings, 2008), and increasing evidence demonstrates paternal involvement increases the likelihood of consistent condom use as well (Jemmott & Jemmott, 1992; Lehr, Demi, DiIorio, & Facticeau, 2005; Lehr, et al., 2000).

Despite the evidence that peers and fathers act as agents of sexual health socialization, the process of developing health behavior remains an understudied factor which contributes to health disparities (Singh-Manoux & Marmot, 2005). The influence of peers on sexual health behaviors may be more pronounced for White adolescents (Doljanac & Zimmerman, 1998; Shah & Zelnik, 1981), while the role of fathers may be more pronounced for African American adolescents (Coard, et al., 2004; Hofferth, 2003; H. P. McAdoo, 2002). Understanding the relative contributions paternal influences make to sexual initiation and condom behavior in adolescence is important for two reasons: 1) racial disparities in HIV/STD infection are already present before age 19 (Centers for

Disease Control and Prevention, 2010), and 2) as with other health behaviors, sexual health behaviors developed in adolescence can carry over into young adulthood (Barnes, et al., 2000; Lau, et al., 1990; Paavola, et al., 2004).

This first of two dissertation manuscripts examines peer and paternal socialization as determinants of both sexual initiation and condom behavior. Additionally, this manuscript utilizes the inter-group approach to health disparities in its analysis, and further examines if racial differences in socialization can explain differences in sexual initiation or condom use. By utilizing both of the alternative models proposed by Lau et al. (1990) (the Enduring Family Socialization Model and the Lifelong Openness Model), I examine which provides a better explanatory framework for sexual health socialization in African American and White male adolescents, and whether or not the applicability of the models differs by race.

4.2 Theoretical Framework and Conceptual Model

This dissertation manuscript is primarily guided by the Enduring Family Socialization Model, Lifelong Openness Model, and Ecological Systems Theory, all of which are discussed in greater detail in Chapter 3.2. Should only fathers demonstrate an effect during adolescence (Wave I), the evidence would favor the Enduring Family Socialization Model. If, however, as hypothesized, peers also exert influences during this developmental period, it would provide support for the Lifelong Openness Model as well.

Because these models and theories are developmental in nature and concerned with behavioral changes over time, this study also examines changes in condom behavior between adolescence (Wave I) and young adulthood (Wave III). The Enduring Family

Socialization Model would suggest that paternal socialization in adolescence would maintain an effect through young adulthood, as the formation of sexual health behavior would have mostly occurred in and solidified during earlier in life. By contrast, the Lifelong Openness Model suggests that adolescence is when the effect of peers begins to overtake the effect of parents. By young adulthood, other more relevant sources of socialization surpass parental influence.

Though peers and fathers are distinctly separate sources of socialization, Ecological Systems Theory points to their interaction and suggests paternal socialization may buffer the effect of peer socialization, a finding which has been empirically demonstrated elsewhere (Fasula & Miller, 2006). Specifically, I hypothesize that positive paternal socialization will buffer harmful peer influences (i.e., peer effects that accelerate sexual initiation or reduce condom use). In addition to the direct effect fathers exert on their sons, an additional effect of paternal socialization may manifest when adolescents are exposed to messages about sex from their peers. In the presence of the anticipated enduring quality of paternal socialization, peers may be limited in their ability to negatively influence attitudes and beliefs about sexual health behavior. Absent such paternal socialization, however, the potential for peers to have an even greater effect on the health socialization process is greater.

While the limitations of available data prevent their full measurement, the racialized environmental contexts in which African Americans live inform our conceptualization of race-based differences in paternal socialization. Though all sons likely receive masculine role socialization messages from their fathers, African American fathers may additionally influence their sons as agents of racial socialization. Other

theorists have also argued that African American father-son relationships are made particularly salient by necessity, in part due to the additional effort required by African American fathers to overcome socio-historical barriers to their parenting (Bowman & McAdoo, 1993; Wade, 1994). African American parents must also communicate with their children about how to navigate the barriers produced by racial discrimination (Hughes, et al., 2006; Stevenson, Reed, Bodison, & Bishop, 1997). Furthermore, contrary to a history of African American fathers being portrayed as absent and uninvolved in the lives of their sons (e.g., Broderick, 1965; Moynihan, 1965), more recent empirical and theoretical research counters this claim (H. P. McAdoo & McAdoo, 2002; J. L. McAdoo, 1993; Salem, Zimmerman, & Notaro, 1998). Other research demonstrates that even among non-residential fathers, African Americans were the least likely to be uninvolved in the lives of their children (Lerman, 1993). These findings suggest the possibility for an enhanced effect of African American paternal socialization, and in turn a greater potential for African American fathers to influence the development of their sons' sexual health behaviors.

The conceptual model reflecting hypothesized relationships is presented in Figure 4.1. In this model, the timing of sexual initiation also influences condom behavior at Wave I, to allow for the possibility that earlier sexual initiation may be associated with a decreased likelihood to use condoms. Similarly, condom use at Wave I is linked to condom use at Wave III to demonstrate that behavior in adolescence may partially predict behavior in young adulthood.

4.3 Research Questions and Hypotheses

Research question 1: What are the effects of peer and paternal sexual health socialization on the timing of sexual initiation?

Hypotheses:

- 1.1: Negative peer sexual health socialization in adolescence will be associated with earlier sexual initiation (Wave I).
- 1.2: Positive paternal sexual health socialization in adolescence will be associated with later sexual initiation (Wave I).
- 1.3: Positive paternal sexual health socialization in adolescence will buffer the accelerating effect of negative peer health socialization on sexual initiation (Wave I).
- 1.4: The effect of positive paternal sexual health socialization on delaying sexual initiation will be greater for African American men than White men (Wave I).

Research question 2: What is the contribution of peer and paternal sexual health socialization on condom use in adolescence?

Hypotheses:

- 2.1: Negative peer sexual health socialization will be associated with a decreased likelihood of condom use (Wave I).
- 2.2: Positive paternal sexual health socialization will be associated with a greater likelihood of condom use (Wave I).
- 2.3: Positive paternal sexual health socialization will buffer the negative effect of peer sexual health socialization on condom use (Wave I).
- 2.4: The effect of positive paternal sexual health socialization on increased likelihood of condom use will be greater for African American men than White men (Wave I).

Research question 3: What is the contribution of peer and paternal sexual health socialization on condom use in young adulthood?

Hypotheses:

- 3.1: Negative peer sexual health socialization (Wave I) will be associated with reduced frequency of condom use (Wave III).

- 3.2: Positive paternal sexual health socialization (Wave I) will be associated with increased frequency of condom use (Wave III).
- 3.3: Positive paternal sexual health socialization (Wave I) will buffer the negative effect of peer sexual health socialization (Wave I) on condom use (Wave III).
- 3.4: The effect of positive paternal sexual health socialization (Wave I) on increased likelihood of condom use will be greater for African American men than White men (Wave III).

4.4 Methods

4.4.1 Study Design and Participants

The National Longitudinal Study of Adolescent Health, or Add Health, is a nationally representative longitudinal investigation of adolescents and their health behaviors. Adolescents were in grades 7-12 (ages 10-18) during the 1994-1995 school year, or Wave I. Since this first wave of data collection, three additional waves of data have been collected, the most recent being in 2008. As of Wave IV, participants were between 24 and 32 years old. This dissertation study utilizes data through Wave III, when participants were between 18 and 26, with the exception of 24 participants who were 27-28 during Wave III data collection.

Add Health features a complex sampling design in order to create a nationally representative and generalizable sample of study participants. Briefly described, Add Health employs a multi-stage cluster sampling approach in which middle and high schools are sampled with an unequal, but known probability of selection. Schools are stratified by race/ethnicity, region, school size, school type, and urbanicity to ensure adequate representation in the final school sample. Each participant within selected schools is assigned a sampling weight to reflect their probability of selection and to

account for non-response. A more in-depth description of the sampling intricacies related to the Add Health study design is available elsewhere (K. M. Harris et al., 2009).

To help protect the confidentiality of study participants, Add Health restricts the full data set by releasing a publically available subset that contains approximately one-half of the core sample as well as one-half of the oversample of African American adolescents who had at least one parent with a college degree (K. M. Harris, et al., 2009). This more limited public-use data also omits several variables considered especially sensitive or that could facilitate deductive disclosure. The data, however, does include a participant-specific identification variable as well as sampling design and weight variables to allow for the appropriate analysis of data. Because all necessary variables for this study, as well as an adequate sample size, are available in the public dataset we forwent accessing the restricted-use data.

4.4.2 Study Measures

Sexual initiation. Sexual initiation was assessed with a series of questions about whether and when participants had their first sexual encounter: “Have you ever had sex? When we say sexual intercourse, we mean when a male inserts his penis into a female’s vagina,” and “If so year and month of first sex.” Sexual initiation was coded such that 0 = no sexual initiation and 1 = had a sexual encounter. We calculated the age of first sexual encounter for participants for whom sexual initiation = 1 by subtracting the date of the first sexual encounter from self-reported birth date. If a study participant had not yet

reported sexual activity at Wave I, but did in Wave II, we set sexual initiation = 1 and calculated the age of first sex using data provided in Wave II.

Condom use. Condom use at Wave I was operationalized as whether or not participants used a condom during their most recent experience sexual intercourse. Condom use at last sex was coded so that 0 = no condom use and 1 = condom use. Though condom use can be operationalized in a variety of ways, this method has been used frequently in sexual health literature (e.g., Balaji et al., 2008; Miller, et al., 1998; Sanders et al., 2010; Shafii, et al., 2007). Furthermore, condom use at last sex has been empirically proven as a valid proxy for condom behavior over longer retrospective periods (Younge et al., 2008). At Wave III condom use was assessed as the frequency of condom use during the past 12 months, and operationalized as a continuous variable with increasing values referring to how often study participants used a condom: 0 = “none”, 1 = “some”, 2 = “half”, 3 = “most”, or 4 = “all.”

Paternal socialization. During Wave I parents were asked questions in addition to adolescents. However, by design, mothers made up the majority of responses to this category, with fathers representing only approximately 10% of the parents of males interviewed. Though information provided directly from fathers would be preferable, because child reporting of parental values frequently aligns with parental reports of their values, adolescent perception of paternal messaging may be sufficiently reflective of paternal socialization (Knafo & Schwartz, 2012; Whitbeck & Gecas, 1988). To assess this, we used participant response to the following items, “Regardless of whether you have done these things or not, how would your father feel about each of the following things? How would he feel about...”

- “Your having sex at this time in your life?”
- “Your having sexual intercourse with someone who was special to you and whom you knew well—like a steady girlfriend/boyfriend?”
- “Your using birth control at this time in your life?”

Responses to these items ranged from 1 (*Strongly Disapprove*) to 5 (*Strongly Approve*).

Paternal socialization was operationalized using the first two items in the analysis of sexual initiation as separate indicator variables, and operationalized using the last item in the analysis of condom use. Greater values of these variables are considered positive paternal socialization.

Peer socialization. Similar to paternal socialization, peer socialization was assessed using data from participants, rather than using data from peers themselves. Peer socialization was measured using the following two items, many of which have been previously used in sexual health studies that utilized Add Health (e.g., Francis & Thorpe, 2010):

- “If I had sex, my friends would respect me more.”
- “If I had sex, my partner would lose respect for me.”

Responses to these items ranged from 1 (*Strongly Disapprove*) to 5 (*Strongly Approve*).

Peer socialization was operationalized by using responses to these questions as separate indicator variables. These items were used to model both sexual initiation and condom use. Greater values for the first variable are considered negative peer socialization, while greater values of the second variable are considered positive peer socialization.

Sociodemographics. Various sociodemographic variables were assessed in order to control for any possible confounding in multivariate analysis. Self-reported sex was used to limit all analyses to male respondents. Race and ethnicity were also assessed. Participants who identified as either “White” or “Black or African American” and also responded “No” to the question, “Are you of Hispanic or Latino origin” were eligible for this study; all other racial groups were excluded from analysis. Participants were given the option to select more than one race. For those participants who chose more than one response category, they were asked, “Which one category best describes your racial background” and their response to this item was used to assess race. Participant age was assessed by subtracting the interview date from self-reported birth date. Birth cohort was also equated with the year of a study participant’s birth, with 0 = 1974, 1 = 1975, and so on. Parental education was assessed by selecting the highest educational attainment among the study participant’s parents; this measure is frequently used to represent socioeconomic status for adolescents (e.g., Goodman, 1999; Gordon-Larsen, Adair, & Popkin, 2003). Parental education was operationalized using a continuous variable with ten levels, and coded such that 0 = “never went to school” represented the lowest level of parental education, and 9 = “professional training beyond a four-year college or university” represented the highest level. Fathers’ residential status was assessed by using the list of household members generated by respondents. For each listed name, respondents were asked to indicate “What is [NAME]’s relationship to you?” If respondents selected one of the listed names as “father” then the father was considered residential, and residential status was coded as 1. Remaining study participants who responded affirmatively to, “Do you know anything about your non-residential father?”

were considered to have non-residential fathers, and residential status was coded as 0. Participants who reported having no information about their father were excluded from analysis. Participants were considered to be in a current relationship if they reported being married or were cohabitating with a romantic partner. Relationship status was coded such that 0 = no reported relationship status, and 1 = in a current relationship. All sociodemographic variables were assessed at Wave I (or at Wave II if missing) with the exception of relationship status, which was assessed only at Wave III.

A table of all study measures used in Chapter 4 is presented in the Appendix.

4.4.3 Data Analysis

Preliminary analyses. We conducted an examination of means and frequencies of continuous and categorical variables, respectively. We also report the associated standard error and percentage of these variables, adjusting for the sampling structure of Add Health. To determine statistical significance of racial differences in the variables we used unadjusted linear and logistic regression models that also incorporated the sampling structure of Add Health. Finally, we conducted unadjusted post-hoc comparisons of sexual initiation and last condom use, by whether or not men reported any information about their father.

Sexual initiation. A Cox proportional hazards multivariate regression model was used to model sexual initiation. This model is a specific type of regression that falls under the more general classification commonly referred to as survival analysis (D. R. Cox, 1972). Much like other regression models, each covariate yields a corresponding parameter estimate that represents the effect of that covariate on the outcome, with Cox

proportional hazard models yielding hazard ratios. While risk ratios compare the *probability* of an event occurring in one group to another, hazard ratios compare the *rate* at which that event occurs in one group to the other. For purposes of this analysis the event of interest is sexual initiation (event = 1). While a risk ratio would reflect the cumulative risk of adolescents becoming sexually active, the hazard ratio reflects the instantaneous risk. This property of hazard ratios makes Cox proportional hazard models particularly appropriate in the modeling of sexual initiation. The model incorporates not only whether or not adolescents are sexually active, but how much time passed before sexual initiation. In this analysis, the time to event (i.e., sexual initiation) is age at sexual initiation. Participants who were not sexually active as of Wave II were treated as right-censored (event = 0). Birth cohort was used instead of age in this model.

