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Examining Sexual Orientation Disparities in Unmet Medical Needs among Men and Women

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Abstract

Using the National Longitudinal Study of Adolescent Health (N = 13,810), this study examines disparities in unmet medical needs by sexual orientation identity during young adulthood. We use binary logistic regression and expand Andersen's health care utilization framework to identify factors that shape disparities in unmet medical needs by sexual orientation. We also investigate whether the well-established gender disparity in health-seeking behaviors among heterosexual persons holds for sexual minorities. The results show that sexual minority women are more likely to report unmet medical needs than heterosexual women, but no differences are found between sexual minority and heterosexual men. Moreover, we find a reversal in the gender disparity between heterosexual and sexual minority populations: heterosexual women are less likely to report unmet medical needs than heterosexual men, whereas sexual minority women are more likely to report unmet medical needs compared to sexual minority men. Finally, this work advances Andersen's model by articulating the importance of including social psychological factors for reducing disparities in unmet medical needs by sexual orientation for women.

Keywords

Sexual Orientation; Gender; Health Care Use; Unmet Medical Needs

INTRODUCTION

Seeking out health care in times of illness is an essential aspect of health maintenance. The health commodity hypothesis posits that access to and utilization of health services are important pathways shaping health disparities (Ross & Mirowsky, 2000). The prompt use of health care services in times of need is key for maintaining good physical and mental health (Ayanian et al. 2000; Starfield, Shi, & Macinko, 2005). Using health care services, however, is a highly gendered behavior; studies consistently show that women are more likely than men to use preventative services and seek care in times of need (Bertakis et al., 2000).

Unfortunately, the study of gender in health care use has been restricted to heterosexual populations.

A growing body of work has demonstrated that a variety of health behaviors and outcomes are stratified by sexual orientation (Austin et al., 2004; Cochran & Mays, 2007; Coker, Austin, & Schuster, 2010; Institute of Medicine, 2011), including lower levels of access to and utilization of health care (Buchmueller & Carpenter, 2010; Burgess et al., 2007; Tjepkema, 2008). The existing research, however, is divided on whether sexual orientation disparities in health care use are present among both men and women, or only among women (Ash & Badgett, 2006; Heck, Sell, & Gorin, 2006). No existing research makes direct comparisons within sexual minority identity groups (e.g., exclusively heterosexual, mostly heterosexual, bisexual, and gay) to determine if the effect of gender varies by sexual orientation identity. Using identity as a measure of sexual minority status is particularly important because a growing literature has demonstrated that health risk behaviors and outcomes vary by identity within the sexual minority population and because this measure includes sexual minorities regardless of relationship status.

This study directly addresses existing methodological and theoretical limitations in the literature by examining the relationship between sexual orientation identity and unmet medical needs during young adulthood using a nationally representative sample. We expand Andersen's health care utilization framework (Andersen, 1995; Andersen & Newman, 2005) to identify factors that shape disparities in unmet medical needs by sexual orientation. Moreover, we investigate whether the well-established gender disparity in health-seeking behaviors among heterosexual persons holds for sexual minorities. Given the highly gendered nature of health care use, it may be that gender differences in health care use do not hold across all sexual orientations. While we acknowledge that sexual orientation and gender identity do not map directly onto each other, research has shown that sexual minority men and women are more likely to exhibit a variety of gender atypical behaviors (Bailey, 2009; Cohen, 2002; Lippa, 2002; Rieger & Savin-Williams, 2011). Heterosexual women have repeatedly been shown to seek health care in times of need compared to men because of both an increased need for health care services and a greater likelihood of engaging in help-seeking behavior when care is needed, but research has not investigated differences in this relationship by sexual orientation.

Research on Health Care Utilization of Sexual Minorities

Sexual minorities are more likely than nonminorities to report delaying needed care (Ash & Badgett, 2006; Buchmueller & Carpenter, 2010; Burgess et al., 2007; Heck et al., 2006; McNair, Szalacha, & Hughes, 2011; Tjepkema, 2008; van Dam, Koh, & Dibble 2001). These disparities in health care use have largely been attributed to the substantial challenges sexual minorities face in accessing respectful environments in which they can have open and honest relationships with their health care providers (Allen et al., 1998; Solarz & Priorities, 1999; Stein & Bonuck, 2001). Several studies have shown that sexual minorities have concerns about revealing their sexual orientation to providers, hindering their ability to secure physician-patient trust and decreasing the likelihood that they will be given relevant health information (Allen et al., 1998; East & El Rayess, 1998; Ginsburg et al., 2002; Kitts,

2010; McNair, Hegarty, & Taft, 2012). Indeed, physicians often neglect to inquire about patients' sexual orientation, rendering sexual minorities and their health needs invisible and placing the burden of responsibility on sexual minority individuals to come out to their doctors. This is deeply problematic as sexual minorities, especially when young, report fearing their health care providers' reactions as a source of stress and a barrier to communication (Bjorkman & Malterud, 2009; Kitts, 2010; Neville & Henrickson, 2006). These fears are not unfounded, as discriminatory interactions related to sexual orientation are well documented in health care settings both interpersonally (Bernhard, 2001; Eliason & Schope, 2001) and institutionally (Ponce et al., 2010). These negative interactions may in part be explained by the lack of lesbian, gay, bisexual and transgender (LGBT) sensitive training for health care providers, which has been identified as a problem not only by patients, but also by health care providers and researchers (East & El Rayess, 1998; Makadon, 2006; Neville & Henrickson, 2006; Rondahl, 2009).

The existing research on sexual minority health care use suffers from sampling limitations that have limited researchers' ability to make population-wide inferences about sexual orientation disparities in health care use. To date, the literature is largely based upon qualitative data or convenience samples (Bjorkman & Malterud, 2009; Diamant, Schuster, & Lever, 2000; Ginsburg et al., 2002; van Dam et al., 2001), non-U.S. population-based samples (McNair et al., 2011; Tjepkema, 2008), or data that only allow researchers to examine sexual minority status by measuring whether individuals are in same-sex relationships (Ash & Badgett, 2006; Buchmueller & Carpenter, 2010; Heck et al., 2006). Using relationship status to identify the sexual minority population is particularly problematic as it excludes sexual minorities who are not in cohabiting same-sex relationships. This may be a particularly large segment of the young adult sexual minority population.

Moreover, a growing body of research demonstrates substantial variation in risk factors and risk behaviors *within* the sexual minority population by sexual orientation identity. In particular, studies show that bisexual and mostly heterosexual-identified persons have an elevated risk profile for several health risk behaviors and risk behavior determinants compared to both exclusively heterosexual and gay-identified individuals (Austin et al., 2008; Austin et al., 2004; Balsam & Mohr, 2007; Corliss et al., 2009; Eliason, 2000; Everett, 2013; Mojola & Everett, 2012). This elevated risk may in part be explained the limited number of mostly heterosexual or bisexual advocacy groups and well-established social networks that reaffirm a both-sex oriented identity (Balsam & Mohr, 2007; Elia, 2010; Hutchins, 1996;). Whether bisexual and mostly heterosexual-identified persons differentiate from other sexual orientation identities in their health care use is unclear, although some research suggests that bisexual women have lower levels of health care use compared to both heterosexual and lesbian women (Koh, 2000; Tjepkema, 2008). Only one study, sampling Australian women, has examined mostly heterosexual health care use. They found lower levels of care satisfaction and care continuity among mostly heterosexual compared to exclusively heterosexual women (McNair et al., 2011). To date, no study has examined unmet medical needs among mostly heterosexual U.S. men or women.

