

HELP-SEEKING, SERVICE USE, AND UNMET HEALTH AND MENTAL HEALTH  
NEED AMONG SEXUAL MINORITY YOUTH: FINDINGS FROM ADD HEALTH,  
A NATIONAL SCHOOL-BASED STUDY

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## ABSTRACT

Kelly A. Williams: Help-Seeking, Service Use, and Unmet Health and Mental Health Need Among Sexual Minority Youth: Findings from Add Health, A National School-Based Study  
(Under the direction of Mimi V. Chapman)

Community and population-based studies show that non-heterosexual youth (i.e., sexual minority youth) are at significantly higher risk for an array of poor health and mental health outcomes in comparison to their heterosexual peers. These outcomes include acquiring sexually transmitted infections, becoming pregnant or fathering a pregnancy, anxiety, depression, suicidality, and suicide. In addition, sexual minority youth experience higher rates of verbal, physical and/or sexual victimization and are at greater risk for substance abuse and unsafe sexual activity (e.g., inconsistent use of condoms and multiple sexual partners), which may further increase the risk for poor health and mental health outcomes. This three-study dissertation presents findings from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative school-based study. Data were taken from Wave I of Add Health, and consisted of a weighted sample of 18,924 youth in grades 7 – 12 with a subsample of 1,388 sexual minority youth. Study 1 used chi-square analyses to test group differences in unmet health and mental health need, foregone healthcare and barriers to healthcare, and service use setting by sexual minority status. Study 2 used logistic regression to test individual and family characteristics that predict unmet health and unmet mental health need among youth. Study 3 used multilevel logistic regression to test the impact of

school-based mental health services and school location (over and above individual and family characteristics) on mental health service use. Results showed significantly higher rates of unmet health and mental health need among sexual minority youth, who reported more foregone healthcare and cited healthcare barriers related to confidentiality concerns. Sexual minority youth obtained mental healthcare most often at private doctor's offices and less often at school. Higher levels of parent connectedness significantly reduced the odds for an unmet health or mental health need among youth, regardless of sexual minority status. Similarly, regardless of sexual minority status, school-based mental health services significantly increased odds that youth with mental health need would obtain mental health services. Findings highlight the need to develop tailored interventions aimed at youth, parents, schools, and healthcare providers to promote access to services among sexual minority youth.

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## CHAPTER I

### INTRODUCTION

Community and population-based studies increasingly have shown that non-heterosexual youth (i.e., sexual minority youth) as a group, are at significantly higher risk for an array of poor health and mental health outcomes in comparison to their heterosexual peers. These outcomes include acquiring sexually transmitted infections (including HIV), becoming pregnant or fathering a pregnancy, anxiety, depression, suicidality, and suicide. In addition, sexual minority youth experience higher rates of verbal, physical and/or sexual victimization and are at higher risk for engaging in substance abuse and unsafe sexual activity (e.g., inconsistent use of condoms and multiple sexual partners), which may further increase the risk for poor health and mental health outcomes. Findings from recent population-based samples provide compelling evidence that sexual minority youth experience victimization (Bontempo & D'Augelli, 2002; Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998; Russell, Franz, & Driscoll, 2001; Russell & Joyner, 2001), use alcohol and other illicit substances (DuRant, Krowchuk, & Sinal, 1998; Faulkner & Cranston, 1998; Garofalo et al., 1998; Russell, 2006; Ziyadeh et al., 2007), engage in sexual risk behaviors (Faulkner & Cranston, 1998; Garofalo et al., 1998; Saewyc, Bearinger, Blum, & Resnick, 1999), become pregnant or father a pregnancy (Saewyc et al., 1999; Saewyc, Pettingell, & Skay, 2004), and have mental health challenges such as anxiety, depression and suicidality (Faulkner &

Cranston, 1998; Garofalo et al., 1998; Garofalo, Wolf, Wissow, Woods, & Goodman, 1999; Remafedi, French, Story, Resnick, & Blum, 1998; Russell & Joyner, 2001; Udry & Chantala, 2002; Waller, 2005) at significantly higher rates than their peers.

It is not clear what contributes to the increased risk for health and mental health challenges in this population; however, scholars point out that sexual minorities may internalize negative societal messages about sexual orientation; may experience greater stress as a result of societal stigma, marginalization, and oppression; and may also experience more social and emotional isolation, possibly due to a lower availability of family and community support resources (Brooks, 1981; Meyer, 1995, 2003).

Adolescents in general have a largely unmet need for access to services, particularly mental health services, and overall do not access mental health services in proportion to their needs (Simpson, Scott, Henderson, & Manderscheid, 2002). Although far less is known about sexual minority youth, the accumulated research strongly suggests that their need for services is at least equal to the general adolescent population and probably greater. There is also very little existing research on specific barriers that may keep sexual minority youth from accessing needed care.

From the accumulated research, we know that sexual minority youth are at higher risk for health and mental health challenges compared to their non-sexual minority peers. Overall, this research suggests that sexual minority youth also have a significant need for access to quality health and mental health services. Yet, very little is known about help-seeking and health and mental health service use patterns (including barriers to service use) among sexual minority youth.

Over the past decade, several community-based studies examining help-seeking behaviors and possible barriers to service use among sexual minority youth have suggested that sexual minority youth have distrusted and avoided using traditional health and mental health services due to concerns about discrimination by health care providers, receiving a lower quality of care, and patient-provider confidentiality (Ginsburg et al., 2002; Mercier & Berger, 1989; Paroski, 1987; Travers & Schneider, 1996).

Until recently, there were no representative studies examining help-seeking and service utilization among sexual minority youth. However, a recent effort using Add Health data found that sexual minority youth were significantly more likely to use mental health services compared to their non-sexual minority peers (McGuire & Russell, 2007). In addition, this study found that sexual minority youth used mental health services more frequently even when there was no indication of a mental health risk; such as a history of victimization, substance abuse, depression, or suicidality (McGuire & Russell, 2007). These findings mirror findings from two recent representative studies of sexual minority adults, which suggest that sexual minority men and women have both higher health and mental health needs and use services more frequently than non-sexual minority adults (Cochran, Sullivan, & Mays, 2003; Wang, Hausermann, Vounatsou, Aggleton, & Weiss, 2007).

Nevertheless, there remains additional work to be done to reach a more comprehensive understanding of health and mental health service use among sexual minority youth. For example, the study by McGuire and Russell (2007) did not examine parent-child relationship variables (i.e., parent connectedness) with regard to health and mental health service use among sexual minority youth. Logan and King (2001)

suggested that the parent-adolescent relationship plays a key role in whether adolescents actually obtain needed services. To date, this link has not been examined among sexual minority youth.

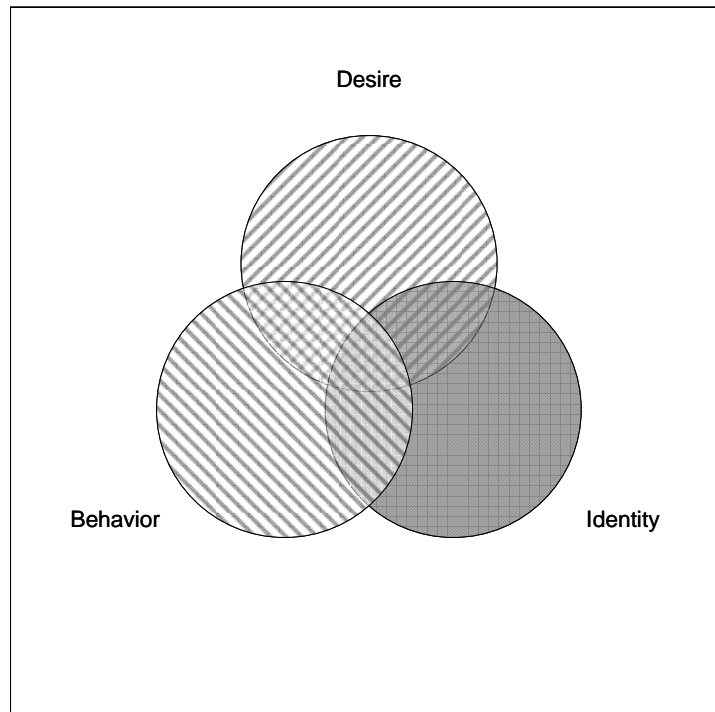
In sum, there is a clear need for additional research to better understand the health and mental health needs, help-seeking behaviors, service use patterns, and barriers to health and mental health service use among sexual minority youth. These gaps in knowledge on service use among sexual minority youth stand in contrast to the growing amount of evidence showing this to be a population with significantly higher health and mental health needs in comparison to their peers.

### Defining and Measuring Sexual Orientation

A fundamental challenge in research with sexual minority populations concerns definition. There is no consensus among researchers on how to adequately define and measure the construct of sexual orientation (Russell, 2006). Most researchers concur that sexual orientation is composed of three separate but overlapping dimensions (Laumann, Gagnon, Michael, & Michaels, 1994). These dimensions, which may or may not inter-relate depending on the person and on the context, include: 1) physical or emotional attraction, (i.e., to whom are you attracted?); 2) sexual behavior (i.e., with whom do you have sex?); and 3) self-identity (i.e., how do you describe yourself to yourself and others?). Figure 1 provides an illustration of this three dimensional conceptualization of sexual orientation.

In addition to the challenge of defining and agreeing on a conceptualization of sexual orientation, there is also the problem of measuring sexual orientation. Indeed, studies of both youth (Remafedi, Resnick, Blum, & Harris, 1992; Saewyc, Skay,

Figure 1.1  
Dimensions of Sexual Orientation (Laumann, Gagnon, Michael, and Michaels, 1994)



Bearinger, Blum & Resnick, 1998) and adults (Laumann et al., 1994) have found little inter-correlation between measures of same-sex attraction, behavior, and self-labeling. A recent study explored the congruency of youth responses between multiple measures of sexual orientation among three U.S. and Canadian school-based surveys (Saewyc, Bauer, et al., 2004). The three surveys included items on self-labeling, attractions and genders of sexual fantasy partners, genders of sexual behavior partners, and attractions/intentions to be sexual. Results showed a lack of congruence among the various measures of sexual orientation; that is, students in every orientation category chose responses in other categories for a different measure. Findings from this study suggest that surveys

measuring more than one dimension of sexual orientation generally access distinctly different categories of sexual minority youth (Saewyc, Bauer, et al., 2004).

Researchers recommend taking a broad approach to measuring sexual orientation in adolescents; one that includes the multiple dimensions of attraction, behavior, and self-identity. This is important because youth who identify as gay, lesbian, or bisexual or who have same-sex attractions may not be sexually active and those who engage in same-sex sexual activity may not identify as gay or admit to same-sex attractions (Savin-Williams, 2005). At the same time, the social pressure and stigma associated with having same-sex attractions may place youth at risk for psychological distress. Therefore, surveys that measure only the sex of sexual partners (i.e., sexual behavior) will exclude potentially at-risk groups of sexual minority youth (Saewyc, Bauer, et al., 2004). Similarly, surveys that only measure how youth self-label or who they say they are attracted to may exclude youth who are engaging in same-sex sexual behavior/relationships (Saewyc, Bauer, et al., 2004).

This dissertation will use the term *sexual minority youth* (SMY) to refer to those youth who reported ever having a same-sex romantic attraction or who reported being involved in a same-sex romantic relationship or having a same-sex sexual partner within 18 months prior to completing the Add Health survey. The term *non sexual minority youth* (NSMY) will refer to those youth who reported never having a same-sex romantic attraction or same-sex relationship or sexual partner within 18 months prior to survey completion.

#### Youth-Specific Models of Help-Seeking and Service Use

Over the past decade, researchers have begun to adapt adult help-seeking and



service use models to apply specifically to children and adolescents (e.g., Costello, Pescosolido, Angold, & Burns, 1998). These ecologically-based models (e.g., Bronfenbrenner, 1986) acknowledge that children and adolescents are rarely solely responsible for seeking their own health and mental health care; but rather are part of larger family, school, and community systems, which play important roles in facilitating (or impeding) help-seeking and access to services (Logan & King, 2001). In contrast to adult-based models, child and adolescent specific models depend less on internal cues of the individual and more upon the attitudes and beliefs of those who assume the role of facilitating help-seeking and service use, such as parents, teachers and service providers (Logan & King, 2001).

#### Dissertation Study Aims

This dissertation seeks to address important gaps in knowledge in order to better understand the help-seeking process for youth in general and specifically for sexual minority youth. Using a three-study format, the following three general areas will be explored: 1) Health and mental health risks and needs, health and mental health service use patterns, and youth-reported barriers to healthcare access; 2) youth and family characteristics associated with unmet health and unmet mental health need among youth; and 3) the influence of school characteristics; specifically, the availability of school-based mental health services and school location (rural vs. non-rural), on youths' mental health service use. This dissertation project used data from The National Longitudinal Study of Adolescent Health (Add Health), a nationally representative school-based study of adolescents in grades 7 – 12. The overall sample consists of 18,924 youth and

includes subsamples of 17, 456 non-sexual minority youth (NSMY) and 1,388 sexual minority youth (SMY).

The first dissertation study consisted of an overall profile of health and mental health need, unmet need, foregone healthcare and barriers to healthcare, and setting/location of obtained services among SMY and NSMY. A prior Add Health study examining mental health service use among SMY demonstrated that SMY used mental health services at significantly higher rates than their peers, even in the absence of typical indicators of mental health need (McGuire & Russell, 2007). The first dissertation study adds to the literature by examining prevalence rates of health and mental health need and also *unmet* health and mental health need (i.e., proportion of need relative to proportion of service use) among SMY and NSMY. In addition, this study contributes to the literature by comparing the prevalence rate of foregone healthcare and the reported barriers to healthcare among SMY and NSMY and also by examining differences in health and mental health service use settings.

The second dissertation study examined youth and family characteristics (including the youth-parent relationship) that predict unmet health and unmet mental health need among youth. Youth characteristics include sexual minority status (SMS), age, sex, and race/ethnicity. Central to the Logan and King theory of parent-facilitated adolescent service use (2001), this paper examined the influence of family context factors (including qualities of the youth-parent relationship) on unmet health and mental health need among SMY and NSMY. Family context variables will include youth-parent connectedness, parent education, parent disability status, family income, and youth health insurance status. In addition, this study will examine the following three tests of

moderation: 1) Whether parent connectedness moderates the relationship between SMS and unmet health/mental health need (parent connectedness x SMS); 2) whether sex/gender moderates the relationship between SMS and unmet health/mental health need (sex/gender x SMS); and 3) whether racial/ethnic minority status moderates the relationship between SMS and unmet health/mental health need (race/ethnicity x SMS).

The third dissertation study examined a subsample of youth with mental health need (n = 8,034) and entailed a two-level analysis examining whether school context variables predict youth mental health service use over and above youth and family characteristics. The following two school context/characteristic variables will be examined: 1) Availability of school-based mental health services; and 2) School location (rural vs. non-rural). Thus, this study will assess whether school characteristics (i.e., the level two variables) affect the odds that youth will obtain mental health services over and above youth and family characteristics (i.e., the level one variables). Youth and family variables include sexual minority status (SMS), age, sex, race/ethnicity, youth mental health need, youth-parent connectedness, youth health insurance status, parent education, parent disability status, and family income. In addition, this study will examine the following two cross-level tests of moderation: 1) Whether the availability of school-based mental health services moderates the relationship between SMS and youth mental health service use (school-based mental health services x SMS); and 2) whether school location (rural vs. non-rural) moderates the relationship between SMS and youth mental health service use (school location x SMS).

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## CHAPTER II

### HEALTH AND MENTAL HEALTH NEEDS, SERVICE USE PATTERNS, AND BARRIERS TO HEALTH SERVICE USE: A COMPARATIVE ANALYSIS OF SEXUAL MINORITY AND NON-SEXUAL MINORITY YOUTH

#### Background

Although sexual minority youth (SMY) have the same health and mental health concerns as their non-sexual minority youth (NSMY) peers, they also must deal with the ongoing effects that societal stigma, prejudice, and discrimination may pose to their health and well-being (Ryan & Gruskin, 2006). Societal stigma, family rejection, and marginalization may place sexual minority youth at greater risk for poor health and mental health outcomes. Recent representative studies provide compelling evidence that SMY are at higher risk for poor health and mental health outcomes compared to their heterosexual peers. Moreover, research has suggested that SMY engage in sexual risk behaviors (i.e., unsafe sexual activity) at higher rates than NSMY and also are more frequent targets of physical and sexual victimization. These risk behaviors and victimization experiences can be viewed as risk mechanisms (i.e., processes) that may, in turn, further increase the risk for negative health and mental health outcomes.

#### Challenges to the Health and Mental Health of Sexual Minority Youth

##### *STDs/HIV*

Sexually active adolescents are at high risk for acquiring one or more sexually transmitted diseases (STDs). Population estimates indicate that nearly one-half of all new

cases of STDs are acquired by youth ages 15 to 24 (Weinstock, Berman, & Cates, 2004). Three STDs in particular (Human Papillomavirus (HPV), Trichomoniasis, and Chlamydia) are estimated to account for 88% of all new STDs in this age group. Recent national data also indicate that rates of Chlamydia and Gonorrhea in the 15 to 19 year old age group are steadily increasing (CDC, 2005).

Like their heterosexual peers, sexually active SMY are at risk for acquiring STDs. However, this risk is likely heightened due to a greater need for secrecy, a lack of accurate information, and few social environments that support safe sexual behavior (Ryan & Gruskin, 2006). Sexually active gay and bisexual male youth are at risk for a range of STDs, including Urethritis, anogenital conditions, oropharyngeal conditions, gastrointestinal disease, Herpes, Hepatitis A and B, and HIV (Ryan & Gruskin, 2006).

Research on the sexual health concerns of sexual minority female adolescents is limited. However, recent population-based data indicate that more than 10% of female youth have had same-sex sexual contact and in adults, 25% of bisexual and 8% of homosexual women reported a history of an STD, compared to 17% of heterosexual women (Mosher, Chandra, & Jones, 2005). Moreover, research indicates that sexual minority girls may be just as likely to have sex with boys as their heterosexual peers (Saewyc, Bearinger, Blum, & Resnick, 1999) and may also face health risks related to sexual practices, substance use, and violence and victimization (Brown & Melchiono, 2006).

Sexually active adolescents are also at risk for contracting HIV. It is estimated that over one half (53%) of reported HIV cases among adolescent males and over one third (37%) of cases among adolescent females are attributable to sexual behavior (CDC,



2002). Among sexual minority youth, the prevalence of HIV appears to be increasing among young men of color who have sex with men (Ryan, 2003). A multi-city study of HIV prevalence and risk behaviors in young men ages 15-22, found that 7.2% of these youth were infected with HIV, with the highest incidence seen in those youth who reported unprotected anal sex, injection drug use, having an STD, or running away from home (Valleroy et al., 2000). This study highlighted significant racial differences in infection rates between white youth and youth of color. Among youth of color in this study, HIV prevalence was highest in African American (14.1%), mixed-race (13.4%), and Latino (6.9%) young men, compared to a relatively low infection rate among white young men (3.3%) (Valleroy et al., 2000).

### *Pregnancy*

Since the 1990s, overall rates of adolescent pregnancy in the United States have declined dramatically, mainly due to teens delaying sexual activity and the increased availability of contraceptives (Santelli, Lindberg, Finer, & Singh, 2007). However, among sexual minority youth, there appears to have been a trend in the opposite direction. Evidence from population-based surveys of six separate cohorts of U.S. and Canadian teens (between 1992 and 1998) indicated that sexual minority boys and girls were significantly more likely to either father a pregnancy or become pregnant compared to their heterosexual peers (Saewyc, Pettingell, & Skay, 2004).

An increased risk for pregnancy among sexual minority girls was first evident in a study using data from the 1987 Minnesota Adolescent Health Survey, which found that lesbian and bisexual respondents together were just as likely to have had heterosexual intercourse as heterosexual girls, yet had significantly higher rates of pregnancy (Saewyc

et al., 1999). These sexual minority girls also reported they were less likely to use effective contraceptives and more likely to have frequent sexual intercourse compared to heterosexual girls (Saewyc et al., 1999).

In addition, a study of reservation-based Native American adolescents found that lesbian and bisexual girls reported more frequent heterosexual intercourse compared to heterosexual girls, and that one in four lesbian and bisexual girls had been pregnant at least once, though the rate of pregnancy did not differ significantly from that of heterosexual girls in this Native American sample (Saewyc, Skay, Bearinger, Blum, & Resnick, 1998).

### *Depression and Suicidality*

Depression in adolescence has been empirically linked with aggression, antisocial behavior, anxiety, school problems, and poor peer relations (Reinherz, Frost, Stewart-Berghauer, Pakiz, Kennedy, & Schille, 1990; Yaylayan, Viesselman, Weller, & Weller, 1992). Adolescents who experience psychosocial distress or have symptoms of mental illness are at risk for dropping out of school and for attempting suicide (Brooks, Harris, Thrall, & Woods, 2002; Eggert, Thompson, Randell, & Pike, 2002). Research suggests that adolescent girls are at higher risk for suicidal ideation and suicide attempts compared to adolescent boys (Lewinsohn, Rohde, & Seeley, 1996; Vannatta, 1997).

Recent studies drawing on state and national representative samples provide convincing evidence that sexual minority youth are at higher risk for depression and suicidality than their heterosexual peers (Remafedi, French, Story, Resnick, & Blum, 1998; Russell & Joyner, 2001; Udry & Chantala, 2002; Waller, 2005). Cross-sectional studies using Add Health data found that boys who were involved in same-sex

relationships were at significantly greater risk for depression and suicidality (Udry & Chantala, 2002) and young adults who self-labeled as mostly heterosexual, bisexual, mostly homosexual, or 100% homosexual had significantly higher means for depressive symptom scores compared to those who reported 100% heterosexual orientation (Waller, 2005). Also, a New Zealand cohort study found higher depression and anxiety and lower self-esteem in GLB youth compared to heterosexual youth (Fergusson, Horwood, & Beautrais, 1999).

### *Suicide*

Suicide is a major concern for all adolescents. It is the third leading cause of death among youth ages 15-24 and the fourth leading cause of death among children ages 10-14 (Hoyert, Kochanek, & Murphy, 1999). Between 6% and 13% of adolescents report at least one suicide attempt (Garland & Ziegler, 1993). The contribution of multiple recent representative studies corroborate the findings of earlier community-based studies and provide convincing evidence that SMY are at significantly higher risk for suicide compared to their NSMY peers (Faulkner & Cranston, 1998; Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998; Garofalo, Wolf, Wissow, Woods, & Goodman, 1999; Remafedi et al., 1998; Russell & Joyner, 2001; Udry & Chantala, 2002). A study examining data from the 1993 Massachusetts Youth Risk Behavior Survey (YRBS) found that GLB youth were 50% more likely to have seriously considered suicide in the past 12 months, twice as likely to have attempted suicide at least once, and eight times as likely to have had four or more suicide attempts than their heterosexual peers (Faulkner & Cranston, 1998). A study using Add Health data found that adolescents who report same-sex romantic attractions or relationships had more than two times the risk for

suicide attempts (Russell & Joyner, 2001). In addition, this study found female SMY to be at higher risk for suicidal intentions and suicide attempts than male SMY, a trend consistent with prior studies examining gender differences in suicidality among adolescents in the general population (Lewinsohn et al., 1996; Vannatta, 1997).

### Sexual Risk Behaviors and Victimization

#### *Sexual Risk Behaviors*

Sexual experimentation and risk-taking are not uncommon during adolescence. A national school-based study of youth risk behavior found that over half of all adolescents (53%) had engaged in sexual intercourse, and 9% of those who were sexually active had initiated sexual behavior prior to age 13 (Kann et al., 1996). In addition, 18% of students reported having had 4 or more sexual partners, and only 54% reported that they had used a condom during their most recent sexual encounter (Kann et al., 1996). Multiple studies suggest that SMY engage in sexual risk behaviors at higher rates than their NSMY peers (Faulkner & Cranston, 1998; Garofalo, et al., 1998; Rosario, Meyer-Bahlburg, Hunter, & Gwadz, 1999). A study examining public school data from the 1995 Massachusetts YRBS found that sexually active GLB youth reported significantly higher rates of sexual risk behaviors (e.g., earlier age at first intercourse, multiple sexual partners, and use of alcohol or drugs before last sex) compared to their heterosexual peers (Blake et al., 2001).