Condom use. Logistic regression was used to model condom use at last sex at Wave I (or Wave II for participants who became sexually active during this study period). Similarly, linear regression was used to model condom frequency at Wave III. The same covariates were included in both models, additionally controlling for participant's condom use at Wave I/II, age of sexual initiation, and current relationship status at Wave III.

Sampling design. Due to the sampling design of Add Health, all statistical procedures had to account for the clustering associated with sampling schools, as well as the individual probability of selection (adjusted for post-stratification) for each study participant, also referred to as the sampling weight. Though there is an almost inevitable loss to follow-up between Waves I and Waves III, prior analyses reveal that they when sampling weights are used, the sample in Wave III is an appropriate statistical

representation of the sample from Wave I (Chantala, Kalsbeek, & Andraca, 2004). Following the recommendations of the Add Health research team, sampling weights from the most recent wave of data collection in analysis were used in the modeling of longitudinal data (i.e., condom use at Wave III). The Cox proportional hazard model, however, appropriately utilizes sampling weights from Wave I (Chantala, 2006; Chantala & Tabor, 1999). Participants who do not fall within the study population (i.e., all females, and males that are neither non-Hispanic Black or African American or non-Hispanic White) are given a sampling weight of .00001. This effectively excludes these participants from analysis while keeping intact the sampling structure to allow for accurate parameter estimation. Appropriate SAS procedures were used to account for Add Health's sampling design, specifically: PROC SURVEYFREQ, PROC SURVEYMEANS, PROC SURVEYPHREG, PROC SURVEYLOGISTIC, and PROC SURVEYREG.

Model specification. The modeling of all three outcomes (sexual initiation, condom use at last sex at Wave I/II, and frequency of condom use at Wave III) was conducted utilizing a series of regression models in which each model was increasingly saturated with study variables. This was done to identify the extent to which race, as well as other control variables, became attenuated by the addition of peer and paternal socialization to the model. Sexual initiation, condom use at Wave I, and condom use at Wave III, utilized five models each, detailed below:

- Model 1: Race
- Model 2: Race + sociodemographic controls

- Model 3: Race + sociodemographic controls + peer socialization + race x peer socialization interaction
- Model 4: Race + sociodemographic controls + paternal socialization + race x paternal socialization interaction
- Model 5: Race + sociodemographic controls + peer socialization + paternal socialization + peer socialization x paternal socialization interaction

Models 3 and 4 were not nested and as such cannot be directly compared to one another, but rather were used to assess the independent effects of peer and paternal socialization, respectively; models 3 and 4 can be compared to the full model (Model 5). The hypothesized interactions (race x peer socialization, and race x paternal socialization) were also tested within Model 3 and Model 4, respectively. Interactions testing the potential buffering effect of paternal socialization on peer socialization were tested in Model 5. These interaction terms were tested for statistical significance using the procedures outlined by Frazier, Tix, and Barron (2004).

Preliminary analyses, all regression procedures and diagnostics, were conducted using SAS software for Windows, version 9.3 (SAS Institute Inc., Cary, NC). Data missing at Wave I was imputed using data from Wave II as it takes place only a year after Wave I. Other published studies utilizing Add Health data have used this method to replace missing data (e.g., Gangwisch et al., 2010). We used listwise deletion to address other missing data. All statistical procedures utilized an *a priori* alpha of .05 to determine statistical significance.

4.5 Results

4.5.1 Descriptive Characteristics

Characteristics of the study sample at Wave I are presented in Table 4.1. After removing 98 non-Hispanic Black and 116 non-Hispanic White (hereafter referred to as African American and White) men from the study sample because they failed to provide any information about someone whom they identified as a “father,” the effective sample size at Wave I included 648 African American and 1911 White men. Compared to those who did not report this information, men who had identified a father in Add Health had parents with more formal education ($p<.0001$), and those who were sexually active were younger at first sex ($p<.05$).

Preliminary analyses indicated several notable differences between African American and White men. On average, White men had parents with greater levels of formal education and were more likely to reside with their father (72.9%) than African American men (36.6%). At Wave I, African American men were more likely to be sexually active (66.7%) than White men (34.8%). Among those men who had experienced sexual initiation, African American men were almost two years younger (12.9 years) at their first sexual experience than White men (14.8 years). Differences were also observed in socialization variables. On average, African American men reported more negative peer sexual health socialization and less positive paternal sexual health socialization ($p<.001$). The exception was that African American men reported that their fathers approved of birth control to a greater extent, albeit with marginal statistical significance (3.1 vs. 2.9; $p=.06$). There were no racial differences in condom use during the last sexual encounter.

4.5.2 Proportional Hazards Model: Sexual Initiation

Results from the multivariate Cox proportional hazards model predicting sexual initiation are presented in Table 4.2. In all five models, race remained statistically significant, echoing preliminary analyses from Table 4.1 that indicated African American men were more likely to be sexually active, and also became sexually active more quickly, than White men; this relationship is graphically represented in Figure 4.2. The effect of race became attenuated by the addition of control variables, as well as socialization sources; compared to Model 1, the effect of race in Model 5 was attenuated by 43%. With the exception of Model 2, age cohort was associated with the timing of sexual initiation, with older cohorts having delayed sexual initiation longer. Greater parental education and having a residential father were also associated with delaying sexual initiation.

Peer socialization operated in the expected direction. Endorsing greater beliefs that peers would respect you more for having sex was associated with earlier sexual initiation, while greater beliefs that your partner would respect you less being associated with later sexual initiation. These results maintained statistical significance in both Model 3 and Model 5.

The effect of paternal socialization on sexual initiation was partially consistent with study hypotheses. Greater paternal disapproval of sexual activity with a partner was associated with delayed sexual initiation. However, paternal disapproval of sexual activity more generally was not statistically significant in either Model 4 or Model 5. With the exception of this variable, all covariates in the fully saturated Model 5 were statistically significant.

The four interaction terms testing the differential effects of socialization sources by race were omitted from the table because they were not significant (p-values ranged from .10 to .21). Interaction terms testing the effect of paternal socialization as a buffer of harmful peer socialization were also omitted for lack of statistical significance (p-values were .33 and .74).

4.5.3 Condom Use at Wave I

Results from the multivariate logistic regression model predicting condom use at last sex (Wave I) for those men who experienced sexual initiation are presented in Table 4.3. Unlike sexual debut, race was not statistically significant in any of the regression models. Older age was associated with a reduced likelihood of having used a condom at last sex. Neither peer nor paternal sexual health socialization was associated with using a condom at last sex. The three interaction terms testing the differential effects of socialization sources by race were omitted from the table as they were not significant (p-values ranged from .77 to .99). The interaction term testing the effect of paternal socialization as a buffer of harmful peer socialization was also omitted for lack of statistical significance (p-value = .20).

4.5.4 Condom Use at Wave III

Results from the multivariate linear regression model predicting frequency of condom use in the last 12 months at Wave III are presented in Table 4.4. Race was statistically associated with condom frequency such that African American men used condoms more frequently than White men, though this effect became increasingly attenuated with the addition of variables into the model until it was no longer statistically significant in Model 5. No other covariates demonstrated a statistically significant

relationship with condom frequency, except relationship status - men currently in a relationship used condoms less frequently than men who were not. The three interaction terms testing the differential effects of socialization sources by race were omitted from the table as they were not significant (p-values ranged from .08 to .84). The interactions term testing the effect of paternal socialization as a buffer of harmful peer socialization was also omitted for lack of statistical significance (p-value = .47).

4.6 Discussion

This manuscript extends previous research demonstrating the importance of health socialization on a variety of health behaviors, by examining the joint role that both peers and fathers play as agents of sexual health socialization. Despite the persistent racial disparity in new HIV and STD infections among men in the United States (Centers for Disease Control and Prevention, 2010; Prejean, et al., 2011), and previously documented associations of health socialization on sexual initiation and condom use (Bears, 2009; Biglan, et al., 1990; Guilamo-Ramos, et al., 2008; Metzler, et al., 1994; Miller, et al., 2009), the literature has rarely examined if racial differences in these sexual health behaviors are a function of differences in sexual health socialization. Using a nationally representative and longitudinal study, the National Longitudinal Study of Adolescent Health, this manuscript fills the gap by applying health socialization theories to the examination of sexual health socialization among adolescent and young adult men, notably by including the understudied role of fathers.

The data support the hypotheses about the role of peers and fathers, though we unexpectedly only identified associations for sexual initiation and not condom use. Aside from age and relationships status, none of the variables in the model predicted condom

use at Wave I/II or at Wave III. Race was associated with increased condom use at Wave III until the final saturated model, at which point it reached statistical non-significance. Race maintained statistical significance in all models predicting timing of sexual initiation, though as we added additional variables (sociodemographics, and peer and paternal socialization) to the model, this effect was attenuated.

As predicted, the more adolescents believed peers would respect them if they were sexually active, the more quickly they became sexually active themselves. This also confirms other literature that situates peers as socialization agents that foster sexual activity (Busse, et al., 2010; Fasula & Miller, 2006; Kinsman, et al., 1998). However, the belief that a partner would respect adolescents less if they became sexually active was associated with a delay in sexual initiation. Though the concern about peers encouraging sexual initiation is empirically founded, peers socialization can also delay sexual initiation as well. Peer socialization is not *de facto* problematic, but rather the complexity and diversity of peer interactions indicates that they can influence the age of first sex in either direction.

Unlike the peer socialization variables, only one paternal socialization variable was associated with delaying sexual initiation: disapproval of sexual activity with a partner. Paternal disapproval of sexually activity more generally had no effect on the age of first sex. This may point to the importance of both the specificity and quality of paternal communication. A review of parental sexual communication suggests the quality of the messages adolescents receive from their parents is an important factor in determining that message's efficacy (DiIorio, Pluhar, & Belcher, 2003). However, the extent to which specificity in messaging is a component in determining quality is less

clear. Nevertheless, it is plausible that messages from a father to his son that he should simply “not have sex” is generic, prevalent, and even expected. These characteristics may render the message ineffective in its goal of delaying sexual initiation. In contrast, paternal communication over the importance of delaying sexual initiation with an existing intimate partner is inherently specific, which may explain why it is more effective. Alternatively, the ability to have a conversation at this level of specificity may be emblematic of greater father-son relationship quality and influence over positive health behaviors in general. However, it is important to note that the variables used in analysis only indirectly assessed parental communication via perceptions of attitudes, so future work will need to be explicit in its examination of the quality and contexts governing father-son communication dynamics. Still, sexual education programs have been found to improve condom use as frequently as delaying sexual initiation, suggesting that with the right messaging adolescent condom use can be promoted as well, though it may require fathers to discuss these behaviors separately (Kirby, 2008).

The African American-White difference in sexual initiation was marked, even after controlling for peer and paternal socialization (Tables 4.1 and 4.2). By Wave II, African American men were almost twice as likely to have had sexual intercourse. Furthermore, among those who had sex by Wave II, African American men on average had their first sexual experience around age 13, almost two years before their sexually active White counterparts. This earlier age of sexual initiation for African Americans has several implications. Accompanying an earlier age of initiation is an increased number of sexual encounters (Coker, et al., 1994). Young African American men have additional opportunities in which they may not use condoms, even if the rate of that condom use is

the same as White men. Additionally, the interpersonal nature of sexual activity suggests that groups of adolescents become sexually active at around the same age. Underlying the approximately two year difference in age at first sex between young African American and White men (for those who were sexually active by Wave III) is that these ages roughly correspond to the start of middle and high school in the United States. What constitutes the socially appropriate age to begin having sex may vary across social contexts that African American and White adolescents inhabit. Characteristics of the social environment may confound the association between race and age of first sex, since spatial and social segregation by race in the United States frequently limits interactions between African American and White adolescents (Moody, 2001).

Counter to conventional knowledge, and the preponderance of interventions that target condom behavior among African American men as a means to reduce sexual health disparities, we did not find any difference in condom use between African American and White men. In young adulthood, African American race was actually associated with greater condom use in all but the final regression model. The lack of difference between African American and White men in this analysis points to the importance of examining sexual health behavior both between and within groups. However, neither this null finding nor the analyses represented in this manuscript are poised to address sources contributing to the variability in condom use among African American men. Any similarities in the rates of condom use between African American and White men cannot necessarily translate into an assumption that the same determinants drive condom behavior in these groups. I explore racial and masculine identity as a possible source of intra-group variability among African American men in Chapter 5.

We did not identify a buffering effect of paternal socialization on peer socialization in any regression model. Though the data do not support this hypothesized interaction, we acknowledge it has been empirically supported elsewhere (Fasula & Miller, 2006). The substantial difference in the age of first sex between African American and White men suggests the context of sexual initiation may be sufficiently different by race such that the buffering effect may only exist for one racial group. However, our analysis was not powered for the three-way interaction this would require. Several interaction terms representing the differential effect of socialization by race on sexual initiation had p-values $\geq .10$, and may indicate a trend towards statistical significance. Finally, our inability to detect a statistically significant interaction term may have been a function of any number of factors such as imprecise measurement, or sample size limitations.

The data do not support the hypothesized interactions predicting differential effects of race on paternal socialization. These null results may be partially attributable to an unobserved variable that is driving the correlation between race and the age of sexual initiation. One unexplored possibility is the context of paternal communication. Though we did not examine this, African American and White young men reported statistically different beliefs about paternal attitudes surrounding sexual behavior, suggesting there may be important qualitative differences in how fathers communicate with their sons. Furthermore, African American fathers likely need to communicate about sexual initiation with their sons earlier in order to maximize their ability to delay sexual health socialization for two reasons. First, these conversations become irrelevant if fathers talk about sexual initiation after their sons have already become sexually active.

