

Families, Resources, and Adult Health: Where Do Sexual Minorities Fit?

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ABSTRACT

Extensive research documents the relevance of families and socioeconomic resources to health. This paper extends that research to sexual minorities, using twelve years of the National Health Interview Survey (N = 460,459) to examine self-evaluations of health among male and female adults living in same sex and opposite sex relationships. Adjusting for SES eliminates differences between same and opposite sex cohabiters so that they have similarly higher odds of poor health relative to married persons. Results by gender reveal that the cohabitation disadvantage for health is more pronounced for opposite sex cohabiting women than for men but little difference exists between same sex cohabiting men and women. Finally, the presence of children in the home is more protective for women's than men's health, but those protections are specific to married women. In all, the results elucidate the importance of relationship type, gender, and the presence of children when evaluating health.

Key Words: Self-Rated Health, Sexual Minorities, Gender, Cohabitation, Marriage, SES

Families, Resources, and Adult Health: Where Do Sexual Minorities Fit?

Regardless of the researcher's ideological or empirical position, families are becoming ever more fluid (Rosenfeld 2007). In a recent national study of American views and attitudes toward family life, Powell and colleagues (2010) found that the largest perception change regarding family types involves views of same sex families. For example, in 2006, roughly 33% of individuals surveyed believed that two persons of the same sex living together as partners represented a family, a significant jump up from only 25% three years earlier. This figure reaches 60%, notably a majority opinion, if same sex couples live together with children (Powell et al. 2010). Same sex couples still lag behind other family types, including opposite sex cohabiting couples, in public approval. For example, in 2006, nearly 40% of individuals in the same survey considered an opposite sex unmarried couple with no children a family, and over 80% believed an opposite sex unmarried couple with children represented a family (Powell et al. 2010). But compared to overwhelming public disapproval of same sex relationships a half a century ago – resulting, for example, in executive orders banning sexual minorities from federal employment – the changing views of sexual minorities represent a substantial shift in public opinion.

While public debates on family composition are ongoing, scholars recognize the importance of family life for individual well-being, and researchers have examined the health-related consequences of living in marital and nonmarital relationships for some time now (see review by Wood, Goesling and Avellar 2007). While the rise in cohabitation and nonmarital childbearing led to a flurry of research on the economic and health consequences of living in single-parent and cohabiting-parent families, researchers, policy makers, and healthcare providers know very little about how family relationships affect sexual minority health, despite

the growing presence and recognition of sexual minority families in the United States (Institute of Medicine [IOM] 2011). This is an important limitation, given that families generally serve as an integral source of support (financial and otherwise) and are crucial for individual health and well-being (Carr and Springer 2010). At the same time, as we detail below, researchers have documented health disadvantages among sexual minorities (IOM 2011). Yet these literatures have arisen almost entirely separately from each other.

In this paper we ask where sexual minorities fit in the discussion of families and health. Investigation of this question is needed, since research shows that intimate relationships may be especially important for individuals who find themselves outside the norm and often in compromised social positions (Mays and Cochran 2001). An impressive body of work examining health status shows important distinctions relative to the types of relationships people maintain. For example, while both cohabitation and marriage are generally beneficial for health, these benefits may operate more strongly for married adults (Musick and Bumpass 2006; 2012). However, this dichotomous representation is almost entirely based on cohabiters of opposite sex (see Reczek and Umberson 2012; Wienke and Hill 2009 for recent and laudable exceptions), leaving it an open question where sexual minorities fall along the health continuum for persons who reside in family relationships – and whether the factors that contribute to health differences across family types, including socioeconomic resources, operate similarly for same sex and opposite sex cohabiters when contrasted against married adults.

Furthermore, studies of social relationships and health also suggest that gender may complicate the health profile of those in same sex relationships. The reduced mortality risk associated with marriage is stronger among men, although research examining gender differences in the physical health benefits of marriage is relatively sparse (see review by Wood et

al. 2007), and we know almost nothing about the health consequences of cohabitation for men and women in same sex relationships. Furthermore, while some (but not all) research suggests that the presence of children improves the health of parents, those health benefits are not uniform (Umberson and Montez 2010) – and virtually no work on sexual minority health considers whether the health impacts of family life differ by the presence (or absence) of children in the home.

We address these gaps by centering on the role of families in health, for men and women in opposite sex and same sex relationships. Drawing on data from the 1997–2008 waves of the National Health Interview Survey, we investigate differences in health evaluations among men and women in same sex and opposite sex cohabiting relationships, relative to their opposite sex married counterparts, both before and after adjustment for socioeconomic status. In doing so, this study addresses a void in the scientific literature on family relationships and health for an ever more relevant minority population (IOM 2011; US DHHS 2010).

FAMILIES AND SEXUAL MINORITY HEALTH

Families have substantial implications for individual health outcomes (Carr and Springer 2010). How long and how well we live is partly determined by the various resources that help or harm us, and families serve as immediate sources and distributors of social and economic security. In general, married persons enjoy substantial benefits over single persons, including better health and longer life (Waite and Gallagher 2000). Therefore, commentaries concerned with sexual minority health have begun to highlight the disjuncture between research establishing the health benefits of marriage and the legal hurdles that restrict sexual minorities from formally marrying (Herdt and Kertzner 2006; Herek 2006; King and Bartlett 2006; Umberson and Montez 2010). This is an issue of growing importance, as an estimated 9 million

sexual minorities (lesbian, gay, bisexual, and transgender) live in the U.S. (Gates 2011), and numerous federal initiatives have identified gaps in knowledge surrounding sexual minority health (IOM, 2011; US DHHS, 2010). Important among these limitations is a relative void of social ecological investigations of sexual minority health (IOM 2011), examining how collective entities, such as families and communities, affect individual health patterns.