Gender and Health Care Use

Health care use is a highly gendered behavior, and studies have shown that women access health care more regularly and in times of need compared to men. These gender differences have been attributed to many factors, including differences in service needs due to women's higher levels of morbidity and their reproductive health needs, and gender differences in perceptions of illness and help-seeking behavior (Bertakis et al., 2000). Gender disparities in health care use, however, persist even after differences in sex differences in health care needs are accounted for (Courtenay, 2000; Williams, 2003). That is, the gender disparity in health care use is not a direct result of biological factors, but is in part due to social factors related to gender identity and performance. Hegemonic gender scripts dictating that men must be independent, strong, and not admit to experiencing pain have important implications for whether men use health care services (Courtenay, 2000; Springer & Mouzon, 2011).

Previous research on sexual orientation disparities in health care use has also demonstrated gender differences: sexual minority women are more likely than nonminority women to report unmet medical needs, but no differences between sexual minority and nonminority men have been found (Ash & Badgett, 2006; Heck et al., 2006). These studies focus on differences in health care use between sexual minority men and women compared to their heterosexual counterparts, but they do not address if gender disparities vary across sexual minority orientations. Given that health care is highly gendered and shaped by gender identity, there are reasons to suspect that the gender disparity in health care use among heterosexual populations may be different for sexual minorities.

A substantial body of work has shown that bisexual, gay, and lesbian-identified persons exhibit higher rates of gender-atypical traits across a variety of behavior (Bailey, 2009; Cohen, 2002; Lippa, 2002; Rieger et al. 2006; Rieger & Savin-Williams, 2011). These include not only atypical patterns of dress and play, but also gender atypical responses to stress and health risk behaviors. While we fully acknowledge that there exists a gender varies widely within both the sexual minority and nonminority population (Connell, 1992; D'Augelli, Grossman, & Starks, 2005; Levitt & Hiestand, 2005), greater flexibility in gendered behaviors and attitudes at the population level may have implications for trends in health care use by gender across sexual orientation identities. For example, research on lesbian health care use has shown that women who identify with a more masculine gender identity are less likely to make regular gynecological visits than lesbians who report a feminine gender identity (Hiestand, Horne, & Levitt, 2007). Gender differences in health care use across sexual orientations may also emerge as a result of differences in the use of gynecological and reproductive health services between sexual minority and nonminority women. Studies have shown that compared to heterosexual women, sexual minority women report lower perceived sexually transmitted infection (STI) risk, lower rates of birth control use, and lower rates of regular gynecological health medical visits (Marrazzo & Gorgos, 2012; Marrazzo, 2004; Price et al., 1996; Roberts, 2001).

Health Care Utilization Theory

More research is needed not only to examine sexual orientation differences in health care use, but also to better understand factors shaping these disparities. Andersen's (1995;

Andersen & Newman, 2005) model of health care utilization incorporates several forces that work in tandem to shape the decision to seek out care: predisposing, enabling, and need-based factors (see Figure 1 for our extension of Andersen's model). These factors each influence the 'potential' an individual has to access health services, which may or may not result in 'realized' access. We consider sexual orientation a key predisposing factor for health care use because of the documented barriers to securing culturally sensitive care, elevated rates of encountering stigma, and difficulty securing patient-physician trust. However, disparities in sexual minority health care use may be closely tied to other enabling and need-based factors outlined in Andersen's model.

The second feature of Andersen's health care utilization model emphasizes the role of enabling components in the decision to seek care. Health care utilization is often constrained by forces both related and external to an individual's predisposing factors. Health insurance and socioeconomic status are both strongly related to the likelihood that a person has the financial means to utilize health services. Lack of health insurance has been shown to decrease the likelihood that an individual will seek care and may result in the worsening of a specific health condition (Freeman et al., 2008). Studies have shown that persons in same-sex relationships, particularly women, are less likely to have medical insurance, both partner-based and overall measures of any coverage (Ash & Badgett, 2006; Buchmueller & Carpenter, 2010; Ponce et al., 2010). Other factors related to socioeconomic status, such as income and assets that facilitate care-seeking (e.g., car and computer ownership), have implications for health care use (Mitchell & Selmes, 2007; Pesata, Pallija, & Webb, 1999). Research has shown that sexual minorities in same-sex couple-headed households are more likely to be poor than heterosexuals, and this poverty is particularly concentrated among women (Albelda et al., 2009). Other work has suggested, however, that lesbians may actually have higher incomes than heterosexual women due to higher levels of educational achievement (Antecol, Jong, & Steinberger, 2008).

Another potentially important enabling factor not previously incorporated in Andersen's model has to do with social psychological resources. Qualitative research on health care use among sexual minorities has found that stigma plays an important role in shaping sexual minorities' decision to access health care (Bernhard, 2001; Eliason & Schope, 2001). Stigma has a negative impact on the self-esteem and overall well-being of sexual minorities (Meyer, 2003), which in turn influence individuals' self-efficacy regarding health behaviors (Link & Phelan, 2001; Markowitz, 1998). To date, no quantitative studies have assessed the role of self-esteem in health care use among sexual minorities. High levels of self-esteem may reduce anxiety surrounding the process of seeking out health care and serve as important psychological resources to combat the negative effects of stigma (Cohen et al. 2006). Thus, we argue that to understand health care use among sexual minority status, Andersen's model should be expanded to incorporate social psychological resources as important enabling mechanisms.

The third component of Andersen's model of health care utilization focuses on need-based factors related to an individual's health status. Persons who are not ill or do not perceive themselves as being ill are less likely to utilize health services. If a health need is perceived, the severity of the illness may determine the likelihood that an individual will utilize health

services. Studies have shown that self-rated health is related to health care utilization: people who perceive their health as being good or excellent are less likely to utilize health services (Miilunpalo et al., 1997). Sexual minorities also have much higher rates of victimization compared to heterosexual populations (Austin et al., 2008; Herek, Gillis, & Cogan, 1999), increasing the need for medical attention. Finally, several studies have suggested that sexual minorities suffer from poorer physical and mental health than heterosexual-identified persons (Austin et al., 2009; Cochran & Mays, 2007; Institute of Medicine, 2011) which may result in a greater need to seek out physical and mental health services. Thus, victimization and both physical and mental health problems may increase the need for medical attention among sexual minorities, but given the documented barriers to accessing care, controlling for need-based factors may actually increase disparities in unmet medical needs, rather than shrink them. That is, heterosexual populations may both experience lower rates of demand for health care and better access compared to sexual minorities, reducing the likelihood of reporting unmet medical needs among heterosexuals and increasing the disparity between heterosexual and sexual minorities.

Thus, in our modification of Andersen's theoretical framework, sexual orientation and gender are important predisposing characteristics. The relationship between these predisposing characteristics and unmet medical needs is mediated by enabling, which includes self-esteem, and need-based factors.