Second, the Lifelong Openness Model suggests that paternal influence wanes over time. Though the timing of data collection did not provide us with multiple observations in adolescence or with information about when paternal-son conversations occurred, African American fathers should actively communicate about sex with their sons earlier while they wield greater influence as agents of health socialization. If African American fathers truly have a greater impact than White fathers as agents of sexual health socialization, the need to communicate with their sons even earlier may have attenuate this effect because African American young men are more likely to already be sexually experienced. Lastly, even while the *effect* of the socialization variables did not differ by race, we entertain the possibility that the *dosage* does. On average, African American men appear that they may be exposed to negative sexual health socialization from peers to a greater extent than White men. Additionally, African American men also are exposed to less positive sexual health socialization from fathers (Table 4.1). We briefly discuss this result in the context of residential status.

We did not make hypotheses about paternal residential status, though we controlled for this variable based on frequent discourse that a father's presence is generally good for the well-being of his children. The data partially supported this conjecture, as paternal residential status was associated with delaying the age of first sex. Additional research is needed, but it may be that residential status is important not because it has a *de facto* salubrious influence on sons, but may simply be a proxy for opportunity or quantity of paternal communication; in no model was residential status significant when paternal socialization not. As other interventions have already done (e.g., Caldwell, Rafferty, Reischl, De Loney, & Brooks, 2010; Caldwell, Wright, et al.,

2004), the research literature may need to conceptualize residential status less as a determinant of health behavior, and more as a context in which to understand and provide opportunities for non-residential and residential fathers alike to communicate meaningfully with their sons.

Residential status was not associated with condom behavior, though this may have been because we were unable to detect any effect of paternal socialization on condom use. However, the post-hoc analysis comparing those African American and White men in the analytic sample to those we excluded because they did not report any information about their father showed results that align with our regression analyses. Men who did not report any information about fathers were younger at sexual initiation ($p < .05$), but were no less likely to use condoms. This strengthens the argument that the null finding of paternal socialization on condom behavior reflects a true lack of association. However, this finding also suggests that fathers, regardless of residential status, are missing opportunities for sexual health socialization. Fathers should leverage existing communication with their sons about sexual initiation to promote additional conversation about condom use. Additionally, interventions that provide additional opportunities for healthy interactions between father and son are among the most promising to delay the age of first sex and promote consistent condom use.

We point towards the difference in the age of sexual initiation as driving part of the disparity in STD infection among 15-19 year olds, the earliest age group for which the CDC reports these data. Among 15-19 year old men, African Americans have chlamydia, primary and secondary syphilis, and gonorrhea at rates which are 13.6, 26.6, and 37.6 times that of Whites, respectively (Centers for Disease Control and Prevention,

2011b). The difference between becoming sexually active around 13 and 15 years of age can be profound because of the rapid pace of adolescent development. For this reason, it is imperative that African American fathers communicate with their sons about sexual activity even earlier.

The effects of both paternal and peer socialization on the timing of sexual initiation partially support both the Enduring Family Socialization and Lifelong Openness Models. The Enduring Family Socialization Model is supported as fathers still maintain some influence even in adolescence. However, our results indicate that peers also influence the age of first sex in adolescence. The indication that young men are open to additional influence outside the family provides evidence for the Lifelong Openness Model. However, the data supported neither model when we examined socialization influences in young adulthood. We did not find an effect of peers or fathers on condom use at Wave III.

We did not find any race differences in condom behavior in adolescence, and even found moderate support that African American men in the sample used condoms more frequently in young adulthood. At a glance, these findings appear to be at odds with African American men's greater rates of HIV and other STDs. Though we anticipated African American and White male condom behavior could be similar in young adulthood, finding no racial differences in condom behavior during adolescence was largely unexpected for several reasons. The first is the earlier age of first sex among African Americans, which we thought would in turn result in lower condom use. Second, compared to White men, African American men already have much higher rates of HIV and other STD by the age of 19 (Centers for Disease Control and Prevention, 2011b).

Finally, there is substantial evidence of crossover effects with respect to other health behaviors. African American adolescents start off no more or even less likely to engage in health risk behaviors such as alcohol or substance use, but then surpass their White counterparts in young adulthood (e.g., Watt, 2008). If anything the exact opposite effect was observed, since African American men may actually be using condoms more frequently than White men in young adulthood. Without evidence of racial differences in condom use, these findings implicate the early age of initiation for African American in HIV/STD disparities more strongly than we had previously considered.

Though difference in age of first sex alone may explain part of the disparities in infection, the magnitude of these disparities suggest there are factors we did not study also responsible. The majority of sexual encounters in the United States are between individuals of the same racial group, and increased prevalence within these relatively segregated networks could be creating and sustaining HIV/STD disparities (Doherty et al., 2011; Morris, Kurth, Hamilton, Moody, & Wakefield, 2009). Even drawing upon sexual networks to reconcile our findings with epidemiologic data fails to answer a critical question: What accounts for the increased prevalence of HIV and other STDs so soon after sexual initiation? One possibility is that African American men have sex with older and more sexually experienced partners, which could increase their risk of infection – a phenomenon confirmed among young African American women and MSM (DiClemente et al., 2002; Hurt et al., 2010). Eliminating sexual health disparities by race rests largely on identifying and modifying factors that cause new HIV/STD infection African American men at such an early age.

All research, notably observational studies, present important limitations that we must acknowledge. Though this study featured two time points, an important strength in determining causality, we still cannot disentangle the temporal effects of variables measured at the same time. Notably, there is a concern of endogeneity at Wave I concerning peer and paternal socialization, and sexual initiation and condom use; the dependent variables we modeled may actually cause a change in the independent variables used to predict them. Though we articulate and hypothesize that socialization precedes behavior, it is possible that behavior is in fact determining socialization at the same time. The concern of endogeneity is greatest for paternal socialization, since fathers who learn their sons are sexually active may then engage in an increased level of communication about sexual behavior. Additionally, as an observational study there may be unobserved confounding variables explaining documented associations. Though we attempt to isolate the unique effect of peer and paternal socialization as it relates to sexual health, it is likely part of a broader socialization process (or latent construct). A more general socialization or quality of socialization may have been partially responsible for the statistically significant associations. There are also limits to the instruments used to assess peer and paternal socialization. Notably, the variables used to assess peer and paternal socialization did not directly correspond to condom behavior. The breadth of questions assessed in Add Health precludes depth of any one behavior, and so we used indicators that most closely reflected sexual health socialization. This measurement error reduces statistical power and may have obscured associations, particularly the ones between waves.

An important limitation that requires attention is the possibility that the effects in this study we attribute as peer socialization may actually be a consequence of peer selection (see Chapter 2.5.3). Nevertheless, we argue it is more plausible that socialization and not selection explains our findings. It seems less probable that individuals could choose their friends based on their sexual activity since these behaviors are not overtly visible or easy to get information about. Other research examining peer selection and socialization effects for different behaviors supports our claim. Evidence for selection is greatest with tobacco use, moderate with alcohol use, and weakest for substance use. Conversely, as evidence for selection decreases in these behaviors, the evidence for socialization increases (Kiuru, et al., 2010; Simons-Morton, et al., 2004; Wills & Cleary, 1999). Though additional empirical testing is required, it seems the more visible a health behavior is, the greater the role of peer selection. Conversely, peer selection based on actual or perceived similarity may be difficult to accomplish for health behaviors enacted privately. It is also important to note that the original model presented by Lau et al. (1990) operationalizes parental socialization as consisting of explicit instruction and modeling of health behavior, attitudes, and beliefs. Paternal instruction and modeling are less plausible for privately enacted sexual behaviors. Furthermore, father-son communication and its impact on health is theorized to be primarily communicated through implicit channels as opposed to explicit instruction (Courtenay, 2000b; Levant, 1996).

Despite limitations, this study moves forward the literature surrounding determinants of African American men's sexual health behavior. By examining the effects of socialization on both sexual initiation and condom use, we are able to glean

additional insight into how both peers and fathers shape the sexual health behaviors of young men. Our detection of statistically and substantively significant racial differences in sexual initiation, but not in condom behavior, can help researchers and practitioners focus efforts aimed at reducing disparities in HIV infection early in adolescence. Alongside the results from the manuscript in the next chapter, we discuss in detail in Chapter 6 next steps for research, as well as how these results can inform public health intervention.

4.7 Tables and figures

Table 4.1. Characteristics of Study Sample at Wave I

Variable	Race		<i>P</i> Value
	Non-Hispanic Black (n = 648)	Non-Hispanic White (n = 1911)	
Age, mean	16.31 (0.24)	16.00 (0.12)	.19
Parental education, mean (S.E.)	5.64 (0.19)	6.11 (0.12)	.02
Residential father, No. (%)	279 (36.6)	1379 (72.9)	<.001
Peer socialization, mean (S.E.)			
• Peers will respect more	3.03 (0.05)	2.66 (0.04)	<.001
• Partner will respect less	2.22 (0.05)	2.55 (0.04)	<.001
Paternal socialization, mean (S.E.)			
• Disapproval of sex at this time in life	3.74 (0.09)	4.22 (0.04)	<.001
• Disapproval of sex with partner	3.52 (0.09)	4.04 (0.04)	<.001
• Approval of birth control	3.14 (0.12)	2.88 (0.08)	.06
Sexually active, No. (%)	395 (66.7)	675 (34.8)	<.001
• Age of first sex (S.E.)	12.94 (0.20)	14.77 (0.13)	<.001
• Condom use at last sex, No. (%)	257 (91.9)	425 (87.9)	.11

Note: Means and percentages reflect weighted values; S.E. = standard error of the mean

Table 4.2. Sexual Initiation Regressed on Socialization Influences (Wave I)

Variable	Hazard ratios				
	Model 1	Model 2	Model 3	Model 4	Model 5
Race (White = ref)	2.64***	2.17***	1.71***	1.98***	1.73**
Birth cohort ^a		1.03	1.12**	1.11*	1.22***
Parental education		0.92***	0.93***	0.94**	0.95**
Residential father (non-residential = ref)		0.62***	0.63***	0.70*	0.70*
Peer socialization					
• Peers will respect more			1.18***		1.18***
• Partner will respect less			0.75***		0.72***
Paternal socialization					
• Disapproval of sex at this time in life				0.88	0.83
• Disapproval of sex with partner				0.74***	0.83*

*p<.05, **p<.01, ***p<.001

^a0 = born in 1974, 1 = 1975, etc.

Table 4.3. Condom Use at Last Sex Regressed on Socialization Influences (Wave I)

Variable	Odds ratios				
	Model 1	Model 2	Model 3	Model 4	Model 5
Race (White = ref)	1.55	1.44	1.53	2.50	3.34
Age		0.76**	0.74**	0.80	0.65***
Parental education		1.10	1.09	0.95	0.94
Residential father (non-residential = ref)		1.00	1.07	0.72	0.64
Peer socialization					
• Peers will respect more			1.05		1.04
• Partner will respect less			1.40		1.22
Paternal socialization					
• Approval of birth control				1.16	1.08

*p<.05, **p<.01, ***p<.001

Table 4.4. Condom Use Frequency Regressed on Socialization Influences (Wave III)

Variable	Beta coefficients				
	Model 1	Model 2	Model 3	Model 4	Model 5
Race (White = ref)	0.39***	0.41*	0.39*	0.42*	0.37
Age		0.00	-0.06	-0.05	-0.15
Parental education		-0.05	-0.05	-0.06	-0.04
Residential father (non-residential = ref)		-0.42*	-0.37	-0.51	-0.42
Current relationship (none = ref)		-1.09***	-1.11***	-0.99***	-1.06***
Age of sexual initiation		-0.01	-0.01	0.02	0.02
Condom use at Wave I (None = ref)		0.11	0.07	0.05	0.01
Peer socialization					
• Peers will respect more			0.02		-0.08
• Partner will respect less			-0.10		0.00
Paternal socialization					
• Approval of birth control				-0.02	-0.08
Adjusted R ²	0.00	0.18	0.17	0.13	0.15

*p<.05, **p<.01, ***p<.001

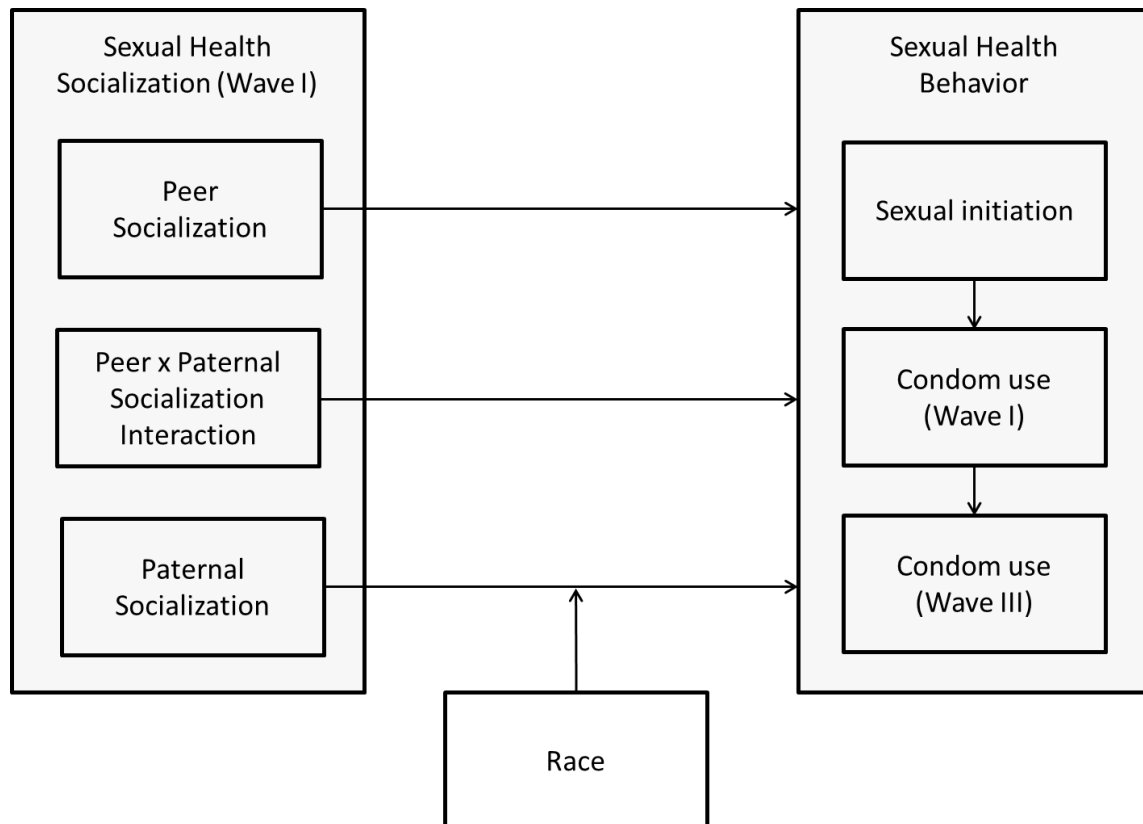


Figure 4.1. Conceptual model of the relationship between sexual health socialization and sexual behaviors.

