Changes in the Social Environment and Mental Health During the Transition from Adolescence to Young Adulthood

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Abstract

This study uses the National Longitudinal Study of Adolescent Health to examine the relationship between several of census block level measures of sexual minorities' neighborhoods including of percent urban, college degrees, Republican voters, and same-sex couples, and mental health during young adulthood. Additionally, I examine whether changes in the social environment between adolescence and young adulthood may improve mental health among the sexual minority population. The results suggest that increases in the percent urban and decreases in the percent Republican voters in sexual minorities' neighborhoods are associated with improvements in mental health. Moreover, sexual minorities who reside in neighborhoods with higher concentrations of same-sex couples also experience better mental health compared to sexual minorities who live in neighborhoods with no same-sex couples. This study contributes important findings to the field by further demonstrating how the social environment and changes in the social environment affect sexual minority mental health.

Much work has documented elevated rates of depressive symptoms and increased suidicality (Garofalo et al. 1999; Hershberger, Pilkington, and D'Augelli, 1997; Remafedi et al. 1991; Russell 2003). The extent to which social environments influence mental health among sexual minority populations, however, has only been recently examined and suggests that the social environment is an important contributing factor to mental health disparities by sexual orientation (Hatzenbuehler 2010). This paper adds to the literature by examining the relationship between several important characteristics of neighborhoods, including percent with college degrees, percent urban, percent voted Republican, and percent in same-sex relationships, on mental health outcomes during adolescents and young adulthood. Additionally, I investigate how changes in the social environment are related to changes in mental health between adolescents and young adulthood.

Background

In his work on minority stress theory, Meyer (1995; 2001) argues that minority groups experience excess levels of stress associated with their minority status. Building off of Durkheim's work on the role of social integration, Meyer argues that because minority stress is related to conflict between the relatively stable norms and values of dominant groups in society and those of minority groups, minority stress is structural and integrally linked to the social environment. That is, individual perceptions of self-worth are constructed through continuous evaluation of the self, not only against the perceived evaluation of others in interpersonal situations, but also against dominant cultural values perpetuated in the social environment.

Research that has examined the role of social integration and specific regional policies has documented that the social environment has important implications for sexual minority

mental heath (for a review see Hatzenbuehler 2010). Indeed, sexual minority mental health has been shown to vary between regions where policies exist that discriminate against sexual minorities, or between environments where policies are present that protect sexual minorities against discrimination. For example, in states where same-sex marriage has been banned, higher levels of depressive symptoms among sexual minorities have been documented (Hatzenbuehler, McLaughlin, Keyes, and Hasin 2010; Riggle, Rostosky and Horne 2009). The effects of the social environment on mental health, however, are not limited to specific policies, but may be linked to normative attitudes toward same-sex sexual orientation.

Studies that have examined correlates of homophobic attitudes have found that certain sociodemographic characteristics are associated with more homophobic attitudes. For example, persons that live in rural environments have been identified as being more hostile toward sexual minorities than urban environments (Bell and Valentine 1995; D'Augelli and Hart 1987; Kosciw, Greytak, and Diaz 2009; Poon and Saewyc 2009). In a study of sexual minorities in rural environments 45% of nonmetropolitan respondents reported that 'the worst thing' about the rural environment was living in a homophobic environment. Other work examining the correlates of homophobia have documented that increased levels of education are associated with more tolerant attitudes (Walch et al. 2010) and that religious and political conservative groups were more likely to have homophobic attitudes (Morrison and Morrison 2002; Oswald and Culton 2003; Walch et al. 2010). Thus, social environments that are rural, have lower levels of education, and higher percentages of Republican voters may negatively affect the mental health of sexual minorities in those environments.

Research has shown that sexual minorities migrate to more tolerant social environments. Indeed, studies that have investigated gay migration suggest that gay men and women move

from less tolerant, rural areas, to more urban accepting areas (Aldrich 2004; Black et al. 2002; Cooke and Rapino 2007; Knopp and Brown 2003; Walther and Poston 2004; Weston 1995) with higher concentrations of gays and lesbians (Aldrich 2004; Cook and Rapino 2007). Thus, changes in the social environment, or migration, may be an important mechanism for improving mental health among sexual minorities. The extent to which moving to more urban, more educated, less republican environments is related to mental health outcomes among sexual minorities, is unknown. Moreover, sexual minorities residing in locations with higher concentrations of same-sex couples may also serve to improve mental health as these environments may provide sexual minorities with better social networks and a more socially accepting environment.

This paper therefore adds to the existing literature by examining the role of the social environment and changes in the social environment between Waves I and III that are associated with mental health outcomes among sexual minorities.