#### *Victimization*

Research indicates that SMY are at risk for gay-related victimization within their families, schools and communities (Bontempo & D'Augelli, 2002; D'Augelli et al., 1998; Garofalo et al., 1998; Kosciw & Diaz, 2006; Pilkington & D'Augelli, 1995; Russell,

Franz, & Driscoll, 2001; Russell & Joyner, 2001; Savin-Williams, 1994). Gay-related victimization of youth can take many forms including verbal, physical and sexual harassment, physical and sexual assault, and psychological victimization (e.g., the failure of adults to protect youth who are being harassed and/or victimized). Youth who are aware of their same-sex feelings, are more open about disclosing their sexual orientation, and/or demonstrate gender atypical behavior may be at greater risk for gay-related victimization (D'Augelli, Pilkington, & Hershberger, 2002; D'Augelli, 2006).

Multiple state-level and national representative studies clearly indicate that sexual minority youth experience higher rates of victimization compared to their heterosexual peers (Bontempo & D'Augelli, 2002; Garofalo et al., 1998; Russell, Franz, & Driscoll, 2001; Russell & Joyner, 2001). Data from the 1995 Massachusetts YRBS demonstrated that GLB youth were over four times more likely to have been threatened with a weapon at school, three times more likely to have been in a fight requiring medical attention, and nearly five times more likely to miss school to avoid these experiences (Garofalo et al., 1998). An analysis of Add Health data found SMY were more likely to experience extreme forms of violence (e.g., a fight requiring medical treatment, being jumped or violently attacked) and also were more likely to have witnessed violence than heterosexual youth (Russell et al., 2001). A study examining possible links between at-school victimization and health risk behaviors found that SMY who experienced high levels of at-school victimization reported significantly higher levels of substance use, sexual risk behaviors, and suicidality than heterosexual youth reporting high levels of at-school victimization (Bontempo and D'Augelli 2002). Further research is needed to understand the processes underlying the associations between victimization and risk

behaviors and why some sexual minority youth experience more at-school victimization than others (Bontempo & D'Augelli, 2002).

#### Annual Health Screening and Unmet Health Need

The American Academy of Pediatrics and the American Medical Association Guidelines for Adolescent Preventive Services (GAPS) have recommended that all adolescents have an annual preventive health exam (Elster, 1998; Hagan, Shaw, & Duncan, 2008). In addition, the U.S. Preventive Services Task Force (USPSTF) has recommended screening all sexually active young women (< 24 years old) for Chlamydia and Gonorrhea, and also recommends HIV screening for all adolescents at increased risk (USPSTF, 2001). In addition, the USPSTF recently added the recommendation that healthcare providers screen all adolescents (ages 12 -18) for depression when resources are in place to ensure accurate diagnosis, therapy, and follow-up (USPSTF, 2009).

Given the recommendations of these major professional medical organizations, adolescents who do not receive annual preventive healthcare can be considered to have an unmet health need in that they are not receiving regular screening for risk behaviors (e.g., sexual activity), risk experiences (e.g., victimization), or health and mental health problems (e.g., STDs and depression/suicidality).

#### Help-Seeking and Service Use

Epidemiological studies suggest that 12% to 22% of youth under the age of 18 have mental health problems serious enough to warrant intervention (Schonert-Reichl, 2003). Data from the 1998-1999 National Health Interview Survey indicated that 13.6% of youth between the ages of 5 and 17 had a mental health problem; however, only about

one fifth of those youth had received services (Simpson, Scott, Henderson, & Manderscheid, 2002).

Adolescents often have difficulty accessing even basic primary healthcare services and are the most likely of any age group to be uninsured (Klein, Slap, Elster, & Cohn, 1993). Lack of health insurance, poverty, and racial minority status are all predictors of the quantity and quality of health care received by adolescents in the U.S. (Wood, Hayward, Corey, Freeman, & Shapiro, 1990). Other factors associated with foregone health care include being an older male teen, living in a single-parent household; having a disability, substance use, and being sexually active (Ford, Bearman, & Moody, 1999). In addition, adolescents who lack continuous health insurance coverage are less likely to have a usual source of care and to have visited a doctor in the past year (Ford et al., 1999; Newacheck & McManus, 1989; Ozer, Park, Brindis, & Irwin, 2003).

Economically disadvantaged ethnic and racial minority adolescents are particularly vulnerable to problems accessing needed health and mental health services. Youth from low-income or non-white families gain access to services far less compared their peers from affluent or white families, regardless of insurance or health status (Wood et al., 1990). Other known barriers to adolescents accessing care are inexperience with the health care system, inconvenient hours and location, concerns about confidentiality, and cultural and language barriers (Ford, Millstein, Halpern-Felsher, & Irwin, 1997; Ozer et al., 2003).

Research on the help-seeking processes and behaviors of adolescents is a relatively new field of inquiry (Schonert-Reichl, 2003). Existing literature suggests that adolescents prefer to seek help from informal sources, such as friends and family (Offer,

Howard, Schonert, & Ostrov, 1991; Schonert-Reichl & Muller, 1996); and that those typical adolescent developmental characteristics such as the need for autonomy, a sense of uniqueness, and concerns about privacy and confidentiality, may create impediments to help-seeking (Dubow, Lovko, & Kaush, 1990). Decisions to seek formal health and mental health services are typically initiated by or in consultation with one or both parents, usually the mother (Cauce & Srebnik, 2003). In general, females tend to have more positive attitudes toward help-seeking than males (Schonert-Reichl & Muller, 1996). In addition, culture and ethnicity have been shown to be important factors in how health and mental health problems are perceived and whether formal or informal help is sought out (Cauce & Srebnik, 2003). Research suggests, for instance, that lower levels of formal mental health service use among East Asians can be attributed in part to concerns over loss of family standing in the community (Takeuchi, Bui, & Kim, 1993).

The following section discusses potential barriers to help-seeking and service use that may exist at both the provider and client (youth) level, and which may interfere with access to health and mental health services for SMY (Hernandez & Fultz, 2006).

#### Barriers to Help-Seeking and Service Use

At the provider level, the American Medical Association, the American Academy of Pediatrics, and the Society for Adolescent Medicine recommend that health care providers discuss sexuality and sexual orientation with all adolescent patients as part of their routine health screening (Meckler, Elliott, Kanouse, Beals, & Schuster, 2006). Yet, research indicates that many health care providers fail to broach the topic of sexuality and sexual orientation with their patients. A study of pediatricians in a large health maintenance organization found that although most (68%) asked their adolescent patients



about sexual intercourse, only 17% asked about sexual orientation (Halpern-Fisher et al., 2000). Similarly, in a survey of over 2000 southern California high school students, only about half (49%) said that they had discussed at least one sexual topic with their physician, while only 8% had said they had talked about sexual orientation (Schuster, Bell, Petersen, & Kanouse, 1996). A survey of family medicine residency directors found that only about half received any education about homosexuality during their four years of medical school and those who had received such education reported an average of only 2.5 hours of instruction (Tesar & Rovi, 1998). Information about GLBT populations is typically not found in published public health studies. A 2001 review of MEDLINE articles found that only 0.1 percent of all articles pertained to GLBT-specific topics even though GLBT people are believed to represent anywhere from 1% to 10% of the population (Boehmer, 2002). Thus, despite the increasing visibility of GLBT populations and improved public attitudes about homosexuality, negative attitudes appear to persist among some health care providers, which may impede access to services and diminish the quality of service delivery (Ryan & Gruskin, 2006). Like all adolescents, SMY are learning help-seeking and self-care behaviors, as well as communication skills that they will carry with them into their adult lives (Ryan & Gruskin, 2006). Therefore, it is important to ensure that providers receive adequate training and accurate information to reduce negative bias and misinformation that directly affect the delivery of services for SMY.

From the client's (youth) perspective, barriers to help-seeking and service use may be related to concerns about stigmatization, marginalization, and mistreatment, which may deter youth from seeking help for substance abuse and mental and physical

health problems (Mercier & Berger, 1989; Paroksi, 1987; Travers & Schneider, 1996). In addition, concerns about privacy and/or anticipation of embarrassment or rejection may prevent youth from disclosing and discussing their sexuality with their providers, which may in turn may hinder screening for STDs and other health and mental health concerns (Ryan & Gruskin, 2006). In a series of focus groups on the primary health care needs of GLB youth held in seven cities, more than three-quarters of the youth acknowledged that providers assumed they were heterosexual. In addition, while nine out of ten adolescents reported needing health care during the past five years, only two-thirds were able to obtain care. Only about one in three felt they could talk openly with their primary care providers. Also, while most youth (80%) were sexually active, only half reported that their providers discussed sexual activity and STDs with them, and only 55% of the providers specifically discussed HIV. Although almost two-thirds (61%) of the focus group participants had been tested for HIV, testing had been recommended by only 16% of primary care providers (Ryan & Futterman, 1998).

When health care providers do not initiate discussions about sexuality/sexual health or address confidentiality concerns with adolescent patients, it likely creates a barrier for SMY in that they may fear the provider would react negatively and/or tell their parents about their sexual orientation/same-sex sexual behavior, which could lead to family rejection, family efforts to “fix” the adolescent, or even violence or expulsion from the family. A survey of 102 self-identified gay, lesbian, and bisexual youths ages 18-23 found that less than one half recalled being informed by their health care provider about confidentiality; however, those who were informed were three times more likely to discuss their sexual orientation openly (Allen, Glick, Beach, & Naylor, 1998).

Similarly, in a recent survey of self-identified GLB youth, only 35% reported that their physician knew about their sexual orientation. Youth who identified as bisexual were less likely than gay or lesbian-identified youth to have disclosed their sexual orientation to their physician (Meckler, Elliott, Kanouse, Beals, & Schuster, 2006). One-fifth of participants who did not disclose their sexual orientation to their physician said they were concerned about privacy and confidentiality, however, over a third of those participants said that their physician did not ask them about their sexual orientation (Meckler et al., 2006).

While SMY likely experience many of the same barriers to help-seeking and service use as their NSMY peers, they may also experience unique barriers related to concerns about privacy and confidentiality. Because there has been little research and no prior representative studies examining barriers to healthcare affecting sexual minority youth, this study breaks new ground by contributing much needed knowledge in this area. In addition, because SMY appear to be at higher risk for health and mental health problems, they would also likely have a greater need for services. Although a prior Add Health study has shown that SMY use more mental health services than NSMY (McGuire & Russell, 2007), we do not know the proportion of mental health service use relative to the proportion of mental health need among SMY (i.e., unmet mental health need). In addition, no prior representative studies have examined the proportion of health services use, forgone healthcare, and unmet health need among SMY. Further, very little is known about where SMY access health and mental health services and whether service use settings differ from those of NSMY. Thus, this study also provides new information on service use patterns among SMY with regard to specific access sites.

In sum, this first dissertation study addresses gaps in knowledge concerning the prevalence of health and mental health need and unmet need, service use patterns, and reported barriers to health service use among SMY and NSMY. Using descriptive and inferential statistics (i.e., chi-square analyses), this study provides an overall comparative analysis of the health and mental health needs, service use patterns, reported barriers to health services use, and unmet health and mental health need for sexual minority and non-sexual minority youth. Prevalence rates for the following symptoms, health risks, and outcomes are provided: Anxiety and depression, physical and sexual victimization, suicidality/suicide attempts, sexual activity/sexual intercourse, youths' perceived risk of contracting HIV/AIDS, history of sexually transmitted diseases (STDs), pregnancy, health and mental health service use, service use settings, and unmet health and mental health need (i.e., need without service use).

The following six research questions were addressed for this study:

- (1) Do SMY report greater health and mental health needs relative to NSMY?
- (2) Do SMY obtain health and mental health services at the same rate as NSMY?
- (3) Relative to their need, is there an underutilization of health and mental health services (i.e., unmet need) among SMY compared to NSMY?
- (4) Do SMY forego needed health services with the same frequency as NSMY?
- (5) What are the reported barriers to healthcare service use among youth and do those barriers differ by sexual minority status?
- (6) What are the health and mental health service use settings among youth and do those settings differ by sexual minority status?

## Research Methods

This study involved a secondary data analysis of Wave 1 data from The National Longitudinal Study of Adolescent Health (Add Health), a school-based nationally representative probability survey. Wave 1 data included 20,745 adolescents in grades 7 – 12, who were selected with unequal probability from 132 schools. The Wave 1 in-home interview was conducted between April and December of 1995 and gathered data from assenting youth, with their caregiver’s consent, using laptop computers. Wave 1 in-home interview data were collected from both youth and parent self-report questionnaires. To ensure data quality, accuracy, and privacy, sections of the youth questionnaire containing sensitive topics (e.g., alcohol and drug use, violence and fighting, sexual activity, and mental health) were administered to youth via headphones using audio computer-assisted self interview (ACASI) technology. Add Health parent questionnaire data were linked by household identifier to youth in-home questionnaire data so that caregiver and youth responses were matched by household. Prior approval to conduct the secondary data analysis of the Add Health data for this dissertation was obtained from the University of North Carolina at Chapel Hill Behavioral Institutional Review Board and the Carolina Population Center, where the Add Health data are housed.

### National Longitudinal Study of Adolescent Health Study Design

The Add Health study is based on a complex sampling design that stratified schools by size, type, region, location, and by proportion of White students. Add Health used a nested data structure (i.e., students nested within schools), which creates a clustering effect with the data (i.e., students who attend the same school are likely to share more similar characteristics than students who attend different schools). The nested

sampling design thus violates the ordinary least squares (OLS) regression assumption that observations are independent of one another. To account for the nested data structure in the Add Health study, different weight variables were included in the analyses. For the Wave 1 data, these weight variables include stratum (i.e., region of country), cluster or primary sampling unit (i.e., school), and a grand sample weight (for each youth participant). The weight variables corrected for the non-independent nature of the data, ensuring that standard errors for the regression coefficients were accurate. In addition, Wave 1 data included 1,821 youth that were purposively not part of the weighted sample (e.g., twin siblings). Thus, these 1, 821 observations were not included in the analyses and only the weighted sample was used for this study (n = 18,924).

### Sample

This study consisted of the total weighted sample of youth (n = 18,924) who participated in the Wave 1 Add Health in-home survey between April and December of 1995. Within this overall sample there were 1,388 (7.5%) sexual minority youth (SMY) and 17,456 (92.5%) non-sexual minority youth (NSMY). Table 2.1 provides a description of the overall sample and the SMY and NSMY subsamples by sex, age, and racial-ethnic group.

### Sexual Minority Youth Sample

Sexual minority youth status was defined as youth who reported one or more of the three following characteristics: 1) Ever having a same sex romantic attraction; 2) having a same-sex romantic relationship in the past 18 months; and/or 3) having a same-sex non-romantic sexual partner in the past 18 months. Table 2.2 provides a description of the number and percentage of sexual minority youth in each of the three categories

defining this sample. A total of 95 (6.8%) youth in the SMY sample (50 males and 45 females) reported more than one category.

Table 2.1

Demographic Characteristics of Overall Sample (N = 18,924)

Variable	SMY (n = 1,388)	NSMY (n = 17,456)
	n (%)	n (%)
Sex		
Male	721 (55.3)	8,527 (50.5)
Female	667 (44.7)	8,929 (49.5)
Age		
11-14	293 (28.0)	4,743 (34.3)
15-17	819 (51.8)	9,806 (49.7)
18-21	276 (20.2)	2,907 (16.0)
Race		
White/non-Hispanic	681 (62.0)	9,257 (67.3)
Black/non-Hispanic	297 (17.5)	3,729 (15.8)
Asian/non-Hispanic	87 (3.1)	1,247 (3.7)
Native American/Other	33 (2.3)	261 (1.3)
Hispanic	286 (15.1)	2,923 (11.8)

Table 2.2

Proportion (%) of Youth in Each Sexual Minority Category (Wave 1)

	Males n (%)	Females n (%)	Total n (%)
Same-Sex Romantic Attraction (ever)	642 (56.0)	504 (44.0)	1,146 (100.0)
Same-Sex Romantic Relationship (one or more in past 18 months)	104 (35.1)	192 (64.9)	296 (100.0)
Same-Sex Non-Relationship Sexual Partner (one or more in past 18 months)	25 (61.0)	16 (39.0)	41 (100.0)
Youth in More than One Category	50 (52.6)	45 (47.4)	95 (100.0)
Total Sample Size	721 (51.9)	667 (48.1)	1,388 (100.0)

### Measures

Measures for the first dissertation study included youths' sexual minority status, biological sex, age, race/ethnicity, mental health need, mental health service use, unmet mental health need, health risk/need, health service use, service use setting, foregone medical care, barriers to healthcare, and unmet health need. All measures used in this study are described below.

*Sexual minority status* was measured by a dichotomous variable and is based on a series of questions to youth from the in-home questionnaire about their romantic attractions and relationships, and non-relationship sexual partners. First, youth were asked if they had ever been romantically attracted to a male or to a female. Affirmative responses were then combined with the item measuring self-reported biological sex to determine those youth who reported ever having a same-sex romantic attraction. In addition, youth were asked if they were involved in a romantic relationship in the past 18



months and were asked to list characteristics (including their partner's sex) of up to three romantic relationships. Similarly, these responses were combined with the youth's self-reported biological sex to determine those youth who reported having a same-sex romantic relationship. Finally, youth were asked if they had any non-relationship sexual partners (not including the people listed as romantic partners) in the past 18 months and were asked to list characteristics (including the partner's sex) of up to three non-relationship sexual partners. Again, these responses were combined with the youth's self-reported biological sex so that youth who reported having a same-sex sexual partner were included in the sample of sexual minority youth. Thus, the total sample of sexual minority youth includes youth who reported ever having a same-sex romantic attraction and youth who reported having at least one same-sex romantic or same-sex sexual partner in the past 18 months. Sexual minority youth were coded as 1 whereas non-sexual minority youth were coded as 0. Add Health participants were not asked to self-label or self-identify their sexual orientation; therefore, there is no indication of sexual orientation identity included as part of this measure.

*Biological sex* of the youth was measured by a dichotomous variable (male = 0, female = 1) and was based on the respondent's self-reported biological sex at the time the in-home questionnaire was completed.

*Age* of the youth was measured by a quasi-continuous variable ranging from age 11 to 21 and was based on the nearest whole year of the respondent's self-reported age at the time the in-home questionnaire was completed.

*Race/ethnicity* of the youth was measured by a categorical variable based on a composite of two variables. The first variable was a dichotomous (yes/no) question

asking youth if they were of Hispanic or Latino origin (which included Mexican/Mexican American, Chicano/Chicana, Cuban/Cuban American, Puerto Rican, Central/South American, or Other Hispanic). The second variable was based on an item that asked youth to indicate their race (or races) as White, Black/African American, American Indian/Native American, Asian/Pacific Islander, or Other. The composite race variable combines the two variables into a five category race variable that was coded as Non-Hispanic White = 1, Non-Hispanic Black = 2, Non-Hispanic Asian = 3, Non-Hispanic Native American/Other = 4, and Hispanic = 5.

*Mental health need* was assessed by a dichotomous measure comprised of a series of questions that asked youth respondents to report whether they had various symptoms of depression in the past week, symptoms of anxiety in the past year, if they considered or attempted suicide in the past year, or if they were physically or sexually victimized in the past year. If a youth answered yes to one of the victimization or suicidality items or met the cutoff threshold for significant anxiety or depression on the respective assessment scales, they were considered to have a need for mental health services (need = 1, no need = 0). The measure was comprised of the following mental health need indicators found in the data set:

Depression was measured by the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). The Add Health questionnaire contained 19 of the 20 original CES-D scale items. The alpha coefficient for the slightly modified CES-D scale in Add Health was 0.87, which indicated good reliability. Each item in the scale had response values ranging from 0 to 3 (0 = rarely or none of the time, 1 = some of the time, 2 = a lot of the time, and 3 = most or all of the time). Response values were summed for

all of the 19 items (positively worded items were reverse scored) to create a composite score ranging from 0 to 57. Researchers have suggested that scores of 24 in females and scores of 22 in males are indicators of clinical depression in adolescents (Garrison, Addy, Jackson, McKeown, & Waller, 1991; Roberts, Lewinsohn, & Seeley, 1991). Based on the CES-D scale, a dichotomous depression variable was created using a cutoff score of 20 or higher to indicate youth who were in need of depression screening/services (coded as 1) and youth without need (coded as 0).

Similarly, anxiety was assessed by a scale comprised of six Add Health items asking youth to indicate the frequency (0 = never 1 = just a few times, 2 = about once a week, 3 = almost every day, 4 = everyday) of anxiety symptoms over the past year. Anxiety symptoms included “poor appetite,” “difficulty falling asleep or staying asleep,” “trouble relaxing,” “moodiness,” “frequent crying,” and “fearfulness.” A coefficient of 0.73 for the anxiety scale indicated adequate reliability. Response values were summed for all six items and a composite score ranging from 0 to 24 was created. A dichotomous variable with a cutoff score of 18 or higher was used to indicate youth in the top quartile (25%) for anxiety symptoms in the past year who had a need for mental health screening/services (coded as 1) versus youth without need (coded as 0).

Suicidality of youth was measured by a dichotomous variable based on two separate dichotomous items: 1) “In the past 12 months, did you ever seriously think about committing suicide?” and 2) “In the past 12 months, how many times did you actually attempt suicide?” Youth who reported they had seriously considered suicide or attempted suicide at least once in the past year were determined to have a need for mental health

screening/services (coded as 1) versus youth who reported no suicide ideation or attempts (coded as 0).

History of victimization of youth was also measured by a dichotomous index variable derived from a series of six dichotomous items asking youth to indicate (yes or no) if any of the following had occurred in the past year: 1) “You were jumped;” 2) “someone pulled a knife or gun on you;” 3) “someone cut or stabbed you;” 4) “someone shot you;” 5) “you saw someone shoot or stab another person;” or 6) “someone physically forced you to have sexual intercourse against your will.” The last item in the index concerning sexual victimization was directed to female respondents only in the Add Health survey. If youth answered yes to any one of the items in the index they were considered to have a recent history of victimization, which warranted a need for mental health screening/services. Youth who answered yes to any of the six victimization indicators were coded as 1, while youth who did not report a history of victimization were coded as 0.

*Mental health service use* was measured by a dichotomous (yes/no) question that asked youth respondents if they had obtained mental health services (i.e., psychological or emotional counseling) in the past year. Youth who reported they had obtained mental health services were coded as 1 and youth who reported they had not obtained services were coded as 0.

*Unmet mental health need* was created by combining each of the five mental health need indicators with an item that asked youth if they had received mental health services in the past year. Thus, if youth had moderate to severe symptoms of anxiety or depression, had been suicidal, or had been physically and/or sexually victimized in the

past year and they indicated they did not obtain mental health services, they were considered to have an unmet mental health need (coded as 1).

*Health risk/need* was assessed by a dichotomous measure comprised of a series of three dichotomous variables asking youth to indicate the following: 1) If they have ever had sexual intercourse; 2) if they believe they are at risk for contracting HIV/AIDS (low/very low risk vs. high/very high risk); or 3) if they have ever been told by a health professional that they had Chlamydia, Gonorrhea, Hepatitis B, Syphilis, Genital Herpes, or HIV/AIDS. If youth answered yes to any of the three questions, they were considered to have a health risk/need (coded as 1).

*Health service use* was measured by a single dichotomous (yes/no) item that asked youth respondents to indicate whether they obtained a routine physical exam in the past year. Youth who reported they had obtained a routine health exam were coded as 1 and youth who reported they had not obtained a routine health exam were coded as 0.

*Service use setting* was measured with a series of dichotomous items that asked youth who used health or mental health services to indicate the setting(s) where they obtained those services. Thus, youth could report whether they had obtained health or mental health services at a private doctor's office, school, community health clinic, hospital, or some other setting (all coded as 1) versus youth who reported no service use at each of these settings (all coded as 0).