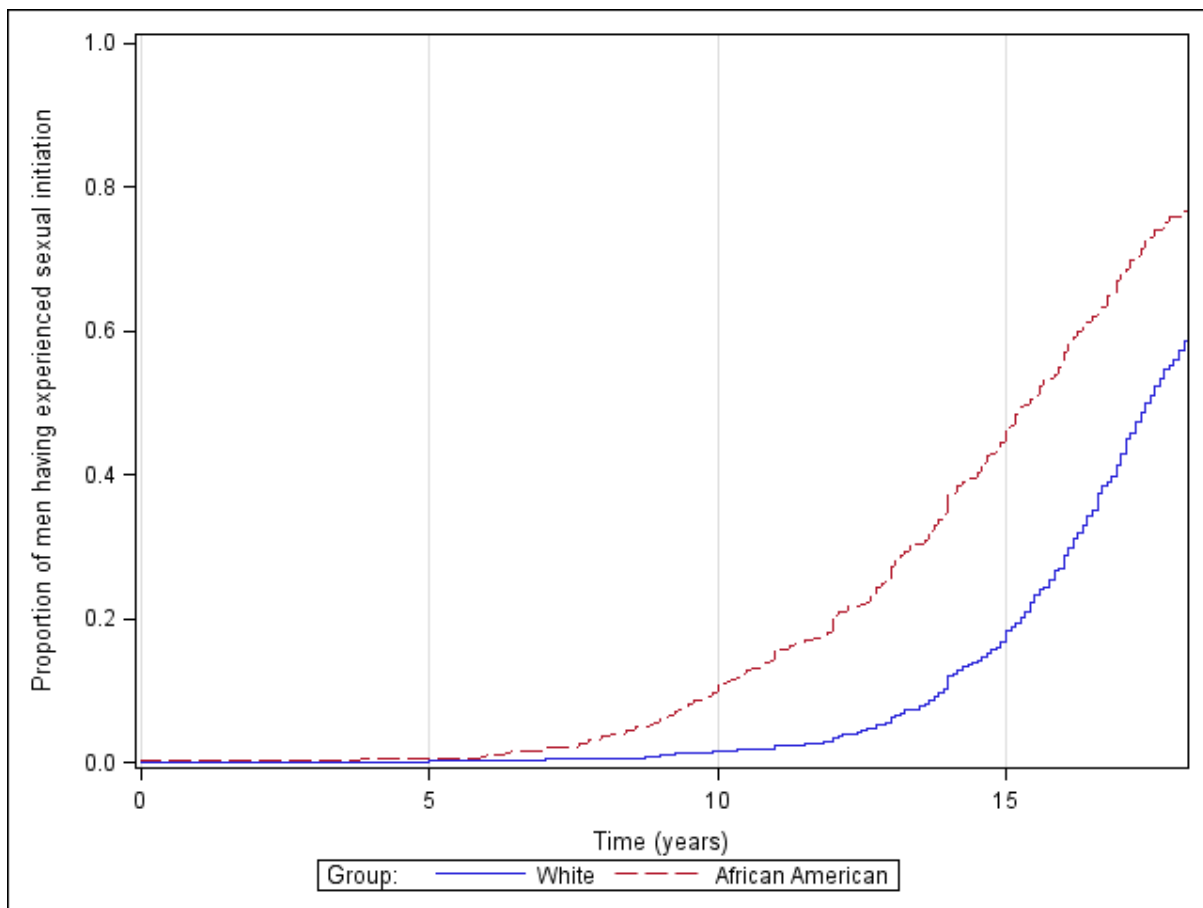


Figure 4.2. Unadjusted survival plot illustrating racial differences the age of first sex.

CHAPTER 5: CROSS-SECTIONAL INVESTIGATION OF PATERNAL SEXUAL HEALTH SOCIALIZATION, MASCULINE AND RACIAL IDENTITY, AND SEXUAL HEALTH BEHAVIORS AMONG AFRICAN AMERICAN MEN

5.1 Introduction

Racial disparities in HIV and STD infection rates among men exist such that African Americans consistently experience the greatest burden of disease (Centers for Disease Control and Prevention, 2008b, 2010). The persistence of HIV disparities specifically has prompted calls for additional research that better understands sociocultural factors among African American. These factors can be leveraged to produce targeted policies and interventions that address sexual behavior and HIV infection with the greatest likelihood of success (Aral, Adimora, & Fenton, 2008; Whitehead, 1997; Wright, 1993). Bediako and Griffith (2007) also argue for health disparities research that takes into account the unique experiences and social contexts of racial/ethnic groups (e.g., language barriers for recent immigrants, or racial residential segregation for African Americans) and the potential health impacts they produce. By understanding the role of these social realities we can move beyond describing health disparities and instead towards identifying those modifiable processes that sustain disparities. In this manuscript, we call attention to how race and gender shape the lived experiences that give way to differential health outcomes among African American men.

As social constructs, race and gender operate through a variety of mechanisms to produce health. In this manuscript, we investigate one avenue through which these social

constructs affect health, African American men's racial and masculine identity. To this end, intersectionality theory provides a useful framework to understand the effects of racial and masculine identity, by conceptualizing these aspects of identity as mutually constructed (see Chapter 3.1). Intersectionality theory offers a perspective that lived experiences as a member of one group (e.g., African American race) are a function of membership another (e.g., male gender). An intersectional approach is well suited to the study of health disparities. Particularly, it can be a tool to progress our understanding of how health disparities are produced among those who are members of multiple groups that are independently associated with poor health outcomes (e.g., Dworkin, 2005; Hankivsky & Christoffersen, 2008; Young & Meyer, 2005).

We can also contextualize the HIV and STD epidemics through intersectionality. Crenshaw (1989) argues that socially constructed identity classifications are not just mutually embedded, but that they interact with one another to produce and maintain social inequality. Despite the utility of intersectionality theory to the study of African American men's sexual health, and its value in understanding disparities in HIV/STD infection, few studies have explicitly applied an intersectional approach to the study of African American men's sexual health behavior. Beadnell et al. (2003) failed to explain the associations they observed between racial identity and sexual risk-taking, but state that, "theory-based statistical modeling in larger samples could allow greater specification of the relationships and causal pathways within which ethnic identity relates to other factors." (p. 195). Crook et al. (2009) specifically argue for an exploration of African American men's sexual behavior that includes a simultaneous examination of both their racial and gender identity. Answering these calls, we offer paternal sexual

health socialization as a way to apply intersectionality theory to the study of sexual health behavior. Recognizing that African American men's masculinity cannot be extracted from their race (Courtenay, 2000b; Hammond & Mattis, 2005; Wester, et al., 2006), the study of African American fathers is vital as they may reflect the single most potent source of simultaneous racial, masculine, and health socialization.

Racial identity (discussed in greater detail in Chapter 2.9) is a factor associated with psychological well-being, and to an increasing extent research is also documenting its association with health behaviors (Brook & Pahl, 2005; Burlew, et al., 2000; Caldwell, Sellers, et al., 2004; Gary & Berry, 1985; Resnicow, et al., 2000; Resnicow, et al., 1999). However, with notable exceptions, few studies of African American men explore racial identity as a determinant of sexual behavior (Oparanozie, et al., 2011). The application of intersectionality theory, and the inclusion of African American fathers as agents of sexual health socialization, provides a useful way to incorporate racial identity into the study of sexual health. African American fathers influence racial identity development, but at the same time serve as agents of sexual health socialization. However, just as African American fathers play a role in the development of health behaviors and racial identity, so too do they shape the masculine identities of their sons via socialization processes. Fathers are unique sexual health socialization agents largely because they simultaneously model health behaviors that can be viewed as an expression of masculinity (Courtenay, 2000b, 2000c; Hammond, et al., 2011; Majors & Billson, 1993). Finally, the application of masculinity to the study of sexual behavior is perhaps even more relevant than other health behaviors, because sexual activity is so heavily imbued

with gendered dynamics (Bowleg, 2004; Bowleg, et al., 2011; Whitehead, 1997; Wolfe, 2003).

Intersectionality theory positions racial and masculine identity as mutually constitutive, so analytic approaches that study identity must recognize this as well. Operationalizing racial and masculine identity together as profiles provides a more appropriate way to incorporate intersectionality in quantitative analysis. These profiles represent existing groupings of how a set of variables correlate with each other. Latent class analysis allows us to examine those components that are interrelated and hypothesized to have substantive meaning when taken into account simultaneously. In contrast, typical regression approaches treat variables independently (Lorr, 1983). Identifying these classes (also referred to as groupings or clusters) can augment research that previously treated variables of interest separately, and has been used in a variety of studies that revealed meaningful patterns (e.g., Banks & Kohn-Wood, 2007; Rowley, 2000).

Based on their documented associations with outcomes and available data, I will examine multiple dimensions of both racial identity (centrality and nationalist ideology) and masculine identity (salience and self-reliance). A study of African American men finds that men with greater racial centrality are less likely to have concurrent sexual partners, and that those men who had more positive feelings about African Americans had fewer sexual partners (Oparanozie, et al., 2011). Other research suggests that exaggerated uses of sexual behavior, such as having multiple sexual partners or neglecting consistent condom use, is a vehicle African American men use to enact masculinity (Whitehead, 1997; Wolfe, 2003). Results in the quantitative literature are

more complex, however. Though one study supports the notion offered by Whitehead (1997), others have shown that the importance of masculinity and traditional beliefs in masculinity like self-reliance actually bolstered condom use (Blome, 2004; C. Shearer, S. Hosterman, M. Gillen, & E. Lefkowitz, 2005).

Oparanozie et al. (2011) discuss the need for additional research that links together racial identity, masculine identity, and sexual behavior. We offer paternal sexual health socialization as a compelling link that ties these variables together. African American fathers serve as agents that influence the formation of racial identity, masculine identity, and health behavior simultaneously. In this intra-group analysis of sexual health disparities among African American men, we assess not only the direct effect of paternal sexual health socialization on condom use, but additionally consider racial and masculine identity as mediating and moderating mechanisms which connect paternal sexual health socialization and condom use.

5.2 Theoretical Framework and Conceptual Model

This dissertation manuscript uses theories of health socialization, discussed in greater detail in Chapter 3.2, to substantiate its application of intersectionality theory. Specifically, this manuscript considers both the role that fathers play in influencing men's condom behavior and how identity characteristics influence the relationship between paternal socialization and condom use. Additionally, to acknowledge how racial and masculine identities are formed alongside one another, these variables are treated methodologically as co-occurring as well.

The hypothesized direct relationships between identity profiles and condom use are largely informed by the empiric literature detailed in Chapter 2. Additionally, we propose two hypotheses that propose masculine-racial identity profiles as key mechanisms linking paternal sexual health socialization to condom use. These hypotheses are described below.

Possible profiles. Though exploratory in nature, we offer some thoughts about how racial and masculine identity variables may correlate within latent profiles. Perhaps the most readily accessible possibility is the one in which these variables are all positively correlated with one another to a similar extent. In this example, those who score near the mean of racial centrality would then score near the mean of masculine self-reliance, as well as the other two identity variables. It is also possible that the two racial identity variables correlate with one another, the two masculine identity correlate with one another, but that masculine and racial identity do not necessarily correlate with one another, yielding several permutations of latent profiles. This configuration of profiles could also explain the conflicting findings in the literature surrounding the role of masculine identity and health behavior, as they may interact with (usually) unobserved racial identity variables. Finally, we also suggest the possibility for one variable to emerge as a delineating characteristic between the profiles, suggesting that it may have a particularly pronounced role in shaping the identity of African American men.

Mediation model. Paternal sexual health socialization does not *cause* racial or masculine identity. Rather, socialization (not exclusive to health) that occurs between African American fathers and sons simultaneously imparts messages not just about health behaviors, but also about norms regarding racial and masculine identity that potential

govern them, (Courtenay, 2000b; Hughes, et al., 2006; Levant, 1996; Pleck, 1997; C. P. Thompson, et al., 2000; Tinsley, 1992). Given the independent associations between sexual health behavior and both racial identity (Oparanozie, et al., 2011) and masculine identity (Blome, 2004; C. Shearer, et al., 2005), I posit that the effect of paternal sexual health socialization on condom use may be partially mediated through identity profiles.

Moderation model. Masculine-racial identity profiles may also modify the relationship between paternal sexual health socialization and condom use. This possibility is an extension of related literature that demonstrates how racial and masculine identity independently moderate associations involving other health behaviors (e.g., Hamilton & Mahalik, 2009; Richman, Kohn-Wood, & Williams, 2007). As such, we explore if together, racial and masculine identity modify the relationship between paternal sexual health socialization and condom use.

Presented in Figure 5.1 is the conceptual model depicting the hypothesized relationships between paternal sexual health socialization and condom use. Additionally, dimensions of masculine and racial identities are included in the model not as independent variables with purely additive affects, but as one constructed identity profile representative of their intersectional nature.

5.3 Research Questions and Hypotheses

Research question: How do racial-masculine identity profiles influence the relationship between paternal sexual health socialization and condom behavior?

Hypotheses:

- 1: African American men who report greater positive paternal sexual health socialization will report more frequent condom use.

- 2: Racial-masculine identity profiles will mediate the positive association between paternal sexual health socialization and condom behavior.
- 3: Racial-masculine identity profiles will moderate the positive association between paternal sexual health socialization and condom behavior.

5.4 Methods

5.4.1 Study Design and Participants

Convenience sampling methods were used in the African American Men's Health and Social Life Study (AAMHSL) to recruit a sample of African American men from barbershops (38.4%), academic institutions (44.4%), and community spaces (17.1%) in North Carolina in 2010 and 2011. African American men age 18 and older were recruited through a variety of means, including flier advertisements, direct contact, word-of-mouth, specially advertised data collection events, and e-mail solicitation. Men who expressed interest in the survey were directed to study personnel. Upon meeting, informed consent was obtained and the anonymous self-administered survey was administered (Hammond, et al., 2010; Matthews, Hammond, Nuru-Jeter, Cole-Lewis, & Melvin, 2012).