Study Aims

The existing research suggests that there are disparities in health care use by sexual minority status that are concentrated among women. It is unclear if these disparities vary by sexual minority identity and whether the gender disparity found among heterosexual populations holds across all sexual orientation identities. This study addresses these limitations using an expanded version of Andersen's health care utilization model that incorporates self-esteem, a social psychological measure related to experiences of stigma that may be particularly important for understanding sexual minorities' unmet medical needs.

We therefore test the following hypotheses: 1) There will be disparities in unmet medical needs by sexual orientation among women, but not among men; 2) sexual orientation disparities in unmet medical needs within each gender will be mediated by enabling and need-based factors, and in particular, self-esteem will mediate these disparities; and 3) among exclusive heterosexuals but not sexual minorities, women will be more likely to report unmet medical needs than men.

DATA AND METHODS

Data

This research used data from the National Longitudinal Study of Adolescent Health (Add Health). The Add Health study began in the fall of 1994 and involves a nationally representative, longitudinal sample of U.S. adolescents. The initial Add Health sample was drawn from 80 high schools and 52 middle schools throughout the United States, with unequal probabilities of selection (Bearman, Jones, & Udry, 1997). High school seniors in Wave I of Add Health were not selected for follow-up for Wave II but were reclaimed for

the Wave III sample. Response rates for this study were 79% for Wave I and 77% for Wave III. We examined health care use at Wave III for two primary reasons. First, respondents' age ranges from 18 to 26 in Wave III of the survey; hence, the sample is comprised of adults whose decisions to seek out health care will be less dependent on parents than in an adolescent sample. Examining sexual orientation disparities in health care use among young adults is important, as the reasons that young adults may seek care have more to do with problems related to risk behavior and risk behavior determinants such as victimization, mental health, and sexual health, compared to older adults' medical needs. Studies have shown that these issues are particularly prevalent among sexual minorities (Institute of Medicine, 2011). Treatment of such issues at younger ages has important implications for establishing patterns of healthy behavior and curbing long-term problems associated with risk behaviors and mental health. Second, our measures of self-esteem were not assessed during Wave IV of the survey. Our sample was restricted to persons who were surveyed in Waves I and III and who reported an exclusively gay, mostly gay, bisexual, mostly heterosexual, or exclusively heterosexual identity at Wave III of the survey. Our restrictions yielded a total eligible sample of 14,121 respondents. An additional 311 respondents were removed due to missing data, yielding a final total sample of 13,810 respondents, of which 7,290 are women and 6,520 are men.

Measures

Unmet Medical Needs—Unmet medical needs were measured using the survey item that asked respondents if there has “been a time in the past 12 months when you thought you should get medical care, but did not?” Respondents are coded as having unmet health care needs in the previous 12 months or not (referent).

Predisposing Factors—Sexual orientation was derived from a variable that asked respondents whether they identify as exclusively straight (heterosexual), mostly straight (heterosexual), bisexual, mostly gay (homosexual), or exclusively gay (homosexual).¹ Gender was derived from a measure that asked respondents to identify whether they are male (referent) or female. Race/ethnicity was coded as a series of dummy variables that measures whether respondents identify as non-Hispanic white (referent), non-Hispanic black, Hispanic, or other race/ethnicity. Age at Wave III was coded as a continuous variable that ranged from 18 to 26 years of age. Respondents' Wave III educational attainment was coded as a continuous measure of years of completed education, ranging from 6 (6th grade) to 22 years (5 or more years of graduate school). We also included measures of relationship-related living arrangements at Wave III using a series of dummy variables that capture whether respondents are married, cohabitating, or not living with a romantic partner (referent). We also included a dummy variable for whether the respondent is a U.S. citizen or not (referent).

Enabling Factors—Health insurance at Wave III was coded as a series of dummy variables that capture respondents' “health insurance situation” at the time of interview.

¹Supplementary analyses revealed that the results for exclusively gay and mostly gay respondents were not statistically different. Thus, these two categories were combined to increase statistical power.

Respondents were coded as having no health insurance (referent), being covered by their parents' insurance, being covered by their spouse's insurance, or having insurance through some other mechanism (e.g., school, work). We included a variety of other Wave III SES-related measures that impact access to care. Household income was measured as a series of dummy variables that captures pre-tax household income, coded as < \$5,000; \$5,000 and < \$20,000; \$20,000; or missing. Vehicle ownership was measured using a dummy variable that captures whether respondents reported owning a car, truck, van, or motorcycle or not (referent). Computer ownership measures whether respondents own a computer or not (referent).

Self-esteem was measured at Wave III using a series of questions that asked respondents how satisfied are you with your life as a whole (very satisfied [1] to very dissatisfied [5]), do you agree or disagree that you have many good qualities (strongly agree to strongly disagree), do you disagree that you have a lot to be proud of; that you like yourself just the way you are; you feel you are doing things just about right. This scale sums the responses to the five questions, has an alpha of .73, and ranges from 0 to 20.

Need-Based Factors—We included a series of Wave III measures to assess need-based factors that may influence reporting of unmet medical needs. Self-rated health was derived from a survey item that asked respondents: “In general, how is your health?” The measure was coded as a five-point scale that ranges from excellent (1) to poor (5). We controlled for whether respondents were currently on any prescription medication or not (referent). Disability or chronic morbidity is a dummy variable that captures whether respondents have a disability or a functional limitation. Respondents were coded as having a limitation if they answered that they were limited by their health “in any of these activities: lifting or carrying a bag of groceries; climbing one flight of stairs; walking one block; bathing and dressing yourself.” We controlled for depressive symptoms using the CESD-9 scale (Radloff, 1977) as well as a measure of physical victimization. The depressive symptoms scale ranges from 0 to 28 and has an alpha of .80. Physical victimization in the previous 12 months was coded as a binary variable that measures “which of the following things happened in the last month: someone pull a knife or gun on you; someone shot or stabbed you; someone slapped, hit, choked, or kicked you; you were beaten up?” Respondents who reported at least one of these incidents were coded as having been victimized. We also controlled for whether respondents have a medical prescription, which may increase the likelihood that they require seeing a doctor on a more regular basis. This measure was derived from an item that asked respondents whether they are currently on medication that requires a doctor's prescription or not (referent).

Analytical Approach

First we present the descriptive statistics for the total population and stratified by gender. We conducted a series of bivariate statistical tests comparing men and women. Next we used binary logistic regression to examine the relationship between sexual minority status and the likelihood of having unmet medical needs, stratified by gender. Following Anderson's model, Model 1 controlled for predisposing factors (sexual orientation, race/ethnicity, age, education, relationship status, and citizenship), and Model 2 added controls for enabling

factors (health insurance, other SES-related measures, and self-esteem). Model 3 added need-based factors (self-rated health, medically prescribed drug, depressive symptoms, functional limitation, and victimization).

Finally, we used binary logistic regression to examine gender disparities in unmet medical needs stratified by sexual orientation identity. Due to sample size limitations, we combined all sexual minority identity groups. Additional statistical tests showed that the coefficient for women did not vary among sexual minority identities (mostly heterosexual, bisexual, mostly gay, exclusively gay). These analyses followed the same model-building strategy described above but included gender as a predisposing factor. We did full mediation tests following Baron and Kenny (1986) for all enabling and need-based factors and report mediation where it satisfied all statistical requirements.