Nevertheless, research on this subpopulation is increasing, and while it is rooted in specific areas of health (most prominently in sexual and mental health arising from the HIV crises of the 1980s), researchers have begun to extend their focus to other differences in physical health status. Studies show that sexual minorities experience worse physical health than heterosexuals (Conron, Mimiaga and Landers 2010), although patterns often differ by gender. Though gay men display poorer mental health and health behaviors (Dilley et al. 2010), they are also more fit and more likely to maintain healthier weights than heterosexual men (Brennan et al. 2010). In addition, Bybee and colleagues (2009) show that the mental health disadvantage among gay men wanes with age, while across the life course lesbians display consistently worse mental and physical health than heterosexual women (Case et al. 2004; Dilley et al. 2010), more often smoke cigarettes and drink alcohol in excess (Gruskin and Gordon 2006; Lee, Griffin and Melvin 2009), and are more often overweight or obese (Boehmer and Bowen 2009).

Though increasing attention has been paid to the effects of family formation and support systems on adult health prospects, this body of work has yet to extend fully to sexual minorities (Umberson and Montez 2010). As a result, much existing research examines sexual minority health as if individuals were disconnected from each other and devoid of influence from essential social contacts via romantic partners. One of the few studies to examine the health status of partnered gays and lesbians (Wienke and Hill 2009) found that sexual minorities, and especially

men, rated their health similarly to married persons and opposite sex cohabiters. However, the study suffers from a small sample of sexual minorities ($N = 282$) and importantly was unable to determine the cohabitation status of all respondents with same sex partners (Wienke and Hill 2009).

Family Structure, Resources, and Health

Cohabiting unions are similar to marital unions in that they involve coresidence, an intimate sexual relationship, and at least some economic consolidation, and a growing body of research suggests that the benefits of cohabitation and marriage may be quite similar in terms of psychological well-being, relationship quality and satisfaction, and social ties (Hansen, Moum and Shapiro 2007; Musick and Bumpass 2006, 2012). However, studies demonstrate that while both cohabitation and marriage are positively associated with health status, the health benefits of marriage appear stronger than cohabitation (Carr and Springer 2010; Musick and Bumpass 2006, 2012). For example, Wu and colleagues (2003) find that the self-rated health status of cohabiting adults is lower than that of married adults, but higher than among never married and previously married adults.

In explaining the positive relationship between marriage and health, scholars often point toward the health-promoting resources that marriage provides, including economic resources (Ross, Mirowsky and Goldsteen 1990). Socioeconomic status is considered a fundamental cause of disease (Link and Phelan 1995), and scholars argue that health differences based on status inequalities – including sexual orientation and gender – occur through differential exposure to various demands and hardships (Pearlin et al. 2005). Research has also established important differences in the economic profile and benefits associated with marital vs. cohabiting relationships (Blumstein and Schwartz 1983). Marriage is associated with a larger wage boost

than cohabitation among men (see discussion by Light 2004), and overall cohabitation is more common among those with less education and income (Smock and Manning 2004). While the SES profile of sexual minorities is mostly unknown (IOM 2011), limited evidence based largely on convenience samples suggests some SES advantages for sexual minorities (Valanis et al. 2000), such as higher levels of education than for heterosexual adults. However, other work suggests that this is often coupled with lower earnings (Factor and Rothblum 2007), at least for gay men. For women, some research suggests that lesbians have higher incomes than heterosexual women, although other work finds no such difference (IOM 2011).

Beyond the uncertainty surrounding the SES profile of sexual minority adults, very little research examines the role of SES in contributing to health disparities between sexual minorities and heterosexual adults (IOM 2011), especially in the context of family life; it is not known how much SES contributes to physical health differences across same sex cohabiting, opposite sex cohabiting, and married households. SES advantages provide some potential for better health among same sex cohabiters, at least compared to opposite sex cohabiters. However, if marriage confers particular economic benefits that can be applied toward better health (e.g., pooling money, which qualitative work by Blumstein and Schwartz (1983) shows is more common among marrieds than either opposite sex or same sex cohabiting couples), then same sex cohabiters likely have worse health than married persons.

However, scholars also point out that strict interpretations of the health benefits of marriage (and cohabitation) are likely skewed to some extent due to positive selection into relationships on the basis of factors that include health status and economic standing (Murray 2000; Oppenheimer, Kalmijn and Lim 1997). And while unknown for sexual minorities, we can see no reason to presume that these factors would not contribute to selection into same sex

relationships as well. While data limitations prohibit us from directly testing arguments related to selection versus causation, we are able to control for factors related to relationship status and health in our models, particularly socioeconomic standing but also gender, age, racial and ethnic identity, and whether children are living in the home. In addition, we present findings from supplemental analyses (described below) that permit a more stringent test of the extent to which socioeconomic standing (and other factors) may confound the accuracy with which we can observe the connection between relationship status and health.

Gender and Children

In examining the relevance of relationship status for health outcomes, gender is a key factor to consider. From a health standpoint, research shows that self-reported health status differs substantially by gender, with women reporting worse self-rated health on average than men (Gorman and Read 2006). While some research questions whether a gender difference exists in the health benefits associated with marriage (Liu and Umberson 2008), other studies show that men experience a stronger health advantage associated with marriage vs. singlehood than women (Rendall et al. 2011; Teachman 2010). For example, Williams and Umberson (2004) find that marriage is positively related to self-rated health, but only among men. Studies also show that marriage improves health through gender-specific routes, with increased social support and reduced risky behaviors more important for the health gains of married men, and enhanced economic standing more important for the health gains of married women (Lillard and Waite 1995; Ross, Mirowsky and Goldstein 1990). Indeed, entering into marriage (or opposite sex cohabitation) has been shown to increase total family income more for women than men (Light 2004), and enhanced financial standing and access to health-related resources (e.g.,

medical insurance) is an important route through which marriage benefits the health of women (Wood, Goesling and Avellar 2007).

There is also evidence that, moving beyond marriage, gender shapes the potential health benefits of other types of intimate relationships. For example, while Wu and colleagues (2003) find that married adults report better self-rated health than cohabiting adults, this difference is significant only for women – a finding that likely relates to the higher economic standing of married versus opposite sex cohabiting couples, and the greater importance of socioeconomic status for shaping health outcomes among women in relationships. An unanswered question is where same sex cohabiters, male and female, fit into this pattern and its potential relevance for health standing. Research by Reczek and Umberson (2012) does suggest more gender similarity in the relationship dynamics for same sex cohabiters than between men and women in marital relationships, which implies that the health benefits (or harms) of living in a same sex cohabiting relationship may be similar for men and women.