Barbershops with a high customer volume were prioritized as recruitment sites because they typically had long wait times which minimized the amount of additional time required to complete the questionnaire by study participants, and because barbershops have previously been shown as being patronized by a socioeconomically diverse group of African American men (A. Hart & Bowen, 2004). Initial contact with barbershops was made in-person or by telephone by study personnel. Upon agreeing to participate, signed consent forms were completed by barbershop owners. Barbers or

receptionists, not study personnel, invited men to complete the questionnaire. Men who completed the questionnaire received a voucher for a free haircut, valued at \$25. As an incentive for their participation in the study, the barbershop retained any unused value of the voucher. A four-year historically Black college, a predominately White university, and a local public library, also served as recruitment sites. Recruitment methods were similar at these sites, with the exception that study personnel approached African American men instead of barbershop staff. Study participants were also encouraged to spread the word about the study team's presence and invite their African American male friends to complete a questionnaire as well. The study team solicited study participation in high-traffic areas such as the student union or eating areas at academic institutions; study personnel were situated in a dedicated space within the local public library. Participants not recruited at barbershops received a \$25 gift card. All study procedures were reviewed and approved by the Public Health-Nursing Institutional Review Board at The University of North Carolina at Chapel Hill.

5.4.2 Study Measures

Condom use. The dependent variable was measured by participant response to a single-item question, "How frequently do you use condoms when having vaginal sex?" Possible values on this scaled item ranged from 1 (*Never*) to 5 (*Always*). When participants only reported having anal sex, their response to the question "How frequently do you use condoms when having anal sex?" was used instead.

Paternal sexual health socialization. Paternal sexual health socialization was assessed with three items, "How often did your father/male guardian tell you importance of waiting to have sex?"; "How often did your father/male guardian discuss using

condoms?"; "How often did your father/male guardian discuss HIV?". Possible responses to these items ranged from 1 (*Never*) to 4 (*Often*): A fifth response option, *Not Sure*, was also provided for participants; these responses were coded as 1 (*Never*). A mean composite score was computed from these responses with higher scores indicating more positive paternal health socialization. Participants who were older than 18 in 1981, the start of national media coverage of what would later be revealed as the virus which causes AIDS (e.g., Altman, 1981), and selected either *Never* or *Not Sure* to the third item had their response recoded as missing. This was done so that a lack of paternal communication regarding HIV appropriately reflected the national lack of awareness and information instead of a paternal reluctance to communicate with their sons about HIV/AIDS. Cronbach's α for this scale was .89.

Racial identity. Racial identity was assessed using two of the six subscales from the Multidimensional Inventory of Black Identity (MIBI; Sellers, Rowley, Chavous, Shelton, & Smith, 1997): racial centrality and nationalist ideology. Both subscales consist of items that range in values from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), with greater values indicating more of that construct; items were reverse coded as necessary. Racial centrality refers to the degree to which African Americans believe race is a central part of their identity, and was assessed with four items (e.g., "In general, being Black is an important part of my self-image"). Cronbach's α for the racial centrality subscale was .87. Nationalist ideology refers to the extent to which African Americans value strong identification with members of their own race and believe in the uniqueness of the African American experience, and was assessed with four items (e.g., "It is important for Black people to surround their children with Black art, music, and

literature”). Cronbach’s α for the nationalist ideology subscale was .71. The MIBI and its subscales have demonstrated high convergent validity with other measures of racial identity (Vandiver, Cross, Worrell, & Fhagen-Smith, 2002), and initial reliability for its subscales ranged between .60 and .70 (Sellers, et al., 1997). However, other studies have demonstrated only moderate support for the validity of scores using the MIBI (Cokley & Helm, 2001), with a recent psychometric analysis of the MIBI suggesting a need for a reorganization of its primary factor structure (Vandiver, Worrell, & Delgado-Romero, 2009). Nevertheless, our study found good internal reliability for the scales as originally intended.

Masculine identity. Masculine identity was assessed using two different scales, one measuring masculine identity salience and the other for masculine self-reliance. Masculine identity salience refers to the degree to which men believe traditional masculinity norms are important to their overall identity (e.g., “Having power”). This nine item scale was developed from prior qualitative work that assessed the meaning of manhood among African American men (Hammond & Mattis, 2005). Response options range from 1 (*Not at all Important*) to 5 (*Extremely Important*), with greater values indicating more masculine identity salience; items were reverse coded as necessary. Cronbach’s α for this scale was .77. Masculine self-reliance refers to the extent men value autonomy and independence in their identity as a man, and was assessed using a subscale with seven items (e.g., “A man should never count on someone else to get the job done”) from the Male Role Norms Inventory (MRNI; Levant, Hirsch, Celentano, & Cozza, 1992). Response options for the scale range from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), with greater values indicating more self-reliance; items were reverse

coded as necessary. The MRNI has demonstrated high construct validity and moderate reliability with Cronbach's alpha for the self-reliance subscale ranging from .51 to .78 (Levant & Majors, 1997; Levant & Richmond, 2007). Recent studies conducted among African-American men report reliability coefficients ranging from .75 to .77 (Hammond, 2012; Matthews, et al., 2012). Cronbach's α for this subscale was .84.

Sociodemographics. Various sociodemographic variables were assessed in order to control for any possible confounding. Participants completed items assessing their age (in years), education (\leq high school degree, some college, college or graduate/professional degree), and income ($<$ \$20,000, \$20-39,999, \geq \$40,000). Because of the strong correlation between relationship status and condom behavior (Ostrow et al., 2008; Paterno & Jordan, 2012), this variable was also assessed using participant response to the item "What is your relationship status?" For those who selected "Unmarried/living with someone" or "Married", relationship status was coded as 1, all other response options ("Single/never married", "Divorced", "Widowed") were coded as 0. The residential status of a participant's father's was also assessed with the following item: "Who lived in the household where you spent the most time growing up (Please check all that apply)?" Residential status was coded as 1 if either "Father" or "Step-Father" was selected, and 0 if neither was selected.

A table of all study measures used in Chapter 5 is presented in the Appendix.

5.4.3 Data Analysis

We conducted an examination of means and frequencies of study variables. We used unadjusted linear and logistic regression models to make preliminary comparisons

by recruitment site type (barbershop, academic institution, or public library). We also conducted bivariate analyses (Pearson's correlations) among non-demographic continuously measured study variables.

Latent Class Analysis (LCA) was used to demarcate profiles comprised of the following four variables: racial centrality, nationalist ideology, masculine identity salience, and masculine self-reliance. This "person-centered" method is an alternative to traditional "variable-centered" methods, whereby the goal is to identify relationships among individuals in order to facilitate their placement into categories; members within these categories are similar to each other and different from those in other categories (Muthen & Muthen, 2000). Though several statistical techniques yield such groupings (e.g., cluster analysis, finite mixture analysis), latent class models can be advantageous given their computational procedure: groups are created not based upon mathematical similarity but rather probability theory; study participants are not assigned to groups but rather assigned probabilities for each identified group, and then disaggregated based on their likelihood of membership (McCutcheon, 2002). Furthermore, as with all approaches that yield groupings, when meaningful classes of individuals exist they can provide greater statistical utility than attempting to otherwise model sets of increasingly power-taxing vectors of variables and their interactions (Lorr, 1986).

For this study, the decision regarding the number of latent classes was guided by several statistical and substantive considerations (Nylund, Asparouhov, & Muthén, 2007). First, the maximum number of allowable classes was determined by modeling an increasing number of classes, and decided upon when small percentages of the sample were allocated between classes and they began to lose substantive differences (despite

maintaining differences statistically). Second, among those models that did converge, two were selected based on statistical criteria. Specifically, we attempted to minimize the following three indices: the Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), and the sample-size adjusted BIC; smaller AIC and BIC values are generally indicative of greater model fit. We utilized the parametric bootstrapped likelihood ratio test to contrast models in order to determine which yielded the smallest AIC and BICs. A p-value smaller than the *a priori* alpha value indicates that the model with the greater number of classes is significantly better (McLachlan, 1987). Before making a final decision on the number of appropriate classes, we checked the two models to confirm that the decision resulting from the parametric bootstrapped likelihood ratio test facilitated a substantively distinct and parsimonious interpretation, and that accurate classification of individuals into distinct profiles, as determined by entropy, remained high.

Though standardization of variables used in other cluster analysis procedures is strongly recommended, it is not required for LCA (Magidson & Vermunt, 2002). However, as there is no disadvantage in standardizing variables in LCA, I standardized variables to a mean of 0 and a standard deviation of 1 to facilitate ease of interpretation; one of the subscales ranged from 1-5 though the other three ranged from 1-7. The creation of latent class models was done using Mplus software for Windows, version 6.1 (Muthén & Muthén, 2010).

Upon the identification of latent classes, membership in each class was assigned to each study participant using a multinomial categorical variable. The primary dependent variable in this study, condom use, was regressed on sociodemographic

variables as well as latent class membership using multiple linear regression. Specifically, we utilized a series of three linear regression models, in which each model became increasingly saturated with variables. Model 1 regressed condom use on sociodemographic and control variables only, model 2 added paternal socialization, and model 3 added identity profiles. This procedure allowed us to assess the independent effects of the added variables. Moderation was assessed with an interaction term using the criteria outlined by Frazier, Tix, and Barron (2004), while mediation was assessed using path analysis (MacKinnon, 2008). Multicollinearity was assessed using variance inflation factors (VIFs); multicollinearity was considered a threat to statistical conclusion validity if any VIFs were above 5 (Menard, 1995). The variable with the greatest number of missing values was income, which was missing for 8.3% of participants. We decided due to the relatively small amount of missing data, and that no observable differences existed between those with missing data and those without, rendered the use of multiple imputation procedures unnecessary. Preliminary analyses, and all regression procedures and diagnostics, were conducted using SAS software for Windows, version 9.3 (SAS Institute Inc., Cary, NC). All statistical procedures utilized an *a priori* alpha of .05 to determine statistical significance.

5.5 Results

5.5.1 Descriptive Characteristics

Characteristics of the study sample are presented in Table 5.1. Preliminary analyses indicated several differences between men recruited from barbershops ($n = 83$), educational institutions ($n = 96$), and the public library ($n = 37$). Men recruited at

educational institutions were substantially younger (21.7 years) than men recruited at barbershops (32.5 years) and the public library (34.7 years), and were also most likely to report annual income of less than \$20,000. Men recruited at the public library were the most likely to have at least some college education, and also reported significantly less communication with their fathers about sexual health (2.07) than men from barbershops (2.84) and educational institutions (2.88). Recruitment site type was included in all multivariate regression models as a control variable to account for observed differences. However, there were no differences by recruitment site type on the variables used to create the latent classes, nor condom behavior.

5.5.2 Bivariate Analyses

Correlations between non-demographic continuous study variables are presented in Table 5.2. Moderate, but statistically significant, positive associations were observed between paternal socialization and nationalist ideology, paternal socialization and masculine self-reliance, and masculine identity salience and nationalist ideology. Large and positive statistically significant correlations were observed between racial centrality and nationalist ideology, racial centrality and masculine self-reliance, nationalist ideology and masculine self-reliance, and masculine self-reliance and masculine identity salience. Paternal sexual health socialization was also positively correlated with condom use.

5.5.3 Identification of Latent Classes

Summary statistics that were used to guide the decision of how many latent classes to select are provided in Table 5.3. The AIC and BICs had near-equal minimal values between three and five classes. However, the parametric bootstrapped likelihood ratio test, which indicates if the model is statistically better than the previous model (i.e.,

the model with one fewer class), quickly supported the four-class solution as the best fit for the data. The four-class solution was significantly different than the three-class model ($p < .001$), but five classes provided no statistically significant difference from four ($p > .99$). Additionally, the four-class solution maintained a reasonable number of individuals within each class, and was characterized by readily identifiable substantive differences in the variables used to comprise the classes. Both raw and standardized means for each of the four classes are provided in Table 5.4. Standardized means are also summarized graphically in Figure 5.2.

Class 1: Low Intersected Identity

The “Low Intersected Identity” class comprised the smallest percentage of the total sample, 11.1% ($n = 24$). This class was characterized by lower than average scores on all variables; no other class had variable scores lower than this class. Both masculine self-reliance and nationalist ideology were at least one standard deviation below the mean, while racial centrality was over 1.5 standard deviations below the mean.

Class 2: High Racial Centrality

The “High Racial Centrality” class comprised 25.5% of the total sample ($n = 55$). This class was characterized by scores that generally did not deviate from the mean. Racial centrality was the only variable to deviate from the mean by more than .5 standard deviation units. Aside from the “High Intersected Identity” class, this group endorsed the greatest level of racial centrality.

Class 3: Low Racial Centrality

The “Low Racial Centrality” class can be thought of as the complement to the “High Racial Centrality” class, as it is characterized by close to average scores on all variables with the exception of racial centrality which was a little over .5 standard deviation units below the mean. This class contains 44.9% of the sample ($n = 97$) and as such is the largest class, representing the plurality of study participants. Because of its size and its variables being closer to average than any other class, this class was also selected to serve as the referent value for the identity profile variable in the multivariate regression model predicting condom behavior.

Class 4: High Intersected Identity

The “High Intersected Identity” class comprised 18.5% of the total sample ($n = 40$), and was characterized by scores that were not only higher than average, but higher than all other classes, on every variable. The masculine identity variables were approximately half a standard deviation above the mean, while each of the racial identity variables was over a full standard deviation above the mean. This class can substantively be thought of as standing in direct opposition to the “Low Intersected Identity” class.

Differences in Sociodemographic Variables by Class

We also conducted analyses to determine if there were statistically significant differences in class membership by sociodemographic variables, designating the “Low Racial Centrality” class as the referent group comparison because this included the plurality (44.9%) of study participants. Two of these variables were associated with

group membership: age and education. As age increased so did the likelihood of being a member of the “High Racial Centrality” class (OR:1.04, 95% CI: 1.01 – 1.08) and the “High Intersected Identity” class (OR: 1.05, 95% CI: 1.02 - 1.09). Similarly, greater education was associated with an increased likelihood of being a member of the “High Racial Centrality” class (OR:1.62, 95% CI: 1.04 – 2.53) and the “High Intersected Identity” class (OR: 2.06, 95% CI: 1.23 - 3.46).

5.5.4 Multivariate Analyses

The results from the multivariate analyses utilizing the hierarchical modeling strategy described earlier to regress condom behavior on study variables are provided in Table 5.5. VIFs ranged from 1.04 to 1.80, indicating that none of the three models had issues with multicollinearity. Adjusting for the number of variables used in the regression analysis, model 1 explained 16% of the variance in condom behavior, while models 2 and 3 explained 19% and 18% of the variance respectively.