*Foregone medical care* was measured by a single dichotomous (yes/no) question that asked youth respondents if there has been a time in the past year when they believed they needed medical care but did not obtain care. Youth who indicated that they had

skipped needed medical care in the past year were coded as 1 whereas those who had not skipped needed medical care were coded as 0.

*Barriers to healthcare* was measured by a series of dichotomous variables that asked youth who reported that they skipped needed medical care to indicate what had prevented them from obtaining needed health services. Youth could report one or more of the following ten barriers: 1) Didn't know whom to go see; 2) had no transportation; 3) no one available to go along; 4) parent or guardian would not go; 5) didn't want parents to know; 6) difficult to make appointment; 7) afraid of what the doctor would say or do; 8) thought the problem would go away; 9) couldn't pay and 10) other barrier (all coded as 1).

*Unmet health need* was created by combining two dichotomous variables, *health service use* and *foregone medical care*. The first item asked youth if they had received a routine health exam in the past year and the second item asked youth if they had skipped needed medical care in the past year. If a youth provided a negative response to the health service use variable and/or an affirmative response to the foregone medical care variable they were considered to have an unmet health need (coded as 1).

### Data Analysis

Stata/SE (release 10) was selected as the data analysis software for this study because of its capacity to handle complex (i.e., weighted) survey data. All of the analyses for this study (i.e., descriptive and inferential) involved the use of Stata 10 survey commands, which accounted for the probability sampling weights and nested data structure in Add Health. Data were initially explored by examining frequencies (e.g., number of youth with health/mental health needs, number who used services) and by

running bivariate correlations to determine whether or not statistical relationships existed between variables. In addition, cross tabulations were run to obtain percentages (e.g., the percentage of youth using health and mental health services by setting) and basic inferential statistics (i.e., chi-square analyses) were conducted to determine statistically significant group differences between SMY and NSMY (e.g., prevalence rates of suicide attempts).

## Results

The following sections present results from descriptive and inferential statistical analyses on the prevalence of health and mental health need and unmet need, foregone healthcare and barriers to healthcare, and health and mental health service use settings among SMY and NSMY.

### Health Risks/Need and Unmet Health Need

To assess the prevalence of health risk/need and unmet health need among SMY and NSMY, youth respondents were asked if they had ever had sexual intercourse, if they had ever been pregnant, and if they had ever been diagnosed with an STD or HIV/AIDS. Youth were also asked to report their self-perceived risk for contracting HIV/AIDS (very low to very high). In addition, youth were asked if they had skipped needed medical care or if they had obtained a routine physical exam in the past year. If youth reported they had foregone needed medical care or they did not have a routine health exam in the past year, they were considered to have an unmet health need. Results of the chi-square analyses are presented in Table 2.3 and described in the following sections:

Table 2.3

Prevalence (%) of Health Risks and Unmet Health Need Among  
Sexual Minority and Non-Sexual Minority Youth

	SMY (n = 1,388)	NSMY (n = 17,456)	$\chi^2$ (1)	p
Variable	n (%)	n (%)		
History of Sexual Intercourse	690 (52.3)	6520 (36.1)	68.65	<.001
History of Pregnancy (females only)	66 (19.1)	549 (16.9)	0.59	.445
Perceived Risk for HIV/AIDS	129 (9.2)	897 (4.9)	20.65	<.001
History of STD or HIV	55 (8.1)	295 (4.4)	11.01	.001
Unmet Health Need (i.e., no healthcare visit in past year)	697 (50.7)	7975 (45.8)	5.87	.017

As shown in Table 2.3, over half (52.3%) of SMY reported a history of sexual intercourse compared to just over a third (36.1%) of NSMY, a statistically significant difference between groups ( $p < .001$ ). Almost one out of five (19.1%) female SMY reported a history of being pregnant, a higher proportion (though not significantly different), than female NSMY (16.9%). Almost twice the proportion of SMY (9.2%) reported a high to very high self-perceived risk for contracting HIV/AIDS compared to a significantly lower proportion (4.9%) of NSMY ( $p < .001$ ). Moreover, almost twice the proportion of SMY (8.1%) reported they had been diagnosed with an STD (i.e., Chlamydia, Gonorrhea, Hepatitis B, Syphilis, Genital Herpes) or HIV/AIDS, compared to about half the proportion (4.4%) of NSMY ( $p = .001$ ). Finally, about half (50.7%) of the SMY reported either skipping needed medical care or not obtaining an annual



preventive healthcare visit in the past year (i.e., an unmet health need) compared to a statistically significant lower proportion (45.8%) of NSMY ( $p = .017$ ).

### Prevalence of STDs

To assess the prevalence of STDs among SMY and NSMY, youth respondents were asked if they had ever been told by a health professional that they had any of the following conditions: Chlamydia, Gonorrhea, Hepatitis B, Syphilis, Genital Herpes, or HIV/AIDS. Table 2.4 presents the number and percentage of SMY and NSMY who reported they had ever been diagnosed with any of these STDs or HIV/AIDS. The results of chi-square analyses are presented in Table 2.4 and described in the following sections:

Table 2.4

### Prevalence (%) of Sexually Transmitted Diseases Among Sexual Minority and Non-Sexual Minority Youth

	SMY (n = 1,388)	NSMY (n = 17,456)	$\chi^2$ (1)	p
STD	n (%)	n (%)		
Chlamydia	40 (6.1)	209 (3.1)	10.34	.002
Gonorrhea	14 (1.7)	59 (1.1)	1.60	.208
Hepatitis B	8 (1.1)	19 (0.2)	11.00	.001
Syphilis	12 (1.6)	22 (0.3)	12.24	.001
Genital Herpes	8 (.012)	24 (.003)	9.61	.002
HIV/AIDS	10 (1.2)	7 (0.1)	17.33	<.001

As shown in Table 2.4, the SMY group reported significantly higher prevalence rates of Chlamydia, Hepatitis B, Syphilis, Genital Herpes, and HIV/AIDS. Although the

prevalence of Gonorrhea among SMY was slightly higher than the prevalence for NSMY (1.7% vs. 1.1%) the difference was not statistically significant.

Prevalence of STDs among Males

The prevalence of STDs among male SMY and NSMY was examined. Table 2.5 presents the number and percentage of male SMY and NSMY who reported they had ever been diagnosed with an STD or HIV/AIDS. The results of chi-square analyses are presented in Table 2.5 and described in the following section:

Table 2.5

Prevalence (%) of Sexually Transmitted Diseases Among Male Sexual Minority and Non-Sexual Minority Youth

	SMY (n = 721)	NSMY (n = 8,527)	$\chi^2$ (1)	p
STD	n (%)	n (%)		
Chlamydia	16 (4.4)	61 (2.0)	5.29	.023
Gonorrhea	8 (2.1)	21 (0.7)	5.00	.027
Hepatitis B	5 (1.1)	12 (0.2)	5.12	.025
Syphilis	8 (2.4)	10 (0.3)	15.96	<.001
Genital Herpes	5 (1.7)	7 (0.2)	13.61	<.001
HIV/AIDS	9 (2.3)	6 (0.2)	18.08	<.001

Male SMY reported significantly higher prevalence rates of all STDs including HIV/AIDS compared to their male NSMY peers. In descending order, male SMY reported the highest proportions of Chlamydia (4.4%), Syphilis (2.4%), HIV/AIDS (2.3%), Gonorrhea (2.1%), Genital Herpes (1.7%), and Hepatitis B (1.1%). Overall, the

results suggest that sexually active male SMY have a much greater need to be screened for Chlamydia, Syphilis, HIV, Gonorrhea, and other STDs compared to their sexually active male peers.

Prevalence of STDs among Females

An analysis of the prevalence of STDs among female SMY and NSMY was also conducted. Table 2.6 presents the number and percentage of female SMY and NSMY who reported they had ever been diagnosed with an STD or HIV/AIDS. The results of chi-square analyses are presented in Table 2.6 and described in the following section:

Table 2.6

Prevalence (%) of Sexually Transmitted Diseases Among Female Sexual Minority and Non-Sexual Minority Youth

	SMY (n = 667)	NSMY (n = 8,929)	$\chi^2$ (1)	p
STD	n (%)	n (%)		
Chlamydia	24 (8.1)	148 (4.4)	4.93	.028
Gonorrhea	6 (1.3)	38 (1.5)	0.06	.809
Hepatitis B	3 (1.1)	7 (0.2)	6.92	.010
Syphilis	4 (0.6)	12 (0.4)	0.38	.541
Genital Herpes	3 (0.7)	17 (0.4)	0.35	.557
HIV/AIDS	1 (0.1)	1 (<0.1)	0.15	.696

Female SMY reported significantly higher prevalence rates of two STDs, Chlamydia and Hepatitis B, compared to female NSMY. Female SMY reported nearly

twice the proportion of Chlamydia (8.1% vs. 4.4%) than female NSMY and more than five times the proportion of Hepatitis B (1.1% vs. 0.2%) though the overall percentages for Hepatitis B were very low. In descending order, Female SMY reported the highest proportions of Chlamydia (8.1%), Gonorrhea (1.3%), Hepatitis B (1.1%), Genital Herpes (0.7%), Syphilis (0.6%), and HIV/AIDS (0.1%). The prevalence rate of Gonorrhea among female SMY was comparable to that of female NSMY (1.3% vs. 1.5%, respectively).

#### Foregone Medical Care and Barriers to Health Service Use

Youth were asked to report if they had skipped needed medical care in the past year (yes or no). If youth indicated they had skipped care, they were asked to report which barrier(s) had prevented them from obtaining needed health services. Youth could report one or more of the following ten barriers: 1) Didn't know whom to go see; 2) had no transportation; 3) no one available to go along; 4) parent or guardian would not go; 5) didn't want parents to know; 6) difficult to make appointment; 7) afraid of what the doctor would say or do; 8) thought the problem would go away; 9) couldn't pay; and 10) other barrier. Table 2.7 presents the number and percentage of SMY and NSMY who reported foregoing needed medical care and the barrier(s) that prevented them from accessing needed health services.

About one-quarter of SMY (25.1%) reported that they had skipped needed medical care in the past year compared to less than one-fifth of NSMY (17.9%), a highly significant difference between groups ( $p < .001$ ). With regard to barriers that prevented youth from accessing needed healthcare, two barriers were statistically significant between the SMY and NSMY groups: 1) Did not want parents to know ( $p < .028$ ); and

Table 2.7

Proportion (%) of Foregone Medical Care and Barriers to Health Service Use Among Sexual Minority and Non-Sexual Minority Youth

Variable	SMY (n = 1,388) n (%)	NSMY (n= 17,456) n (%)	$\chi^2$ (1)	p
Skipped Needed Medical Care	334 (25.1)	3326 (17.9)	16.92	<.001
Did Not Want Parents to Know	60 (15.7)	408 (10.5)	4.95	.028
Afraid of What Doctor Would Say/Do	75 (20.5)	538 (15.0)	3.89	.051
Did Not Know Whom To See	33 (10.1)	288 (7.1)	2.35	.128
Had No Transportation	34 (9.0)	279 (8.0)	0.21	.651
No One Available to Go Along	16 (3.4)	150 (3.7)	0.04	.847
Parent Would Not Go Along	35 (10.5)	392 (11.9)	0.29	.588
Difficult to Make Appointment	34 (10.6)	295 (8.5)	0.82	.368
Thought Problem Would Go Away	209 (61.7)	2167 (63.1)	0.18	.668
Could Not Pay	60 (18.0)	460 (14.8)	1.37	.244
Other Barrier	24 (5.2)	305 (8.9)	3.73	.056

2) afraid of what the doctor would say or do ( $p = .051$ ). Higher proportions of SMY said they skipped needed medical care because they “did not want their parents to know” (15.7% vs.10.5%) and because they were “afraid of what the doctor would say or do” (20.5% vs. 15.0%), which suggests the most relevant barriers to SMY accessing needed healthcare may concern issues regarding privacy and confidentiality and that those barriers affect SMY to a greater extent than NSMY. Although not statistically significant

among SMY and NSMY groups, a higher proportion of SMY reported that they did not have the financial or insurance means (i.e., “could not pay”) to access needed healthcare (18.0% vs. 14.8%). Interestingly, the barrier most frequently reported by all youth was “thought the problem would go away.”

### Mental Health Need and Unmet Need for Services

With regard to mental health need and service use in the overall sample, youth were asked a series of questions about their depression and anxiety symptoms in the past week, symptoms of anxiety in the past year, suicidality and suicide attempts in the past year, and physical or sexual victimization in the past year. Table 2.8 presents the number and percentage of SMY and NSMY who reported having a mental health need, using mental health services, or who had a mental health need but did not access services (i.e., unmet mental health need).

Compared to their NSMY peers, SMY reported significantly higher prevalence rates on all mental health need indicators. In descending order, the highest proportions of mental health need indicators among SMY included suicide attempt (40.8%), physical and/or sexual victimization (37.1%), suicidality (22.2%), moderate to severe depression (19.8%), and moderate to severe anxiety (10.4%). At the same time, a significantly higher proportion of SMY (about one in five or 19.8%) reported obtaining mental health services in the past year compared to about one in ten NSMY (12.1%). However, despite significantly higher mental health service use, over half (51.2%) of SMY still had an unmet mental health need compared to just over a third (36.7%) of the NSMY, which was also statistically significant between groups.

Table 2.8

Prevalence (%) of Mental Health Need and Unmet Mental Health Need Among Sexual Minority and Non-Sexual Minority Youth

Variable	SMY	NSMY	$\chi^2$ (1)	p
	(n = 1,388)	(n = 17,456)		
	n (%)	n (%)		
Anxiety	126 (10.4)	812 (4.6)	30.79	<.001
Depression	285 (19.8)	2215 (11.9)	40.39	<.001
Seriously considered suicide	284 (22.2)	2131 (12.5)	58.59	<.001
Suicide attempt	109 (40.8)	593 (28.4)	10.55	.002
Victimization (physical/sexual)	505 (37.1)	4737 (26.2)	35.83	<.001
Mental health services (past year)	254 (19.8)	1942 (12.1)	33.92	<.001
Unmet mental health need	692 (51.2)	6597 (36.7)	70.43	<.001

#### Mental Health Need and Unmet Need for Services among Males

Table 2.9 presents the number and percentage of male SMY and NSMY who reported having a mental health need, using mental health services, or who had a mental health need but did not access services (i.e., unmet mental health need).

Male SMY reported significantly higher prevalence rates of all mental health need indicators compared to male NSMY. In descending order, the highest proportions of mental health need indicators included victimization (37.3%), suicide attempt (31.9%), suicide ideation (16.3%), depression (14.9%), and anxiety (5.0%). Although male SMY reported significantly higher mental health service use (16.7% vs. 10.8%), they

Table 2.9

Prevalence (%) of Mental Health Need and Unmet Mental Health Need

Among Male Sexual Minority and Non-Sexual Minority Youth

	SMY (n = 721)	NSMY (n = 8,527)	$\chi^2$ (1)	p
Variable	n (%)	n (%)		
Anxiety	30 (5.0)	200 (2.6)	5.80	.018
Depression	101 (14.9)	782 (8.6)	18.68	<.001
Seriously considered suicide	105 (16.3)	834 (10.1)	12.96	<.001
Suicide attempt	33 (31.9)	180 (21.8)	3.19	.076
Victimization*	283 (37.3)	2935 (32.5)	3.34	.070
Mental health services (past year)	105 (16.7)	850 (10.8)	9.93	.002
Unmet mental health need	337 (46.7)	3394 (37.8)	14.71	<.001

\* *Note:* Add Health did not ask male youth to report victimization experiences related to forced or coerced sexual contact.

nevertheless had a significantly higher proportion of unmet mental health need (46.7% vs. 37.8%).

Mental Health Need and Unmet Need for Services among Females

Table 2.10 presents the number and percentage of female SMY and NSMY who reported having a mental health need, using mental health services, or who had a mental health need but did not access services (i.e., unmet mental health need). Results are described in the following section:

Female SMY also reported significantly higher prevalence rates of all mental health need indicators compared to female NSMY. In descending order, the highest



Table 2.10

## Prevalence (%) of Mental Health Need and Unmet Mental Health Need

## Among Female Sexual Minority and Non-Sexual Minority Youth

Variable	SMY	NSMY	$\chi^2$ (1)	p
	(n = 667) n (%)	(n = 8,929) n (%)		
Anxiety	101 (17.5)	644 (6.9)	57.44	<.001
Depression	192 (25.9)	1511 (15.6)	32.52	<.001
Seriously considered suicide	187 (29.2)	1355 (15.1)	66.39	<.001
Suicide attempt	77 (46.1)	431 (33.1)	5.77	.018
Victimization (physical/sexual)	242 (37.9)	1956 (20.7)	57.93	<.001
Sexual victimization	113 (7.8)	603 (3.3)	37.21	<.001
Mental health services (past year)	155 (23.5)	1146 (13.5)	29.16	<.001
Unmet mental health need	380 (57.9)	3401 (36.5)	77.90	<.001

proportions of mental health need indicators included suicide attempt (46.1%), physical and/or sexual victimization (37.9%), suicide ideation (29.2%), depression (25.9%), anxiety (17.5%), and sexual victimization (i.e., physically forced against will to have sex) (7.8%). Although female SMY reported a significantly higher proportion of mental health service use compared to female NSMY (23.5% vs. 13.5%), they nevertheless had a significantly higher proportion of unmet mental health need (57.9% vs. 36.5%).

Notably, female SMY obtained mental health services in much higher proportion than male SMY (23.5% vs. 16.7%). This finding is consistent with prior research that suggests that females are generally less resistant to seeking help than males.

Nevertheless, female SMY had a much higher proportion of unmet mental health need compared to male SMY (57.9% vs. 46.7%).

Healthcare Service Use Setting

Youth who indicated they had seen a healthcare provider in the past year were asked to report the setting in which they obtained services. Youth were asked if they had obtained a routine health exam and if so, they were asked if had received services in one or more of the following settings: 1) Private doctor’s office; 2) school; 3) community health clinic; 4) hospital; or 5) some other setting. Table 2.11 presents the number and percentage of youth who obtained a routine health exam across service use setting.

Table 2.11

Proportion (%) of Healthcare Service Use Across Setting Among Sexual Minority and Non-Sexual Minority Youth

	SMY (n = 1,388)	NSMY (n = 17,456)	$\chi^2$ (1)	p
Service Use Setting	n (%)	n (%)		
Private Doctor’s Office	109 (60.2)	821 (58.9)	0.07	.794
School	21 (11.1)	184 (12.1)	0.09	.770
Community Health Clinic	26 (16.2)	263 (19.4)	0.59	.442
Hospital	26 (14.6)	203 (13.9)	0.03	.874
Other	8 (5.0)	62 (4.7)	0.02	.895

No significant differences were found between SMY and NSMY with regard to where youth obtained routine health services. Approximately 60% of all youth who received a routine health exam went to a private doctor’s office. About one-fifth of all

youth went to a community health clinic, slightly over 10% received health services at school, and about 15% of all youth went to a hospital, presumably an emergency department or urgent care clinic, possibly because they did not have health insurance coverage. Also, about 5% of all youth reported that they had obtained healthcare in some other type of setting.

Service Setting for STD Testing/Treatment

Youth who reported that they had received testing and/or treatment for an STD were asked where they had obtained services: 1) Private doctor’s office; 2) school; 3) community health clinic; 4) hospital; or 5) some other setting. Table 2.12 presents the number and percentage of youth who obtained STD testing/treatment across service use setting.

Table 2.12

Proportion (%) of STD Testing/Treatment Across Setting Among Sexual Minority and Non-Sexual Minority Youth

	SMY (n = 1,388)	NSMY (n = 17,456)	$\chi^2$ (1)	p
Service Use Setting	n (%)	n (%)		
Private Doctor’s Office	46 (38.6)	265 (28.6)	2.88	.092
School	8 (7.0)	89 (10.2)	0.79	.376
Community Health Clinic	44 (36.1)	347 (41.1)	0.66	.417
Hospital	15 (9.0)	191 (17.4)	3.96	.049
Other	13 (13.0)	64 (7.8)	1.97	.163

Among SMY, most were tested or treated at either a private doctor's office (38.6%) or a community health clinic (36.1%). Similarly, among NSMY, most obtained STD testing/treatment at either a community health clinic (41.1%) or a private doctor's office (28.6%). However, in contrast to SMY, a significantly higher proportion of NSMY (17% vs. 9%) went to a hospital (presumably an emergency room/urgent care clinic) for STD testing/treatment. Although not statistically significant, a notably higher proportion of SMY than NSMY went to a private doctor's office for STD testing/treatment (38.6% vs. 28.6%). Similarly, a lower proportion of SMY compared to NSMY obtained STD testing/treatment at school (7.0% vs. 10.2%).

#### Mental Health Service Use Setting

Youth who indicated they had received mental health services in the past year were asked to report the setting in which they obtained services: 1) Private doctor's office; 2) school; 3) community health clinic; 4) hospital; or 5) some other setting. Table 2.13 presents the number and percentage of youth who obtained mental health services across service use setting.

SMY reported obtaining mental health services significantly more frequently at a private doctor's office compared to NSMY (49.0% vs. 34.7%). Fewer than half as many SMY (23.1%) reported obtaining mental health services at school, a significantly lower proportion than their NSMY peers (33.7%). These findings suggests that SMY prefer to seek mental health services in settings where privacy and confidentiality are more likely to be assured, such as at a private doctor's office. In addition, rates of mental health service use at community health clinics were about the same for SMY and NSMY (17.1% and 16.0%, respectively) and rates of mental health service use at hospitals were

Table 2.13

Proportion (%) of Mental Health Service Use Across Setting Among Sexual Minority and Non-Sexual Minority Youth

	SMY (n = 1,388)	NSMY (n = 17,456)	$\chi^2$ (1)	p
Service Use Setting	n (%)	n (%)		
Private Doctor's Office	85 (49.0)	502 (34.7)	8.08	.005
School	45 (23.1)	465 (33.7)	5.26	.023
Community Health Clinic	20 (17.1)	198 (16.0)	0.07	.790
Hospital	20 (8.4)	125 (8.4)	0.00	.999
Other	36 (21.9)	252 (17.0)	1.54	.217

exactly the same (8.4% each). Notably, a higher proportion of SMY than NSMY reported obtaining mental health services at some “other” setting (21.9% vs. 17.0%). Although there was not a statistically significant difference between SMY and NSMY who reported the “other” category, it nevertheless was listed as a source of mental health care by a considerable proportion (about one-fifth) of all youth. Given the relatively high proportion of youth who responded in this category, further qualitative research might be useful to elucidate exactly what “other” types of mental health service settings are being accessed by SMY and by NSMY.

### Discussion

This first dissertation study has provided an overall profile of the health and mental health needs, service use patterns, and barriers to service use among a nationally representative sample of SMY and NSMY. Consistent with earlier representative studies,

this first study found that SMY have disproportionately higher health and mental health risks and needs compared to their NSMY peers. A number of distinct findings emerged that have direct relevance for youth, parents, and providers of adolescent health and mental healthcare.

With regard to health risk behaviors, SMY reported a significantly higher proportion of sexual activity (i.e., sexual intercourse) as well as a significantly higher perceived risk for contracting HIV/AIDS. This finding suggests that SMY engage in what they perceive to be unsafe sexual activity (e.g., sexual intercourse without the use of condoms), which may increase their risk for contracting HIV and other STDs. Indeed, this study found that male SMY reported significantly higher prevalence rates of all STDs (Chlamydia, Syphilis, HIV/AIDS, Gonorrhea, Genital Herpes, and Hepatitis B) and female SMY reported significantly higher prevalence rates of Chlamydia and Hepatitis B compared to NSMY. Among SMY, Chlamydia was the most commonly reported STD with higher prevalence rates for female SMY (8.1%) compared to male SMY (4.4%). Conversely, male SMY reported higher rates of Syphilis (2.4% vs. 0.6%), HIV/AIDS (2.3% vs. 0.1), Gonorrhea (2.1% vs. 1.3%), and Genital Herpes (1.7% vs. 0.7%) compared to female SMY, while both male and female SMY reported the same prevalence rate of Hepatitis B (1.1%).