RESULTS

Descriptive Statistics

Table 1 provides descriptive statistics for the total sample stratified by gender. Among women, 83 reported an exclusively gay or mostly gay identity, 183 reported a bisexual identity, 744 reported a mostly heterosexual identity, and 6,280 reported an exclusively heterosexual identity. Among men, 127 reported a gay or exclusively gay identity, 39 reported a bisexual identity, 199 reported a mostly heterosexual identity, and 6,155 report an exclusively heterosexual identity. The results show that in line with other work, women were more likely than men to report a bisexual or mostly heterosexual identity and less likely to report an exclusively heterosexual or gay identity. There was no significant gender difference in reported unmet medical needs: 23% of men and 22% of women report unmet medical needs at Wave III.

Important differences emerged in enabling and need-based factors for men and women. First, women were more likely to report being insured, having lower income, and not owning a car. Women were more likely to own a computer and reported lower mean levels of self-esteem than men. Related to need-based factors, women reported poorer self-rated health and lower levels of victimization. They reported higher levels of drugs prescribed, in large part due to birth control (not shown), and higher levels of depressive symptoms.

We also present descriptive statistics for unmet medical needs by gender and sexual orientation in Table 2. We conducted statistical tests to determine whether the percent of reported unmet medical needs varies by gender within sexual orientation identity groups. The results show among heterosexual respondents, women reported a significantly lower rate of unmet medical needs than men. This trend reversed for gay and mostly heterosexual respondents: 33% of gay women reported unmet medical needs compared to 18% of men, and these percentages for mostly heterosexual respondents were 34% and 23%. Bisexual respondents' unmet needs did not differ by gender.

Supplemental analyses showed reversals in gender trends by sexual orientation for several variables, including victimization and having a medical prescription. Among heterosexuals, women had significantly lower mean levels of victimization compared to men (5% and 16%,

respectively). Among gay respondents, however, 9% of women and 4% of men reported being physically victimized in the previous 12 months. Similarly, among exclusively heterosexuals, women reported higher rates of using a prescribed medication, a trend that reversed among gay respondents (see Appendix A).

Multivariate Results

Table 3 presents results from binary logistic regressions examining the relationship between sexual orientation and unmet medical needs stratified by gender.

The results for women indicate that all groups of sexual minority-identified women were significantly more likely than exclusively heterosexual women to report unmet medical needs. Controlling for enabling factors in Model 2 attenuated this relationship; however, all sexual minority identities remained significantly more likely to report unmet medical needs. The reduction in sexual orientation disparities was primarily due to the mediating effect of self-esteem. In fact, supplemental analyses showed that controlling for predisposing factors and self-esteem reduced the relationship between a gay identity and unmet medical needs to an odds ratio of 1.6 ($p < .10$). Model 3 adds need-based factors, and in combination with supplementary mediation analyses shows that the disparities between sexual minority women and heterosexual women were further mediated by self-rated health for all sexual minority identities and by depressive symptoms and victimization for bisexual and mostly heterosexual women. Mostly heterosexual women remained significantly more likely to report unmet medical needs than exclusively heterosexual women ($OR = 1.6, p < .05$). In line with other work, Panel B of Table 3 shows that there were no disparities in unmet medical needs among male respondents. Some of the observed lack of statistical significance, however, may be due to sample size limitations. Results are suggestive of a reduced risk of reported unmet medical needs among gay men and mostly heterosexual men and an increased risk among bisexual men compared to exclusively heterosexual men.

Table 4 presents the results from logistic regressions stratified by sexual minority status. Due to sample size limitations, we combined mostly heterosexual, bisexual, and gay respondents. This table reveals an interesting and complicated pattern in unmet medical needs by gender. First, consistent with previous findings, heterosexual women were less likely than men to report unmet medical needs. Controlling for enabling and need-based factors in Models 2 and 3 actually increased the disparity between heterosexual men and women (Model 3 $OR = 0.8, p < .001$). That is, once all enabling and need-based factors were controlled, gender disparities become stronger, suggesting that the observed gender disparity is largely due to factors unobserved in this study.

An interesting reverse in these findings emerges among sexual minorities: sexual minority women were *more* likely to report unmet medical needs than sexual minority men. Moreover, when enabling and need-based factors are controlled, the disparity became more substantial, but in the opposite direction from heterosexual populations. The effect of enabling and need-based factors on unmet medical use was similar for both sexual minorities and nonminorities, but their effect on the gender coefficient differed by sexual minority status. Supplemental descriptive statistics reported above noted gender patterns for several of these factors were starkly different by sexual minority status, suggesting that it is

gender differences in patterns of enabling and need-based factors by sexual minority status that may account for the opposite signs of the gender coefficients in Table 4.

DISCUSSION

Reducing disparities in unmet medical needs is an important goal for improving population-level health. The results presented here generate several new insights for understanding how gender and sexual orientation produce inequalities in the use of health care services. First, we provide the first nationally representative estimates of unmet medical needs by sexual orientation, including among mostly heterosexual-identified persons in the U.S. This is particularly important given that compared to exclusively heterosexual women, mostly heterosexual-identified women were significantly more likely to report unmet medical needs. This finding is in line with other work that has documented elevated risk behavior determinants and risk behaviors among mostly heterosexual persons (Austin et al., 2008; Austin et al., 2004; Corliss et al., 2009; Vrangalova & Savin-Williams, 2012). To our knowledge, however, only one study analyzing Australian women has looked at their health care use (McNair et al., 2011). Mostly heterosexual identified women lack the social recognition of gay and bisexual identities and therefore also lack many of the social resources and advocacy of other identities. This lack of resources may in part explain their elevated risk of reporting unmet medical needs net of enabling and need-based factors; however, more work is needed to understand emerging research on the unique risks of this population.

Second, we show that sexual orientation disparities in unmet medical needs vary by gender and that gender disparities in unmet medical needs vary by sexual orientation. Similar to other studies, we found no difference in unmet medical needs by sexual orientation among men (Ash & Badgett, 2006; Buchmueller & Carpenter, 2010; Heck et al., 2006). It should be noted, however, that the coefficient for bisexual men in Table 2, Model 3 was quite similar to that of bisexual women. Because the sample contains relatively few bisexual men, the lack of statistical significance may be tied to statistical power. Other work has found bisexual men have an elevated risk of reporting unmet medical needs compared to heterosexual men (McNair et al., 2011), thus future research should continue to examine health care access and use among bisexual males.

The results show that disparities in unmet medical needs are concentrated among sexual minority women. This result is in line with other work that has found disparities in health care access and use among sexual minority women but not men (Heck et al., 2006; Tjepkema, 2008). We also found a reversal in the gender disparity between heterosexual and sexual minority populations: exclusively heterosexual women were less likely to report unmet medical needs than exclusively heterosexual men, whereas sexual minority women were more likely to report unmet medical needs compared to sexual minority men. Thus, not only were sexual minority women more likely to report unmet medical needs than heterosexual women, but they were also more likely to report unmet medical needs compared to their sexual minority male counterparts. Moreover, while we were able to explain some of the sexual orientation disparities in unmet medical needs among women using an expanded version of Andersen's model, controlling for enabling and need-based

factors actually increased the likelihood that sexual minority women reported unmet medical needs compared to sexual minority men. What is even more curious about this suppression effect is that it worked in the *opposite* direction of the results for heterosexual men and women. That is, controlling for enabling and need-based factors actually made exclusively heterosexual women even less likely to report unmet medical needs compared to men.