Sociodemographic and Control Variables

Several of the sociodemographic variables included in the regression model were significantly related to condom behavior. Education was positively associated with condom use, while being in a relationship was associated with a reduction in condom use. Age was negatively associated with condom behavior in the first model, though unlike education and relationship status dropped to statistical non-significance in subsequent models. Neither income nor recruitment site type were associated with condom behavior in any of the regression models.

Paternal Sexual Health Socialization and Identity Profiles

Paternal sexual health socialization was introduced in Model 2, and demonstrated a positive statistically significant ($p < .01$) relationship with condom behavior. The identity profile variable (represented by three dummy variables) was introduced in Model 3 and was not associated with condom behavior, though paternal sexual health socialization remained statistically significant.

Identity Profiles as a Mediator and Moderator

Identity profiles did not mediate the relationship between paternal sexual health socialization and condom use. Identity profiles were not associated with either paternal socialization ($p = .48$) or condom use ($p = .96$). Identity profiles did not modify the relationship between paternal socialization and condom use; the interaction term (fathers x identity profile) was not significant ($p = .68$) and as such was not included in any final regression model.

Post-hoc analysis: Independent effects of identity variables

We conducted post-hoc analyses to examine the independent effects of the four identity variables used to comprise the latent classes. Masculine self-reliance was positively associated with condom use ($p < .01$), though it did not mediate nor moderate the relationship between paternal sexual health socialization and condom use.

5.6 Discussion

This manuscript builds upon the former (Chapter 4), which examines determinants of condom use among both African American and non-Hispanic White men. Since we observed no racial differences in frequency or likelihood to use condoms (see Chapter 4), we employed an intra-group approach within this manuscript to determine whether masculine and racial identity were collective sources of variation in African American men's sexual health behaviors.

In this study, we observed elements uniquely relevant to the African American male experience for their hypothesized relationship to condom use, specifically dimensions of racial and masculine identity. This was done in order to investigate sources of variability among African American men that an inter-group approach could not explore. Invoking intersectionality theory we utilized LCA so that our conceptualization of these variables as mutually constitutive would be reflected as such in our analytic approach.

Analyses yielded the identification of four distinct identity profiles (Table 5.4 and Figure 5.2). In order from Class 1 to 4, I labeled these *Low Intersected Identity, High Racial Centrality*, *Low Racial Centrality*, and *High Intersected Identity*. Classes 1 and 4 can be thought of somewhat as opposites, as they were characterized by individuals with lower than average and higher than average values, respectively, on all racial and masculine identity variables. Similarly, classes 2 and 3 were opposite, as they were characterized by average values on all variables except racial centrality; individuals in class 2 had higher than average racial centrality while those in class 3 had lower than average racial centrality.

In addition to the statistical considerations that differentiate these classes, it is useful to think more deeply about their substantive meanings as well. We made no *a priori* hypotheses about the nature of the classes or how many there would be. However, a large rationale for creating these classes rests upon the notion that the variables used to comprise them would be associated with one another. The four identity variables tended to positively correlate (Table 5.2), so the *Low Intersected Identity* and *High Intersected Identity* class were not entirely unexpected.

We did not anticipate two groups that would be characterized by their differences in racial centrality. Those in the *Low Racial Centrality* group made up the plurality (44.9%) of the sample. Though there are no representative population-level assessments about how African Americans score on this racial identity dimension, we were surprised the most populous group scored comparatively low on this variable. Equally important, however, is that nationalist ideology did not emerge as a source of inter-class variability. This suggests that while there is variability in nationalist ideology among African American men, it may not drive differences in the intersections of racial and masculine identity to the extent of racial centrality. While nationalist ideology refers to a specific set of beliefs, racial centrality may be more prominent here because the extent to which African American men's racial identity is important to their self-identity may dictate the extent to which nationalist ideology is influential. This may be why racial centrality differentiates classes to a greater extent. Finally, viewed from an intersectional perspective this may be an extension of previous literature about the racialized nature of masculinity (e.g., Aronson, et al., 2003; Hammond & Mattis, 2005). In addition to race

shaping masculine identities, the class profiles our study yields also suggests that within a racial group, masculinity may be additionally shaped by racial identity.

Though this study was not concerned with an independent examination of these variables, it does reinforce the importance of disentangling racial identity from race. Our data suggests, that racial identity is not as independently central to the lives African American men in our sample as researchers might otherwise assume. Nevertheless, racial centrality emerged as a differentiating characteristic among identity profiles. Studies that compare groups of African American men to other racial groups run the risk of falsely attributing those differences to a perceived universal importance of racial identity. The variability of racial centrality reinforces the importance of examining within-group diversity, particularly as it may shape the function of other identity characteristics.

Despite the identification of four distinct classes, they did not have a direct effect on condom use. Neither did we identify a mediating or moderating effect on the relationship between paternal socialization and condom use. Given correlations with some of the component variables and condom use (Table 5.2) and prior studies that have found independent effects, it may be that other dimensions of masculine and racial identity variables would be more ideal to include in studies assessing correlates of African American men's condom use. Future studies should investigate this possibility. For example, certain aspects of masculinity may influence attitudes about condom use, while others may influence the condom negotiation process itself. However, we do not want to discount the value of our existing classes. The intersectional approach to forming these classes was statistically supported (Table 5.3), even if they were not associated with condom behavior as anticipated. Our post-hoc analysis in which we examined the

independent effects of the variables used to comprise the classes suggests that the inability for the classes to function as hypothesized is not a rebuke of intersectional approaches, but rather that most variables used to constitute the classes did not have a relationship to condom use either. We do highlight that the only identity variable to have an independent association with condom use was masculine self-reliance. This finding contrasts qualitative work suggesting the reverse relationship (Whitehead, 1997; Wolfe, 2003), and is in stark opposition to earlier research which framed African American masculine identities as aberrant and manifesting as problematic sexual behavior (Broderick, 1965). However, the positive association between masculine self-reliance and condom use is more consistent with recent quantitative literature (Blome, 2004; C. Shearer, et al., 2005). Future studies should revise our approach by using different or additional variables to constitute identity classes that demonstrate independent effects on condom behavior. Additional analyses illustrated that both age and education were associated with greater likelihood of being a member of either the *High Racial Centrality* or *High Intersected Identity* class (compared to being a member of the *Low Racial Centrality* class). Given the association of education with condom use in this analysis, and elsewhere (Sheeran, Abraham, & Orbell, 1999), it may be prudent to more fully explore sociodemographic characteristics that shape placement into identity classes.

Though the development of latent classes may have been the most novel element of this analysis, it should not obscure the fact that paternal socialization was found to have a significant positive association with condom use ($p < .01$), even after adjusting for sociodemographic control variables. Because all participants in this sample were at least 18 years old, and the sample's average age was 28 years old (though this differed

significantly across recruitment sites, see Table 5.1), it suggests that paternal socialization earlier in life had a significant and possibly enduring effect. The statistically significant association between paternal socialization and condom use stands in contrast to results from Chapter 4. I discuss possible explanations to resolve this discrepancy in the concluding Chapter 6.

This study has limitations that are largely attributable to the observational and cross-sectional nature of the AAMHSL. The questionnaire required men to recall messages they received from their fathers about sexual behavior. It is possible that men recalled and perceived paternal messaging that aligned similarly with their own condom behavior, attributing current condom use to past paternal messaging. This would inflate the positive correlation we found in the regression analysis, though we cannot be sure if it occurred to such an extent that it masked a true null result and yielded a Type I error. Furthermore, a notable limitation surrounds variables, both measured and unmeasured. The factor structure of some masculine identity variables may need to be reexamined, particular as their constituent items may be unduly correlated with sexual behavior (e.g., being in control in a relationship, being a good lover). Regarding latent class formation, we included variables that were available in the current data. The addition of variables assessing other facets of racial and masculine identity could likely enhance the utility of the latent classes. Despite the identification of a significant association between paternal socialization and condom use, our assessment of father-son socialization is also not without error. We only assessed direct communication about sexual health. Socialization is communicated through many avenues, and direct verbal communication is but one. Additionally, the retrospective nature of paternal sexual health socialization means that

men may have only recalled those particularly memorable conversations from their fathers. Any conversation that could leave such a lasting impression is characteristically different from other paternal socialization, and could have biased results in a positive direction. Finally, this study did not employ random sampling, so we cannot confidently generalize these relationships to other groups of African American men. The identification of differences across site type, however, does partially ensure that we recruited a more diverse group of African American men than had we only recruited men at one site.

Despite these limitations, this study makes important contributions. Very few studies simultaneously examine the joint roles of masculine and racial identity on health, and to our knowledge, this is the first to apply a latent class approach towards these variables in the study of sexual health behavior. This study also extends the literature base that documents the important contribution of fathers on the health behaviors of their sons. I discuss implications for research and public health practice from these results, alongside the findings from Chapter 4, in the concluding Chapter 6.

5.7 Tables and figures

Table 5.1. Characteristics of Study Sample

Variable	Recruitment site type				<i>P</i> Value
	Full sample (<i>n</i> = 216)	Barbershop (<i>n</i> = 83)	Educational institution (<i>n</i> = 96)	Public library (<i>n</i> = 37)	
Age, <i>M</i> (<i>SD</i>)	28.07 (10.92)	32.51 (10.85)	21.69 (5.18)	34.68 (13.13)	<.001
Education, No. (%)					<.01
• ≤High school	62 (31.3)	31 (37.8)	29 (30.5)	2 (9.51)	
• Some college	74 (37.4)	20 (24.4)	43 (45.3)	11 (52.4)	
• College/graduate or professional degree	62 (31.3)	31 (37.8)	23 (24.22)	8 (38.1)	
Income, No. (%)					<.001
• <\$20,000, %	113 (57.1)	33 (44.6)	67 (74.4)	13 (38.2)	
• \$20,000 - \$39,999, %	48 (24.2)	19 (25.7)	17 (18.9)	12 (35.3)	
• ≥\$40,000, %	37 (18.7)	22 (29.7)	6 (6.7)	9 (26.5)	
Current relationship, No. (%)	39 (18.4)	23 (28.4)	6 (6.4)	10 (27.0)	<.001
Residential father, No. (%)	114 (52.8)	47 (56.6)	44 (45.8)	23 (62.2)	.16
Condom behavior, <i>M</i> (<i>SD</i>)	3.54 (1.45)	3.29 (1.61)	3.78 (1.29)	3.50 (1.40)	.10
Paternal socialization, <i>M</i> (<i>SD</i>)	2.72 (1.06)	2.84 (1.00)	2.88 (1.04)	2.07 (0.99)	<.001
Racial centrality, <i>M</i> (<i>SD</i>)	4.87 (1.42)	4.81 (1.53)	4.79 (1.38)	5.19 (1.27)	.32
Nationalist ideology, <i>M</i> (<i>SD</i>)	4.01 (1.23)	3.90 (1.26)	4.06 (1.28)	4.16 (1.04)	.49
Masculine identity salience, <i>M</i> (<i>SD</i>)	3.46 (0.70)	3.48 (0.70)	3.47 (0.68)	3.40 (0.78)	.82
Masculine self-reliance, <i>M</i> (<i>SD</i>)	4.21 (1.10)	4.14 (1.10)	4.25 (1.06)	4.28 (1.20)	.77

Table 5.2. Correlations Between Study Measures

Variable	1	2	3	4	5	6
1. Condom behavior	1.0					
2. Paternal socialization	.18 [*]	1.0				
3. Racial centrality	.11	.00	1.0			
4. Nationalist ideology	.13 ^{**}	.02	.60 ^{***}	1.0		
5. Masculine identity salience	.00	.02	.08	.17 ^{**}	1.0	
6. Masculine self-reliance	.17 [*]	-.02	.38 ^{***}	.35 ^{***}	.30 ^{***}	1.0

*p<.05, **p<.01, ***p<.001

Table 5.3 Model Fit Indices for Identity Profiles Generated with Latent Class Analysis

Number of classes	AIC	BIC	n-adjusted BIC	PBLR test p-value	Entropy
One class	2435.538	2462.540	2437.189	--	--
Two classes	2328.362	2372.240	2331.045	<.001	.73
Three classes	2297.813	2358.568	2301.529	<.001	.80
Four classes	2286.704	2364.336	2291.453	<.001	.73
Five classes	2285.508	2380.016	2291.288	>.99	.75
Six classes	2277.858	2389.242	2284.670	.67	.78

Note: AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion, PBLR = Parametric Bootstrapped Likelihood Ratio

Table 5.4. Raw and Standardized Means, and (Standard Deviations), by Identity Profile

Variable	Identity Profile			
	Class 1: Low Intersected Identity (n = 24)	Class 2: High Racial Centrality (n = 55)	Class 3: Low Racial Centrality (n = 97)	Class 4: High Intersected Identity (n = 40)
<i>Raw means</i>				
Racial centrality	2.58 (0.62)	5.97 (0.57)	4.09 (0.58)	6.56 (0.53)
Nationalist ideology	2.30 (0.59)	3.97 (0.87)	3.78 (0.83)	5.66 (0.79)
Masculine identity salience	3.32 (0.86)	3.28 (0.61)	3.49 (0.73)	3.76 (0.54)
Masculine self-reliance	2.93 (0.84)	4.40 (0.99)	4.12 (0.92)	4.96 (1.05)
<i>Standardized means</i>				
Racial centrality	-1.60 (0.44)	0.78 (0.39)	-0.54 (0.41)	1.19 (0.37)
Nationalist ideology	-1.39 (0.48)	-0.04 (0.71)	-0.19 (0.67)	1.34 (0.64)
Masculine identity salience	-0.32 (1.22)	-0.26 (0.87)	0.05 (1.04)	0.43 (0.77)
Masculine self-reliance	-1.17 (0.76)	0.17 (0.90)	-0.08 (0.84)	0.68 (0.96)

Table 5.5 Condom Use Frequency Regressed on Paternal Sexual Health Socialization and Identity Profiles