Overall, the results strongly suggest that sexually active female SMY have an even greater need than their sexually active female peers to receive regular screening for Chlamydia in particular, as well as Gonorrhea, Hepatitis B, and other STDs. Moreover, male SMY have a far greater need compared to their male NSMY peers to receive regular screening/testing for all STDs (including HIV). Also, these youth would benefit from

receiving behavioral counseling to reduce the risk of both acquiring and transmitting STDs.

Although not statistically significant between groups, female SMY reported a slightly higher rate of pregnancy than female NSMY (19.1% vs. 16.9%), which suggests that female SMY may engage in sexual risk behaviors (e.g., ineffective use of contraceptives/protection) to at least an equal extent as their female peers. Moreover, the current study found that female SMY reported a significantly higher rate of sexual victimization (i.e., forced or coerced sexual intercourse/rape) compared to their female NSMY peers (7.8% vs. 3.3%), which may be the result of various individual and environmental factors such as a lack of safe and affirming social settings, risk behaviors such as substance abuse and sexual activity, and/or bias-related sexual violence.

It can be surmised from these findings that SMY may engage in riskier sexual behavior than their NSMY peers, which may account for the higher prevalence of STDs and pregnancy. Researchers have hypothesized that higher proportions of risk behaviors among SMY may come about as a result of an overall increased need for secrecy/confidentiality, a tendency to socialize in higher-risk environments such as bars, and a general lack of affirming social support networks for SMY, such as welcoming schools and religious/spiritual organizations (Ryan & Gruskin, 2006).

In examining the prevalence rate of forgone healthcare, this study found that SMY skipped needed medical care at a significantly higher rate than their NSMY peers. This is a new finding that builds on prior research examining factors associated with foregone healthcare among adolescents (Ford, et al., 1999; Lehrer, Pantell, Tebb, & Shafer, 2007). In addition, SMY differed significantly from their NSMY peers in more

frequently reporting two barriers to healthcare access likely related to privacy and confidentiality concerns (i.e., “did not want parents to know” and “afraid of what the doctor would say or do”). It might be expected, for example, that SMY who have not disclosed their sexual orientation to their parents may decide to forego needed medical care to avoid the possibility of the provider telling the parents about the youth’s sexual orientation, which could lead to additional problems related to family rejection. The two confidentiality barriers cited more frequently by SMY (than NSMY) may reflect a greater need/desire for private and confidential healthcare services among this population and argues for the importance of physicians providing statements of confidentiality assurance to their adolescent patients (Ford et al., 1997).

Consistent with prior research, the current study found that SMY were at significantly higher risk for victimization and mental health challenges compared to NSMY. These findings support the results of prior representative studies, which suggest the mental health needs of SMY far outweigh those of NSMY and that SMY access mental health services at significantly higher rates than their NSMY peers. However, the current study also presented new information that despite increased mental health service use, about half of all SMY who have a mental health need do not obtain mental health services (compared to just over one-third of NSMY), a significant difference between groups.

Findings from this study also highlight the mental health needs of female SMY, who appear to be at even greater risk for mental health challenges compared to their male SMY peers. Specifically, female SMY reported higher prevalence rates of attempting suicide (46% vs. 32%), suicidality (29% vs. 16%), depression (26% vs. 15%), and



anxiety (18% vs. 5%) compared to male SMY. However, both female and male SMY reported about the same proportion of victimization (38% vs. 37%, respectively). Among females, victimization experiences included sexual victimization, which was reported by 7.8% of female SMY and 3.3% of female NSMY.

Overall, the mental health needs of female SMY appear to be especially high as only about 40% of female SMY with a mental health need obtained needed mental healthcare compared to about 52% of male SMY and 63% of female NSMY. Indeed, a prior Add Health study that examined sexual orientation and suicide risk found girls who reported same-sex attractions or same-sex romantic relationships to be at greatest risk for suicidality (Russell & Joyner, 2001). Studies of lesbian, gay, and bisexual youth who have attempted suicide indicate they were more likely to have self-identified and come out to others at younger ages, and to have had friends and relatives who attempted or committed suicide (Hershberger & D'Augelli, 1995; Remafedi et al., 1991). They were also more likely to have been rejected due to their sexual orientation (Schneider, Farberow, & Kruks, 1989). Lesbian, gay, and bisexual youth of color who attempted suicide were more likely to have dropped out of school and to have been rejected by their family-of-origin and forced out of their homes than those who had not attempted suicide (Hershberger & D'Augelli, 1995). Given these findings, problems related to family acceptance, conflict with sexual identity formation and pressure to conform to heterosexist expectations appear to be important factors to consider in relation to the mental health and well-being of sexual minority youth (Ryan & Gruskin, 2006).

In the current study, SMY also reported a significantly higher proportion of mental health service use compared to NSMY (19.8% vs. 12.1%), a finding that is

consistent with a prior Add Health study (McGuire & Russell, 2007). Notably, female SMY reported a higher proportion of mental health service use compared to male SMY (23.5% vs. 16.7%), which is consistent with adolescent help-seeking literature suggesting that females generally have more positive attitudes toward help-seeking than males (Schonert-Reichl & Muller, 1996). At the same time, however, the increased rate of mental health service use among female SMY may reflect the higher proportion of mental health need found among female SMY, because severity of mental health need is considered a major predictor of mental health service use among youth (Angold et al., 1998; Costello et al., 1998; Logan & King, 2001). Although greater numbers of SMY used mental health services, female SMY still had significantly higher proportions of unmet mental health need compared to both male SMY (57.9% vs. 46.7%) and female NSMY (57.9% vs. 36.5%).

In examining the service use settings for primary healthcare, the current study found that SMY and NSMY did not differ significantly with regard to where health services were obtained. The majority of all youth (about 60%) went to a private doctor's office, while about 20% went to a community health clinic, and about 11% obtained routine physical exams at school. Notably, about 15% of all youth went to the hospital for a health exam, possibly because they lacked health insurance and could not access healthcare elsewhere.

With regard to where youth obtained services for STD testing/treatment, most SMY went to a private doctor's office (38.6%) or a community health clinic for STD testing/treatment (36.1%) while similarly, most NSMY went to a community health clinic (41.1%) or private doctor's office (28.6%). Because STDs are often stigmatizing,

especially among adolescents, it is expected that youth would tend to seek STD testing/treatment in settings that foster privacy and confidentiality. Although not statistically significant, a lower proportion of SMY sought STD testing/treatment at school compared to NSMY (7.0% vs. 10.2%). Moreover, a significantly higher proportion of NSMY went to a hospital (presumably the emergency room or an urgent care clinic) for STD testing/treatment compared to SMY (17.4% vs. 9.0%). Overall, these findings may suggest that SMY may have additional concerns about privacy and confidentiality related to the stigma associated with both STDs and sexual minority status and therefore prefer settings where privacy and confidentiality are more likely, such as private doctor's offices and community health clinics.

Similarly, with regard to mental health service use settings, the majority of SMY (49.0%) who obtained mental health services went to a private's doctor's office, a significantly higher proportion compared to NSMY (34.7%). At the same time, a significantly lower proportion of SMY obtained mental health services at school compared to NSMY (23.1% vs. 33.7%). These findings echo the previous findings on preferred service settings for STD testing/treatment in that SMY may tend to seek mental health services in settings that assure the highest levels of privacy and confidentiality such as a private doctor's office. At the same time, these findings suggest that SMY may not be as comfortable seeking mental health care at school.

#### Limitations

Although results from this study are based on a nationally representative sample, there are several limitations that must be noted. First, the Add Health data are derived from a national school-based sample of youth and therefore do not include youth who

were not enrolled in school or who had dropped out of school during the data collection period. This creates a selection bias in that the sample may not include some of the highest-risk youth (e.g., youth who are ill, pregnant, or who may have been victimized at school and then dropped out).

Second, the measure for sexual minority status used in this dissertation study did not include one important dimension of sexual orientation: self-identity. Thus, a limitation of this study was that the measure of youth sexual minority status did not contain youths' self-reported sexual orientation. Sexuality researchers have conceptualized sexual orientation as having three dimensions; desire, behavior, and identity (Laumann, Gagnon, Michael, & Michaels, 1994). Youth who participated in the Add Health study were not asked to identify or self-label their sexual orientation. Therefore, the third component (identity) was not a component of the sexual minority status measure. However, two of the three dimensions of sexual orientation conceptualized by Laumann and colleagues (1994) were included as part of this measure, desire (i.e., attraction) and behavior (i.e., romantic relationships and non-romantic sexual partners).

Youth in the Add Health study were asked if they had ever had a romantic attraction to a male or female and responses were matched with respondents' self-reported biological sex. Similarly, participants were asked to list characteristics (including the sex) of up to three romantic relationship partners and up to three non-romantic sexual partners in the previous 18 months. Again, responses were matched with respondents' self-reported biological sex to determine youth who reported same-sex attractions, romantic relationships, and/or same-sex sexual partners (i.e., sexual minority

youth). The term sexual minority thus takes into consideration that youth were not asked to self-label their sexual orientation and also that adolescence is a time when sexual identities are being formed so youth may be less likely to self-label their sexual orientation, particularly in early/middle adolescence.

In addition, the history of victimization measure had inherent limitations that should be noted. First, this measure was limited by a one-year historical time frame. That is, youth were asked if they had been physically or sexually victimized only in the past year, which necessarily excluded youth who may have been experiencing the traumatic effects of victimizing events that occurred well over a year prior to completing the survey. Second, the history of victimization measure was limited in its scope in that it did not include a measure of sexual victimization for male youth. Only the female youth were asked if they had been physically forced or coerced to have sexual intercourse against their will (in the past year). Future studies should incorporate a fuller picture of victimization experiences for both males and females.

Finally, the measures for health and mental health service use did not indicate how many times youth accessed services in the previous year. Instead, these measures indicated only whether youth accessed health or mental health services on at least one occasion in the past year. It would be helpful to know the number of times that youth accessed health and mental health services as this would provide a more comprehensive understanding of youths' need as well as patterns of service use. To address this issue, future research could involve a longitudinal analysis of service use patterns of sexual minority youth from adolescence into young adulthood to determine factors that contribute to ongoing service use.

## Implications

Despite these limitations, there are a number of implications for both health and mental health service providers. Given the higher prevalence rates of sexual intercourse and sexual activity among SMY, health and mental health providers should routinely ask youth about their sexual orientation and sexual activity. A multi-dimensional approach to inquiring about sexual orientation would include asking youth about their romantic/sexual attractions, behaviors, and identity. Given that the majority of youth in the SMY sample reported only a same-sex romantic attraction (82.6%), the clinical importance of asking adolescents about their romantic attractions (in addition to sexual behavior and sexual identity) is clear.

In addition, given the increased risk for mental health challenges among SMY and the trend for SMY to seek mental health services at their private doctor's office (versus at school, community health clinics, or hospitals), healthcare providers should talk with SMY about their patient confidentiality policies and any limitations to confidentiality, such as what health and mental health issues will be shared with the parent as well as what will not be shared with the parent.

Further, healthcare providers should provide routine screening for sexual minority adolescents with regard to symptoms of anxiety and depression, suicidality, and history of physical or sexual victimization, with particular attention to female sexual minority youth, who appear to be at especially high risk for having an unmet mental health need.

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## CHAPTER III

### YOUTH AND FAMILY CHARACTERISTICS ASSOCIATED WITH UNMET HEALTH AND UNMET MENTAL HEALTH NEED AMONG ADOLESCENTS: AN ANALYSIS OF YOUTH SEXUAL MINORITY STATUS, SEX, RACE, AND PARENT-CONNECTEDNESS

#### Background

Research has begun to identify beneficial personal, family, and community factors (i.e., protective factors) that may prevent or decrease the risk for poor health and mental health outcomes in sexual minority and other vulnerable youth populations (Blake et al., 2001; Borowsky, Ireland, & Resnick, 2002; Grossman & Kerner, 1998; Safren & Heimberg, 1999). Identifying protective factors is a critical next step in the development of interventions for at-risk non-heterosexual youth (Eisenberg & Resnick, 2006). Little research has investigated the role of protective factors in outcomes affecting sexual minority youth (Elze, 2005). However, a study based on a representative sample of sexually active high school students in Minnesota found gay, lesbian, and bisexual (GLB) youth to have overall lower levels of protective factors (i.e., family connectedness, support of other caring adults, and school safety) compared to heterosexual youth (Eisenberg & Resnick, 2006). This study also found that GLB youth with higher levels of protective factors were at significantly lower risk for suicide ideation and suicide attempts, suggesting that the risk of suicide associated with sexual minority status is largely mediated through protective factors (Eisenberg & Resnick, 2006).

## Parent-Child Relationships and Youth Mental Health

Numerous studies have demonstrated the impact of positive parent-child relationships on the self-esteem, well-being, and development of competencies in children and adolescents (Carlson, Uppal, & Prosser, 2000; DuBois, Bull, Sherman, & Roberts, 1998; Gecas & Seff, 1990a; O’Koon, 1997). Findings indicate that youth whose parents express affection, acceptance, and support are more likely to report higher self-esteem and academic achievement, lower anxiety and depression, and fewer behavioral problems (e.g., Barnes & Farrell, 1992; Gecas & Schwalbe, 1986; Gecas & Seff, 1990b; Goodyer, 1990; Mechanic & Hansell, 1989; Roberts & Bengtson, 1993). A prior analysis of Add Health data found that adolescents’ perceptions of warmth, love, and caring from parents were protective against emotional distress, suicidality, substance use, violence, and sexual activity (Resnick et al., 1997).

Like all adolescents, sexual minority youth (SMY) experience the same developmental challenges of identity formation and separation and individuation from their parents; however these challenges become more difficult, and may be disrupted, when parents express negative reactions about their child’s sexual identity development (Floyd, Stein, Harter, Allison, & Nye, 1999). Several studies suggest that SMY are more likely to discuss issues related to their sexual identity with parents if they report positive, accepting relationships with their parents (Boxer, Cook, & Herdt, 1991; Savin-Williams, 1989a, 1989b). In one study, youth’s perceptions of positive parental attitudes with regard to their sexual orientation were associated with both self-acceptance and higher self-esteem among youth (Savin-Williams, 1989a).

Conversely, a recent study from the Family Acceptance Project, lead by Ryan and Diaz, examined the effect of family rejection on the health and mental health of 245 GLB young adults (ages 21 to 25 years). This study found that higher levels of family rejection during adolescence were significantly associated with negative health outcomes among GLB young adults. Specifically, GLB young adults who reported a history of family rejection during their adolescence had 8.4 times the odds of attempting suicide, 5.9 times the odds of serious depression, 3.4 times the odds of using illegal drugs, and 3.4 times the odds of engaging in unprotected sexual intercourse relative to their GLB peers who reported no or low levels of family rejection during adolescence. Latino men reported the highest levels of family rejection based on their sexual orientation during adolescence (Ryan, Huebner, Diaz, & Sanchez, 2009).

#### Parent-Facilitated Health and Mental Health Service Use

Research suggests that decisions to seek formal services for distressed adolescents usually involve at least one parent (Angold et al., 1998; Cauce & Srebnik, 2003; Seiffge-Krenke, 1989). Based on the notion that youth are rarely solely responsible for seeking their own mental health care, Logan & King (2001) proposed a parent-facilitated model of mental health service use for adolescents. The main emphasis of this model is on the help-seeking contemplation stage; that is, the initial stages that involve the parent gaining an initial awareness of the adolescent's distress, recognition that the problem is serious enough to warrant attention, and consideration of available options for helping the teen. The steps along this pathway are influenced by factors such as qualities of the parent-child relationship (e.g., communication, support), the perceived burden of distress on the family (e.g., emotional and financial impact), parent functioning (e.g., education/health



literacy, illness or disability), intensity and co-morbidity of adolescent symptoms (i.e., severity of need), and family history of service use (Logan & King, 2001).

This model also takes into account the developmental consideration that adolescents are capable of exercising some autonomy over decisions to seek services and may resist attempts from parents or others to facilitate help-seeking (Logan & King, 2001). In addition, regardless of parental awareness/recognition of need, adolescents are capable of taking the initiative to access less formal sources of help (e.g., peers, school counselors, community-based agencies) that do not necessarily require parent facilitation (Logan & King, 2001).

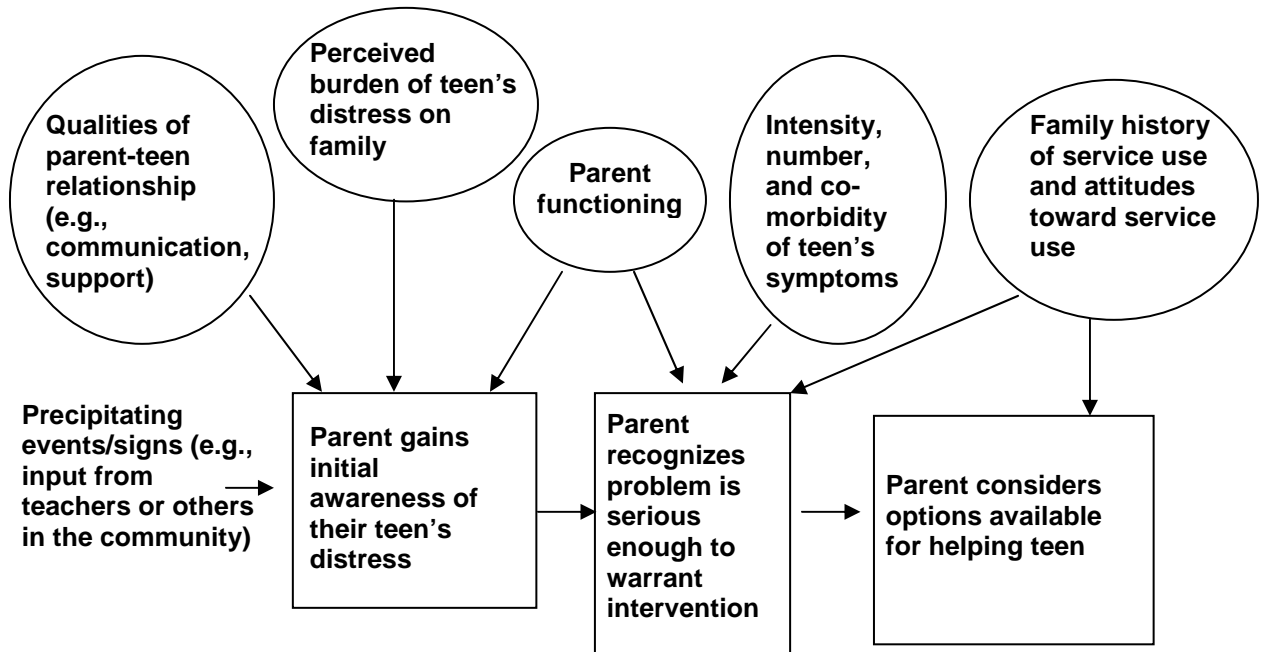
Figure 3.1 illustrates the help-seeking contemplation stage of the parent-facilitated model of mental health service use for adolescents including its initial stages and influential factors.

A parent-facilitated model such as the one developed by Logan & King (2001) has much utility for investigating help-seeking and service use patterns among sexual minority youth. Such a model provides a route by which to examine the influence of parent-youth relationship qualities (e.g., communication, supportiveness) on help-seeking, service use and health and mental health outcomes in this population. In addition specific parent and adolescent characteristics (e.g., current symptoms/functioning, race/ethnicity, parent education, family income, and parent functioning/disability) can be examined in terms of their impact on help-seeking, service use, and health and mental health outcomes.

To date, the parent-facilitated model has been used in only one empirical study involving 44 adolescents with depression (Logan & King, 2002). Findings from this

Figure 3.1

Parent-Facilitated Model of Adolescent Service Use (Logan & King, 2001)



study supported the role of parental identification of depression as a mediator between parent/adolescent characteristics and mental health service use (Logan & King, 2002). Although only one study has empirically tested the parent-mediated model, its relevance to the current research topic is clear given the health and mental health needs and family relationship concerns of SMY. Prior research has suggested that SMY have overall lower levels of family connectedness (Eisenberg & Resnick, 2006). Thus, based on Logan and King's model (2001), youths' help-seeking and access to services is likely influenced by a variety of family characteristics including qualities of the parent-youth relationship. In sum, a greater understanding of how parent connectedness facilitates access to services is

needed, particularly for SMY, who may experience lower levels of parent connectedness compared to their NSMY peers.

### Annual Health Screening and Unmet Health Need

The American Academy of Pediatrics and the American Medical Association Guidelines for Adolescent Preventive Services (GAPS) have recommended that all adolescents have an annual preventive health exam (Elster, 1998; Hagan, Shaw, & Duncan, 2008). In addition, the U.S. Preventive Services Task Force (USPSTF) have recommended screening all sexually active young women (< 24 years old) for Chlamydia and Gonorrhea, and also recommends HIV screening for all adolescents at increased risk (USPSTF, 2001). In addition, the USPSTF recently added the recommendation that healthcare providers screen all adolescents (ages 12 -18) for depression when resources are in place to ensure accurate diagnosis, therapy, and follow-up (USPSTF, 2009).

Given the recommendations of these major professional medical organizations, adolescents who do not receive annual preventive healthcare can be considered to have an unmet health need in that they are not receiving regular screening for risk behaviors (e.g., sexual activity), risk experiences (e.g., victimization), or health and mental health problems (e.g., STDs and depression/suicidality).

Thus, the two primary aims of this second dissertation study were as follows: 1) To examine whether there is a difference in overall parent connectedness between SMY and NSMY; and 2) to determine youth and family characteristics that predict unmet health and unmet mental health need (i.e., mental health need without service use) among youth. Secondary aims of the study were to explore whether youths' parent connectedness, sex/gender, and race/ethnicity significantly interacted with sexual

minority status to predict unmet health and unmet mental health need. There were no prior studies that examined the effect of sexual minority status on unmet health and mental health need among youth. It was hypothesized that sexual minority status and other youth and family characteristics (including youth-parent connectedness) would be significantly associated with unmet health and unmet mental health need. Figure 3.2 provides a diagram of the unmet health need model that was tested for this study.