Qualitative research also shows evidence of more gender similarity in economic standing between male and female same sex cohabiters, as Blumstein and Schwartz (1983) demonstrate that most same sex couples, male and female, believe that their partners should work for pay outside the home; opposite sex cohabiters are less likely to adhere to this belief, but they do so more frequently than married adults. However, because of this we might expect that while men in same sex relationships would benefit health-wise from higher average household wealth than men and women in all other relationship types (due to the presence of two male earners in the home and the persistent gender gap in wages in the United States; see Gottschalk and Danziger 2005), their health may also be harmed by diminished essential supports typically provided by women in opposite sex relationships (see Reczek and Umberson 2012). Indeed, while men

appear to benefit equally from marital and opposite sex cohabiting relationships (Wu et al. 2003), this benefit may not hold in the absence of a female partner. At the same time, the health status of women in same sex relationships might be harmed by a lesser income advantage than would occur if they were a member of a relationship that included a male.

Beyond gender, it is also likely that the health statuses associated with these relationships differ across families that do and do not include children. Census estimates indicate that among cohabiters, 34% of sexual minority women and 22% of sexual minority men are raising children (Gates and Ost 2004). However, the link between parenthood and physical health is not established (see discussion by Teachman 2010), with some researchers documenting similar self-rated health scores for parents and childless adults (Hughes and Waite 2002), others suggesting that the presence of children may be associated with illness and poor health (see Umberson and Montez 2010), and still others finding that the relationship is gender-dependent, with parenthood showing no relationship to physical health among men, but either a positive (Teachman 2010) or a negative (Wienke and Hill 2009) relationship to physical health for women. Research on same sex couples with children is even more limited, but studies do suggest that same and opposite sex couples with children have similar partner relationship quality (Peplau and Fingerhut 2007). While researchers debate whether children's own health differs depending on whether they have same sex or opposite sex parents (Carr and Springer 2010; Marks 2012), the effects of children on health for adults in same sex families remain under examined. However, parenthood has been shown to increase fathers' wages and decrease mothers' wages (see discussion by Light 2004), suggesting a greater likelihood that the health of women (and especially women in same sex relationships) may be harmed by the financial strains associated with childrearing.

HYPOTHESES AND OBJECTIVES

The existing empirical evidence suggests conflicting expectations for the influence of same sex cohabitation on health. On one hand, studies find fewer health advantages associated with cohabitation than marriage, though this evidence has rarely distinguished between opposite and same sex cohabiters. On the other hand, the only study to do so to date found no health difference between same sex cohabiters and married persons (Wienke and Hill 2009).

Hypothesis 1 serves as our primary objective in this paper – to describe how self-evaluations of health differ between persons in same sex and opposite sex relationships:

H1. All else equal, same sex cohabiters will be more similar in health to opposite sex cohabiters than to married persons, and will be more likely than married persons to report fair or poor health.

An alternative hypothesis suggests that same sex cohabiters will be more similar in health to married persons, while opposite sex cohabiters will be more likely to report fair or poor health.

Next, we address the role of socioeconomic status in contributing to group differences in self-rated health among men and women living in opposite sex and same sex relationships:

H2: Health disparities between adults living in same sex and opposite sex relationships will be partially explained by adjusting for socioeconomic status.

In addition, since men are socioeconomically advantaged relative to women, we expect that adjustment for SES will also reduce any observed gender disparities in self-rated health.

We pull from existing evidence in literatures on gender, family, and health to explore two additional, underdeveloped areas in sexual minority health research. First, following research showing more positive health assessments among men, and established male advantages in health benefits from relationships, we posit our third hypothesis:

H3: Men in cohabiting relationships will report better self-rated health than will women in cohabiting relationships.

However, it is uncertain whether this male advantage will be enhanced or diminished for men in same sex relationships. On the one hand, studies show less health difference between gay and heterosexual men than between lesbian and heterosexual women, and same sex cohabiting men may benefit from higher combined family income compared to same sex cohabiting women. On the other hand, there is some evidence of gender similarity in relationship dynamics across male and female same sex cohabiters, which suggests that both will receive similar health benefits from cohabitation.

Research is unclear regarding the health consequences of children in the home, although limited research does suggest that the presence of children is less important for shaping the health of men:

H4: Living with children will be less important for the health of men than women.

However, research documenting higher stress and diminished wages among mothers suggests the potential for negative health consequences among women. In addition, little research has been done on the effects of children on parental health across different relationship types, including sexual minorities -- but because opposite sex cohabiters tend to be of lower economic status than married persons, it may be that children are more of a health burden to cohabiters than a benefit.

DATA AND METHODS

The data for our sample come from combining the 1997 to 2008 years of the National Center for Health Statistics (NCHS) National Health Interview Survey (NHIS), a cross-sectional survey aimed at understanding the correlates of health in the United States. The Integrated Health Interview Series (IHIS), compiled by the Minnesota Population Center (MPC),

streamlines an otherwise arduous data consistency process and provides the data files used here (MPC 2010).

Starting in 1997, an unmarried partner category was included in the NHIS household roster, allowing researchers to examine various married and unmarried relationship types. There are no indicators of sexual attraction or identity in the NHIS, so partnerships are identified by matching the sex of respondent variable with the relationship to householder variable. Married couple households are identified by one male and one female reporting married status. Same sex cohabiters are identified by two men or two women reporting as partners, and opposite sex cohabiters as a man and a woman reporting as partners. Thus, the same sex cohabiting couples here are consistent with those identified in census data, and representative only of the “out” sexual minority population who report living with partners (Rosenfeld 2007). In addition, household roster information is used to identify households that do and do not include children under age 18.