Variable	Beta coefficient		
	Model 1	Model 2	Model 3
Age	-0.02 [*]	-0.02	-0.02
Education			
• ≤High school (ref)	--	--	--
• Some college	0.60 ^{**}	0.59 ^{**}	0.60 ^{**}
• College/graduate or professional degree	0.68 ^{**}	0.75 ^{***}	0.75 ^{**}
Income			
• <\$20,000 (ref)	--	--	--
• \$20,000 - \$39,999	-0.04	0.04	0.02
• ≥\$40,000	0.41	0.36	0.33
Current relationship (none = ref)	-1.18 ^{***}	-1.22 ^{***}	-1.18 ^{***}
Recruitment site type			
• Barbershop (ref)	--	--	--
• Educational institution	-0.07	-0.04	-0.01
• Public library	0.19	0.38	0.40
Residential father (non-residential = ref)	-0.14	0.01	0.03
Paternal socialization		0.29 ^{**}	0.30 ^{**}
Identity Profiles			
• Class 1: Low Intersected Identity			0.08
• Class 2: High Racial Centrality			-0.12
• Class 3: Low Racial Centrality (ref)			--
• Class 4: High Intersected Identity			0.18
Adjusted R ²	.16	.19	.18

*p<.05, **p<.01, ***p<.001

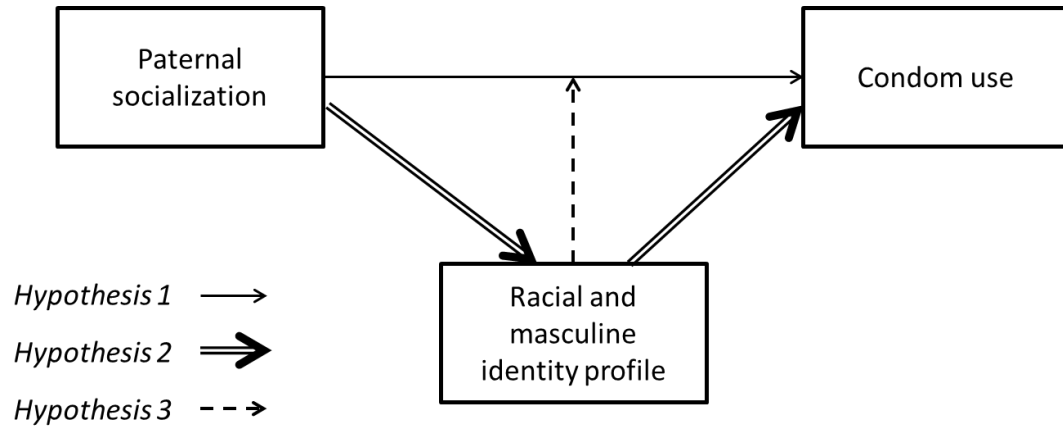


Figure 5.1. Conceptual model of the relationship between paternal sexual health socialization, identity profiles, and condom use.

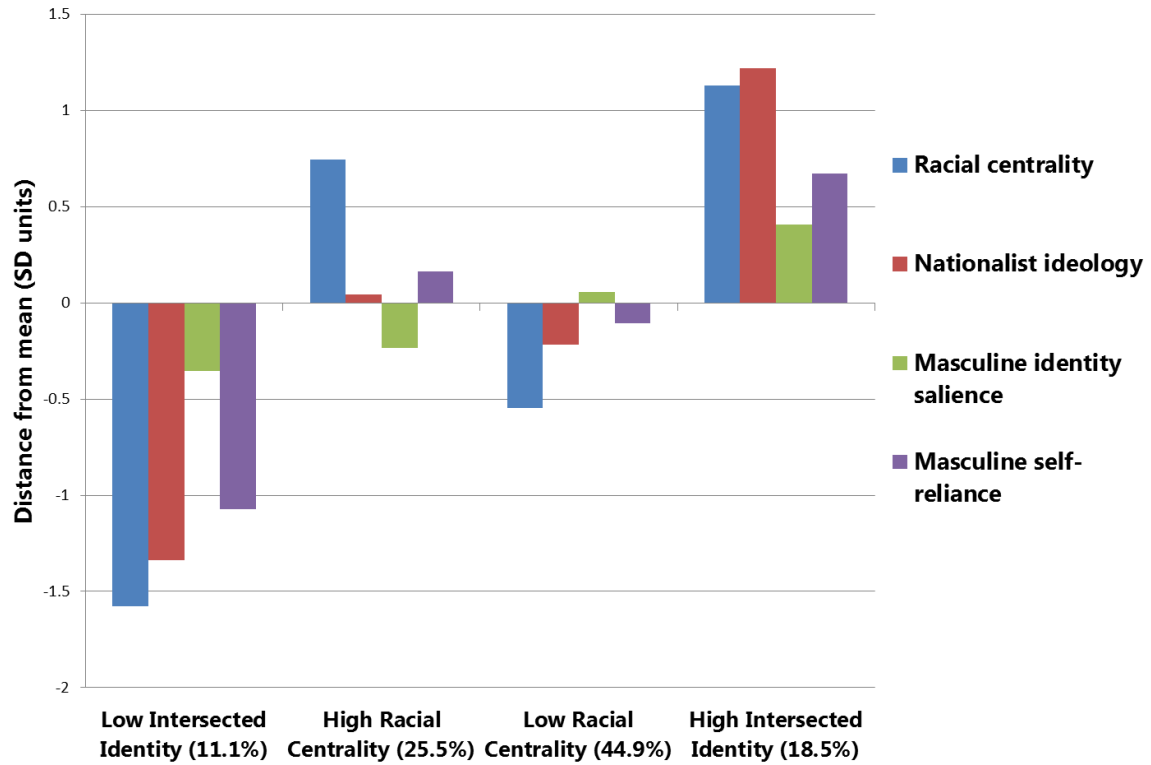


Figure 5.2. Standardized mean values of racial and masculine identity variables by identity profile.

CHAPTER 6: CONCLUSION

6.1 Summary of dissertation activities

The purpose of this dissertation was to apply inter- and intra-group approaches to the examination of relationships between sexual health socialization and sexual health behaviors among African American men. Using two separate data sources, each with its own unique strengths, weaknesses, and available measures, I focused on the role that fathers play as shapers of sexual health behaviors, specifically sexual initiation and condom use.

The severity of the racial disparity in HIV/STD infection motivated this and other studies to identify determinants of condom behavior among African American men. Recognizing that prior research has largely overlooked the potential role played by fathers in the sexual health socialization process, I explored this possibility in cross-sectional and longitudinal analyses. However, both the theoretical and empirical socialization literature suggest fathers play an important and unique role in the development of their sons' health behaviors. Neglecting the role fathers play in this process limits avenues for effective intervention, as they may be able to establish trajectories of positive health behavior before sexual initiation or any in-school sexual health education. Furthermore, inattention to fathers as agents of health socialization reinforces problematic notions present within both research and the larger cultural

discourse of the uninvolved African American father (Garfield & Isacco, 2006; Teitler, 2001).

For the first manuscript, presented in Chapter 4, I applied an inter-group approach to health disparities, contrasting African American and White adolescents and young adults. By examining the effects of both peers and fathers on timing of first sex, as well as condom behavior, my goal was to implicate these determinants in the disparity in HIV infection. Additionally, I sought to determine if agents of socialization maintained or lost their effect on behavior over time.

In the second manuscript, presented in Chapter 5, I moved away from inter-group differences, using an intra-group approach to examine the effect of racial and masculine identity on condom behavior. As fathers engage in health socialization with their sons, they also are involved more broadly in a socialization process that influences their sons' racial and masculine identity development. Furthermore, intersectionality theory argues that we cannot separate racial and masculine identities into independent components (Crenshaw, 1989, 1991). To reflect these ideas analytically, I used four different racial and masculine identity variables to create latent classes to represent this intersectionality. These identity profiles then served as variables in regression analysis to determine if they either mediated or moderated the relationship between paternal socialization and condom use.

Health socialization is an important determinant of sexual health behavior, particularly as others suggest it is an understudied factor in producing and sustaining of health disparities (Singh-Manoux & Marmot, 2005). Additionally, the racial disparity in HIV infection does not exist only in adulthood, but is already evident in adolescence. An

examination of health socialization is necessary to explain the development of sexual health disparities so early in the life-course. As such, this dissertation aimed to contribute to the scarce literature about the contribution made by paternal sexual health socialization to African American men's sexual behavior. In the next section, I summarize the main findings.

6.2 Synthesis of significant findings

Aim 1

Aim 1 was the first of two study aims I explored as part of the inter-group analysis. Specifically, the purpose of Aim 1 was to examine the longitudinal association between both peer and paternal socialization, and sexual initiation and condom use in adolescence (Wave I of Add Health). Furthermore, Aim 1 examined if these effects were maintained into young adulthood (Wave III). After controlling for sociodemographic variables, neither peer nor paternal socialization predicted condom use either at Wave I or Wave III. Peer and paternal socialization were, however, significantly associated with sexual initiation at Wave I. Supporting my hypotheses, those men who thought that having sex would result in additional respect from their peers were more likely to have sex earlier ($p < .001$), and those who thought having sex would make their partner respect them less were more likely to have delayed sexual initiation ($p < .001$). Paternal sexual health socialization was also represented with two variables. General paternal disapproval of their sons' having sex was not associated with sexual initiation. However, paternal disapproval over having sex with an intimate partner did result in delayed age of first sex ($p < .05$).

Aim 2

Aim 2 was the second of two study aims of the inter-group analysis. This Aim was conducted to determine if the effect of peer and paternal agents on sexual health behavior differed by race. I did not observe differential effects by race of these agents, nor were there racial differences in condom use. Though increasing amounts of literature are not finding African American-White differences in condom use, these results are at odds with the persistently high rates of HIV and STD infection within the African American population. However, analyses revealed that African American men were younger at age of first sex than their White counterparts ($p < .01$). In a covariate-unadjusted, population-weighted, analysis of racial differences at Wave I, a greater proportion of African American men had sex (66.7%) than White men (34.8%; $p < .001$). Furthermore, among these men who were sexually active African Americans had experienced sexual initiation almost two years earlier (12.9 years vs. 14.8 years; $p < .001$).

Aim 3

Aim 3 was the final aim and examined condom use among African American men from an intra-group perspective. The first step in this exploratory endeavor was to examine racial and masculine identity variables, using them to create latent classes that represented person-centered differences. I developed classes to reflect the intersectional nature of racial and masculine identity. The latent class model yielded four distinct classes groups based on combinations of the following variables: racial centrality, nationalist ideology, masculine identity salience, and masculine self-reliance. I named

the classes to roughly characterize the distribution of the variables used to constitute them: *Low Intersected Identity, High Racial Centrality, Low Racial Centrality, High Intersected*. The plurality of the sample (44.9%) were members of the *Low Racial Centrality* group. These classes were used in regression analyses predicting condom behavior. The profiles were not directly associated with condom behavior, nor did they mediate or moderate the relationship between paternal socialization and condom use. Paternal socialization, however, was positively associated with frequency of condom use ($p < .01$).

Synthesis of results across Aims

Using both an inter- and intra-group approach to the examination of sexual health behaviors among African American provided a more complete understanding of what may be driving racial disparities in HIV/STD infection, as well as elucidating those factors that may be most amenable to intervention among African American men. Peer and paternal socialization were not associated with condom behavior in the first manuscript, though paternal socialization was associated with condom behavior among African American men in the second. I offer two non-exclusive explanations for this finding (in addition to the study-specific possibilities discussed in each respective manuscript). First, these findings arose from two different study populations. Instead of viewing these results in conflict, I suggest that paternal health socialization was influential in condom use for AAMHSL study participants even if the same was not true for Add Health study participants. AAMHSL was conducted 16 years after Wave I of Add Health, so the study populations may differ due to increased awareness of

HIV/AIDS and other STDs. Nevertheless, Add Health features two methodological advantages over AAMHSL: probability sampling and prospective analysis of paternal socialization, design elements that privilege the null finding. The second possibility rests with the wording and timing of the questions. The variables I used to represent paternal socialization within Add Health assessed participant perceptions about how their father's attitudes towards sexual health behavior, while AAMHSL asked about the frequency of direct communication regarding sexual health behavior. Though both assessment approaches interrogated important components of sexual health socialization, neither captures the totality of this process. The different results highlight important nuances introduced by prospective and retrospective examinations of socialization and may also reflect measurement issues rather than causal associations.

Despite the overwhelming attention given to condom use and its potential role in producing disparities in HIV and other STD infection, I found no evidence of African American-White differences in condom behavior. Together with a growing body of work detailing racial differences in condom use, these findings suggest that condoms are not the most significant contributor to racial disparities in HIV/STD infection. Increasing condom behavior remains an important public health goal – more consistent condom use lowers individual risk of infection, and ultimately lowers the incidence of HIV and other STDs. However, while interventions to bolster condom use will be advantageous for individuals, these interventions may have hit a ceiling in their ability to influence racial disparities in infection among men. The early and substantial disparity in sexual initiation, however, does provide a promising avenue for additional study and intervention efforts. Since racial disparities in HIV infection already exist in

adolescence, and if condom use is equally prevalent among both African American and White men, then delaying the age of first sex may play a vital role in altering the population-level trajectory of new HIV and STD infections for African American men.

6.3 Strengths and limitations

The strength of this dissertation lies in its examination of sexual health socialization and behavior from an inter- and intra-group perspective. Using two different datasets to accomplish this, however, also creates limitations, as the samples of African American men are not the same. Notably, one important difference between the two is average respondent age. At Wave III Add Health participants are young adults with an average age approximately 22, while the average age of AAMHSL participants is approximately 27. Furthermore, the variance in age is greater in AAMHSL, with the oldest participant being 62 (the oldest respondent in Wave III of Add Health is 28). AAMHSL is a cross-sectional study and as such cannot assess change over time like Add Health. The cross-sectional nature of AAMHSL also means there is a possibility that recall bias influenced respondent reporting of paternal socialization. Nevertheless, to my knowledge no other quantitative study with this number of African American men assesses sexual health socialization and identity with the depth that AAMHSL does.

A problem present in most social science research is imprecise measurement of variables. I acknowledge the measures used for paternal and peer socialization are simple indicators that fail to capture the complexity of the health socialization process. Even still, analysis suggests these measures are internally reliable, which should attenuate any problems with measurement error. This issue of measurement also extends to who gets treated as a father in analysis. The family structures to which fathers and sons belong

have only become increasingly complex with time. Though I attempted to statistically control for this by including residential status in analytic models, it still ignores the diversity of familial organization. Sons may have multiple fathers or other individuals serving in a paternal capacity, including older siblings, cousins, or other extended family members (Hofferth et al., 2007). Researchers have begun to suggest new ways to think about and measure these paternal relationships (Day & Lamb, 2004; Schoppe-Sullivan, McBride, & Ho, 2004), particularly as evidence suggests this social fathering may be even more common in African American families (Jayakody & Kalil, 2004). Additionally, fatherhood may not require any formal familial relationship (e.g., involved mentors). I attempted to deal with this diversity by using variables where participants could decide who was their father rather than prescribing a male figure to participants based upon residential status or biological relationship.