Figure 3.2

Analytical Model for Youth Unmet Health Need Outcome

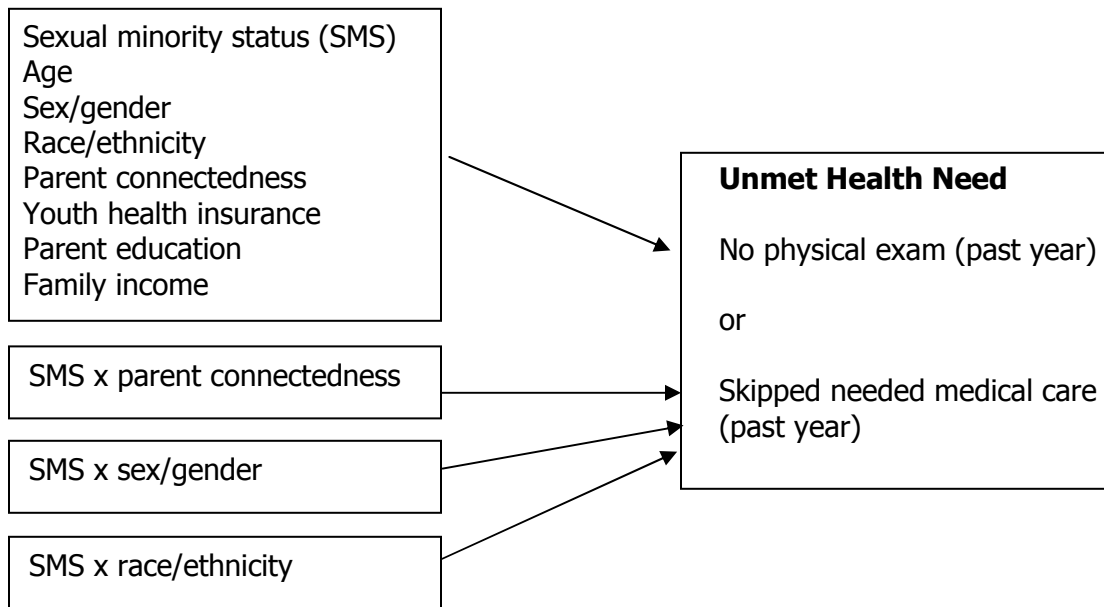
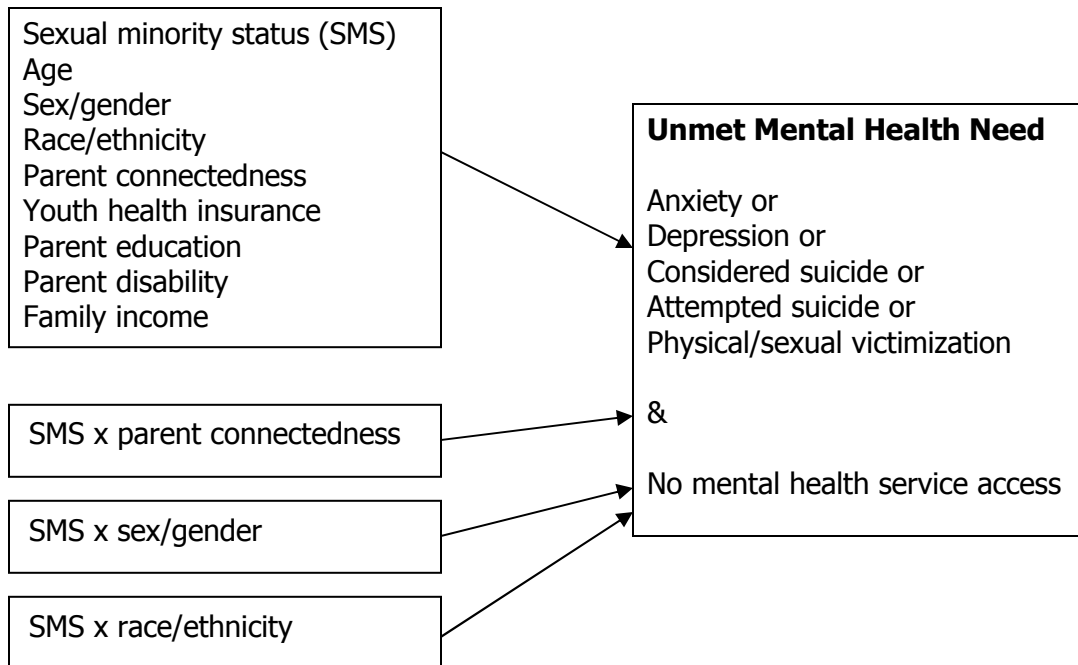


Figure 3.3 provides a diagram of the unmet mental health need model that will be tested for this study.

Figure 3.3

Analytical Model for Youth Unmet Mental Health Need Outcome



The five research questions addressed in this study were:

- (1) Do SMY report a difference in parent connectedness compared to NSMY?
- (2) What youth and family characteristics (i.e., sexual minority status, age, sex, race/ethnicity, parent connectedness, health insurance, parent education, and family income) predict whether youth will have an unmet health or mental health need?

- (3) Does level of parent connectedness interact with sexual minority status to moderate the relationship between sexual minority status and unmet health and mental health need among youth?
- (4) Does sex/gender interact with sexual minority status to moderate the relationship between sexual minority status and unmet health and mental health need among youth?
- (5) Does race/ethnicity interact with sexual minority status to moderate the relationship between sexual minority status and unmet health and mental health need among youth?

### Research Methods

The data used for this study were from The National Longitudinal Study of Adolescent Health (Add Health), a school-based nationally representative probability survey. Wave 1 data included 20,745 adolescents in grades 7 – 12, who were selected with unequal probability from 132 schools. The Wave 1 in-home interview was conducted between April and December of 1995 and gathered data from assenting youth, with their caregiver's consent, using laptop computers. Wave 1 in-home interview data were collected from both youth and parent self-report questionnaires. To ensure data quality, accuracy, and privacy, sections of the youth questionnaire containing sensitive topics (e.g., alcohol and drug use, violence and fighting, sexual activity, and mental health) were administered to youth via headphones using audio computer-assisted self interview (ACASI) technology. Add Health parent questionnaire data are linked by household identifier to youth in-home questionnaire data so that caregiver and youth responses can be matched by household. Prior approval to conduct the secondary data

analysis of the Add Health data for this study was obtained from the University of North Carolina at Chapel Hill Behavioral Institutional Review Board and the Carolina Population Center, where the Add Health data are housed.

#### National Longitudinal Study of Adolescent Health Study Design

The Add Health study is based on a complex sampling design that stratified schools by size, type, region, location, and by proportion of White students. Add Health used a nested data structure (i.e., students nested within schools), which creates a clustering effect with the data (i.e., students who attend the same school are likely to share more similar characteristics than students who attend different schools). The nested sampling design thus violates the ordinary least squares (OLS) regression assumption that observations are independent of one another. To account for the nested data structure in the Add Health study, different weight variables were included in the analyses. For the Wave 1 data, these weight variables include stratum (i.e., region of country), cluster or primary sampling unit (i.e., school), and a grand sample weight (for each youth participant). The weight variables corrected for the non-independent nature of the data, ensuring that standard errors for the regression coefficients were accurate. In addition, Wave 1 data included 1,821 youth that were purposively not part of the weighted sample (e.g., twin siblings). Thus, these 1, 821 observations were not included in the analyses and only the weighted sample was used for this study (n = 18,924).

#### Sample

This sample for the second dissertation study consisted of the entire weighted sample of youth (n = 18,924) who participated in the Wave 1 Add Health in-home survey between April and December of 1995. Within this overall sample there were 1,388

(7.5%) sexual minority youth (SMY) and 17,456 (92.5%) non-sexual minority youth (NSMY).

### Measures

Measures for the second study included youths' sexual minority status, age, sex, race/ethnicity, parent connectedness, health insurance status, parent education, parent disability status, family income, unmet health need and unmet mental health need. All measures are described below.

*Sexual minority status* was measured by a dichotomous variable and was based on a series of questions to youth from the in-home questionnaire about their romantic attractions and relationships, and non-relationship sexual partners. First, youth were asked if they had ever been romantically attracted to a male or to a female. Affirmative responses were then combined with the item measuring self-reported biological sex to determine those youth who reported ever having a same-sex romantic attraction. In addition, youth were asked if they were involved in a romantic relationship in the past 18 months and were asked to list characteristics (including their partner's sex) of up to three romantic relationships. Similarly, these responses were combined with the youth's self-reported biological sex to determine those youth who reported having a same-sex romantic relationship. Finally, youth were asked if they had any non-relationship sexual partners (not including the people listed as romantic partners) in the past 18 months and were asked to list characteristics (including the partner's sex) of up to three non-relationship sexual partners. Again, these responses were combined with the youth's self-reported biological sex so that youth who reported having a same-sex sexual partner were included in the sample of sexual minority youth. Thus, the total sample of sexual



minority youth includes youth who reported ever having a same-sex romantic attraction and youth who reported having at least one same-sex romantic or same-sex sexual partner in the past 18 months. Sexual minority youth were coded as 1 whereas non-sexual minority youth were coded as 0. Add Health participants were not asked to self-label or self-identify their sexual orientation; therefore, there is no indication of sexual orientation identity included as part of this measure.

*Age* of the youth was measured by a quasi-continuous variable ranging from age 11 to 21 and is based on the nearest whole year of the respondent's self-reported age at the time the in-home questionnaire was completed.

*Biological sex* of the youth was measured by a dichotomous variable (male = 0, female = 1) and was based on the respondent's self-reported biological sex at the time the in-home questionnaire was completed.

*Race/ethnicity* of the youth was measured by a categorical variable based on a composite of two variables. The first variable was a dichotomous (yes/no) question asking youth if they were of Hispanic or Latino origin (which included Mexican/Mexican American, Chicano/Chicana, Cuban/Cuban American, Puerto Rican, Central/South American, or Other Hispanic). The second variable was based on an item that asked youth to indicate their race (or races) as White, Black/African American, American Indian/Native American, Asian/Pacific Islander, or Other. The composite race variable combines the two variables into a five category race variable that was coded as Non-Hispanic White = 1, Non-Hispanic Black = 2, Non-Hispanic Asian = 3, Non-Hispanic Native American/Other = 4, and Hispanic = 5.

*Parent connectedness* was created from previously validated parent connectedness scale (Ford et al., 2005; Ream & Savin-Williams, 2005). The scale contained the following 5-point Likert scale items: 1) How close do you feel to your mom/dad; 2) How much do you think he/she cares about you; 3) Most of the time your mother/father is warm and loving toward you; 4) You are satisfied with the way your mother and you communicate with each other; and 5) Overall, you are satisfied with your relationship with your mother/father. The parent connectedness score was created by calculating the mean of either the mother or father connectedness scale score or the mean of both the mother and father scale scores combined. By constructing the scale in this way, youth who had only one parent (either a mother or father) were included in the sample for the analyses. An alpha coefficient of 0.87 indicated good scale reliability. Mean scale scores ranged from 1 to 5 with a score of one indicating the lowest level of parent connectedness and a score of five indicating the highest level of parent connectedness.

*Youth health insurance status* was determined based on a series of dichotomous (yes/no) questions that asked parents to indicate what type of health insurance coverage, if any, their child had (e.g., Medicaid, individual or group private coverage, a prepaid health plan such as an HMO or CHAMPUS, or none). These insurance type items were collapsed into a single dichotomous variable to indicate whether the youth had health insurance coverage (coded as 1) or did not have health insurance coverage (coded as 0).

*Parent education* was measured by a dichotomous variable derived from the Youth Questionnaire that asked youth to indicate how far their mother and/or father went in school. Youth respondents chose from nine categories ranging from “8<sup>th</sup> grade

education or less” to “professional training beyond a 4-year college or university.” The parent education measure was created by taking the highest education level of either parent (if more than one) so that a score of 1 indicates lowest parent education level and a score of nine indicates highest parent education level. The variable was then collapsed into a dichotomous variable to indicate parents’ with at least some college education (coded as 1) and parents’ who reported they had less than or equivalent to a high school education (coded as 0).

*Parent disability status* was measured by two single dichotomous variables from the youth questionnaire that asked youth respondents to indicate (yes/no) if their mother or father was physically or mentally disabled. If youth indicated that either parent was disabled, they were coded as 1 for having a disabled parent and were coded as 0 if they indicated they did not have a disabled parent.

*Family income* was measured by a single dichotomous variable derived from the Youth Questionnaire which asks youth to indicate (yes or not) whether their mother or their father receives public assistance (i.e., welfare). Youth who indicated that their mother or their father received public assistance were considered to be living in a low-income household (coded as 1) versus youth who indicated no parent disability (coded as 0).

*Unmet health need* was measured by combining two dichotomous variables, *health service use* and *foregone medical care*. The first variable asked youth if they had received a routine health exam in the past year and the second variable asked youth if they had skipped needed medical care in the past year. If youth provided a negative response to the health service use variable and/or an affirmative response to the foregone

medical care variable they were considered to have an unmet health need (coded as 1) versus youth who indicated they had obtained needed medical care and/or a routine physical exam in the past year (coded as 0).

*Unmet mental health need* was measured by combining each of the five mental health need indicators with a variable that asked youth if they had received mental health services in the past year. If youth reported symptoms of moderate to severe anxiety or depression, suicidality, one or more suicide attempts, or that they were physically and/or sexually victimized in the past year and also reported not obtaining mental health services in the past year, they were considered to have an unmet mental health need (coded as 1). Youth who reported no mental health need and youth who reported a mental health need but who had obtained mental health services were coded as 0.

### Missing Data

In order to assess the extent and pattern of missing data among all variables in the logistic regression analyses for dissertation studies 2 and 3, a missing values analysis (MVA) was conducted in SPSS 17.0 using the SPSS Missing Values Analysis Module. The Little's MCAR test was significant, indicating the data were *not missing completely at random* and therefore systematically missing; that is, either missing at random (MAR) or not missing at random (NMAR). The current state of the science of missing data analysis does not allow full certainty in determining whether data are MAR or NMAR following a significant Little's MCAR test.

Results of the MVA showed the majority of variables in the models were missing almost no data (i.e., < 2% of all cases), while several variables were missing slightly more data (3% to 6.5% of all cases). Generally, these amounts of missing data are

acceptable and do not require further parameter estimation or data imputation techniques. However, one variable in the model, youth health insurance status, was missing data from approximately 15% of the total number of observations. The youth health insurance status variable was derived from the Add Health Parent Questionnaire, which was not completed by all parents of youth who participated in Wave 1 of the Add Health study.

The missing data problem was addressed by using Full Information Maximum Likelihood (FIML) and the appropriate estimator command (MLR) in Mplus 5.0. MLR is an acronym for maximum likelihood parameter estimation with robust standard errors, which is equivalent to FIML in that it corrects for the complex (or nested) sampling design of the data. FIML is a parameter estimation technique that uses all available data without the need for data imputation (Enders, 2001b). FIML has been shown to be more effective than ad hoc techniques (i.e., listwise deletion, pairwise deletion, and mean imputation) when data are missing at random (MAR) or missing completely at random (MCAR) in multiple regression models (Enders, 2001a). The FIML approach allows for the use of all available data, does not reduce the total sample size, and assumes that data are MAR. However, there is no known method to ascertain where data are truly MAR. One way to be more certain however is to augment variables missing larger amounts of data with additional related variables that might be able to account for their “missingness.” Thus, in order to increase the certainty that the data were MAR, the youth health insurance variable that had a higher proportion (i.e., 15%) of missing data was supplemented with four additional variables from the Add Health Youth Questionnaire that could potentially help explain why that variable was missing a larger proportion of

data. Thus, with FIML, the purpose of adding supplemental variables to a model is to increase the certainty that data are MAR and not to impute missing data.

These four additional variables were selected using the following three criteria: 1) From the Youth Questionnaire, 2) 80-90% youth response rate; and 3) conceptually related to either youth health insurance status or parent access to medical care variables. The four additional variables selected included parent disability status, parent employment status, whether parent was born outside the United States, and residential location (i.e., urban, suburban, or rural). It was hypothesized that perhaps parents with a disability may not have been able to complete the questionnaire; working parents may have been unavailable, foreign-born parents not may have been able to read or understand the questionnaire and other parents may have been illiterate. In addition, parents living in rural areas may have greater difficulty accessing healthcare services due to their location.

These four additional variables were incorporated into preliminary analysis models (not presented) and treated as covariates. Only one of the variables, parent disability, was significant when included in the preliminary unmet mental health need model. Therefore, this variable was retained in subsequent analyses pertaining to unmet mental health need. The other three variables, parent employment, parent born outside of U.S., and residential location, were non-significant in all preliminary analysis models and therefore were not included in further analyses.

## Results

The following sections present results from the comparative analysis of parent connectedness between SMY and NSMY as well as results from logistic regression

analyses examining youth and family characteristics associated with unmet health and unmet mental health need among youth.

Table 3.1 presents results from the means differences t-test analysis comparing levels of parent connectedness among SMY and NSMY.

Table 3.1  
Differences in Parent Connectedness

	<u>SMY</u> (n = 1,388)		<u>NSMY</u> (n = 17,456)		t (128)	p
	M	SD	M	SD		
Youth Parent Connectedness (to mother and/or father)	4.26	0.86	4.36	1.37	3.81	<.001

*Note.* Range of mean scores is from 1.0 to 5.0.

As shown in Table 3.1, on a scale from 1 to 5 with a 5 indicating the highest level of parent connectedness, SMY reported an overall lower mean parent connectedness score compared to NSMY (4.26 vs. 4.36), which was statistically significant. Although this significant finding of lower parent connectedness among SMY was consistent with a prior representative study (Eisenberg & Resnick, 2006), it appears to not have much practical/clinical importance. Mean parent connectedness scores for both SMY and NSMY were on the high end of the 5-point scale (> 4.25) and differed by only one-tenth of a percent (4.26 vs. 4.36). Further, virtually no effect size ( $r = -0.04$ ) was found between groups, which indicated that the parent connectedness scores of the SMY group completely overlapped with the scores of the NSMY group. Thus, the significant t-test

may have been due to the large sample size and may have very little, if any, practical significance for SMY.

#### Data Analysis Approach for Unmet Health Need Outcome

To explore the affect of youth and family characteristics on unmet health need (i.e., not accessing needed or annual preventive healthcare) among youth, a series of three hierarchical logistic regression models (Models A, B, and C) were analyzed and results are presented in Table 3.2. A hierarchical approach to data analysis was chosen because the youth and family variables selected for the model were based on a priori hypotheses/research questions and thus they did not need to be pre-tested to determine their suitability for the model (e.g., stepwise regression approach). In addition, statisticians no longer recommend step-wise model testing for most types of regression analyses (W. B. Ware, personal communication, June 1, 2009). Moreover, stepwise regression is specifically not recommended for cluster-sampled data (such as Add Health) because the effective degrees of freedom are bound by the number of clusters (i.e., schools) as opposed to the number of cases (Sribney, 2005), which leads to biased regression coefficients.

Each of the three hierarchical regression models started with the same set of youth and family demographic variables of interest and included a separate test of interaction to determine the unique result of that interaction. Thus, Model A contained all youth and family variables with the SMS x parent connectedness interaction term; Model B contained all youth and family variables with the SMS x sex/gender interaction term; and Model C contained all youth and family variables with the SMS x race/ethnicity interaction term. An interaction term was retained in subsequent model testing only if it



was significant. Mplus 5.0 was selected as the data analysis software for this study because of its capacity to analyze complex (i.e., weighted) survey data using the FIML method to handle missing data.

Results from the third and final logistic regression model (Model C) are described in the following section and presented in Table 3.2 (significant predictors are in bold print).

### Results for Unmet Health Need Outcome

#### *Youth Characteristics*

All of the youth characteristic variables in the third regression model (Model C) were significant predictors of unmet health need among youth. These characteristics included youths' sexual minority status, age, sex, and racial-ethnic minority status. Controlling for all other variables/interaction terms in the final model, SMY had 31% higher odds of having an unmet health need (i.e., not accessing needed or annual preventive healthcare) compared to NSMY (odds ratio [OR] = 1.31,  $p < .01$ ). In addition, older youth had a lower probability of accessing healthcare, with 5% higher odds (OR = 1.05,  $p < .05$ ) of having an unmet health need for every one year increase in age. Thus, a 16-year old youth had 20% higher odds than a 12-year old youth of not accessing healthcare. In addition, female youth had 9% higher odds of having an unmet health need compared to male youth (OR = 1.09,  $p < .05$ ). Among the four racial-ethnic minority groups, Black youth had 24% higher odds of having an unmet health need relative to White youth (OR = 1.24,  $p < .01$ ), Asian youth had 54% higher odds relative to White youth (OR = 1.54,  $p < .001$ ), Native American youth had 61% higher odds relative to White youth (OR = 1.61,  $p < .01$ ), and Hispanic youth had 38% higher odds of having an

Table 3.2

Three Logistic Regression Models Predicting Unmet Health Need (n = 18,923)

<b>1. Model A (all variables with SMS/parent connectedness interaction)</b>				
Variable	$\beta$	SE	95% CI for $\beta$	Odds ratio
<b>Sexual Minority Status</b>	0.27**	0.11	0.06, 0.48	1.31
<b>Age</b>	0.05*	0.02	0.01, 0.09	1.05
<b>Sex</b>	0.08*	0.04	0.00, 0.17	1.09
<b>Black Non-Hispanic</b>	0.21**	0.07	0.08, 0.35	1.24
<b>Asian Non-Hispanic</b>	0.43***	0.10	0.23, 0.63	1.54
<b>Native American/Other</b>	0.47**	0.16	0.15, 0.79	1.61
<b>Hispanic</b>	0.33**	0.10	0.14, 0.51	1.38
<b>Youth Health Insurance</b>	-0.60***	0.07	-0.73, -0.47	0.55
<b>Parent Connectedness</b>	-0.40***	0.04	-0.47, -0.33	0.67
<b>Parent Education</b>	-0.18***	0.05	-0.28, -0.08	0.84
<b>Low-Income/Public Assistance</b>	0.20**	0.07	0.06, 0.34	1.22
SMS x Parent Connectedness	-0.12	0.13	-0.38, 0.14	0.89
<b>2. Model B (all variables with SMS/sex interaction)</b>				
SMS x Sex	-0.13	0.13	-0.38, 0.13	0.88
<b>3. Model C (all variables with SMS/race interactions)</b>				
SMS x Black	-0.22	0.18	-0.57, 0.13	0.80
SMS x Asian	-0.03	0.40	-0.81, 0.75	0.97
<b>SMS x Native American/Other</b>	-1.57**	0.50	-2.55, -0.58	0.21
SMS x Hispanic	-0.25	0.22	-0.68, 0.19	0.78

\*p &lt;.05. \*\*p &lt;.01. \*\*\*p &lt;.001. SMS = sexual minority status. CI = confidence interval.

unmet health need relative to White youth (OR = 1.38,  $p < .01$ ).

### *Family Characteristics*

In addition to the youth characteristic variables, four family context variables included in the third model (Model C) were significant predictors of unmet health need among youth: 1) Youth-parent connectedness; 2) youth health insurance status; 3) parent education level; and 4) family income level. The role of the youth-parent relationship in facilitating access to healthcare for youth was examined. Youth who reported higher levels of parent connectedness had lower odds of having an unmet health need; that is, each one unit increase on the parent connectedness scale decreased the odds of a youth not accessing healthcare by 33% (OR = 0.67,  $p < .001$ ). This finding suggests that the parent-youth relationship is strongly associated with youth gaining access to healthcare services and that youth with weaker parental bonds have a higher probability of having unmet health needs. The effects of youth health insurance status, parent education level, and family income were also analyzed with regard to unmet health need among youth. Not surprisingly, youth who had no health insurance had 45% higher odds of having an unmet health need compared to youth who had some type of health insurance coverage (OR = 0.55,  $p < .001$ ). Youth whose highest educated parent had less than or equivalent to a high school education had 16% higher odds of having an unmet health need compared to youth whose highest educated parent obtained education beyond high school (OR = 0.84,  $p < .001$ ). Finally, youth from low-income families (i.e., families receiving income-based public assistance) had 22% higher odds (OR = 1.22,  $p < .01$ ) of not accessing healthcare compared to youth from higher-income families. In sum, these findings suggest that youth-parent relationship factors and family resource barriers such

as parent education level, family income, and youth health insurance coverage each play an important role in facilitating youths' access to healthcare.

*Conditional Effects (Moderation-Testing)*

As part of the third model (Model C), a total of four sexual minority status (SMS)/racial-ethnic group interactions were tested simultaneously for their potential moderating effect on unmet health need among youth. These four interactions included: 1) SMS/Black race; 2) SMS/Asian race; 3) SMS/Native American race; and 4) SMS/Hispanic race. All of the SMS/racial-ethnic group interactions were non-significant with the exception of the SMS/Native American interaction, the results of which are subsequently described.

*Sexual minority status and Native American race interaction.* A surprising finding was that SMY who were Native American had 73% lower odds of having an unmet health need compared to NSMY who were Native American (OR = 0.27). In contrast, SMY who were White had 31% higher odds of having an unmet health need compared to NSMY who were White (OR = 1.31).

Similarly, Native American SMY had 66% lower odds of having an unmet health need compared to White SMY (OR = 0.34). In contrast, Native American NSMY had 61% higher odds of having an unmet health need relative to White NSMY (OR = 1.61). Table 3.3 provides a description of the number and percentage of Native American and White youth (SMY and NSMY) who had an unmet health need and shows that Native American SMY had the lowest percentage (24.8%) of unmet health need among all four groups.

Table 3.3

Interaction of Sexual Minority Status and Native American/White race on Unmet Health Need

	Unmet Health Need n (%)	Accessed Health Services n (%)	
<u>Native American</u>			
SMY	15 (24.8)	18 (75.2)	100%
NSMY	134 (55.7)	127 (44.3)	100%
<u>White</u>			
SMY	710 (52.2)	641 (47.8)	100%
NSMY	8006 (45.8)	9,146 (54.2)	100%

Thus, in examining the probability that a youth will have an unmet health need (i.e., not access needed or annual preventive healthcare), it appears that being a Native American SMY may have a buffering or moderating effect on the relationship between sexual minority status and unmet health need. This unexpected finding brings attention to the understudied subpopulation of SMY who are also Native American (i.e., two-spirit youth), who may experience fewer barriers in accessing healthcare services relative to their White SMY and Native American NSMY peers. Very little existing research has examined the health risks and needs of Native American sexual minority adolescents (e.g., Saewyc et al., 1998a, 1998b) and no prior studies have examined health services use among Native American SMY (Fieland, Walters, & Simoni, 2007). Therefore, this preliminary finding suggests the need for further research on the health needs and service use patterns among Native American SMY.