METHODS

Data

The data comes from Waves I and III of the National Longitudinal Study of Adolescent Health (Add Health). The Add health data is a nationally representative longitudinal study of U.S. adolescents that began in the fall of 1994, initially drawn from 80 high schools and 52 middle schools with unequal probabilities of selection. A subsample of respondents and their parents were asked to fill out an additional in-depth survey (N=20,747). 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, thus my sample is restricted to Waves I and IIV of the survey. Response rates for this

study were 79% for Wave I and 77.4% for Wave III. The sample for this proportion of the analysis is restricted to respondents who report a mostly straight, bisexual, mostly gay, or gay identity at Wave III of the survey (N=1,328).

Analytical Appraoch

To assess the impact of the social environment and changes in the social environment on mental health among sexual minorities I used OLS regression. Contextual information on neighborhood characteristics is not available for Wave IV of the survey; thus, I focus solely on mental health at Wave III. I regress depressive symptoms on census block measures of characteristics that are associated with homophobic attitudes, including percent Republican voters, percent urban, and percent respondents with college degrees. Census block information is provided for respondents at Wave I and III on these characteristics. I control for factors at Wave I and then create change scores (WI-WIII) for these characteristics to capture changes in respondent's social environment between Waves I and III. Unfortunately, I do not have geographic data on the location of the individual's residences, and am therefore unable to control for state level specific policies. Wave III of the survey provides information on the percent of same-sex couples in the census block and is therefore included in the model. Unfortunately, this information is not available for Wave I and therefore a change score is not included. Supplementary analysis that interacted sexual minority status with neighborhood indicators were significant and suggested a unique effect of neighborhood indicators among sexual minorities.

Measures

Sexual Orientation

I use sexual orientation identity measured at Wave III. Respondents included in the sample report either a mostly straight, bisexual, mostly gay, or 100% gay identity. To produce more stable estimates, respondents who report a mostly straight or bisexual identity are collapsed into a single category, as are respondents that report a mostly gay or 100% gay identity.

Depressive Symptoms

The measure of depressive symptoms follows the Center for Epidemiologic Studies Depression Scale (Radloff 1977). The depressive symptoms scale is derived from a series of ten questions that ask respondents "how often was each of the following things true in the past seven days: you were bothered by things that usually don't bother you; you felt that you were just as good as other people; you had trouble keeping your mind on what you were doing; you felt depressed; you felt that you were too tied to do things; you were happy; you enjoyed life; you felt that people disliked you; you cried frequently.[1]" The scale is the sum of these ten questions and ranges from 0 to 31. The CES-D scale at Wave I has an alpha of .76 and at Wave III an alpha of .80.

Community Level Variables

To examine the effect of the social environment and changes in the social environment on mental health among sexual minorities, I include measures of four dimensions of the social environment at the neighborhood level: percent urban, percent Republican, percent college educated, and percent same-sex couples. GPS coordinates were taken at the time of in-home interviews at both Waves I and III that were then linked to a variety of contextual level data sources (see Chapter

[1] Items "you were happy" and "you enjoyed life" were reversed coded so that increases in the scale indicate increases in depressive symptoms.

One for more detail). I include census block level measures of the percent of residents who voted republican in the most recent senatorial election race, the percent urban in an urbanized area, and the percent of respondents who have a college degree.

I include measures of the percent republican, urban, and college educated at Wave I of the survey as well as a change score that captures the difference between Wave I contextual measures and Wave III contextual measures. The Wave I contextual measures range from 0 to 100% and are recoded into deciles ranging from 1 to 10. Change scores are constructed subtracting Wave III contextual variables from Wave I contextual variables and are also recoded into deciles that range from -10 to 10. I also include a measure of the percent same-sex couples in the census block. This measure, however, is only included in Wave III of the survey. Because of the small range of the variable (0 to .08 percent), this variable is coded into a series of dummy variables that capture whether respondents live in an area with 0% same-sex couples (referent); .01% same-sex couples, or .02% to .08% same sex couples.

Other Covariates

I control for respondent sex, race/ethnicity, education level, and depressive symptoms at Wave I. Sex is coded as a dummy variable that measures whether respondents are female or male (referent). Race/ethnicity is coded as a series of dummy variables that measure whether respondents identify as non-Hispanic white (referent), non-Hispanic black, Hispanic, non-Hispanic Asian, or other race. Age is coded as a continuous variable that ranges from 18 to 26 years of age. Education is coded as a series of dummy variables that measures whether respondents did not complete high school, have a high school degree, or greater than a high

school degree (referent). Depressive symptoms at Wave I are coded using the CES-D scale described earlier.