Compiling the 1997 to 2008 data resulted in a sample size of 665,658 adults age 18 or older. Nearly 70% of the sample over this time period lived in the partnered relationships identified above. Because our research questions center on comparisons between adults in relationships and because the NHIS does not include questions on sexual identity, we drop all adults who do not report a partnership (including those living alone or in other types of households). After we drop an additional 3.7% of the sample because of missing values on key variables used in the analysis, an acceptable loss of cases given that less than 5% of the sample was removed (Menard 2002), the sample includes 460,459 adults, including 3,219 same sex cohabiting adults, 419,424 opposite sex married adults, and 37,816 opposite sex cohabiting

adults. Importantly, same sex cohabiters are likely underreported since they are identified through indirect methods (Gates and Ost 2004; Wienke and Hill 2009).

Measures

The dependent variable, self-rated health, is a subjective measure of well-being that has correlated strongly with objective measures of health, and even mortality, in past research (Idler and Benyamini 1997). An ordinal measure, self-rated health is measured ‘0’ poor, ‘1’ fair, ‘2’ good, ‘3’ very good, and ‘4’ excellent, which we recode to contrast bad health (fair or poor health = 1) with good health (good, very good, or excellent health = 0), as do many previous investigations of self-rated health.

A set of demographic variables captures age, gender (1 = male), and race/ethnicity coded with dummy variables for non-Hispanic black, non-Hispanic other, Hispanic, and non-Hispanic white (reference). Socioeconomic measures include education, measured continuously from ‘0’ no formal education to ‘16’ post-baccalaureate education, employment status (comparing unemployed and out of the labor force to employed persons), and total combined household income. The IHIS (MPC 2010) combines imputed income measures provided by NCHS across all years used here to account for the roughly 18% of NHIS respondents missing information on income. The NCHS uses multiple imputation techniques to create the imputed income data for the years 1997 to 2008 (MPC 2010). The income measure is adjusted for purchasing power over time and for different sized families. Our multivariate models include a logged transformation of the imputed measure to account for its skewed distribution; we estimated models with and without missing income data but found no discernible differences.

Finally, we include a region-of-residence variable to capture potential confounding in both regional differences in health and residential choice based on relationship type, and an

indicator of the year in which the survey was conducted. More detailed geographic indicators are not available in the public-use version of the NHIS.

Information on health behaviors is available only in NHIS sample adult files, and because information is obtained only from a randomly sampled household adult, including these measures substantially reduces the sample of same sex cohabiting adults. This represents an important omission in the current study, as it limits our ability to identify factors that contribute to differences in health status by household type and gender. A dichotomous measure of health status, the presence of activity limitations, was available for all years and was included in supplementary models, with no limitations serving as the referent. As we expected, activity limitations exerted powerful direct effects on health evaluations but, in general, the measure did not alter the relationships between relationship type and self-rated health and thus was excluded in the final models for parsimony (results available upon request).

Estimation

We begin by presenting sample characteristics for all respondents and stratified by gender. Next, we estimate weighted logistic regression models for the full sample and include interactions between relationship type and gender as well as relationship type and the presence of children in the household. Next, we estimate gender stratified models to examine differences in the association between relationship type and self-rated health both within and between gender groups. We use Stata 12 (StataCorp 2010) for all analyses and utilize ‘svy’ commands to adjust for clustering within households.

RESULTS

Table 1 provides weighted means and proportions for our analytic sample, and includes tests of significance between same sex and other relationship types for the full sample and by

gender. The table reveals some descriptive differences in self-rated poor-to-fair health between the same sex cohabiting respondents and opposite sex married and cohabiting respondents, particularly among men. Significantly fewer same sex cohabiters (9.2%) reported poor health than opposite sex married (11.0%) and cohabiting (10.6%) persons. This statistically significant pattern in reported poor health was present for men but not women.

Table 1 shows many other significant differences across same sex and opposite sex relationships. About 1 in 5 same sex cohabiters live with children, whereas half of married persons and over 40% of opposite sex cohabiters do. There are important gender differences within and between relationship types as well. Only 14% of same sex cohabiting men live with children, compared to nearly 30% of same sex cohabiting women. Same sex cohabiters are also younger, on average, than married persons but older than opposite sex cohabiters. In racial composition, same sex cohabiting men are more similar to married men while same sex cohabiting women are more similar to opposite sex cohabiting women. In general, more same sex cohabiters are non-Hispanic white than their opposite sex counterparts and opposite sex cohabiters are more often non-Hispanic black or Hispanic.

Finally, Table 1 shows important differences in SES across relationship types. Same sex cohabiters hold significant advantages over married persons and opposite sex cohabiters in education, and the gaps are similar for men and women. We also see significantly higher household income for same sex cohabiters, especially when compared to opposite sex cohabiters. While in opposite sex married and cohabiting households there is almost no gender difference in household income, same sex cohabiting men live in households that earn almost \$9K more in income than households of same sex cohabiting women. In terms of employment, same sex cohabiting women work at higher rates than opposite sex cohabiting and especially married

women (we see a nearly 30% gap in the employment rate between same sex cohabiting and married women), while same sex cohabiting men work at a somewhat higher rate than married men, but slightly less than men in opposite sex cohabiting relationships.

(Table 1 about here)

To examine the association of relationship type and the other covariates on reporting poor or fair health, we turn to the logistic regression results in Table 2. Model 1 includes all covariates except for SES and shows that same sex and opposite sex cohabiters are 19% and 72% more likely than married persons to report poor or fair health, respectively. Though both same sex and opposite sex cohabiters have increased odds of poor health compared to married persons, additional tests show that the difference between the two is significant ($t = -4.28$; $p \leq 0.001$), meaning that opposite sex cohabiters have significantly higher odds of poor health than same sex cohabiters. Model 1 also shows that the presence of children in the household decreases the odds of reporting poor health by 6%. Further, Model 1 shows that men are less likely to report poor health, but once we adjust in Model 2 for the lower socioeconomic standing of women, men emerge as slightly more likely to report poor health than women. The likelihood of reporting poor health increases with age and is nearly two times higher among blacks and Hispanics and 18% higher among non-Hispanic others, compared to whites. However, these increased odds by race are suppressed considerably with the inclusion of SES in Model 2. Finally, Models 1 and 2 show that there are important regional differences in self-reported health, and that the odds of reporting poor health have increased over time.¹

(Table 2 about here)

Model 2 of Table 2 shows that more education and income decrease the odds of reporting poor health, and not working increases them. Supplementary analyses interacting relationship

status with the measures of SES found that SES effects do not vary across relationship types (available upon request). Importantly, accounting for SES adjusts for advantages for same sex cohabiters and disadvantages for opposite sex cohabiters, placing them at similarly increased odds of reporting poor health (ORs 1.29 vs. 1.25; $t = 0.36$, $p = 0.72$), relative to their married counterparts.