### Data Analysis Approach for Unmet Mental Health Need Outcome

To explore the affect of youth and family characteristics on unmet mental health need among youth, a series of three hierarchical logistic regression models (Models A, B, and C) were analyzed and results are presented in Table 3.4. A hierarchical approach to data analysis was chosen because the youth and family variables selected for the model were based on a priori hypotheses/research questions and thus they did not need to be pre-tested to determine their suitability for the model (e.g., stepwise regression approach). In addition, statisticians no longer recommend step-wise model testing for most types of regression analyses (W. B. Ware, personal communication, June 1, 2009). Moreover, stepwise regression is specifically not recommended for cluster-sampled data (such as Add Health) because the effective degrees of freedom are bound by the number of clusters (i.e., schools) as opposed to the number of cases (Sribney, 2005), which leads to biased regression coefficients.

Each of the three hierarchical regression models started with the same set of youth and family demographic variables of interest and included a separate test of interaction to determine the unique result of that interaction. Thus, Model A contained all youth and family variables with the SMS x parent connectedness interaction term; Model B contained all youth and family variables with the SMS x sex/gender interaction term; and Model C contained all youth and family variables with the SMS x race/ethnicity interaction term. An interaction term was retained in subsequent model testing only if it was significant. Mplus 5.0 was selected as the data analysis software for this study because of its capacity to analyze complex (i.e., weighted) survey data using the FIML method to handle missing data.

The results from the third and final logistic regression model (Model C) are described in the following section and presented in Table 3.4 (significant predictors are in bold print).

### Results for Unmet Mental Health Need Outcome

#### *Youth Characteristics*

The following youth characteristic variables in the third regression model (Model C) were significant predictors of unmet mental health need among youth: Sexual minority status, age, sex (gender), Black race/ethnicity, and Hispanic race/ethnicity. Controlling for all other variables in the final model, SMY had 48% higher odds of having an unmet mental health need compared to NSMY (OR = 1.48,  $p < .001$ ). In addition, older youth were found to have 7% higher odds of having an unmet mental health need for every one year increase in age (OR = 1.07,  $p < .001$ ). Thus, a 16-year old youth had 28% higher odds than a 12-year old youth of having an unmet mental health need. Whereas it was found that females had significantly higher odds of having an unmet health need, male youth had 11% higher odds of having an unmet mental health need relative to female youth (OR = 0.89,  $p < .01$ ). Finally, relative to White youth, Black youth had 76% higher odds and Hispanic youth had 48% higher odds of having an unmet mental health need (OR = 1.76,  $p < .001$ , OR = 1.48,  $p < .001$ , respectively). Notably, unlike the unmet health need outcome model, both Asian and Native American racial minority status were not found to be significant predictors of unmet mental health need among youth.

#### *Family Characteristics*

In addition to the youth characteristic variables, four of the five family context variables included in the third model (Model C) were significant predictors of unmet

Table 3.4

Three Logistic Regression Models Predicting Unmet Mental Health Need (n = 18,924)

<b>1. Model A (all variables with SMS/parent connectedness interaction)</b>				
Variable	$\beta$	SE	95% CI for $\beta$	Odds ratio
<b>Sexual Minority Status</b>	0.39***	0.11	0.17, 0.61	1.48
<b>Age</b>	0.07***	0.02	0.04, 0.10	1.07
<b>Sex</b>	-0.12**	0.05	-0.21, -0.02	0.89
<b>Black Non-Hispanic</b>	0.56***	0.08	0.41, 0.72	1.76
Asian Non-Hispanic	-0.02	0.11	-0.24, 0.20	0.98
Native American/Other	0.30	0.22	-0.13, 0.73	1.35
<b>Hispanic</b>	0.39***	0.09	0.22, 0.56	1.48
<b>Youth Health Insurance</b>	-0.18*	0.08	-0.33, -0.03	0.84
<b>Parent Connectedness</b>	-0.76***	0.05	-0.85, -0.66	0.47
Parent Education	-0.01	0.06	-0.12, 0.10	0.99
<b>Low-Income/Public Assistance</b>	0.26***	0.07	0.12, 0.39	1.29
<b>Parent Mental/Physical Disability</b>	0.28***	0.08	0.13, 0.43	1.33
SMS x Parent Connectedness	-0.15	0.16	-0.45, 0.16	0.86
<b>2. Model B (all variables with SMS/sex interaction)</b>				
<b>SMS x Sex</b>	0.39**	0.14	0.11, 0.66	1.48
<b>3. Model C (all variables with SMS/sex and SMS/race interactions)</b>				
<b>SMS x Sex</b>	0.40**	0.14	0.13, 0.67	1.50
SMS x Black	-0.05	0.18	-0.40, 0.30	0.96
SMS x Asian	-0.14	0.46	-0.03, 0.76	0.87
<b>SMS x Native American/Other</b>	-1.70***	0.40	-2.49, -0.91	0.18
SMS x Hispanic	-0.12	0.20	-0.51, 0.28	0.89

\*p &lt;.05. \*\*p &lt;.01. \*\*\*p &lt;.001. SMS = sexual minority status. CI = confidence interval.



mental health need among youth: 1) Youth-parent connectedness; 2) youth health insurance status; 3) parent disability status; and 4) family income level. Surprisingly, unlike the unmet health need outcome model, parent education level was not a significant predictor of unmet mental health need among youth.

Among the significant family context variables, the role of the youth-parent relationship in facilitating access to needed mental health services among youth was examined. Youth who reported higher levels of parent connectedness had significantly lower odds of having an unmet mental health need; specifically, for every one unit increase on the parent connectedness scale, the odds of a youth having an unmet mental health need decreased by 53% (OR = 0.47,  $p < .001$ ). This finding suggests that the parent-youth relationship is strongly associated with youth gaining access to needed mental health services and that youth with weaker parental bonds have a substantial increased probability of having an unmet mental health need.

In addition, the effects of youth health insurance status, parent education level, parent disability status, and family income were analyzed with regard to unmet mental health need among youth. Similar to the unmet health need outcome model, youth who had no health insurance had 16% higher odds of having an unmet mental health need compared to youth who had some type of health insurance (OR = 0.84,  $p < .05$ ). In addition, youth who reported that they had a physically or mentally disabled parent had 33% higher odds of having an unmet mental health need compared to youth who did not have a disabled parent (OR = 1.33,  $p < .001$ ). Youth from low-income families (i.e., families receiving income-based public assistance) had 29% higher odds of having an unmet mental health need compared to youth from higher-income families (OR = 1.29,  $p$

<.001). These latter findings suggest that low-income and disabled parents have much greater difficulty facilitating access to needed mental health services for their youth. Surprisingly, there was no significant difference in odds of youth having an unmet mental health need based on parent education level. Youth whose highest educated parent had less than or equivalent to a high school education had the same odds of having an unmet mental health need as youth whose highest educated parent obtained some college education or higher. In sum, these findings suggest that youth-parent relationship factors and family resource barriers such as parent disability, family income, and youth health insurance coverage each play an important role in facilitating youths' access to needed mental health services.

#### *Conditional Effects (Moderation-Testing)*

Included in the third regression model (Model C) was the SMS/sex (gender) interaction from Model B, as well as four SMS/racial-ethnic group interactions: 1) SMS/Black race; 2) SMS/Asian race; 3) SMS/Native American race; and 4) SMS/Hispanic race. Like the unmet health need model, all of the SMS/ racial-ethnic group interactions were non-significant with the exception of the SMS/Native American interaction. In addition, the SMS/sex (gender) interaction remained significant in Model C. Thus, two of the five interaction terms tested in the Model C, SMS/sex (gender) and SMS/Native American race, were significant predictors of unmet mental health need among youth. The two significant interactions are described in the following sections:

*Sexual minority status and sex (gender) interaction.* A striking finding was that female SMY had over twice the odds of having an unmet mental health need compared to female NSMY (OR = 2.20). In addition, male SMY had 48% higher odds of having an

unmet mental health need compared to male NSMY (OR = 1.48). In addition, female SMY had 32% higher odds of having an unmet mental health need compared to male SMY (OR = 1.32). In contrast, female NSMY had 12% lower odds of having an unmet mental health need compared to male NSMY (OR = 0.88). Table 3.5 provides a description of the number and percentage of male and female youth (SMY and NSMY) who had an unmet mental health need and shows that female SMY had the highest percentage (57.9%) of unmet mental health need among all four groups.

Table 3.5

Interaction of Sexual Minority Status and Sex (Gender) on Unmet Mental Health Need

	Unmet Mental Health Need n (%)	No MH Need or Accessed Services n (%)	
			<u>Female</u>
SMY	380 (57.9)	287 (42.1)	100%
NSMY	3402 (36.5)	5525 (63.5)	100%
			<u>Male</u>
SMY	337 (46.7)	384 (53.3)	100%
NSMY	3395 (37.8)	5,130 (62.2)	100%

Thus, in analyzing the probability that a youth will have an unmet mental health need, it appears that being a male SMY may have somewhat of a buffering or moderating effect on the relationship between sexual minority status and unmet mental health need. This finding brings attention to the subpopulation of female SMY, who appear to be at

especially high risk for having an unmet mental health need compared to both their male SMY and female NSMY peers.

*Sexual minority status and Native American race interaction.* In accordance with the unexpected finding in the unmet health need outcome model, Native American SMY had 74% *lower* odds of having an unmet mental health need compared to Native American NSMY (OR = 0.26). By comparison, White SMY had 48% *higher* odds of having an unmet mental health need compared to White NSMY (OR = 1.48). In addition, Native American SMY had 75% *lower* odds of having an unmet mental health need compared to White SMY youth (OR = 0.25). In contrast, Native American NSMY had 35% *higher* odds of having an unmet mental health need relative to White NSMY (OR = 1.35). Table 3.6 provides a description of the number and percentage of Native American and White youth (SMY and NSMY) who had an unmet mental health need and shows that Native American SMY had the lowest percentage (19.3%) of unmet health need among all four groups.

Thus, in examining the probability that a youth will have an unmet mental health need, it appears that being a Native American SMY (i.e, two-spirit youth) may have a buffering or moderating effect on the relationship between sexual minority status and unmet mental health need. As in the unmet health need model, this similar yet unexpected finding highlights the subpopulation of Native American SMY, who may experience fewer barriers in accessing needed mental health services and/or may have less need for mental health services relative to their White SMY and Native American NSMY peers.

Table 3.6

Interaction of Sexual Minority Status and Native American/White Race on Unmet Mental Health Need

	Unmet Mental Health Need n (%)	No MH Need or Accessed Services n (%)	
<u>Native American</u>			
SMY	10 (19.3)	23 (80.7)	100%
NSMY	117 (41.2)	144 (58.8)	100%
<u>White</u>			
SMY	706 (52.7)	645 (47.3)	100%
NSMY	6,666 (37.1)	10,490 (62.9)	100%

### Discussion

Overall, results from the second dissertation study found that SMY had a significantly higher probability of having an unmet health or unmet mental health need compared to their NSMY peers, even when controlling for multiple youth and family characteristics simultaneously. This finding is not surprising given the significant health and mental health disparities between SMY and NSMY documented in the first dissertation study. This finding underscores the significant unmet mental health need of SMY even though prior research has shown that SMY access mental health services significantly more than their peers (McGuire & Russell, 2007).

With regard to parent connectedness the current study found that SMY had significantly lower levels of parent connectedness compared to their NSMY peers. This

finding was consistent with results from a recent study based on a representative sample of sexually active high school students in Minnesota, in which non-heterosexual youth reported significantly lower levels of family connectedness compared to heterosexual youth (Eisenberg & Resnick, 2006). However, it should be noted that the overall mean parent connectedness scores for both SMY and NSMY were on the high end of the 5-point scale ( $> 4.25$ ) and differed by only one-tenth of a percent (4.26 vs. 4.36). This raises the question of whether there is practical significance with regard to the finding. Indeed, there was essentially no effect size ( $r = -0.04$ ) between groups; that is, the parent connectedness scores of the SMY group completely overlapped with the scores of the NSMY group, which suggests that the significant t-test result may be attributable to the large sample size and not have much “real world” significance with regard to SMY, who generally reported very high levels of parent connectedness.

According to Logan and King’s (2001) model of parent-facilitated service use, the qualities of the parent-child relationship (i.e., communication, supportiveness) should help the parent recognize their child’s distress and facilitate access to services. In the two logistic regression analyses, parent connectedness was a significant predictor of both unmet health and unmet mental health need among all youth. Specifically, higher levels of parent connectedness decreased the probability of youth having both an unmet health and unmet mental health need. This finding may partially support Logan and King’s Model of Parent-Facilitated Service Use (2001) in that it suggests that higher levels of parent connectedness may increase parent’s ability to facilitate access to services for their child thereby reducing their child’s unmet need. At the same time, this finding may also

indicate that higher levels of parent connectedness decrease youths' health risk behaviors and mental health needs to begin with, thereby reducing their unmet need.

For both the unmet health and unmet mental health need models, older youth had a higher probability of having an unmet health or mental health need with odds increasing by 5% to 7% for every one year increase in youths' age. Interestingly, female youth had significantly higher odds of having an unmet health need (i.e., not accessing needed or annual preventive healthcare) relative to male youth while male youth had significantly higher odds of having an unmet mental health need relative to female youth. All four racial/ethnic minority groups had significantly higher odds of having an unmet health need (relative to White youth) while only Black and Hispanic youth had significantly higher odds of having an unmet mental health need (relative to White youth).

As expected, youth without health insurance had significantly higher odds of having unmet health and unmet mental health need, likely due to the financial barrier that lack of health insurance creates with regard to healthcare access. Youth with higher educated parents (i.e., parents who had obtained at least some college education) had significantly lower odds of having an unmet health need while surprisingly, level of parent education was not a significant predictor of unmet mental health need in the final model. Youth from low-income families (i.e., families receiving income-based public assistance) had significantly higher odds of having both an unmet health and unmet mental health need compared to youth from higher-income families. And finally, youth who reported they had a mentally or physically disabled parent had significantly higher odds of having an unmet mental health need, which suggests that disabled parents have greater difficulty than non-disabled parents in facilitating access to needed mental health

services for their children, which is consistent with the parent functioning component found in Logan and King's theoretical model (2001).

Although it was hypothesized that parent connectedness would interact with sexual minority status to predict unmet health and mental health need, this was not the result. Thus, SMY with lower levels of parent connectedness did not have a higher probability of having an unmet health or mental health need compared to SMY with higher levels of parent connectedness, as was originally hypothesized. Qualities of the parent-youth relationship (i.e., level of parent connectedness) were found to have a significant bearing on whether youth (overall) would access needed health and mental health services, but this did not differ for SMY.

Taken together, these findings raise issues concerning the measure of parent connectedness used for this study. While the parent connectedness measure seems to be a reliable gauge of overall parent closeness for youth in general, it may also be that the measure does not capture aspects of the parent-youth relationship specific to the sexual identity formation of SMY (e.g., SMYs' communication with parent(s) about sexual minority identity formation/orientation and SMYs' perception of parent acceptance of their sexual minority identity formation/orientation. Moreover, given that the sample of SMY in Wave I of Add Health was mainly defined by youth who reported "ever having a same-sex attraction", it is not known how this aspect of sexual minority identity development (i.e., same-sex attraction) may affect the parent-youth relationship. Thus, there are likely additional measures that need to be developed and tested that could aid in identifying ways that youth sexual minority identity formation affects the parent-youth relationship with regard to health and mental health service use.



Results from study 1 of this dissertation found that SMY forego needed medical care at a significantly higher rate than their NSMY peers and also report “not wanting parents to know” and “fear of what the doctor would say or do” as significant barriers to obtaining needed medical care. These findings suggest that SMY have more concerns about confidentiality (than NSMY), which may stem from aspects of the parent-youth relationship that are not being assessed by the parent connectedness measure.

Further, we know from the existing literature and from the results of study 1 of this dissertation that SMY have significantly higher mental health needs and unmet need compared to their NSMY peers. This suggests that SMY do not access needed mental health services in proportion to their need. Youth in the Add Health study were not asked to report barriers to mental health services so we cannot investigate whether parent or provider confidentiality barriers played a part in the unmet mental health needs of SMY. Results from study 1 of this dissertation found that SMY obtained mental health services most often at a private doctor’s office (49.0%), followed by school (23.1%), some “other” setting (21.9%), community health clinic (17.1%), and hospital (8.4%). It is not clear however, how SMY would access mental health care at private doctor’s offices without the involvement of a parent. Even with parent involvement however, private doctor’s office settings may offer the greatest assurance of confidentiality for SMY with mental health needs.

In examining the interaction test of sex/gender and SMS on unmet mental health need, this study found that female SMY had significantly higher odds of having an unmet mental health need compared to both male SMY and female NSMY. This is consistent with findings from the first dissertation study and suggests that female SMY are a

subgroup of SMY at especially high risk for mental health challenges. Interestingly, in the general youth population, male youth tend to have higher overall mental health needs than female youth, which is in contrast to the SMY population, in which female SMY appear to have higher levels of mental health need.

Another significant interaction test finding was that Native American SMY had significantly lower odds of having both unmet health and unmet mental health needs compared to both White SMY and Native American NSMY. These findings are somewhat tenuous however, because of the relatively small sample size of Native American SMY ( $n = 33$ ) in the Add Health study. Therefore, these results are discussed and interpreted with caution. There are no representative or even moderate-scale studies that have examined health-related issues among Native American sexual minorities (i.e., two-spirit persons) (Fieland, Walters, & Simoni, 2007). Given the lack of information on this population, it is hypothesized that two-spirit youth are likely at high risk for suicidality because representative studies have found that both Native American youth and sexual minority youth are at increased risk for suicide (Fieland, Walters, & Simoni, 2007). Indeed, a study of two-spirit adults found that 32% of males had attempted suicide (Monette et al., 2001) and findings from smaller-scale studies suggest that both male and female two-spirit adults are at especially high risk for suicidality (Monette, Albert, & Waalen, 2001; Morris, Waldo, & Rothblum, 2001; Paul, et al., 2002).

However, in contrast to the findings that two-spirit adults are at higher risk for suicide, a preliminary descriptive analysis of Add Health data found that the Native American SMY subgroup had a lower proportion of mental health need (24.7%) compared to Hispanic (62.5%), Black (61.9%), White (54.3%), and Asian (52.1%) sexual

minority youth. Native American NSMY however, had a much higher proportion of mental health need (44.5%), which is more consistent with existing research on the mental health of two-spirit adults. In sum, these preliminary findings suggest that Native American SMY may have better access to health and mental health services (e.g., if they live on tribal lands) or may perhaps have a lower proportion of mental health need compared to other SMY. Because there is virtually no research on two-spirit youth, it can only be speculated that perhaps there is a greater degree of cultural acceptance of SMY among Native Americans that may be related to the historically honored status of two-spirit persons within Native American societies (Fieland et al., 2007). Further research is needed to understand this finding.

#### Limitations

Although results from this study are based on a nationally representative sample, there are several limitations that must be noted. First and foremost, although significant associations between specific youth and family characteristics and unmet health and mental health need have been confirmed, causality cannot be determined due to the cross-sectional design of this study (i.e., Wave 1 data only). Second, the measure for sexual minority status used in this study did not include one important dimension of sexual orientation: self-identity. Thus, youth sexual minority status did not contain youths' self-reported sexual orientation. Sexuality researchers have conceptualized sexual orientation as having three dimensions: Desire, behavior, and identity (Laumann, Gagnon, Michael, & Michaels, 1994). Youth who participated in the Add Health study were not asked to identify or self-label their sexual orientation. Therefore, the third component (identity) was not a component of the sexual minority status measure. However, two of the three

dimensions of sexual orientation conceptualized by Laumann and colleagues (1994) were included as part of this measure: Desire (i.e., attraction) and behavior (i.e., romantic relationships and non-romantic sexual partners). Youth in the Add Health study were asked if they had ever had a romantic attraction to a male or female and responses were matched with respondents' self-reported biological sex. Similarly, participants were asked to list characteristics (included the sex) of up to three romantic relationship partners and up to three non-romantic sexual partners in the previous 18 months. Again, responses were matched with respondents' self-reported biological sex to determine youth who reported same-sex attractions, romantic relationships, and/or same-sex sexual partners (i.e., sexual minority youth). The term sexual minority thus takes into consideration that youth were not asked to self-label their sexual orientation and also that adolescence is a time when sexual identities are being formed so youth may be less likely to self-label their sexual orientation, particularly in early/middle adolescence. And third, findings pertaining to Native American SMY should be interpreted with caution until more data about this very small subsample can be gathered (e.g., whether youth were reservation-based, whether they had health insurance, and perhaps their religious/spiritual affiliations).

In addition, the history of victimization measure (part of the unmet mental health need measure) had inherent limitations. First, this measure was limited by a one-year historical time frame. That is, youth were asked if they had been physically or sexually victimized only in the past year, which necessarily excluded youth who may have been experiencing the traumatic effects of victimizing events that occurred well over a year prior to completing the survey. Second, the history of victimization measure was limited

in its scope in that it did not include a measure of sexual victimization for male youth. Only the female youth were asked if they had been physically forced or coerced to have sexual intercourse against their will (in the past year). Future studies should incorporate a fuller picture of victimization experiences for both males and females.

### Implications

Despite these limitations, the findings have important practice implications for youth health and mental health service providers. This study found that SMY had significantly lower levels of parent connectedness compared to NSMY, which may reflect the increased risk for family rejection in this population. This finding has implications for health and mental health services providers who may not be currently screening SMY for their risk of family rejection/family violence. If providers asked SMY about their family relationships and experiences with family rejection they would obtain a better understanding of the youth's overall risk profile, and be able to identify youth at risk for family violence or at risk for being ejected or displaced from their homes due to their sexual minority orientation (Ryan et al., 2009). In addition, health and mental health providers could talk with parents of SMY about the impact that rejecting behaviors have on their child's health and well-being and refer parents to educational and support services in the community, particularly ones that can provide positive parental role models for parents of SMY (Ryan et al., 2009).

Another key finding from this study was that youth with higher levels of parent connectedness had significantly lower odds of having an unmet health and mental health need (SMY did not differ from youth overall). This finding supports the accumulated literature on the impact of parent-child relationships on child and adolescent well-being.

Thus, regardless of the child's sexual identity/orientation, it appears that parental relationships are important.

In addition, these findings may also partially support the parent-facilitated model of adolescent service use (Logan & King, 2001), which proposes that qualities of the parent-teen relationship (e.g., communication, support) contribute to parents' awareness of their teen's distress and recognition that the problem is serious enough to warrant professional help. One practice implication of this finding is that service providers talk to all youth about their family relationships to assess level of parental involvement and determine whether youth may need assistance (beyond their families) in accessing needed health or mental health services. A second practice implication would be that service providers seek to identify under-involved parents and train them to better recognize symptoms of health and mental health distress in their adolescent.

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CHAPTER IV  
THE EFFECTS OF SCHOOL-BASED MENTAL HEALTH SERVICES  
AND SCHOOL LOCATION ON MENTAL HEALTH SERVICE USE AMONG  
YOUTH WITH MENTAL HEALTH NEED: A MULTI-LEVEL ANALYSIS  
EXAMINING SEXUAL MINORITY STATUS

Background

School Social Climate and Sexual Minority Youth

Research suggests that the mental health and risk behaviors of sexual minority youth (SMY) may be linked to social challenges they face in the school environment, which can include harassment, discrimination, and victimization (Bontempo & D'Augelli, 2002). A representative study of high school students in Vermont and Massachusetts found that SMY who experienced frequent at-school victimization reported significantly higher levels of substance use, sexual risk behaviors, and suicidality compared to their heterosexual peers who reported frequent at-school victimization (Bontempo & D'Augelli, 2002).