Neighborhood Environment and Mental Health

Descriptive Statistics

The descriptive statistics used for the second portion of the analysis are provided in Table 2. Of those who report a sexual minority identity at Wave III of the survey, 85.5% report a mostly straight or bisexual identity and 15.5 report a gay or mostly gay identity. At Wave I, the average percent Republican in the census block is 5.91 and the average change is 0.58, this means that on average, sexual minorities are moving to less Republican environments between Waves I and III. In Wave I the percent urban is 6.25 at Wave I and the average change is -1.5, suggesting that on average sexual minorities move to more urban environments. For example, if the percent urban is 60% in Wave I, and a respondent reports a 70% urban environment in Wave III, the change would be -10% (60%-70%). These results are in line with other work that has shown sexual minorities are more likely to move to more liberal, urban environments (Aldrich 2004; Black et al. 2002; Cooke and Rapino 2007; Knopp and Brown 2003; Walther and Poston 2004; Weston 1995). The average score of percent college graduate is 3.03 and the change score is only 0.02, suggesting relatively no change in educational environments between waves on average.

(Table 1 about here)

Fifty-three percent of sexual minorities live in areas that report 0% same-sex couples, 37% live in environments with .1% same-sex couples, and 8% live in environments with .02 to .08% same-sex couples. The average depressive symptoms scores are 7.7 at Wave I and 7.3 at Wave III.

Multivariate Results

Table 2 presents the betas from OLS regression examining the relationship neighborhood composition at Wave I, the change in neighborhood composition between Waves I and III, and depressive symptoms at Wave III among sexual minority identified respondents. Model 1 controls for percent urban and change in the percent urban between Waves I and III. While the percent urban at Wave I is not associated with mental health at Wave III, a one-unit change in percent urban, that is a move to a less urban environment, is associated with an increase in depressive symptoms (β =0.11, $p<.05$). Model 2 controls for percent Republican and shows that higher concentrations of republican voters at Wave I (β =0.30, $p<.05$) are associated with poorer mental health at Wave III. A one-unit change in percent Republican voters represents a change to a less republican environment and is associated with fewer depressive symptoms at Wave III (β =-0.35, $p<.001$). Model 3 shows there is no relationship between the percent persons with college degrees at Wave I or change in percent of college degrees between Waves I and III and depressive symptoms among sexual minorities. Model 4 shows that the percent of same-sex couples in respondents' neighborhood at Wave III is also associated with mental health outcomes: compared to respondents who live in neighborhoods with 0% same-sex couples, respondents who live in neighborhoods with between .02 and .08% same-sex couples have fewer depressive symptoms (β =-0.97, $p<.10$).

(Table 2 about here)

Model 5 controls for all neighborhood level characteristics. While change in percent urban is no longer significant, higher percentages of republican voters in Wave I of the survey are associated with increases in depressive symptoms at Wave III (β=0.29, $p<.10$), while

decreases in the percent of republican voters between Waves I and III (β=-0.32, p<.01) and residing in a neighborhoods with.02 to .08% same-sex couples (β=0.98, p<.10) are associated with fewer depressive symptoms at Wave III. Model 6 adds controls for respondents' level of education and depressive symptoms at Wave I and shows that even when previous mental health is accounted for, moving to a less Republican, or more liberal, neighborhood (β=-0.32) and the presence of same-sex couples improve mental health among sexual minorities.

Discussion

This research highlights the importance of neighborhood composition for influencing mental health among sexual minorities. Moreover, this work suggests that change in neighborhood composition between adolescence and young adulthood is an important mechanism through which sexual minorities may improve their mental health.

The results presented in Table 2 show that sexual minorities who live in rural environments and neighborhoods with higher percentages of republican voters during adolescence have poorer mental health in young adulthood. Other work has shown that rural environments are associated with poorer mental health among sexual minorities (Galliher, Rostosky, and Hughes 2004; Poon and Saewyc 2009). And while some research has linked specific political policies to mental health outcomes among sexual minorities (Hatzenbuehler 2010; Hatzenbuehler, McLaughlin, Keyes, and Hasin 2010; Riggle, Rostosky and Horne 2009), to my knowledge, no study to date has linked neighborhood political party to sexual minority mental health. Moreover, the percent of same-sex partners in one's neighborhood is also associated with fewer depressive symptoms among sexual minorities: compared to sexual minorities that live in neighborhoods that contain no same-sex partners. These results underscore

the importance of understanding the links between the social environment and individual-level pathology (Durkheim 2003; Berkman et al. 2000). That is, not only do individual level cognitive processes affect mental health, but also societal level norms and contexts are critical for improving the mental health of sexual minorities.

Table 2 also provides insights into how changes in neighborhood environment are linked to mental health outcomes. Sexual minorities whose neighborhoods increase in urbanicity and decrease in the percent republican voters between Wave I and III are associated with better mental health outcomes in young adulthood. While I cannot ascertain for certain that changes in neighborhood composition are a product of moving to new locations or changes in composition of the same neighborhood between Waves I and III, nor whether respondents change their social environment as a result of being drawn to new environments or being pushed out of old environments, the results suggest that sexual minority migration to more politically liberal, urban environments may be an important coping mechanism for improving mental health.