Model 3 of Table 2 interacts gender with relationship type and indicates that men in cohabiting relationships fare better than women in self-ratings of health. Though the interaction ORs are similar in magnitude and both less than 1.0, the interaction for same sex cohabiters does not reach significance but the interaction for opposite sex cohabiters does. Further, the interaction for children by relationship type in Model 4 provides potential evidence that children are more of a burden than a benefit for same sex cohabiter health though the interaction does not reach significance. To further explore these differences, Table 3 stratifies by gender.

Indeed, Model 1 for men and women in Table 3 shows that, relative to their married counterparts, opposite sex cohabiting men and women face similar increased odds of poor health before adjusting for SES (ORs = 1.68 vs. 1.76; $t = -1.35$, $p = 0.18$). After adjustments for SES, Model 2 shows that opposite sex cohabiting men face increased odds relative to married men (1.14), but opposite sex cohabiting women (1.34) face even higher odds relative to married women ($t = -4.33$; $p \leq 0.001$). For same sex cohabiting men and women, the evidence suggests both groups face increased odds compared to married persons. The odds ratios for same sex cohabiting men are above 1.0 but do not reach significance at the .05 level in either Model 1 or 2. However, women in same sex cohabiting relationships do have statistically higher odds (1.34) of poor health compared to married women only after controlling for SES, but the difference across gender for same sex cohabiters does not reach significance (ORs = 1.18 vs. 1.34; $t = -0.76$, $p =$

0.45). Further, after adjusting for SES in Model 2 the odds of poor health for same sex cohabiting men does not differ significantly from the odds for opposite sex cohabiting men ($t = 0.30, p = 0.76$) and the same comparison is true of women ($t = 0.02, p = 0.98$). In all, the evidence is suggestive that both men and women in same and opposite sex cohabitations have higher odds of poor health than married persons though opposite sex cohabiting men fare slightly better than opposite sex cohabiting women after adjusting for SES.

The sociodemographic, socioeconomic, geographic, and year of survey covariates affect the health ratings of men and women in a similar fashion. But the presence of children in the household protects against poor health ratings for women but not for men in the baseline model. After adjusting for SES (Model 2), children are protective for both men and women but additional tests reveal that children are significantly more protective for women than for men (ORs 0.86 vs. 0.72; $t = 6.62, p \leq 0.001$). Model 3 of Table 3 examines whether the effect of children differs by relationship type. For men, the odds ratio for same sex cohabiting men by children is far below 1.0 but has a wide confidence interval in part because of the relatively few same sex cohabiting men who live with children. Similarly, opposite sex cohabiting men do not appear to differ significantly from married men on the protective effect of children. For women, both interaction odds ratios exceed 1.0 indicating that children are more of a burden than a benefit for health for cohabiting women, relative to married women. This effect does not reach significance for opposite sex cohabiting women but it does so for same sex cohabiting women. Again, the confidence interval for the interaction for same sex women is wide so the magnitude of this effect should be viewed with caution. In all, this suggests that the protective effect of children is larger for women than for men but that, among women, the protective effect of

children is clearest among married women. Indeed, the protective effect of children on health is specific to both gender and relationship type.

(Table 3 about here)

Robustness of Results

Given significant differences in the distribution of many of the covariates across relationship types (see Table 1) we employed a matching methodology and re-estimated the regressions presented in Tables 2 and 3 on a sample matched by relationship type, with belonging to a same sex couple serving as our treatment group and belonging to an opposite sex couple as our control group. We employ a matching strategy as a robustness check on our results, as it serves as a method of adjustment that minimizes differences across relationship types for important covariates such as education and income *before* estimating the regressions. Given the likelihood that selection effects operate along sociodemographic and socioeconomic lines to shape who does and does not enter into a co-residential union, this preprocessing step may better account for some of those factors than traditional methods employed on cross-sectional data. We used coarsened exact matching (CEM) techniques because CEM directly reduces imbalance in covariates, and deals with model dependence and bias before estimation, unlike other matching techniques that deal only indirectly, and after the fact, with these issues (see Blackwell et al. 2009; Iacus, King and Porro 2008 for a detailed discussion of CEM and how to implement it using Stata).²

Providing increased confidence in our reported results, the regressions estimated on this matched sample are consistent with results presented above (matched results available upon request). For example, after matching, same sex (OR = 1.44; 95% CI = 1.24,1.68) and opposite sex (OR = 1.39; 95% CI = 1.29,1.49) cohabiters had a statistically similar increased odds of

reporting poor health compared to their married counterparts. That is, after adjusting away the influence of SES (and the other covariates) a priori through matching, same sex and opposite sex cohabiters are, once again, similarly at higher odds of reporting poor health. Further, in gender stratified models using the matched sample, the odds of reporting poor health for men and women in same sex relationships did not differ significantly from each other or from the odds of men and women in opposite sex cohabitations.

In addition, the matched results show that the presence of children is more protective of women's than of men's health. Finally, the matched results for women suggest the protective effects of the presence of children on health prospects are specific to married women, as found in the unmatched sample.

DISCUSSION

With over 600,000 same sex couple households in the U.S. (Gates and Ost 2004), sexual minority families are ever more prevalent, yet poorly understood. While previous research has been hampered by inadequate sample size, reliance on convenience samples, and no record of relationship status (IOM 2011), existing work does document a general health disadvantage among sexual minorities. Drawing on household roster information from the NHIS our study allows us to produce a rigorous comparison of the health status of adults living in same vs. opposite sex relationship families. While data limitations restrict what we can say about sexual orientation and health, we do contribute to a growing body of work specifying the effects of relationship orientation on health (Reczyk and Umberson 2012). We posited four hypotheses involving the associations between family type, gender, resources, and self-rated health status, and find varying support for these in our analyses.