The Gay, Lesbian and Straight Education Network (GLSEN) conducts biennial school climate surveys based on the reports of lesbian, gay, bisexual, and transgender (GLBT) youth from all 50 states (Kosciw, Diaz, & Greytak, 2008). GLSEN's 2007 National School Climate Survey found that the majority (86%) of the 6,209 gay, lesbian, bisexual, and transgender (GLBT) youth surveyed reported being verbally harassed at school by their peers due to their sexual orientation or gender identity/expression. Additionally, 44% of GLBT students reported being physically harassed and 22%

reported they had been physically assaulted (Kosciw et al., 2008). In addition, three-quarters (74%) of GLBT students reported hearing frequent derogatory remarks at school such as “dyke,” “faggot,” or “that’s so gay.” In addition, over half (61%) said they felt unsafe in their school because of their sexual orientation and over a third (38%) reporting feeling unsafe at school because of their gender identity/expression (Kosciw et al., 2008).

Biased care and a lack of training have been consistently reported by mental-health and school-based providers as well (Ryan & Futterman, 1998). A national survey of high school counselors, nurses, psychologists, and social workers conducted by the American Psychological Association’s Healthy GLB Students Project found that nearly all school-based providers lacked the capacity to provide culturally competent services for GLB youth (American Psychological Association, 2001). Specifically, 90% to 97% of providers said they lacked the training, knowledge, or skills to provide services for GLB youth, while 77% to 89% said they lacked the appropriate materials.

Research evidence to date strongly suggests that SMY experience higher levels of discrimination, harassment, and victimization in their school environments, which in turn is linked to an increased risk for health and mental health problems and poor academic outcomes.

#### School Characteristics and Sexual Minority Youth

Prior research examining links between general school characteristics, victimization, and suicidality found that SMY were less likely to be victimized or suicidal if they attended schools that were larger, located in an urban setting, had a higher proportion of low-income and ethnic minority students; or had an overall lower perceived

school safety rating by the general-student population (Goodenow, Szalacha, & Westheimer, 2006).

GLSEN's 2007 National School Climate Survey also examined the influence of general school-level characteristics (e.g., region, locale, and district poverty level) on the frequency of biased (i.e., homophobic) remarks and at-school victimization among a sample 6,209 GLBT middle and high school students from all 50 states (Kosciw, Diaz, & Greytak, 2008). Participants living in the Southern and Midwestern regions of the country reported the highest incidence of biased remarks (e.g., "faggot," "dyke") at school and also reported the lowest levels of staff intervention to address biased language (Kosciw, Diaz, & Greytak, 2008). Participants in the South and the Midwest also reported the highest levels of victimization (i.e., verbal harassment, physical harassment, and physical assault) related to their sexual orientation while students in the South also reported higher levels of sexual harassment than student in all other regions (Kosciw, Diaz, & Greytak, 2008). With regard to location and school district poverty level, GLBT students who attended schools in small towns or in rural areas reported higher levels of victimization related to their sexual orientation and those living in high-poverty school districts reported higher levels of victimization based their sexual orientation, gender expression or race/ethnicity than students in low poverty districts (Kosciw, Diaz, & Greytak, 2008). In sum, research suggests that sexual minority youth experience higher levels of harassment and victimization at schools located in rural areas and consequently may have a greater need for mental health services where fewer services are available.

#### School-Based Policies, Programs, and Services

There is currently a need to gain a better understanding of how school-based

policies, programs, and services influence schools' social climate with regard to the emotional/mental health of sexual minority students. Recent research suggests that the school policies and programs are directly associated with rates of at-school victimization and mental health risk among sexual minority youth. A study of 202 SMY in 52 schools found that sexual minority students attending schools offering GLBT support groups had significantly lower rates of victimization and suicide attempts compared to SMY in schools that did not offer support GLBT support groups (Goodenow, Szalacha, & Westheimer, 2006). Similarly, in schools that offered gay-sensitive HIV education sexual minority students reported lower rates of sexual health risk behaviors (Blake et al., 2001). One such study, a school-based intervention, found that gay-sensitive HIV-prevention education was effective in reducing high-risk sexual behavior, number of sexual partners, and substance use among sexual minority adolescents (Blake et al., 2001).

Research also suggests the acceptance and support of educators and school administrators contributes greatly to the social and academic functioning of sexual minority youth at school. A study using Add Health data found that sexual minority youth who reported more positive feelings about their teachers were significantly less likely to have problems getting along with other students, paying attention in class, and completing their schoolwork (Russell, Seif, & Truong, 2001).

About one third (36%) of the GLBT students surveyed by GLSEN in 2007 reported that they had a Gay-Straight Alliance (GSA) at their school and the same proportion (36%) indicated they had supportive teachers and administrators at their school. However, only about one fifth (19%) of GLBT students reported their school had

a safe school policy that included protection against harassment and victimization based on sexual orientation or gender identity/expression (Kosciw et al., 2008).

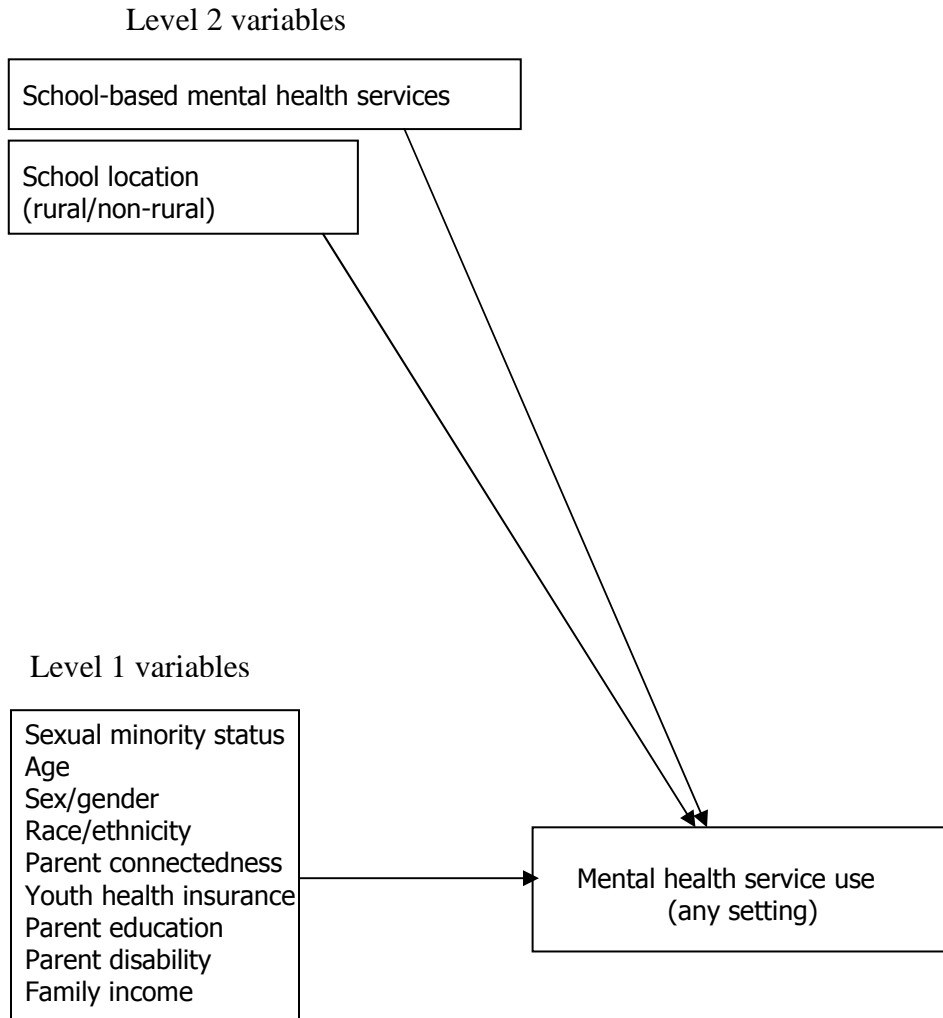
The availability of GLBT sensitive mental health counseling, support groups/GSAs and safe school policies has been shown through preliminary research to be associated with improved mental health and academic outcomes for sexual minority youth. Similarly, we know very little about school characteristics that may influence help-seeking and mental health service use among SMY. To date, there are no known studies that have examined associations between school characteristics and general mental health service use among youth. Thus, findings from this third dissertation study contribute to knowledge concerning the effects of school-based mental health services and school location (over and above the effects of youth and family characteristics) on general mental health service use among youth with mental health need.

Figure 4.1 provides an illustration of the two-level analytical model used for the third dissertation study.

The following research questions were addressed for this study:

- (1) Does the availability of school-based mental health services affect the probability that youth with mental health need will obtain mental health services over and above the influence of individual youth and family characteristics? Does the availability of school-based mental health services moderate the relationship between sexual minority status and mental health service use among youth with mental health need?

Figure 4.1  
Two-Level Analytical Model for Youth Mental Health Service Use Outcome





(2) Does school location (i.e., rural vs. non-rural) affect the probability that youth with mental health need will obtain mental health services over and above the influence of individual youth and family characteristics? Does school location (rural vs. non-rural) moderate the relationship between sexual minority status and mental health service use among youth with need?

### Research Methods

The data used for this study were from The National Longitudinal Study of Adolescent Health (Add Health), a school-based nationally representative probability survey. Wave 1 data included 20,745 adolescents in grades 7 – 12, who were selected with unequal probability from 132 schools. The Wave 1 in-home interview was conducted between April and December of 1995 and gathered data from assenting youth, with their caregiver's consent, using laptop computers. Wave 1 in-home interview data were collected from both youth and parent self-report questionnaires. To ensure data quality, accuracy, and privacy, sections of the youth questionnaire containing sensitive topics (e.g., alcohol and drug use, violence and fighting, sexual activity, and mental health) were administered to youth via headphones using audio computer-assisted self interview (ACASI) technology. Add Health parent questionnaire data are linked by household identifier to youth in-home questionnaire data so that caregiver and youth responses can be matched by household. Prior approval to conduct the secondary data analysis of the Add Health data for this dissertation was obtained from the University of North Carolina at Chapel Hill Behavioral Institutional Review Board and the Carolina Population Center, where the Add Health data are housed.

## National Longitudinal Study of Adolescent Health Study Design

The Add Health study is based on a complex sampling design that stratified schools by size, type, region, location, and by proportion of White students. Add Health used a nested data structure (i.e., students nested within schools), which creates a clustering effect with the data (i.e., students who attend the same school are likely to share more similar characteristics than students who attend different schools). The nested sampling design thus violates the ordinary least squares (OLS) regression assumption that observations are independent of one another. To account for the nested data structure in the Add Health study, different weight variables were included in the analyses. For the Wave 1 data, these weight variables include stratum (i.e., region of country), cluster or primary sampling unit (i.e., school), and a grand sample weight (for each youth participant). The weight variables corrected for the non-independent nature of the data, ensuring that standard errors for the regression coefficients were accurate. Wave 1 data included 1,821 youth that were not part of the weighted sample. These 1,821 observations were not included in the analyses and only the weighted sample was used for the analyses.

### Sample

The study consisted of a subsample of youth from Wave 1 of the Add Health in-home survey who reported having a mental health need ( $n = 8,034$ ). Mental health need was determined by assessing youth responses to questions related to symptoms of depression and anxiety, suicidality, and physical or sexual victimization. If youth answered yes to one of the victimization or suicidality questions or met the cutoff threshold for significant anxiety or depression on the respective assessment scales, they

were considered to have a need for mental health care and were included in the sample. The following mental health indicators from the data set were used to determine youth who had mental health need:

Depression was measured by the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). The Add Health questionnaire contained 19 of the 20 original CES-D scale items. Each item in the scale had response values ranging from 0 to 3 (0 = rarely or none of the time, 1 = some of the time, 2 = a lot of the time, and 3 = most or all of the time). Response values were summed for all of the 19 items (positively worded items were reversed scored) to create a composite score ranging from 0 to 57. Researchers suggest that scores of 24 in females and scores of 22 in males are indicators of clinical depression in adolescents (Garrison, Addy, Jackson, McKeown, & Waller, 1991; Roberts, Lewinsohn, & Seeley, 1991). Based on the CES-D scale, a dichotomous depression variable was created using a cutoff score of 20 or higher to indicate youth who were in need of depression screening/services.

Similarly, anxiety was assessed by a scale comprised of six Add Health items asking youth to indicate the frequency (0 = never 1 = just a few times, 2 = about once a week, 3 = almost every day, 4 = everyday) of anxiety symptoms over the past year. Anxiety symptoms included “poor appetite,” “difficultly falling asleep or staying asleep,” “trouble relaxing,” “moodiness,” “frequent crying,” and “fearfulness.” Response values were summed for all six items and a composite score ranging from 0 to 24 was created. A dichotomous variable with a cutoff score of 18 or higher was used to indicate youth in the top quartile (25%) for anxiety symptoms in the past year.

Suicidality of youth was measured by a dichotomous variable based on two separate dichotomous items: 1) “In the past 12 months, did you ever seriously think about committing suicide?” and 2) “In the past 12 months, how many times did you actually attempt suicide?” Youth who reported they had seriously considered suicide or attempted suicide at least once in the past year, were determined to have a need for mental health screening/services.

History of victimization of youth was also measured by a dichotomous index variable derived from a series of six dichotomous items asking youth to indicate (yes or no) if any of the following had occurred in the past year: 1) “You were jumped;” 2) “someone pulled a knife or gun on you;” 3) “someone cut or stabbed you;” 4) “someone shot you;” 5) “you saw someone shoot or stab another person;” or 6) “someone physically forced you to have sexual intercourse against your will.” The last item in the index concerning sexual victimization was directed to female respondents only in the Add Health survey. If a youth answered yes to any one of the items in the index they were considered to have a recent history of victimization, which warranted a need for mental health screening/services.

The sample of youth with mental health need consisted of 766 (10.3%) sexual minority youth (SMY) and 7,196 (89.7%) non-sexual minority youth (NSMY) Table 4.1 provides a description of demographic characteristics of these SMY and NSMY by sex/gender, age, and racial-ethnic group.

### Measures

Measures for the third dissertation study included youths’ sexual minority status, age, sex, race/ethnicity, health insurance status, parent connectedness, parent education,

Table 4.1

## Demographic Characteristics of Youth with Mental Health Need Sample (n = 8,034)

	SMY 766 (10.3)	NSMY 7,196 (89.7)
Variable	n (%)	n (%)
Sex		
Male	367 (51.0)	3,645 (52.1)
Female	399 (49.0)	3,551 (47.9)
Age		
11-14	141 (25.6)	1,605 (28.8)
15-17	468 (54.1)	4,256 (53.6)
18-21	157 (20.3)	1,335 (17.6)
Race		
White/non-Hispanic	364 (60.0)	3,309 (60.5)
Black/non-Hispanic	176 (19.3)	1,771 (19.9)
Asian/non-Hispanic	48 (2.9)	508 (3.4)
Native American/Other	11 (1.0)	125 (1.5)
Hispanic	166 (16.7)	1,466 (14.4)

family income, parent disability status, and youth mental health service use. In addition, the following two school characteristic measures were included as part of the bi-level analyses: 1) School-based mental health services; and 2) school location (rural vs. non-rural). All measures used for this study are described below.

*Sexual minority status* was measured by a dichotomous variable and is based on a series of questions to youth from the in-home questionnaire about their romantic attractions and relationships, and non-relationship sexual partners. First, youth were asked if they had ever been romantically attracted to a male or to a female. Affirmative responses were then combined with the item measuring self-reported biological sex to determine those youth who reported ever having a same-sex romantic attraction. In addition, youth were asked if they were involved in a romantic relationship in the past 18 months and were asked to list characteristics (including their partner's sex) of up to three romantic relationships. Similarly, these responses were combined with the youth's self-reported biological sex to determine those youth who reported having a same-sex romantic relationship. Finally, youth were asked if they had any non-relationship sexual partners (not including the people listed as romantic partners) in the past 18 months and were asked to list characteristics (including the partner's sex) of up to three non-relationship sexual partners. Again, these responses were combined with the youth's self-reported biological sex so that youth who reported having a same-sex sexual partner were included in the sample of sexual minority youth. Thus, the total sample of sexual minority youth includes youth who reported ever having a same-sex romantic attraction and youth who reported having at least one same-sex romantic or same-sex sexual partner in the past 18 months. Sexual minority youth were coded as 1 whereas non-sexual minority youth were coded as 0. Add Health participants were not asked to self-label or self-identify their sexual orientation; therefore, there is no indication of sexual orientation identity included as part of this measure.

*Age* of the youth was measured by a quasi-continuous variable ranging from age 11 to 21 and was based on the nearest whole year of the respondent's self-reported age at the time the in-home questionnaire was completed.

*Biological sex* of the youth was measured by a dichotomous variable (male = 0, female = 1) and was based on the respondent's self-reported biological sex at the time the in-home questionnaire was completed.

*Race/ethnicity* of the youth was measured by a categorical variable based on a composite of two variables. The first variable was a dichotomous (yes/no) question asking youth if they were of Hispanic or Latino origin (which included Mexican/Mexican American, Chicano/Chicana, Cuban/Cuban American, Puerto Rican, Central/South American, or Other Hispanic). The second variable was based on an item that asked youth to indicate their race (or races) as White, Black/African American, American Indian/Native American, Asian/Pacific Islander, or Other. The composite race variable combines the two variables into a five category race variable that was coded as Non-Hispanic White = 1, Non-Hispanic Black = 2, Non-Hispanic Asian = 3, Non-Hispanic Native American/Other = 4, and Hispanic = 5.

*Youth health insurance status* was determined based on a series of dichotomous (yes/no) questions that asked parents to indicate what type of health insurance coverage, if any, their child had (e.g., Medicaid, individual or group private coverage, a prepaid health plan such as an HMO or CHAMPUS, or none). These insurance type items were collapsed into a single dichotomous variable to indicate whether the youth had health insurance coverage (coded as 1) or did not have health insurance coverage (coded as 0).

*Parent connectedness* was created from previously validated parent connectedness scale (Ford et al., 2005; Ream & Savin-Williams, 2005). The scale contained the following 5-point Likert scale items: 1) How close do you feel to your mom/dad; 2) How much do you think he/she cares about you; 3) Most of the time your mother/father is warm and loving toward you; 4) You are satisfied with the way your mother and you communicate with each other; and 5) Overall, you are satisfied with your relationship with your mother/father. The parent connectedness score was created by calculating the mean of either the mother or father connectedness scale score or the mean of both the mother and father scale scores combined. By constructing the scale in this way, youth who had only one parent (either a mother or father) were included in the sample for the analyses. An alpha coefficient of 0.87 indicated good scale reliability. Mean scale scores ranged from 1 to 5 with a score of one indicating the lowest level of parent connectedness and a score of five indicating the highest level of parent connectedness.

*Parent education* was measured by a dichotomous variable derived from the Youth Questionnaire that asked youth to indicate how far their mother and/or father went in school. Youth respondents chose from nine categories ranging from “8<sup>th</sup> grade education or less” to “professional training beyond a 4-year college or university.” The parent education measure was created by taking the highest education level of either parent (if more than one) so that a score of 1 indicates lowest parent education level and a score of nine indicates highest parent education level. The variable was then collapsed into a dichotomous variable to indicate parents’ with at least some college education



(coded as 1) and parents' who reported they had less than or equivalent to a high school education (coded as 0).

*Family income* was measured by a single dichotomous variable derived from the Youth Questionnaire which asks youth to indicate (yes or not) whether their mother or their father receives public assistance (i.e., welfare). Youth who indicated that their mother or their father received public assistance were considered to be living in a low-income household (coded as 1) versus youth who indicated no parent disability (coded as 0).

*Parent disability status* was measured by two single dichotomous variables from the youth questionnaire that asked youth respondents to indicate (yes/no) if their mother or father was physically or mentally disabled. If youth indicated that either parent was disabled, they were coded as 1 for having a disabled parent and were coded as 0 if they indicated they did not have a disabled parent.

*Mental health service use* was measured by a dichotomous variable that asks youth respondents if they obtained mental health services (i.e., psychological or emotional counseling) in the past year. Youth who reported they had obtained mental health services were coded as 1 and youth who reported they had not obtained services were coded as 0.

Availability of *school-based mental health services* was measured by a dichotomous (yes/no) item from the School Administrator Questionnaire (Wave 1) that asked school administrators to indicate whether their school provided "emotional counseling" for students on school premises or if such services were provided by the district at another school, referred to other providers, or neither provided or referred. If

administrators indicated that mental health services were available on school premises the response was coded as 1. All other responses were coded as 0. Approximately 62% (n = 4, 952) of youth with mental health need attended schools that provided on-site mental health services for students.

*School location* was also derived from the Add Health School Administrator Questionnaire (Wave 1) and was based on population characteristics of the surrounding area of each school. The variable was created by the Quality Education Data (QED) from the National Center for Education Statistics (NCES) database. For this measure, schools were coded 0 (non-rural) if they were located within a central city of a Consolidated Metropolitan Statistical Area (CMSA) or Metropolitan Statistical Area (MSA) with a population of 250,000, if they were located within a CMSA or MSA but not designated as a large central city or if they are located within a CMSA or MSA of a large or mid-size central city, or if they were located within a population of at least 2,500 but less than 25,000. Schools were coded as 1 (rural) if they were located in areas designated as rural, regardless of whether they are located within a CMSA or MSA. Approximately 16% (n = 1, 246) of youth who had mental health need attended schools designated to be in a rural location.

### Data Analysis

To examine the impact of two different school characteristics (school-based mental health services and school location), over and above youth and family characteristics, on youth mental health service use, a series of four bi-level hierarchical logistic regression models were conducted and results from the analyses are presented in Table 4.2. Mplus 5.0 was selected as the data analysis software for this study because of

its capacity to analyze multilevel, complex (i.e., weighted) survey data using the FIML method to handle missing data.

The first model (Model A), included all youth and family variables of interest on level 1 as well as one school characteristic variable on level 2: Availability of school-based mental health services. The second model (Interaction Model A) included all youth and family variables on level 1, availability of school-based mental health services on level 2, and a SMS x school-based mental health services interaction term. The third model (Model B) included all youth and family variables of interest on level 1 and the other school characteristic variable on level 2: School location (rural/non-rural) on level 2. Lastly, the fourth model (Interaction Model B) included all youth and family variables on level 1, school location on level 2, and a SMS x school location interaction term. A hierarchical approach to model testing was chosen because the youth, family, and school characteristic variables selected for testing were based on a priori hypotheses/research questions and thus they did not need to be pre-tested to determine their suitability (e.g., stepwise regression approach). In addition, statisticians no longer recommend step-wise model testing for most types of regression analyses (W. B. Ware, personal communication, June 1, 2009). Moreover, stepwise regression is specifically not recommended for cluster-sampled data (such as Add Health) because the effective degrees of freedom are bound by the number of clusters (i.e., schools) as opposed to the number of cases (Sribney, 2005), which leads to biased regression coefficients.

Because the school location variable in Model B was non-significant and the cross-level interaction tests in Interaction Model A and Interaction Model B were also non-significant, these models were discarded and it was determined that the first model

(Model A) would be the final analysis model. Results from this model (Model A) are presented in Table 4.2 (significant predictors are in bold print) and described in the following sections.

## Results

### Youth and Family Characteristics

As shown in Table 4.2 (Model A), the following youth and family characteristic variables were significant predictors of mental health service use among youth with a mental health need: Sexual minority status, Black race, Asian race, Hispanic race, parent connectedness, parent education, and family income. With regard to sexual minority status, SMY with a mental health need had odds of using mental health services that were 82% higher than NSMY with a mental health need (OR = 1.82,  $p < .001$ ).

Other youth characteristic variables that significantly predicted the odds that youth with a mental health need would obtain mental health services included three of the four racial/ethnic minority groups: 1) Black youth with need; 2) Asian youth with need; and 3) Hispanic youth with need. Compared to White youth with need, Black youth with need had 55% lower odds of obtaining mental health services (OR = 0.45,  $p < .001$ ). Similarly, compared to White youth with need, Asian youth with need had 53% lower odds and Hispanic youth with need had 31% lower odds of obtaining mental health services (OR = 0.47,  $p < .001$ ; OR = 0.69,  $p < .001$ , respectively).