The observed gender disparities in unmet medical needs found in this paper may be attributed to several different factors. First, heterosexual women were less likely to report unmet medical needs than heterosexual men, making a sexual orientation disparity in unmet medical needs more readily detected among women than men. Relatedly, heterosexual women frequently interact with health care providers to access birth control and other gynecological health services. Sexual minority women, particularly those who are not engaging in opposite-sex sexual behavior, are less likely to use birth control (Dibble et al., 2002) and make regular gynecological visits (Marrazzo, 2004; Roberts, 2001). As such, they may also not have a regular source of health care, which may be a barrier to accessing care in times of need. Public health campaigns aimed at increasing awareness of reproductive and sexual health risks among the sexual minority women's community may be an important pathway for encouraging sexual minority women to establish sources of care.

Among sexual minority men, however, major sexual health campaigns regularly encourage men to interact with health care providers for STI screening, particularly for HIV/AIDS. While this study focuses on Andersen's individual-level determinants of health care use, Andersen posits that these determinants are situated within historical contexts with changing norms that in part explain changing patterns of utilization. A shift from the pathologization of homosexuality to a variety of MSM (men who have sex with men)-targeted campaigns to improve health care use may in part explain observed gender differences in unmet medical needs by sexual minority status. Sexual minority males may see health care providers on a more regular basis for sexual health tests and therefore may have a regular source of care that facilitates their ability to access care in times of need. This could make them less likely to report unmet medical needs than heterosexual men. The interaction of sexual minority men's increased use with sexual minority women's decreased use may therefore explain, in part, the gender disparity in unmet medical needs between sexual minority men and women.

The observed gender disparities in unmet medical needs may also be attributed to increased levels of gender atypicality among sexual minority men and women. Indeed, hegemonic masculinity scripts perpetuate the idea that men are supposed to be tough and not seek medical care (Courtenay, 2000; Mansfield, Addis, & Mahalik, 2003). Given the higher documented levels of gender atypicality among sexual minorities (D'Augelli et al., 2005; Lippa, 2002; Skidmore, Linsenmeier, & Bailey, 2006), it may be that sexual minority men do not subscribe as intensely to hegemonic gender norms and are more comfortable seeking health care in times of need. Among sexual minority women, masculine gender identity has been linked to lower rates of regular gynecological appointments (Hiestand et al., 2007).

Finally, this work advances Andersen's model by articulating the importance of including social psychological factors in health care utilization models. For both men and women and both exclusively heterosexual and sexual minority individuals, self-esteem is associated with

a significant decrease in the risk of reporting unmet medical needs. Among women, self-esteem explained more of the disparity in unmet medical needs for gay and bisexual women than other factors outlined in Andersen's utilization model. Indeed, self-esteem is an important pathway through which individuals who perceive a need to for care transform that perception into a realized behavior. Better levels of self-esteem have previously been linked to improved self-efficacy (Link & Phelan, 2001; Markowitz, 1998) and improved health maintenance (Acton & Malathum, 2000). In addition to increasing self-efficacy, self-esteem has been identified as important psychological resource for developing resilience in the face of stigma (Cohen et al., 2006; Kidd & Davidson, 2007). Thus, self-esteem may serve as an important buffer against stigma and discrimination in medical settings. Improving the mental health of sexual minority women may simultaneously reduce the need for health care services and improve the likelihood that services will be sought for conditions not related to mental health.

There are several limitations to this study. First, we are unable to examine the reasons for reporting unmet medical needs, including the potential explanations of stigma and discrimination. Even though we are able to control for several predisposing characteristics, enabling factors, and need-based factors, respondents may delay health care for reasons that are related to either structural or interpersonal forms of discrimination targeted at sexual minorities or distrust of medical systems in general. For example, qualitative studies have been able to gain insights into the processes that shape the decision to use medical services among sexual minorities, such as internalized homophobia (Huebner et al., 2002). We are also unable to assess gender identity, which may be an important aspect of sexual minority status that drives health disparities both between sexual minorities and nonminorities, and within sexual minority groups.

Despite these limitations, this research makes important contributions to the existing literature on the health of sexual minority populations. Understanding the factors that reduce unmet medical needs has important implications not only for reducing disparities, but also improving the health of the general population. Elevated need for health services among sexual minority populations, in conjunction with discriminatory interactions in health care settings and decreased access to insurance, may exacerbate health disparities by sexual orientation. Given that this is a relatively young sample of adults, disparities in unmet medical needs may contribute to a health gap between sexual minority and sexual nonminority populations that will likely continue to grow as this cohort ages. While several LGBT-focused health care centers have emerged across the country, few services outside urban centers offer similar care. Public health policy should continue to develop inclusive health centers for sexual minority populations, and in particular, focus on improving access for sexual minority women.

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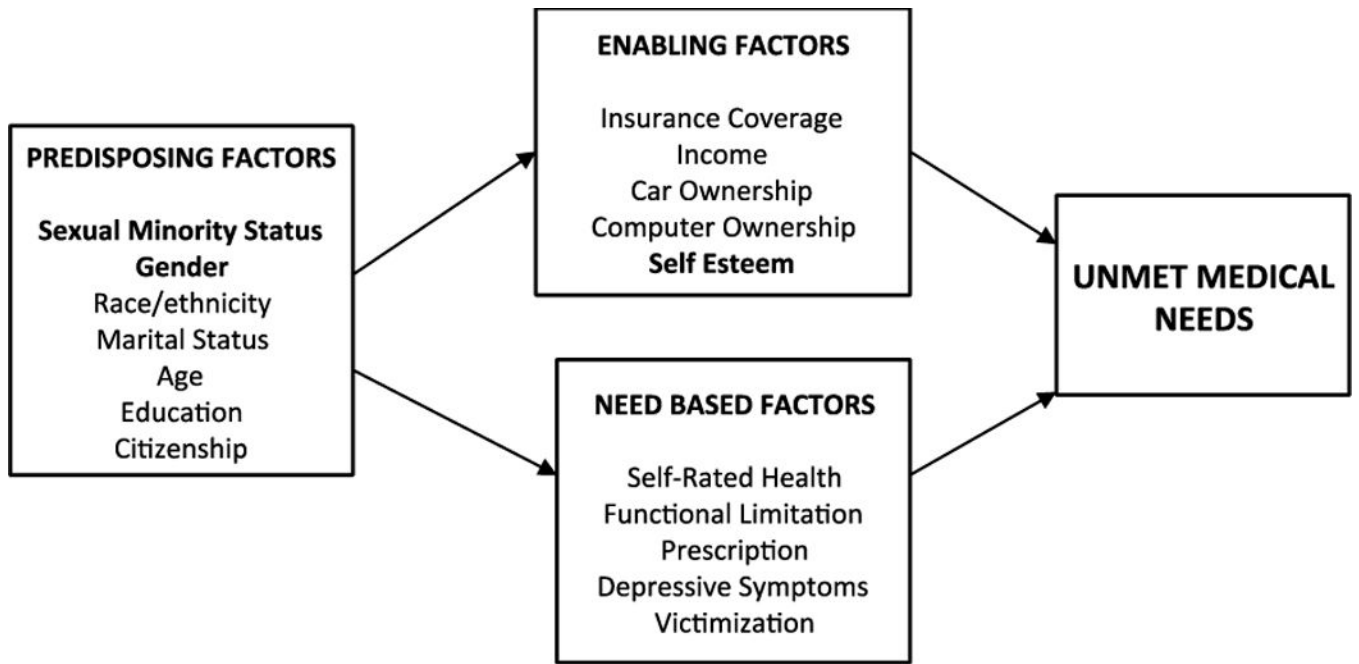