First, after adjustment for demographic and regional confounders across groups, Hypothesis 1 finds some support in that same sex cohabiters, like opposite sex cohabiters, are significantly more likely to report poor or fair self-rated health than married adults. But additional tests reveal that the increased odds of poor health for same sex cohabiters are less than the increased odds for opposite sex cohabiters. These findings add to those of Wienke and Hill (2009) and are in line with research on opposite sex cohabitation that documents health disadvantages relative to married adults (e.g., Wu et al. 2003). This suggests that same sex cohabitation, much like opposite sex cohabitation, is not equivalent to marriage in terms of the health protections it affords.

Research on opposite sex cohabiters suggests that these relationships can involve fewer resources and less relationship satisfaction, both of which could impair health. Research also indicates, however, that most same sex couples are in dual-earner relationships, and appear to value power equality as an important part of their relationships (Peplau and Fingerhut 2007). Past research also suggests that same sex cohabiters and married persons report similar relationship quality (Kurdek 2004), and that may translate into greater instrumental and emotional support that can be used to improve health. In sum, the mechanisms producing similarly poor health for same sex and opposite sex cohabiters may be quite different. Whereas we are unable to investigate these plausible explanations, it is important that population-level research on sexual minority health do so as soon as data collection allows (IOM 2011).

Our data does let us test explanations relating to socioeconomic status, and as expected, we find a significant, positive association between SES and self-rated health. More education, more income, and better employment prospects correspond with better health across relationship types. Importantly, and in support of our second hypothesis, we find that accounting for SES

adjusts away observed advantages for same sex cohabiters and disadvantages for opposite sex cohabiters so that they have similar increased odds of reporting poor health, compared to their married counterparts. In addition, SES has a larger explanatory effect among men than women. Adjusting for SES reduced the disparity between married and opposite sex cohabitation more so for men than for women; as a result, after adjustment for SES, opposite sex cohabitation is more strongly associated with poor health for women than for men.

Regarding Hypothesis 3, we find limited support for our prediction that men in cohabiting relationships would report better health than women in cohabiting relationships. After accounting for SES and other important confounders, both men and women in same sex cohabiting relationships show higher odds of poor health than married persons and the difference between same sex cohabiting men and women is negligible. Opposite sex cohabiting men and women also display higher odds of poor health but we found further evidence that men in these relationships have lower odds than opposite sex cohabiting women, relative to their married counterparts. Historical (Blumstein and Schwartz 1983) and recent (Reczek and Umberson 2012) evidence documenting more similar gender role expectations within same sex relationships versus those in opposite sex relationships provides a framework in which to understand these findings. Men partnered with men and women partnered with women may assign gendered roles and expectations within relationships in a more collaborative fashion and that may result in more similar health prospects for men and women in same sex partnerships.

Finally, we find support for Hypothesis 4 in that living with children is more strongly related to the health of women than men. However, we identify an additional caveat in that this applies mostly to women in opposite sex married relationships. In fact, for women in cohabiting relationships the presence of children may be more of a burden than a benefit to health. This is

consistent with identified social and economic consequences of childrearing for women (Light 2004). Previous research suggests social and economic disadvantages come with health consequences for opposite sex cohabiting women and we have identified a health deficit for same sex cohabiting women, though we are limited in what we can say causes this disadvantage. Nevertheless, these health disadvantages suggest the presence of additional stress and strains for women in cohabiting relationships, compared to their married counterparts, and this may be exacerbated by the presence of children.

The NHIS provides a unique opportunity to study the health experience of adults in same sex relationships, but it has some important limitations, most notably the lack of direct measurement of sexual identity – which forced us to determine sexual minority status indirectly via the household roster. This is potentially problematic because existing work on sexual minority health and health behaviors has revealed the multidimensionality of sexual orientation (McCabe et al. 2009). Even so, examining the health of sexual minorities in self-identified relationships with partners in which they share a home, and in some instances live with children, provides important insights into the health of sexual minorities within the realm of social relationships and health (Carr and Springer 2010; Umberson and Montez 2010). In addition, the NHIS lacks information on relationship duration or quality, despite research showing that these factors are quite relevant for a relationship’s impact on health and health behavior (Wu and Hart 2002). These concerns highlight the need for more consistent population-based initiatives to collect detailed information on sexual orientation and relationship duration and quality (Dilley et al. 2010).

The uncertainty surrounding selection into relationships and how selection factors may vary across same sex and opposite sex relationships (Carpenter and Gates 2008), together with

our inability to adequately account for these issues due to the cross sectional nature of the NHIS data, means that some caution should be exercised in interpreting the association observed between relationship type and health from our findings. While some scholars do find evidence that theories relating to social causation offer a better explanation for differences in well-being than selection effects (e.g., Brown 2000), these processes which select persons into relationships call for more research and dedicated data collection efforts aimed at gathering information on relationship types and transitions over time among sexual minority and majority adults.

Importantly, though we cannot elaborate empirically on some of our findings, emerging work provides a base from which to move forward. For example, the minority stress framework links discrimination to poorer health for sexual minorities because of hostile and stressful social environments created through fear, stigma, and prejudice (Meyer 2003). Sexual minorities report more lifetime and day-to-day discriminatory strains, which are associated with poor self-rated health, chronic health conditions, high blood pressure, and psychological distress and disorders (Thoits 2010). Without NHIS measures on discrimination it remains unknown how those effects are either enhanced or mediated through a same sex relationship. However, it is plausible that the residual negative health effects of same sex cohabitation lie in these discrimination and stigma pathways.

Furthermore, understanding gender roles in relationship context likely plays a large part in understanding health across same sex and opposite sex relationships. Men have historically enjoyed larger benefits from intimate social relationships, in part because of the heavy influence of wives in promoting their health. Recent work by Reczek and Umberson (2012) identifies a process they term “cooperative health behavior work” in which persons in same sex relationships more often mutually influence each other’s health behaviors, compared to those in opposite sex

relationships. This process, in all likelihood, applies to both positive and negative health behaviors, and operates to some unknown extent in the health patterns observed in our sample as well.