The results suggest that residing in more liberal social environments improves the wellbeing of sexual minorities. However, many sexual minority youth may be unable to move or tied to more homophobic environments for economic, familial, or other reasons. Sexual minorities who live in areas where LGBT social services may be hardest to implement and distribute, therefore, may be those who are most in need of these services. To be sure, gay, lesbian, bisexual youths should not be forced to move to San Francisco in order to live in a safe and socially accepting environment. Public health policy should continue to focus on decreasing homophobic attitudes among the general population and increase social services available to sexual minorities living in more homophobic environments.

This research has several limitations that could be addressed in future research. First, I am unable to assess disparities in sexual minority status by sexual orientation identity in my analysis of the school environment and mental health disparities. This variable may not capture differences in mental health among people who identify as gay, or engage in same-sex sex, compared to persons who report same-sex attraction but identify as heterosexual. Second, I am unable to say for certain whether respondents have moved between Waves I and III of the survey. Third, I am unable to assess the impact of other neighborhood features such as percent religious, which may indicate higher levels of normative homophobia, as well as state or county-level specific policies that may influence sexual minority mental health.

Despite these limitations, this research is the first to use to examine the impact of sociodemographic correlates of homophobia at the neighborhood level on sexual minority health. Future work should continue to investigate how the social environment influences the health of sexual minorities across the lifecourse. Moreover, this work also highlights the need for more work on to understand how the social environment affects the lives of sexual minorities in areas in more hostile environments.

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Table 1. Descriptive statistics analysis of the relationship between neighborhood characteristics and depressive symptoms among sexual minorities

Sexual Orientation Identity		
Gay/Mostly gay	15.51	%
Bisexual/Mostly heterosexual	84.49	
Female	71.79	
Age	22.25	
Race/ethnicity		
Non-Hispanic white	75.02	
Non-Hispanic black	7.99	
Hispanic	11.56	
Asian	3.27	
Other race	2.16	
Neighborhood Characteristics		
Percent republican (Deciles)	5.91	
Percent republican WI-WIII	0.58	
Percent urban (Deciles)	6.25	
Percent urban WI-WIII	-1.5	
Percent college degree (Deciles)	3.03	
Percent change WI-WIII	0.02	
Same sex couples, 0%	53.04	
Same sex couples, .01%	38.61	
Same sex couples, .02% to .08%	8.35	
Education		
Less than high school	9.74	
High school graduate	71.82	
> high school degree	18.44	
Depressive symptoms, WI	7.71	
Depressive symptoms, WIII	7.3	

Source: Waves I & III of the National Longitudinal Study of Adolescent Health

Note: Referent in parentheses

Table 2. Betas for depressive symptoms at Wave III among sexual minorities

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Sexual orientation identity (Gay/mostly gay)						
Bisexual/Mostly heterosexua	0.67	0.94 *	0.74 †	0.65	0.85 †	0.61
Female	1.55 ***	1.37 ***	1.51 ***	1.61 ***	1.40 ***	0.95 *
Race/ethnicity (non-Hispanic white)						
Non-Hispanic black	1.33 *	1.32 *	1.33 *	1.35 *	1.08 +	0.85 †
Hispanic	1.35 *	1.34 *	1.35 *	1.47 **	1.13 +	0.95
Asian	1.32	1.66 *	1.58 †	1.47 †	1.57 +	0.87
Other	1.01	0.75	1.03	0.84	0.61	0.44
Age	-0.24 *	-0.25 *	-0.26 **	-0.25 *	-0.23 *	-0.27 **
Neighborhood Characteristics						
Percent urban (Deciles)	0.00				0.04	0.08 †
Percent urban WI-WIII	0.11 *				0.08	0.05
Percent republican (Deciles)		0.30 *			0.29 +	0.19
Percent republican WI-WIII		-0.35 ***			-0.32 **	-0.28 **
Percent college degree (Deciles)			-0.14		-0.13	-0.01
Percent change WI-WIII			0.07		0.02	-0.02
Same-sex couples (0%)						
Same sex couples, .01%				-0.27	-0.20	-0.06
Same sex couples, .02% to .08%				-0.97 †	-0.98 †	-0.85 †
Education (> High school graduate)						
No high school degree						1.39 *
High school graduate						1.12 **
CES-D, WI						0.31 ***
Constant	10.72 ***	9.23 ***	11.50 ***	10.94 ***	11.07 ***	7.28 **
R squared	0.04	0.06	0.06	0.05	0.08	0.18

Source: Waves I & III of the National Longitudinal Study of Adolescent Health

† $p \leq .10$. * $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

Note: Referent in parentheses