Figure 1.
Conceptual Framework

Table 1

Descriptive statistics for the total population and by gender

	Total N = 13,810	Women N = 7,290	Men N = 6,520
	M/% (95% CI)	M/% (95% CI)	M/% (95% CI)
Pre-Disposing Factors			
Sexual orientation identity (%)			
Exclusively heterosexual	90.15 (89.20, 91.10)	85.61 (84.09, 87.12)	94.54 (93.78, 95.30) ***
Mostly heterosexual	6.82 (6.05, 7.60)	10.64 (9.31, 11.95)	3.13 (2.58, 3.70) ***
Bisexual	1.53 (1.25, 1.81)	2.56 (2.03, 3.10)	0.53 (0.31, 0.75) ***
Gay/exclusively gay	1.50 (1.16, 1.84)	1.20 (0.85, 1.55)	1.79 (1.30, 2.28) *
Race/ethnicity (%)			
Non-Hispanic white	67.55 (61.88, 73.23)	68.39 (62.65, 74.13)	66.75 (60.93, 72.57)
Non-Hispanic black	15.32 (11.29, 19.34)	15.61 (11.43, 19.79)	15.03 (10.96, 19.11)
Hispanic	11.54 (8.20, 14.87)	10.97 (7.68, 14.27)	12.08 (8.57, 15.60)
Other race/ethnicity	5.61 (3.94, 7.26)	5.06 (3.47, 6.65)	6.13 (4.25, 8.02) †
Age (M)	22.31 (22.08, 22.55)	22.21 (21.97, 22.44)	22.41 (22.17, 22.66) ***
Education (M)	13.10 (12.93, 13.27)	13.26 (13.08, 13.44)	12.95 (12.77, 13.13) ***
Relationship-related living arrangement			
Married	18.66 (16.43, 20.78)	22.67 (20.03, 25.32)	14.78 (12.85, 16.71) ***
Cohabiting	31.30 (29.37, 33.23)	32.36 (30.15, 34.56)	32.36 (30.15, 34.56) †
Not living with a partner	50.04 (47.13, 52.95)	44.97 (41.65, 48.29)	54.94 (51.98, 57.91) ***
Not a U.S. citizen (%)	2.70 (1.62, 3.77)	2.57 (1.45, 3.70)	2.82 (1.70, 3.93)
Enabling factors			
Insurance Coverage (%)			
No coverage	18.76 (17.17, 20.35)	15.58 (14.06, 17.09)	21.83 (19.74, 23.91) ***
Covered by parents insurance	27.16 (24.10, 30.21)	28.03 (24.73, 31.33)	26.31 (23.26, 29.36) *
Covered by spouse/partner's insurance	4.17 (3.44, 4.91)	7.15 (5.86, 8.45)	1.29 (0.89, 1.69) ***
Other coverage	50.37 (47.88, 52.86)	49.74 (47.06, 52.42)	50.98 (48.04, 53.91)
Income (%)			
< \$5,000	23.07 (20.59, 25.54)	26.50 (23.61, 29.40)	19.74 (17.27, 22.21) ***
\$5,000 & < \$20,000	34.92 (32.97, 36.86)	35.12 (32.92, 37.33)	34.72 (32.34, 37.05)
\$20,000	22.59 (20.42, 24.76)	16.97 (14.97, 18.96)	28.03 (25.20, 30.86) ***
Missing	19.43 (17.23, 20.35)	21.41 (18.92, 23.89)	17.52 (15.26, 19.78) ***
Does not own a car(%)	25.40 (23.04, 27.75)	27.42 (24.66, 30.17)	23.44 (21.06, 25.82) ***
Does not own a computer (%)	43.06 (40.70, 45.43)	41.78 (39.29, 44.27)	44.30 (41.56, 47.05) *
Self esteem (M)	16.04 (15.97, 16.11)	15.87 (15.78, 15.97)	16.20 (16.11, 16.30) ***
Need-based factors			
Self-rated health (M)	1.99 (1.97, 2.02)	2.08 (2.04, 2.11)	1.91 (1.88, 1.94) ***

	Total N = 13,810	Women N = 7,290	Men N = 6,520
	M/% (95% CI)	M/% (95% CI)	M/% (95% CI)
Medically prescribed drug (%)	62.51 (60.66, 64.37)	74.54 (72.51, 76.56)	50.89 (48.64, 53.15) ***
CESD Scale (M)	5.40 (5.27, 5.54)	6.16 (5.98, 6.34)	4.67 (4.52, 4.82) ***
Functional limitation (%)	1.30 (1.00, 1.60)	1.49 (1.05, 1.93)	1.12 (0.77, 1.46)
Physical victimization, previous 12 months (%)	10.46 (9.38, 11.53)	5.18 (4.42, 5.94)	15.56 (13.88, 17.23) ***
Unmet Medical Needs (%)			
Yes	22.46 (21.35, 23.56)	22.27 (20.79, 23.75)	22.64 (21.23, 24.06)
No	77.54 (76.44, 78.65)	77.73 (76.25, 79.21)	77.36 (75.94, 78.77)

Source: National Longitudinal Study of Adolescent Health

Notes: All significance tests are compared to women; M = mean; CI = Confidence Interval

*
p < .05

**
p < .01

p < .001

Table 2

Percent reported unmet medical needs by gender and sexual orientation Identity

	Women	Men
Sexual Orientation Identity (%)		
Exclusively Heterosexual	20.32 ^{***}	22.67
Mostly Heterosexual	33.97 ^{***}	22.64
Bisexual	33.68	29.59
Exclusively Gay/Mostly Gay	33.49 [*]	18.49

Source: National Longitudinal Study of Adolescent Health

Notes: All significance tests are compared to women;

†
p .10.*
p .05**
p .01***
p .001

Table 3

Odds ratios from binary logistic regressions for sexual orientation differences in unmet medical needs