Recent years have witnessed a growing public debate in the United States as to what constitutes a family and who deserves legal recognition as part of one. The importance of marriage as the standard for meaningful, productive, and thus supportive relationships has divided scholars into competing camps (Wienke and Hill 2009). On one side, arguments for alternative family configurations suggest that marriage as the standard is becoming outdated, though institutionally supported. In the modern world, intimacy, not formality, may be the key to productive and healthy relationships (Giddens 1992), and the importance of marriage as an institution may be waning (Cherlin 2004). On the other side, researchers contend that the health benefits of marriage still outweigh the benefits of other relationship types (Waite and Gallagher 2000), and empirical evidence on health and social relationships generally finds continued support for those notions.

If marriage can improve health more than other family formations, what are the ramifications for groups with restricted marriage rights? Though legalizing same sex marriage will not complete the movement toward marriage equality nor improve health right away (Lau and Strohm 2011), it provides the potential for better health for a growing and increasingly visible minority population. It remains to be seen whether sexual minority health will improve along with growing public acceptance of alternative unions (Powell et al. 2010) and movements toward equality, and whether policies will be put in place to nurture such progress.

NOTES

¹ We estimated models with interactions between relationship type and survey year and found no significant results.

² Following guidance from the authors of CEM (Blackwell et al. 2009; Iacus, King and Porro 2008), we estimated multiple solutions with varying levels of coarsening on covariates, each of which affects the sample size but does not distort the estimation of effects in subsequent regression models. In matching, CEM creates clusters, or bins, based on the covariates used and coarsening specified. Though our treatment is binary (same sex relationship vs. opposite sex relationship), we remove any bins that do not include observations from all three relationship types (same sex cohabiting, opposite sex married, and opposite sex cohabiting). Finally, we compensate for the resulting different strata sizes by incorporating the CEM generated weights in our matched regression models. See equation 6 on page 8 of Iacus et al. (2008) for detail on the weighting strategy employed. As a guide, we calculate imbalance measures for each of the covariates as described by Iacus and colleagues (2012:7) and witness balance improvements in all covariates after matching. Matching reduced our sample size by about 10%.

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Table 1. Weighted Means and Proportions by Relationship Type and Gender (N = 460,459).^a

	Same Sex Cohabiting			Opposite Sex Married						Opposite Sex Cohabiting		
	Full	Men	Women	Full	Men	Women	Full	Men	Women	Full	Men	Women
Poor-to-Fair Self-Rated Health	9.2	8.5	10.0	11.0 ***	11.3 ***	10.7	10.6 *	10.1 *	11.0			
Sociodemographic Measures												
Age (mean)	41.6	41.9	41.2	47.4 ***	48.6 ***	46.1 ***	35.8 ***	36.8 ***	34.7 ***			
Male	51.2	--	--	50.0	--	--	49.8	--	--			
Children in the household	21.5	14.2	29.2	49.8 ***	49.8 ***	49.8 ***	43.7 ***	43.7 ***	43.8 ***			
Race/ethnicity												
non-Hispanic white	72.1	72.8	71.4	68.6 ***	68.7 ***	68.4 ***	59.9 ***	58.9 ***	61.0 ***			
non-Hispanic black	10.7	9.1	12.5	8.5 ***	8.7	8.2 ***	15.6 ***	17.0 ***	14.3			
non-Hispanic other	4.1	4.3	3.9	4.8	4.5	5.0 *	3.3 *	2.8 ***	3.8			
Hispanic	13.1	13.8	12.3	18.2 ***	18.0 ***	18.4 ***	21.1 ***	21.4 ***	20.9 ***			
Socioeconomic Status												
Education (mean)	14.0	14.0	14.0	13.3 ***	13.2 ***	13.3 ***	13.0 ***	12.9 ***	13.1 ***			
Employed	80.0	79.8	80.2	67.9 ***	76.5 **	59.3 ***	76.5 ***	82.4 **	70.6 ***			
Household income (mean)	\$55,064	\$59,149	\$50,784	\$45,532 ***	\$45,564 ***	\$45,500 ***	\$37,079 ***	\$37,132 ***	\$37,026 ***			
Geographic region												
Northeast	21.0	20.3	21.7	17.1 ***	17.1 ***	17.1 ***	17.5 ***	17.4 **	17.6 ***			
Midwest	17.5	16.5	18.5	22.4 ***	22.4 ***	22.4 ***	23.5 ***	23.6 ***	23.5 ***			
South	33.4	35.2	31.4	36.6 ***	36.6	36.6 ***	32.9	33.0	32.9			
West	28.2	27.9	28.4	23.9 ***	23.9 ***	23.9 ***	26.0 **	25.9	26.1 *			
N	3,219	1,647	1,572	419,424	209,625	209,799	37,816	18,825	18,991			

Source: 1997-2008 IHIS (Minnesota Population Center 2010)

^a Tests of significant differences between same sex cohabiters and opposite sex married persons and between same sex cohabiters and opposite sex cohabiters for full samples and by gender.

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

Table 2. Odds Ratios and 95% Confidence Intervals, Logistic Regression Predicting Poor/Fair Self-Rated Health.