I also acknowledge that for analytical ease I simplified what is arguably one of the most complex social constructions in the United States: race. By focusing on African American-White comparisons, I failed to meaningfully examine the role of other racial groups or incorporate mixed-race status, and therefore made a simplistic assumption that all children and their fathers are of the same race. Certainly, one could argue that social perceptions about race are more salient in many contexts than racial self-identification, but counter-arguments are equally compelling. Nevertheless, this is a concern that will need to be addressed in future studies, particularly as the racial diversity across the United States and within families increases over time.

Finally, this dissertation is limited by its exclusion of other sources of socialization with known impacts on sexual health behaviors (e.g., media). However, an

important strength of this dissertation is the inclusion of both masculine and racial identity. Still, these are multifaceted concepts, and I chose the best among the measures I had available. Another important omission was sexual orientation. Because of the incredibly small numbers of sexual minorities, I did not include an analysis of sexual orientation. In Add Health, sexual minorities were omitted from analysis entirely unless they had vaginal sex. As such, I could not examine the effect of being a sexual minority, or heterosexual, on condom use. Given the timing of sexual identity development, there are additional challenges to studying the role of sexual orientation on sexual initiation. Future research should pursue an empirical examination of sexual behaviors of African American men by adding of sexual orientation to the matrix of identity, as this dissertation study was not poised to do so.

A variable that is noticeably absent within my dissertation is maternal socialization. Both Add Health and AAMHSL have comparable variables to the ones used to assess paternal socialization, so it was a difficult but conscious, choice to exclude maternal socialization from analysis. Both analytic and conceptual concerns motivated this decision. Analytically, though maternal and paternal socialization are distinct concepts, they correlated with one another to a high extent. Increasing the multicollinearity of the regression model, without the ability to increase sample size to compensate, would sacrifice a disproportionate amount of statistical power and reduce the ability to identify statistical significance. This concern also translates into the conceptual rationale for excluding maternal socialization from study. Because the preponderance of research on parental influence focuses solely on mothers, I wanted this study to serve as an empirical “counterweight.” Any null results that arose from a study

that had included both mothers and fathers would in fact have *de facto* privileged the role of mothers previously established elsewhere in the literature. For these reasons, I decided it best to conduct only *a priori* analyses with paternal socialization, a choice I offer as an important contribution to the literature.

6.4 Implications for research and practice

This dissertation study provides important results that move the literature forward as we attempt to reduce disparities and rates of HIV/STD infection. It is my hope that researchers and practitioners leverage these results as we move forward in this arena. I discuss prospects for additional research and intervention below.

Though the first dissertation manuscript features a longitudinal analysis of condom behavior and sexual initiation, peer and paternal socialization were time-fixed. Additional research can build on this manuscript by examining these variables as time-variant. This would better reflect how paternal messaging shifts along with child and adolescent development. Furthermore, this could appropriately model how peer groups rarely remain stable in adolescence and young adulthood.

The second dissertation manuscript utilizes latent classes to operationalize intersectionality theory with respect to racial and masculine identity. However, these variables too could benefit from a prospective analysis. The ability to observe development of racial and masculine identity over time, and how it changes African American men's identity profiles could yield important information. This is a particularly promising avenue of research, as post-hoc analyses pointed to age as a variable that was significantly associated with class membership. Finally, this would

allow us to move beyond the cross-sectional association of masculine and racial identity with behaviors of interest, and instead look at the process of socialization and identity development longitudinally.

A critical next step is to incorporate sexual orientation into these analyses in a meaningful way. This requires intentional over-sampling of sexual minorities in order to obtain sufficient statistical power to examine determinants specific to this group of men. Furthermore, sexual orientation, or more specifically sexual identity, is a variable that for both conceptual and empirical reasons would greatly improve the utility of the latent classes created in the second manuscript. As sexual minorities disclose their sexual orientation at increasingly earlier ages, it is important to understand what effect this facet of identity development has on their sexual behaviors in adolescence, and how their sexual identity interacts with other aspects of their identity and health behavior development.

This research also has implications for public health interventions. As stated elsewhere, condom behavior is not only one of the most proximal determinants of HIV/STD infection, interventions to increase condom behavior to are important to help individuals promote and maintain their health and the health of their sexual partners. Results of the second manuscript illustrate the enduring role that paternal communication may have on condom behavior for African American men. Nevertheless, results from the first manuscript and other research, makes it increasingly clear that interventions should be explicit in their distinction between condom behavior and sexual initiation.

Perhaps most importantly, the dissertation results amplify the importance of fathers in the lives of their sons. The results in Chapter 5 illustrate a potential enduring

effect of paternal communication on condom use among African American men. The potential for such lasting effects illustrates the importance of African American fathers on the health behavior of their sons, and points to the need to develop additional interventions like the ones presented elsewhere to foster health promoting behaviors (Caldwell, et al., 2010; Caldwell, Wright, et al., 2004). Though paternal socialization was not associated with condom use in Chapter 4, it was associated with sexual initiation. Specifically, sons who expressed paternal disapproval in having sex with their partner were more likely to delay sexual initiation. Practitioners who seek to empower fathers as agents of sexual health initiation should be explicit and develop interventions in a manner that reduces the apprehension to discuss sexuality or sexual behavior in detail with their sons.

The great extent to which African American men are becoming sexually active earlier than White men warrants immediate attention. Regardless of push-back received by advocates for comprehensive sexual education throughout much of the country, it remains one vehicle that may delay initiation. Fathers, however, have a large role to play, and schools may need to work more carefully with them to help them communicate with their sons about sexual health. The results of this dissertation did not support differences by race in the effect of fathers, but did find that on average African American sons do not believe their fathers are as disapproving about have sex at a young age. This likely does not reflect a difference between African American and White fathers, but rather a difference in the extent to which African American fathers are communicating with their sons about becoming sexually active. African American fathers may need to be more vigilant in crafting messages before adolescence in order to delay sexual

initiation. Finally, though Chapter 4 was based upon data collected in the 1990s, it is important to acknowledge there was a cohort effect indicative of a secular trend where greater numbers of young men are becoming sexually active at earlier ages. More recent studies indicate this trend has not abated, reinforcing the importance of efforts to delay sexual initiation, but not in a way that conflicts with the importance of using condoms for those who will become, or are currently, sexually active.

Finally, despite this dissertation's focus on condom use, we caution against an overreliance of interventions that target this behavior as a means to reduce racial disparities in HIV infection. We need to move past interventions that promote condom use as the primary tool to reduce disparities in HIV/STD infection. Instead, we must target those community and policy-level determinants that pattern rates of new infection. A promising arena involves those efforts that increase the identification and treatment of HIV infection. As the Affordable Care Act increases the number of Americans with access to health care, we should not squander the opportunity to push for routine HIV testing by health care providers. Compared to HIV-positive Whites, HIV-positive African Americans are less likely to know their HIV status, experience greater delays between infection and diagnosis when they do learn of their HIV status, and are less likely to enter or remain in care (Campsmith, Rhodes, Hall, & Green, 2010; Millett, et al., 2007; Mugavero et al., 2007; Robison et al., 2008).

Though 31% of adult African Americans have never been tested for HIV, interventions that increase testing show promise as this percentage is still lower than that in the general population, despite the comparatively decreased access to health care among African Americans (Centers for Disease Control and Prevention, 2008a).

However, HIV testing alone is not sufficient. We must be sure that those newly diagnosed have access to antiretroviral treatment. Earlier diagnosis and treatment results in better individual health outcomes (Kitahata et al., 2009), as well as a drastic reduction in the ability of HIV-infected persons to transmit the virus (Cohen et al., 2011). Furthermore, increasing linkage to care is cost-effective, even without taking into account the additional benefits of preventing successive new infections which would likely accompany such strategies (Gopalappa, Farnham, Hutchinson, & Sansom, 2012).

Ultimately, only a combination of intervention strategies that is mindful of determinants operating at all levels of the social-ecological framework will reduce racial disparities in HIV/STD infection (Kurth, Celum, Baeten, Vermund, & Wasserheit, 2011). We hope that practitioners and researchers can leverage the combination of inter- and intra-group approaches modeled in this dissertation to identify determinants of sexual health behavior and new infections, and reduce health disparities in the HIV/STD epidemics.

APPENDIX A: CHAPTER 4 STUDY VARIABLES

Variable type	Name of variable	Item(s)	Range of possible values	Wave(s)
Dependent variables	Sexual initiation	<p>“Have you ever had sex?”</p> <p>“If so, year and month of first sex.”</p>	<p>0 = no sexual debut (data censoring), 1 = experience sexual debut.</p> <p>Time to sexual debut = date of first sexual encounter – birthdate.</p>	Earlier response between Wave I and Wave II.
	Condom use	<p>“Did you or your partner use any methods of birth control when you had sexual intercourse most recently?”</p> <p>“What method(s) did you or your partner use?”</p>	<p>0 = no form of birth control used</p> <p>1 = a form of birth control used AND one of the methods chosen was condoms.</p>	Earlier response between Wave I and Wave II.
Independent variables	Paternal socialization	<p>“Regardless of whether you have done these things or not, how would your father feel about each of the following things? How would he feel about...”</p> <ul style="list-style-type: none"> • “Your having sex at this time in your life?” • “Your having sexual intercourse with someone who was special to you and whom you knew well—like a steady girlfriend/boyfriend?” • “Your using birth control at this time in your life?” <p>The first two items are used in the modeling of sexual initiation as individual indicators. The third item is used to model condom behavior.</p>	1 = strongly disapprove to 5 = strongly approve.	Wave I (Wave II used to impute any missing data).
	Peer socialization	<p>“If I had sex, my friends would respect me more.”</p> <p>“If I had sex, my partner would lose respect for me.”</p> <p>Both items are used to model sexual debut as individual indicators.</p>	1 = strongly agree to 5 = strongly disagree	Wave I (Wave II used to impute any missing data).
	Race	<p>“What is your race?”</p> <p>If participants select more than one response: “Which one category best describes your racial background?”</p>	0 = White, 1 = African American	Wave I (Wave II used to impute any missing data).

Socio-demographic variables	Age	“What is your birth date? Month and year?”	Continuous variable (in years) = interview date – birthdate.	Wave I (Wave II used to impute any missing data).
	Parental education	“How far in school did your mother/father go?” This variable reflects the parent with the highest reported education status.	Continuous variable, 0 = Never went to school to 9 = Professional training beyond a four-year college or university	Wave I (Wave II used to impute any missing data).
	Father residential status	Asked of people living in household: “What is [NAME]’s relationship to you?” “Do you know anything about your non-residential father?”	Residential status = 1 if father is selected as someone living in the household. Otherwise, residential status = 0 if participants know anything about their non-residential father.	Wave I (Wave II used to impute any missing data).

APPENDIX B: CHAPTER 5 STUDY VARIABLES

Variable type	Name of variable	Item(s)	Range of possible values	Psychometric properties
Dependent variable	Condom use	“How frequently do you use condoms when having vaginal (or anal) sex?”	1 = never to 5 = always	
Independent variables	Paternal socialization	<p>“How often did your father/male guardian tell you importance of waiting to have sex?”</p> <p>“How often did your father/male guardian discuss using condoms?”</p> <p>“How often did your father/male guardian discuss HIV?”</p> <p>The score for these three items was averaged to create a composite measure of paternal socialization.</p> <p>Participants who were older than 18 in 1981, the start of national media coverage of what would later be revealed as the virus which causes AIDS (e.g., Altman, 1981), and selected either Never or Not Sure to the third item had their response recoded as missing.</p>	1 = never to 4 = often	Cronbach's α = .89
	Racial centrality	<p>Indicate “how much you disagree or agree with each statement.”</p> <ul style="list-style-type: none"> • In general, being Black is an important part of my self-image. • I have a strong sense of belonging to Black people. • I have a strong attachment to other Black people. • Being Black is an important reflection of who I am <p>The score for these items was averaged to create a composite measure of racial centrality.</p>	1 = strongly disagree to 7 = strongly agree	Cronbach's α = .88 (Sellers, et al., 1997)

	Nationalist ideology	<p>Indicate “how much you disagree or agree with each statement.”</p> <ul style="list-style-type: none"> • It is important for Black people to surround their children with Black art, music, and literature. • Blacks would be better off if they adopted Afrocentric values. • Black people must organize themselves into a separate Black political force. • White people can never be trusted where Blacks are concerned. <p>The score for these items was averaged to create a composite measure of nationalist ideology.</p>	1 = strongly disagree to 7 = strongly agree	Cronbach’s $\alpha = .73$ (Sellers, et al., 1997)
	Masculine identity salience	<p>“How important is each of the following to your beliefs about what it means to be a man?”</p> <ul style="list-style-type: none"> • Expressing anger • Being a good lover • Being physically strong • Owning a home, property, and car • Being a good athlete • Having power • Having a romantic partner • Being in control in a relationship • Fighting for the rights of people <p>The score for these items was averaged to create a composite measure of masculine identity salience.</p>	1 = not at all important to 5 = extremely important	Cronbach’s $\alpha = .77$ (Hammond & Mattis, 2005)
	Masculine self-reliance	<p>“Indicate your level of agreement or disagreement with each statement.”</p> <ul style="list-style-type: none"> • A man should never count on someone else to get the job done. 	1 = strongly disagree to 7 = strongly agree	Cronbach’s $\alpha = .84$ (Levant, et al., 1992)

		<ul style="list-style-type: none"> • A man must be able to make his own way in the world. • Men should always be realistic. • Men should be detached in emotionally charged situations. • A man should never doubt his own judgment. • A man who takes a long time and has difficulty making decisions will usually not be respected. • A man who has no taste for adventure is not very appealing. <p>The score for these items was averaged to create a composite measure of masculine self-reliance.</p>		
Socio-demographic variables	Age	“What is your age (in years)”	≥ 18	
	Education	“What is the highest level of education that you completed?”	<high school, high school degree or equivalent, some college, \leq college degree	
	Father residential status	“Who lived in the household where you spent the most time growing up?”	Residential status = 1 if father or step-father is selected as someone living in the household.	

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