	Panel A: Women (N = 7,290)						Panel B: Men (N = 6,520)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Predisposing Factors												
Sexual Orientation (Exclusively Heterosexual)												
Mostly gay/exclusively gay	1.84	(1.02, 3.29)*	1.70	(0.99, 2.94) ⁺	1.67	(0.92, 3.06)	0.83	(0.48, 1.43)	0.74	(0.43, 1.28)	0.66	(0.35, 1.25)
Bisexual	1.90	(1.27, 2.84)***	1.48	(0.93, 2.34) ⁺	1.22	(0.76, 1.96)	1.41	(0.70, 1.85)	1.20	(0.44, 3.28)	1.37	(0.49, 3.83)
Mostly heterosexual	1.98	(1.64, 2.39)**	1.26	(0.85, 1.87)**	1.57	(1.28, 1.93)*	1.14	(0.70, 1.85)	1.04	(0.65, 1.65)	0.81	(0.49, 1.33)
Race/Ethnicity (Non-Hispanic white)												
Non-Hispanic black	1.17	(0.95, 1.44)	1.22	(0.99, 1.53) [†]	1.10	(0.86, 1.35)	0.89	(0.71, 1.11)	0.87	(0.71, 1.10)	0.79	(0.63, 0.99) [†]
Hispanic	1.53	(1.19, 1.94)***	1.51	(1.16, 1.95)***	1.41	(1.06, 1.83)*	1.03	(0.71, 1.11)	0.98	(0.73, 1.35)	0.99	(0.72, 1.37)
Other race/ethnicity	1.31	(0.89, 1.91)	1.25	(0.78, 2.03)	1.20	(0.78, 1.85)	1.17	(0.85, 1.60)	1.13	(0.83, 1.53)	1.07	(0.78, 1.37)
Education	0.95	(0.90, 0.99)*	1.00	(0.95, 1.06)	1.04	(0.99, 1.10) ⁺	0.94	(0.90, 0.98)**	0.99	(0.94, 1.04)	1.01	(0.96, 1.07)
Age	1.04	(1.00, 1.09) [†]	1.01	(0.96, 1.07)	1.02	(0.96, 1.08)	1.01	(0.96, 1.06)	0.99	(0.94, 1.05)	1.01	(0.95, 1.06)
Living arrangement (Not living with partner)												
Married	1.08	(0.84, 1.35)	1.09	(0.84, 1.42)	0.94	(0.79, 1.34)	1.16	(0.90, 1.50)	1.27	(0.99, 1.62)	1.24	(0.94, 1.59)
Cohabiting	1.29	(1.08, 1.54)**	1.15	(0.95, 1.40)	1.07	(0.87, 1.29)	1.51	(1.23, 1.86)***	1.45	(1.18, 1.78)***	1.37	(1.10, 1.67)**
Not a U.S. citizen	1.22	(0.83, 1.81)	1.15	(0.76, 1.74)	1.19	(0.78, 1.80)	1.08	(0.73, 1.62)	1.05	(0.70, 1.59)	1.24	(0.80, 1.91)
Enabling Factors												
Insurance Coverage Status (Other form of coverage)												
No Insurance			2.30	(1.82, 2.92)***	2.31	(1.80, 2.97)***			1.64	(1.35, 1.98)***	1.71	(1.42, 2.16)***
Coverage through parents			0.75	(0.59, 0.97)*	0.71	(0.55, 0.92)*			0.98	(0.77, 1.24)	0.96	(0.78, 1.25)
Coverage through spouse/partner			0.64	(0.47, 0.88)**	0.65	(0.48, 0.89)**			0.93	(0.47, 1.82)	1.11	(0.39, 1.57)
Income (< \$5,000)												
\$5,000 & < \$20,000			0.93	(0.75, 1.15)	0.94	(0.76, 1.17)			0.97	(0.77, 1.23)	0.92	(0.72, 1.18)
\$20,000			0.97	(0.75, 1.22)	0.97	(0.77, 1.23)			1.08	(0.84, 1.40)	1.12	(0.85, 1.48)
Missing			0.94	(0.77, 1.22)	0.92	(0.73, 1.15)			0.90	(0.70, 1.16)	0.89	(0.70, 1.14)

	Panel A: Women (N = 7,290)						Panel B: Men (N = 6,520)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Does not own car			0.94	(0.79, 1.12)	0.90	(0.75, 1.08)			1.10	(0.89, 1.37)	1.09	(0.87, 1.35)
Does not own computer			0.89	(0.74, 1.08)	0.87	(0.71, 1.07)			1.07	(0.90, 1.28)**	1.07	(0.89, 1.28)**
Self-Esteem			0.86	(0.84, 0.89)***	0.96	(0.93, 0.99)***			0.92	(0.89, 0.95)***	0.99	(0.96, 1.03)
Need-Based Factors												
Self-reported health					1.50	(1.37, 1.65)***					1.31	(1.20, 1.43)***
Medically Prescribed Drug					1.06	(0.86, 1.30)					1.57	(1.31, 1.87)***
Depressive symptoms					1.08	(1.06, 1.09)***					1.08	(1.06, 1.11)***
Functional limitation					0.80	(0.41, 1.43)					1.50	(0.75, 3.02)
Physical victimization, previous 12 months					1.75	(1.30, 2.31)***					1.90	(1.54, 2.34)***
Unadjusted Pseudo R-square	0.02		0.06		0.10		0.01		0.03		0.07	

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Notes: Referent in parentheses; OR = Odds Ratio; CI = Confidence Interval. R-squares reported are from unweighted models

† p < .10.
 * p < .05
 ** p < .01
 *** p < .001

Table 4

Odds ratios from binary logistic regressions for gender differences in unmet medical needs by sexual minority status