With regard to the family context variables, parent connectedness, parent education, and family income all significantly predicted the odds that youth with a mental health need would obtain mental health services. Youth with a mental health need who reported higher levels of parent connectedness had a lower probability of using mental

Table 4.2

Four Bi-Level Logistic Regression Models Predicting Mental Health Service Use Among Youth with Mental Health Need (n = 8,034)

<b>1. Model A (all Level 1 variables and School Mental Health Services)</b>					
Variables	$\beta$	SE	95% CI for $\beta$	Odds ratio	
Level 1					
<b>Sexual Minority Status</b>	0.60***	0.14	0.32, 0.88	1.82	
Age	-0.05	0.02	-0.09, 0.00	0.96	
Sex	0.24	0.13	0.00, 0.49	1.27	
<b>Black Non-Hispanic</b>	-0.81***	0.11	-1.03, -0.59	0.45	
<b>Asian Non-Hispanic</b>	-0.76***	0.16	-1.06, -0.46	0.47	
Native American/Other	-0.54	0.30	-1.13, 0.06	0.58	
<b>Hispanic</b>	-0.38***	0.11	-0.58, -0.17	0.69	
Youth Health Insurance	0.29	0.15	-0.01, 0.59	1.33	
<b>Parent Connectedness</b>	-0.41***	0.06	-0.54, -0.29	0.66	
<b>Parent Education</b>	0.45**	0.13	0.19, 0.71	1.57	
<b>Family Income/Public Assistance</b>	0.45***	0.12	0.20, 0.69	1.56	
Parent Disability	-0.01	0.14	-0.27, 0.27	1.00	
Level 2					
<b>School Mental Health Services</b>	0.34***	0.09	0.15, 0.52	1.40	
<b>2. Interaction Model A (Model A and cross-level interaction)</b>					
SMS x School Mental Health Services	-0.02	0.19	-0.38, 0.35	0.98	
<b>3. Model B (all Level 1 variables and School Location)</b>					
Level 2					
School Location (rural/non-rural)	- 0.16	0.13	-0.41, 0.10	0.86	
<b>4. Interaction Model B (Model B and cross-level interaction)</b>					
SMS x School Location	0.33	0.26	-0.18, 0.84	1.39	

\*\*p < .01. \*\*\*p < .001. SMS = sexual minority status. SL = school location.

health services. Specifically, for every one-unit increase on the parent connectedness scale/measure, the odds that a youth would use mental health services decreased by 34% (OR = 0.66,  $p < .001$ ). Youth with mental health need who had higher-educated parents (i.e., at least some college education or higher), had significantly higher odds (57% higher) of obtaining mental health services compared to youth with a mental health whose highest educated parent had only received a high school education or less (OR = 1.57,  $p < .01$ ). Finally, youth from low-income families (i.e., families receiving income-based public assistance) had significantly higher odds (56% higher) of using mental health services compared to youth from higher-income families (OR = 1.56,  $p < .001$ ).

#### School Characteristics

Two school characteristic variables (i.e., school-based mental health services and school location) were analyzed in separate models (Models A and B, respectively) to determine their unique effect (over and above individual youth and family characteristics) on mental health service use among youth with mental health need. As shown in Table 4.2 (Model A), the availability of school-based mental health services was significant in predicting the odds that youth with mental health need would obtain mental health services (over and above individual youth and family characteristics). Thus, when controlling for all variables in Model A, youth with mental health need who attended schools that offered mental health services had 40% higher odds of obtaining mental health care compared to youth with need who did not attend schools that provided mental health services (OR = 1.40,  $p < .001$ ). However, as shown in Model B, school location (rural vs. non-rural) had no significant effect on mental health service use among youth with a mental health need (over and above individual youth and family characteristics).

### Cross-Level Interaction Effects on Youth Mental Health Service Use

The two cross-level interactions tested in Interaction Model A (SMS x school-based mental health services) and Interaction Model B (SMS x school location) were both non-significant and therefore not included in the final model (Model A). Thus, neither school-based mental health services nor school location were found to moderate the relationship between sexual minority status and mental health service use among youth with mental health need. Thus, with regard to the research questions, the availability school-based services or school location had no effect on the odds that SMY with mental health need would obtain mental health services (over and above individual and family characteristics).

### Discussion

Findings from the third dissertation study provide evidence that youth with mental health needs have greater access to mental health services when mental health screening/counseling is made available at their school. Because schools are commonly a gateway to mental health services for youth, it was hypothesized that the availability of school-based mental health services would significantly increase the odds that youth with mental health need would access mental health services. Indeed, this study found that among youth with mental health need, those who attended schools providing mental health services had 40% higher odds of accessing mental health services (in any setting) compared to youth attending schools that did not offer mental health services. This finding suggests that youth in schools that provide mental health services benefit in terms of access by receiving either on-site mental health screening and counseling services or referrals to outside mental health service providers.

With regard to SMY, this study found that SMY with mental health need had 82% higher odds of accessing mental health services compared to NSMY with mental health need, a finding consistent with a prior Add Health study, which found that SMY use significantly more mental health services than NSMY (McGuire & Russell, 2007). However, as previously reported, no significant cross-level interaction was found between sexual minority status (SMS) and availability of school-based mental health services.

Findings from the first dissertation study (see study 1) led to the hypothesis that the availability of school-based mental health services would decrease the odds that SMY with a mental health need would obtain mental health services. Using the overall youth sample ( $n = 18,924$ ), the first dissertation study found that SMY had significantly lower odds of accessing mental health services at school compared to their NSMY peers ( $\chi^2 = 5.26, p < .05$ ), which suggested that SMY generally underutilized school-based mental health services. However, in the current study using a sample of youth with mental health need ( $n = 8,034$ ), the availability school-based mental health services had no significant effect for SMY with regard to accessing needed mental health services. Thus, the finding from the current study suggests that school-based mental health services are an important gateway to mental healthcare for all youth regardless of sexual minority status.

It was also hypothesized that SMY who attended schools located in rural areas would have greater difficulty accessing needed mental health services than their NSMY peers because communities set in rural locations generally have fewer resources with regard to education/training and support services for sexual minorities (D'Augelli & Hart,



1987; McCarthy, 2000; Poon & Saewyc, 2009). Therefore, the lack of educational and support services would likely deter SMY in rural schools from seeking help at school and also decrease their access to mental health services in general. This hypothesis however, was not supported by the findings of this study. Indeed, results from the cross-level interaction test (Table 4.2, Interaction Model B) found that school location (rural/non-rural) had no significant effect on the relationship between sexual minority status and mental health service use. Thus, this finding also suggests that school location affects access to mental health services for all youth in the same way, regardless of sexual minority status.

### Limitations

Although results from this study are based on a nationally representative sample, there are several important limitations that must be noted. First and foremost, although significant associations between specific school, youth, and family characteristics and youth mental health service use have been established, causality cannot be determined due to the cross-sectional design of this study (i.e., Wave 1 data only).

Second, the measure for whether a school provides mental health services was based on a single indicator variable that asked school administrators to report whether the school provided “emotional counseling” for students. Based on this variable/measure, over half of the students in the sample (61.6%) attended schools that provided mental health services for students. Thus, an affirmative response to this question may represent a wide range of potential services, from crisis intervention services to the provision of intensive evidence-based mental health treatment. With greater specificity, we could learn more about the impact of school-based services. Nevertheless, at minimum, the

availability of school-based mental health services would provide a screening and referral mechanism for at-risk students. Further, the outcome measure (mental health service use) included all mental health care settings (not just school), so it captured youth who may have been referred by school-providers to non school-based mental health services.

And third, the measure for sexual minority status used in this study did not include one important dimension of sexual orientation: self-identity. Thus, youth sexual minority status did not contain youths' self-reported sexual orientation. Sexuality researchers have conceptualized sexual orientation as having three dimensions: Desire, behavior, and identity (Laumann, Gagnon, Michael, & Michaels, 1994). Youth who participated in the Add Health study were not asked to identify or self-label their sexual orientation. Therefore, the third component (identity) was not a component of the sexual minority status measure.

Nevertheless, two of the three dimensions of sexual orientation conceptualized by Laumann and colleagues (1994) were included as part of this measure: Desire (i.e., attraction) and behavior (i.e., romantic relationships and non-romantic sexual partners). Youth in the Add Health study were asked if they had ever had a romantic attraction to a male or female and responses were matched with respondents' self-reported biological sex. Similarly, participants were asked to list characteristics (included the sex) of up to three romantic relationship partners and up to three non-romantic sexual partners in the previous 18 months. Again, responses were matched with respondents' self-reported biological sex to determine youth who reported same-sex attractions, romantic relationships, and/or same-sex sexual partners (i.e., sexual minority youth). The term sexual minority thus takes into consideration that youth were not asked to self-label their

sexual orientation and also that adolescence is a time when sexual identities are being formed so youth may be less likely to self-label their sexual orientation, particularly in early/middle adolescence.

### Implications

Despite these limitations, these findings have important practice and policy implications for school-based providers and school administrators. First, the main finding of this multi-level analysis was that youth who attended schools providing mental health services had 40% higher odds of accessing needed mental health services compared to youth who attended schools that did not provide mental health services. This finding implies that school-based mental health services play a key role in facilitating youths' access to needed mental health services. Schools are a venue where youth can access counseling without the need for health insurance or the facilitation of a parent. Thus, this finding argues for the need to provide school-based mental health services in all schools to increase access to mental health care and mental health screening for youth in need who otherwise might not access care.

In addition, this study found that the availability of school-based mental health services did not affect the odds that SMY with a mental health need would obtain mental health services. However, study 1 of this dissertation found that SMY used school-based services significantly less than their peers while at the same time using significantly more mental health services overall, which suggested that SMY tend to access mental health services in non-school settings. Thus, taken together with results from the first study, the current study's findings suggest that schools should consider their important role as safe-

guarders of youths' mental health and make efforts to educate all staff on the needs of SMY as well as other diverse populations.

Thus, interventions targeting educators, school-based mental health providers, and school administrators are needed that can help bring about changes in policies, programs, and services that will improve access to school-based mental health services for SMY. Recently, for example, the State of North Carolina House of Representatives recently passed The School Violence Prevention Act, a law that will prohibit the harassment and victimization of all youth, including SMY, in the public schools. An overarching policy change such as this can both raise awareness among school personnel and provide protection for at-risk youth, and possibly foster greater access to school-based mental health services for SMY.

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## CHAPTER V

### CONCLUSIONS

#### Summary of Findings

This dissertation study contributes important new knowledge on the health and well-being, help-seeking, and service use patterns of the understudied and underserved population of sexual minority youth (SMY). Using a nationally representative probability sample of youth and their caregivers, this study has provided answers to important questions in the following areas: 1) Health and mental health needs of SMY; 2) Patterns of health and mental health service use among SMY; 3) Associations between sexual minority status, parent connectedness, sex/gender, race/ethnicity and unmet health and mental health; and 4) The impact of school characteristics, over and above individual and family characteristics, on access to mental health services among youth with mental health need.

The following sections provide a brief summary of the key findings of this dissertation project concerning health, well-being, and help-seeking and service use patterns of SMY. These key findings areas include: 1) Prevalence of Health and Mental Health Need Among SMY; 2) Prevalence of STDs Among Male and Female SMY; 3) Foregone Healthcare and Barriers to Healthcare; 4) Service Use Settings; 5) Unmet Health and Mental Health Need; 6) Parent Connectedness; and 7) School-Based Mental Health Services.

## Health and Mental Health Needs of Sexual Minority Youth

### *Prevalence of Health and Mental Health Need among SMY*

Compared to their NSMY peers, SMY reported significantly higher prevalence rates on all health risk/health need and mental health need indicators with the exception of pregnancy rates, which were slightly (but not significantly) higher among SMY. SMY reported a significantly higher proportion of sexual activity (i.e., sexual intercourse) than NSMY (52.3% vs. 36.1%) and also reported significantly higher proportions of perceived risk for HIV/AIDS (9.2% vs. 4.9%) and history of being diagnosed with an STD (8.1% vs. 4.4%). With regard to mental health, SMY reported significantly higher prevalence rates of anxiety (10.4 vs. 4.6%), depression (19.8% vs. 11.9%), suicide ideation (22.2% vs. 12.5%), one or more suicide attempts (40.8% vs. 28.4%), and physical/sexual victimization (37.1% vs. 26.2%). The proportion of unmet mental health need (relative to reported mental health service use) was also significantly higher for SMY compared to NSMY (51.2% vs. 36.7%). Female SMY reported the highest proportion of mental health need and unmet need, which suggests that female SMY are at especially high-risk for mental health challenges, particularly suicide attempts. The prevalence rate for reported suicide attempts among female SMY was an astonishing (46.1%).

### *Prevalence of STDs among Male and Female SMY*

Male SMY reported significantly higher prevalence rates of Chlamydia (4.4% vs. 2.0%), Syphilis (2.4% vs. 0.3%), HIV/AIDS (2.3% vs. 0.2%), Gonorrhea (2.1% vs. 0.7%), Genital Herpes (1.7% vs. 0.2%), and Hepatitis B (1.1% vs. 0.2%) compared to male NSMY. Female SMY reported significantly higher prevalence rates of Chlamydia (8.1% vs. 4.4%) and Hepatitis B (1.1% vs. 0.2%) compared to female NSMY and



roughly equivalent prevalence rates of Gonorrhea (1.3% vs. 1.5%), Genital Herpes (0.7% vs. 0.4%), Syphilis (0.6% vs. 0.4%), and HIV/AIDS (0.1% vs. <0.1%). The highest proportion of any STD (Chlamydia) was found among females SMY (8.1%) as well as male SMY (4.4%). These findings suggest that SMY have an unmet need for education about the transmission of various STDs and how they can protect themselves and others.

### Patterns of Health and Mental Health Service Use

#### *Foregone Healthcare and Barriers to Healthcare*

This dissertation study also examined foregone healthcare among SMY and found a significantly higher proportion of SMY reported they had skipped needed medical care in the past year compared to NSMY (25.1% vs. 17.9%). In addition, SMY reported statistically higher proportions (than NSMY) on two barriers to healthcare: 1) did not want parents to know (10.1% vs. 7.1%); and 2) afraid of what the doctor would say or do (20.5% vs. 15.0%), which suggests that SMY have concerns about patient-provider confidentiality and parent reactions that may interfere with access to healthcare.

#### *Service Use Settings*

With regard to mental health service use setting, a significantly higher proportion of SMY (than NSMY) reported they obtained mental health services at a private doctor's office (49.0% vs. 34.7%) and conversely, a significantly lower proportion of SMY (than NSMY) reported they accessed mental health services at their school (23.1% vs. 33.7%). These findings suggest that SMY may prefer to access mental health services in settings where they may be more assured of privacy and confidentiality, such as a private doctor's office versus a school setting where they may be seen by their peers.

## Parent Connectedness and Unmet Health and Mental Health Need

### *Parent Connectedness*

This dissertation study also examined overall levels of parent connectedness among SMY and NSMY and found that SMY reported a significantly lower mean parent connectedness score compared to NSMY. However, overall scores for both SMY and NSMY were similarly high and there was no effect size between groups, which suggested this finding had little practical or “real world” significance.

In the overall youth sample, findings from this dissertation study suggested that higher levels of parent connectedness decreased the odds that youth would have an unmet health or unmet mental health need. In addition, higher levels of parent connectedness decreased the odds that youth with mental health need would access mental health services. The latter finding suggests that higher levels of parent connectedness may reduce youths’ use of professional mental health services by providing a source of informal support (i.e., parental support) for youth with mental health need. Thus, while higher levels of parent connectedness significantly decreased the odds that youth (overall) would have an unmet health or mental health need, parent connectedness made no difference in the odds that SMY would have an unmet health or mental health need. This finding suggests that the measure of parent connectedness used in this dissertation study may function in the same way for both SMY and NSMY.

### *Unmet Health and Mental Health Need*

Sexual minority status was significantly associated with both unmet health and unmet mental health need in the logistic regression analyses models. Specifically, SMY had 31% higher odds of having an unmet health need and 48% higher odds of having an

unmet mental health need when controlling for all other individual and family characteristic variables in the models. Parent connectedness was significantly associated with both unmet health and unmet mental health need in the overall youth sample. That is, higher levels of parent connectedness decreased the odds that youth (overall) would have an unmet health or mental health need. A particularly unexpected finding was that the interaction between SMS and Native American race was significant in both the unmet health and unmet mental health need models, suggesting that Native American SMY (i.e., two-spirit youth) have fewer barriers to accessing healthcare relative to White SMY and Native American NSMY. Similarly, Native American SMY had a significantly lower proportion of unmet mental health need compared to White SMY and Native American NSMY. Further, preliminary analyses suggested that Native American SMY had overall less mental health need than any other SMY racial group, a finding that is difficult to interpret without further investigation into additional characteristics of this particular subgroup of Native American SMY in the Add Health study that only totaled 33 youth.

### School Characteristics and Mental Health Service Use

#### *School-Based Mental Health Services*

Similarly, this dissertation study found that for youth with mental health need, the availability of school-based mental health services significantly increased the odds (by 40%) that youth in those schools would access needed mental health services. This finding suggests that school-based mental health services play a key role in meeting the mental health needs of youth by providing screening, referral, and counseling services.

## Implications

The findings from this dissertation study suggest several areas where interventions could be developed to improve access to health and mental health services for sexual minority youth. These intervention areas include parents/families, health and mental health service providers, and school-based service providers and administrators. Overall, there is a vital need to provide education and training to parents and service providers about the needs and risks of this marginalized and often stigmatized population.

### Interventions Promoting Help-Seeking and Access to Services Among SMY

There are multiple places where interventions might be developed to prevent health and mental health problems and promote help-seeking among sexual minority youth in need. To date, there have been only a handful of interventions targeting sexual minority adolescents and these have focused primarily on the prevention of sexual risk behaviors and HIV (Blake et al., 2001; Kegeles, Hays, & Coates, 1996; Remafedi, 1994a; Rotheram-Borus, Reid, & Rosario, 1994; Rotheram-Borus, Rosario, Reid, & Koopman, 1995). One such study, a school-based intervention, found that gay-sensitive HIV-prevention education was effective in reducing high-risk sexual behavior, number of sexual partners, and substance use among sexual minority adolescents (Blake et al., 2001). Because sexual minority youth are at risk for a range of health and mental health concerns, the development of interventions targeting a variety of systems (e.g., service providers, families, and youth) is needed.

### Interventions Targeting Service Providers

Existing educational, health, mental health, and family service providers have for the most part been poorly equipped to deal with the multi-faceted needs of sexual

minority youth and there has been little, if any, training and information disseminated about the risks and needs of this population (Ryan, 2003). Sexual minority youth living in higher-populated and urban areas generally have greater access to community support and advocacy organizations, as well as Gay Straight Alliance (GSA) organizations in high schools (Ryan, 2003).

In addition to discussing risks for HIV, violence, and suicide, health care providers also should view sexual minority youth in the broader context of general adolescent development (Garofalo & Katz, 2001). They could design their waiting rooms and offices to be welcoming to sexual minority youth and their families by displaying posters and pamphlets that are not exclusive to heterosexual populations, and should make available information about community and national resources for GLBT youth (Garofalo & Katz, 2001). Health care professionals should participate in community advocacy, create safe and supportive service environments, provide comprehensive health care, and provide medical education of GLBT issues for practitioners (Perrin, 2002).

#### Interventions Targeting Families and Youth

The finding demonstrating the importance of parent connectedness for all youth reminds us of the importance of promoting close parent child bonds during adolescence through a variety of means. For youth who may eventually identify as GLBT, interventions such as school support groups for GLBTQ youth, school-based health/sexuality education programs for GLBTQ have been shown to reduce sexual risk behaviors and mental health challenges (i.e., suicidality) among SMY (Blake et al., 2001; Goodenow, Szalacha, & Westheimer, 2006).

In addition, there is a need for a range of family-centered interventions to assist families with the process of coming to accept and understand their child's non-heterosexual identity (Wilber et al., 2006). These interventions should consist of preventive, educational, and intensive home-based services. The Family Acceptance Project is currently developing evidence-based family education materials that would be displayed prominently and made available at variety of community health, mental health, school, and social service agencies (Wilbur et al., 2006). Prevention services would provide information and support to youth and families seeking to learn more about sexual orientation and gender identity. Findings from the Family Acceptance Project suggest that intervening early with the family can help families come to terms with their child's sexual orientation and understand the effect of their behavior and reactions to their child and prevent some youth from being expelled from their homes. These services may also prevent the need for more formal and intensive interventions (Wilbur, Ryan, & Marksamer, 2006).

Intensive home-based interventions should be developed to address the immediate crisis brought about by the family's learning of a child's sexual orientation (Wilbur et al., 2006). Such interventions would assist youth and their families with problem-solving to cope with stigma (e.g., deciding how they will relate with extended family members, and how or when to disclose to others) (Harrison, 2003). As mentioned previously, families are also vulnerable to the effects of negative societal views about homosexuality and need supportive interventions that will help them understand their feelings and come to terms with the loss of having a "normal" family (Crosbie-Burnett, Foster, Murray, & Bowen, 1996; D'Augelli, 2005; Savin-Williams, 2001).

Increasingly, sexual minority youth and their families can access accurate information about sexual orientation, coming out, health and mental health, and community resources via the internet (Harrison, 2003). Examples of web-based resources include The Sexuality Information and Education Council of the United States, Gay, Lesbian, Straight Educators Network (GLSEN), The Human Rights Campaign, Gay and Lesbian Medical Association, Association of Gay and Lesbian Psychologists, and Parents, Families and Friends of Lesbians and Gays (PFLAG). Many of these resources can direct youth and families to local support groups such PFLAG, gay-affirming religious organizations, and health and mental health care providers if such resources are available in their community.

#### Future Research

Overall, this dissertation study informs us that SMY have significantly higher health and mental health needs as well as a largely unmet need for health and mental health services. Further, SMY may not be accessing health and mental health services due to barriers related to confidentiality (e.g., not wanting parents or peers at school to know). At the same time, SMY use significantly more mental health services than their peers, yet tend to access mental health services in settings where greater confidentiality can be assured, such as private doctor's offices.

With regard to the health and mental health needs and service use patterns of SMY, there are several areas where further research is needed. Future research should examine the prevalence of unmet health and unmet mental health need by age and sex/gender among SMY and NSMY. This would provide much needed information on the age and sex/gender composition of youth with regard to unmet health and mental

health need. Similarly, future research should further examine barriers to healthcare and service use settings to determine demographic trends with regard to age and sex.

In addition, qualitative research would be very useful to better understand the factors that motivate SMY to access mental health services at private doctor's office settings more frequently than other service settings (including school), as well as uncover some of the specific confidentiality concerns (i.e., barriers) with regard to healthcare access. Qualitative research could also help identify additional relational characteristics that might be used to create a multi-faceted measure of youth-parent connectedness specific to SMY (e.g., communication areas/stages of parent acceptance of youths' sexual minority identity formation).

Because Add Health is a longitudinal data set, future research could also examine the progression of sexual identity formation among SMY into young adulthood (Wave III) and determine how sexual minority identity formation relates to parent connectedness over time. Additional questions that could be addressed by longitudinal research concern whether mental health service use among SMY is effective in reducing subsequent need for services in young adulthood.

Given that the third dissertation study found that higher levels of parent connectedness significantly decreased the odds that youth would use mental health services, future research should involve conducting a path analysis to determine whether mental health need mediates the relationship between level of parent connectedness and unmet mental health need among SMY. In addition, interactions among parent/family context factors should be tested (e.g., youth-parent connectedness x parent education and youth-parent connectedness x family income) to explore the ways in which family



characteristics interact to influence attitudes and behaviors associated with help-seeking. Also, more information is needed to understand the findings related to Native American SMY. Information on geographic location, tribal affiliations, and specific data on Native American attitudes toward two-spirited individuals would provide context for these findings.

Finally, in the third dissertation study, the measure that defined availability of school-based mental health services was ambiguous (i.e., “does your school provide on-site emotional counseling?”). Therefore, future research could examine types of mental health services/programs provided at schools (e.g., evidence-based mental health practices, GLBT-specific interventions) to determine if those specific practices and interventions are useful in promoting access to school-based mental health services for SMY and NSMY.

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