	Model 1	Model 2	Model 3	Model 4
Relationship type (opposite sex married, ref)				
Same sex cohabiting	1.19*	1.29**	1.43**	1.23*
	(1.01,1.40)	(1.10,1.52)	(1.15,1.77)	(1.03,1.47)
Opposite sex cohabiting	1.72***	1.25***	1.39***	1.25***
	(1.64,1.80)	(1.19,1.31)	(1.31,1.47)	(1.17,1.34)
Sociodemographic Measures				
Age	1.05***	1.03***	1.03***	1.03***
	(1.05,1.05)	(1.02,1.03)	(1.02,1.03)	(1.02,1.03)
Male	.93***	1.13***	1.15***	1.13***
	(.92,.95)	(1.11,1.15)	(1.13,1.18)	(1.11,1.15)
Children in the household	.94***	.78***	.77***	.77***
	(.91,.97)	(.75,.80)	(.75,.80)	(.75,.80)
Race/ethnicity (non-Hispanic white, ref)				
non-Hispanic black	1.90***	1.60***	1.60***	1.60***
	(1.83,1.98)	(1.54,1.67)	(1.54,1.67)	(1.54,1.67)
non-Hispanic other	1.18***	1.00	1.00	1.00
	(1.11,1.26)	(.94,1.07)	(.94,1.07)	(.94,1.07)
Hispanic	1.90***	.89***	.89***	.89***
	(1.84,1.97)	(.85,.93)	(.85,.93)	(.85,.93)
Socioeconomic Status				
Education		.87***	.87***	.87***
		(.87,.88)	(.87,.88)	(.87,.88)
Unemployed or not in the labor force		2.64***	2.64***	2.64***
		(2.57,2.72)	(2.57,2.72)	(2.57,2.72)
Logged Household income		.61***	.61***	.61***
		(.60,.62)	(.60,.62)	(.60,.62)
Controls				
Geographic region (Northeast, ref)				
Midwest	1.16***	1.08***	1.08***	1.08***
	(1.11,1.21)	(1.04,1.13)	(1.04,1.13)	(1.04,1.13)
South	1.52***	1.35***	1.35***	1.35***
	(1.47,1.58)	(1.30,1.40)	(1.30,1.40)	(1.30,1.40)
West	1.10***	1.09***	1.09***	1.09***
	(1.06,1.15)	(1.04,1.14)	(1.04,1.14)	(1.04,1.14)
Year of survey	1.00***	1.02***	1.02***	1.02***
	(.99,1.01)	(1.01,1.02)	(1.01,1.02)	(1.01,1.02)
Interactions				
Male x same sex cohabiter			.83	
			(.60,1.14)	
Male x opposite sex cohabiter			.82***	
			(.76,.87)	
Children x same sex cohabiter				1.25
				(.84,1.88)
Children x opposite sex cohabiter				1.00
				(.90,1.10)
Pseudo R ²	.09	.16	.16	.16

Source: Integrated Health Interview Series, 1997-2008 (MPC 2010). N = 460,459, *** p ≤ .001 ; ** p ≤ .01; * p ≤ .05

Table 3. Odds Ratios and 95% Confidence Intervals, Logistic Regression Predicting Poor/Fair Self-Rated Health, by Gender.

	Men (N = 230,097)			Women (N = 230,362)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Relationship type (opposite sex married, ref)						
Same sex cohabiting	1.22 (.96,1.55)	1.18 (.93,1.50)	1.25 (.97,1.60)	1.16 (.94,1.45)	1.34** (1.08,1.66)	1.14 (.89,1.47)
Opposite sex cohabiting	1.68*** (1.58,1.78)	1.14*** (1.07,1.21)	1.17*** (1.08,1.27)	1.76*** (1.66,1.86)	1.34*** (1.26,1.42)	1.32*** (1.22,1.42)
Sociodemographic Measures						
Age	1.06*** (1.05,1.06)	1.02*** (1.02,1.02)	1.02*** (1.02,1.02)	1.05*** (1.05,1.05)	1.03*** (1.03,1.03)	1.03*** (1.03,1.03)
Children in the household	.96 (.92,1.00)	.86*** (.83,.90)	.87*** (.83,.91)	.91*** (.88,.95)	.72*** (.69,.75)	.71*** (.68,.75)
Race/ethnicity (non-Hispanic white, ref)						
non-Hispanic black	1.80*** (1.71,1.88)	1.42*** (1.35,1.50)	1.42*** (1.35,1.50)	2.04*** (1.94,2.13)	1.80*** (1.71,1.89)	1.79*** (1.71,1.89)
non-Hispanic other	1.22*** (1.13,1.32)	1.08 (.99,1.18)	1.08 (.99,1.18)	1.15*** (1.06,1.24)	.94 (.87,1.02)	.94 (.87,1.02)
Hispanic	1.82*** (1.75,1.90)	.90*** (.86,.95)	.90*** (.86,.95)	1.99*** (1.91,2.07)	.90*** (.86,.95)	.90*** (.86,.95)
Socioeconomic Status						
Education		.87*** (.87,.88)	.87*** (.87,.88)		.87*** (.86,.88)	.87*** (.86,.88)
Unemployed or not in the labor force		3.57*** (3.41,3.75)	3.58*** (3.41,3.75)		2.14*** (2.06,2.22)	2.14*** (2.06,2.22)
Logged Household income		.62*** (.61,.63)	.62*** (.61,.63)		.60*** (.59,.61)	.60*** (.59,.61)
Controls						
Geographic region (Northeast, ref)						
Midwest	1.17*** (1.12,1.23)	1.09** (1.03,1.14)	1.09** (1.03,1.14)	1.14*** (1.09,1.20)	1.08** (1.02,1.13)	1.07** (1.02,1.13)
South	1.54*** (1.48,1.61)	1.38*** (1.32,1.45)	1.38*** (1.32,1.45)	1.50*** (1.44,1.57)	1.33*** (1.27,1.40)	1.33*** (1.27,1.40)
West	1.04 (.99,1.10)	1.04 (.99,1.10)	1.04 (.99,1.10)	1.17*** (1.11,1.23)	1.15*** (1.09,1.21)	1.15*** (1.09,1.21)
Year of survey	1.00 (.99,1.01)	1.01*** (1.01,1.02)	1.01*** (1.01,1.02)	1.00 (1.00,1.01)	1.02*** (1.01,1.02)	1.02*** (1.01,1.02)
Interactions						
Children x same sex cohabiter			.68 (.31,1.51)			1.69*** (1.06,2.71)
Children x opposite sex cohabiter			.94 (.83,1.06)			1.04 (.92,1.17)
Pseudo R ²	.10	.18	.18	.08	.15	.15

Source: Integrated Health Interview Series, 1997-2008 (MPC 2010). *** p ≤ .001 ; ** p ≤ .01; * p ≤ .05