	Panel A: Exclusively Heterosexual (N = 12,434)						Panel B: Sexual Minority (N = 1,376)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Predisposing Factors												
Woman	0.89	(0.79, 0.99)*	0.91	(0.81, 1.02)	0.80	(0.70, 0.91)***	1.52	(1.00, 2.32)*	1.68	(1.07, 2.66)*	1.72	(1.11, 2.66)*
Race/Ethnicity (Non-Hispanic white)												
Non-Hispanic black	1.04	(0.89, 1.22)	1.08	(0.93, 1.26)	0.98	(0.84, 1.14)	0.79	(0.45, 1.41)	0.68	(0.41, 1.11)	0.61	(0.37, 1.01) [†]
Hispanic	1.25	(0.99, 1.57) [†]	1.21	(0.96, 1.53)	1.18	(0.92, 1.51)	1.25	(0.80, 1.96)	1.13	(0.71, 1.80)	1.09	(0.66, 1.81)
Other race/ethnicity	1.20	(0.92, 1.57)	1.17	(0.90, 1.52)	1.12	(0.84, 1.49)	1.44	(0.82, 2.54)	1.32	(0.69, 2.52)	1.18	(0.61, 2.30)
Education	0.94	(0.90, 0.97)***	0.99	(0.95, 1.03)	1.01	(0.97, 1.06)	0.98	(0.90, 1.07)	1.10	(1.01, 1.21)*	1.16	(1.06, 1.28)
Age	1.02	(0.98, 1.06)	1.00	(0.96, 1.04)	1.01	(0.97, 1.05)	1.04	(0.95, 1.14)	0.99	(0.90, 1.08)	0.99	(0.91, 1.09)
Living arrangement (Not living with partner)												
Married	1.10	(0.92, 1.32)	1.21	(1.00, 1.47)	1.17	(0.96, 1.42)	1.23	(0.74, 2.03)	1.16	(0.70, 1.92)	0.91	(0.54, 1.55)
Cohabiting	1.41	(1.20, 1.66)***	1.33	(1.13, 1.56)***	1.23	(1.04, 1.45)*	1.31	(0.95, 1.82) [†]	1.12	(0.77, 1.62)	1.01	(0.69, 1.49)
Not a U.S. citizen	1.22	(0.94, 1.58)	1.15	(0.87, 1.51)	1.28	(0.95, 1.71)	0.48	(0.13, 1.69)	0.47	(0.13, 1.64)	0.49	(0.14, 1.74)
Enabling Factors												
Insurance Coverage Status (Other form of coverage)												
No Insurance			1.86	(1.60, 2.18)***	2.00	(1.68, 2.38)***	2.39	(1.53, 3.72)***	2.39	(1.53, 3.72)***	2.06	(1.27, 3.35)
Coverage through parents			0.94	(0.79, 1.13)	0.94	(0.78, 1.12)	0.48	(0.31, 0.75)***	0.48	(0.31, 0.75)***	0.43	(0.43, .97)
Coverage through spouse/partner			0.68	(0.51, 0.91)**	0.67	(0.50, 0.89)**	0.65	(0.27, 1.58)	0.65	(0.27, 1.58)	0.77	(0.31, 1.93)
Income (< \$5,000)												
> \$5,000 & < \$20,000			0.99	(0.83, 1.18)	0.97	(0.81, 1.16)			0.69	(0.45, 1.03) [†]	0.65	(0.44, 0.97)
> \$20,000			1.11	(0.91, 1.35)	1.14	(0.92, 1.41)			0.65	(0.42, 1.00)*	0.63	(0.40, 0.98)
Missing			0.96	(0.79, 1.15)	0.94	(0.78, 1.13)			0.89	(0.46, 1.14)	0.72	(0.45, 1.17)
Does not own car			0.99	(0.85, 1.15)	0.95	(0.81, 1.10)			1.20	(0.85, 1.69)	1.21	(0.85, 1.70)
Does not own computer			0.96	(0.85, 1.08)	0.95	(0.83, 1.08)			1.29	(0.89, 1.87)	1.22	(0.81, 1.84)
Self-Esteem			0.90	(0.87, 0.92)***	0.98	(0.95, 1.01)			0.89	(0.83, 0.94)***	0.97	(0.90, 1.05)

	Panel A: Exclusively Heterosexual (N = 12,434)						Panel B: Sexual Minority (N = 1,376)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Need-Based Factors												
Self-reported health			1.40	(1.31, 1.49)***							1.46	(1.18, 1.81)***
Medically Prescribed Drug			1.38	(1.21, 1.58)***							0.97	(0.63, 1.49)
Depressive symptoms			1.08	(1.06, 1.10)***							1.08	(1.03, 1.13)***
Functional limitation			0.97	(0.55, 1.72)							1.81	(0.62, 5.23)
Physical victimization, previous 12 months			1.86	(1.54, 2.24)***							1.76	(1.07, 2.90)**
Unadjusted Pseudo R-Square	0.01		0.04		0.08		0.01		0.06		0.11	

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Note: Referent in parentheses; Panel B controls for sexual orientation identity; OR = Odds Ratio; CI = Confidence Interval; R-squares reported are from unweighted models

[†] p < .10.

* p < .05

** p < .01

*** p < .001

Appendix A

Descriptive statistics by gender and sexual orientation identity

	Exclusively Heterosexual		Mostly Heterosexual		Bisexual		Exclusively Gay/Mostly Gay	
	Women	Men	Women	Men	Women	Men	Women	Men
	M/%	M/%	M/%	M/%	M/%	M/%	M/%	M/%
Pre-Disposing Factors								
Race/ethnicity (%)								
Non-Hispanic white	66.94	66.57	76.66	71.93	82.00	74.37	69.71	64.54
Non-Hispanic black	16.97	15.32	7.16	9.30	6.57	13.71	12.83	9.90
Hispanic	11.08	12.08	9.97	11.94	10.96	9.87	12.49	13.50
Other race/ethnicity	5.06	6.02	6.20	6.83	0.47	2.05	12.49	13.50
Age (M)	22.21***	22.41	22.20*	22.57	21.92+	21.29	22.50	22.69
Education (M)	13.28***	12.91	13.24	13.45	12.76	12.54	13.13	13.63
Relationship-related living arrangement								
Married	23.72***	15.50	17.46***	3.24	17.47***	0.00	5.38	1.28
Cohabiting	29.69	30.27	44.65***	28.96	56.84*	35.77	61.20***	31.24
Not living with a partner	46.59***	54.23	37.89***	67.80	25.69***	64.23	33.42***	67.47
Not a U.S. citizen (%)	2.69	2.84	1.76	0.84	2.54	4.45	1.49	4.66
Enabling factors								
Insurance Coverage (%)								
No coverage	15.11***	21.79	16.54	21.36	28.73	30.78	12.28	22.02
Covered by parents insurance	27.90†	26.08	29.97	29.27	24.90*	52.24	27.06	25.53
Covered by spouse/partner's insurance	7.50***	1.32	5.60**	1.30	4.41	0.00	1.70	0.00
Other coverage	49.98	54.23	48.69	48.07	41.91**	16.98	59.18	54.44
Income (%)								
< \$5,000	26.77***	19.50	25.97	26.30	22.60	29.50		
\$5,000 & < \$20,000	35.07	34.69	34.57	37.81	40.46	32.78	32.65	31.31
\$20,000	16.58***	28.13	19.11	19.83	15.19	23.37	29.68	38.40
Missing	21.59	17.68	20.36	16.06	21.75	14.34	17.12	12.39

	Exclusively Heterosexual		Mostly Heterosexual		Bisexual		Exclusively Gay/Mostly Gay	
	Women	Men	Women	Men	Women	Men	Women	Men
	M/%	M/%	M/%	M/%	M/%	M/%	M/%	M/%
Does not own a car(%)	27.49***	23.09	26.94	29.45	30.31	43.74	20.45	25.54
Does not own a computer (%)	42.04*	45.04	40.23	34.97	40.04	32.56	39.99	25.21
Self esteem (M)	16.05**	16.26	14.82	15.39	14.70	14.74	14.89	15.16
Need-based factors								
Self-rated health (M)	2.04***	1.90	2.24	2.20	2.52***	1.76	2.26*	1.93
Medically prescribed drug (%)	74.39***	50.70	79.33***	46.70	64.44*	37.43	64.25†	72.54
CESD Scale (M)	5.88***	4.59	7.88***	6.09	7.85	6.49	6.84	5.86
Functional limitation (%)	1.49	1.16	1.67†	0.48	1.50	0.00	0.01	0.00
Physical victimization, previous 12 months (%)	4.47***	15.72	9.23	17.81	10.25	13.49	8.96†	3.61
Unmet Medical Needs (%)								
Yes	20.31*	22.68	33.97*	22.64	33.68	29.59	33.49†	18.50
No	79.69*	77.32	66.03*	77.36	66.32	70.41	66.51†	81.51

Source: National Longitudinal Study of Adolescent Health

Notes: All significance tests are compared to women; M = mean; CI = Confidence Interval

* p < .05

** p < .01

*** p < .001