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Sexual orientation, gender expression and socioeconomic status in the National Longitudinal Study of Adolescent to Adult Health

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► Additional supplemental material is published online only. To view, please visit the journal online (http://dx.doi.org/10.1136/jech-2022-220164).

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Received 2 December 2022
Accepted 17 October 2023

To cite: Hernandez SM, Halpern CT, Conron KJ. *J Epidemiol Community Health* Epub ahead of print: [*please include* Day Month Year]. doi:10.1136/jech-2022-220164

ABSTRACT

Background Socioeconomic status (SES) is a fundamental contributor to health, yet it is rarely examined relative to gender expression, particularly gender non-conformity and sexual orientation.

Methods We use data from 11 242 Wave V respondents (aged 33–44) in the National Longitudinal Study of Adolescent to Adult Health (2016–2018) to examine associations between socially assigned gender expression, sexual orientation and SES, in logistic and multinomial regression models stratified by sex assigned at birth.

Results Among both women and men a general pattern of heightened risk for lower SES among gender non-conforming sexual minorities relative to gender conforming heterosexuals was observed. Gender non-conforming heterosexuals were also at elevated risk of lower SES compared with their conforming heterosexual peers.

Conclusion Socioeconomic differences by sexual orientation and gender expression have important implications for understanding health disparities among gender non-conforming sexual minorities and their gender conforming heterosexual counterparts.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Socioeconomic status (SES) is a fundamental contributor to health and disease. Sexual minorities, particularly females, have lower SES compared with heterosexual individuals. Though this can vary based on the socioeconomic outcome.

WHAT THIS STUDY ADDS

⇒ Socially assigned gender non-conformity and sexual orientation are both associated with lower SES among women and men.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Findings suggest the need to examine upstream factors such as stigma and discrimination that vary by sexual orientation and gender expression as determinants of population patterns of SES.

INTRODUCTION

Socioeconomic status (SES) is a fundamental contributor to health and disease across the life course[1–9] that varies by sexual orientation and other demographic characteristics. Higher rates of poverty among sexual minority (SM) women, bisexual and transgender people and lesbian, gay, bisexual and transgender (LGBT) people of colour relative to their white, cisgender peers have been observed.[10–12] Drivers of these economic inequities include differences in educational attainment and employment, particularly among cisgender SM women,[10] bisexual[13 14] and transgender[15] people that emerge earlier in the life course, as well as differential exposure to employment discrimination.[7 16 17] An expanding component in this work is the role of gender identity and gender expression in shaping socioeconomic trajectories, particularly in relation to sexual orientation.

Gender non-conformity in a person's appearance or mannerisms is hypothesised to elevate risk of adverse treatment for LGBT people as a visible manifestation of a stigmatised social status.[18 19] Studies indicate that LGB people who were gender non-conforming (GNC) in childhood (e.g., masculine girls, feminine boys) experienced more violence victimisation than those whose gender expression conformed to sex-linked expectations of gender.[20 21] Research conducted in a general population sample of youth found that GNC youth were at greater risk for bullying[22]; this study did not examine sexual orientation. In general, school-based victimisation elevates risk for school dropout[23] and diminished earnings.[24]

Gender typicality,[25] or how well individuals adhere to cohort-specific gender-typical norms, has been used to examine labour market outcomes among sexual minorities in the Add Health cohort.[6] Interestingly, Burn and Martell, using multiple waves of Add Health data, found controlling for gender typicality generally did not help explain differences in labour market outcomes for sexual minorities.[6] However, results also suggest that masculinity may be rewarded in the labour market regardless of sex assigned of birth. For instance, a study using Swedish national data found that gender non-conformity in childhood was associated with better labour market outcomes for women.[8]

Another measure of gender expression that may be associated with SES outcomes is socially assigned gender expression. Socially assigned or perceived gender expression, like socially assigned race, is based on perceptions or 'external cues' that someone makes about an individual's sex assigned

at birth (SAB) that can place individuals at risk for negative health outcomes.[26]

Socially assigned gender expression and sexual orientation have not, to our knowledge, been jointly examined in relation to SES in the USA. However, research conducted in a representative sample of South African adults found that GNC heterosexual and LGB people were less likely to be employed than gender conforming (GC) heterosexual people (33.8% and 14.9% vs 46.4% employed, respectively).[27]

The current study extends our work on SES and sexual orientation in the National Longitudinal Study of Adolescent to Adult Health (Add Health) by examining associations between sexual orientation and gender expression (SOGE) and SES separately by SAB. More specifically, we hypothesise that GNC expression and SM status will be negatively associated with multiple indicators of SES among women and men.

METHODS

Data and sample

Data come from Wave V of Add Health. Add Health follows a nationally representative sample of adolescents enrolled in grades 7–12 during the 1994–1995 school year.[28] Wave V data were collected between 2016 and 2018, when respondents were aged 33–44. Wave V included 12 300 respondents (6973 females, 5324 males and 3 respondents with missing data on SAB). Wave V SAB was assessed with a single item, 'what sex were you assigned at birth, on your original birth certificate?'. Response options were male and female and will hereafter be referred to as men and women given that nearly all Wave V respondents are cisgender.

Eligibility for the present analysis was limited to 12 055 respondents (6817 women and 5238 men) with valid Wave V survey weights and SAB. Among respondents with valid weights, eligibility was limited to respondents with information on sexual orientation, gender expression and SES. We excluded respondents who indicated they were not sexually attracted to males or females. The final analytical sample consisted of 11 242 adults (93% of the eligible sample), including 6401 women and 4841 men.

Measures

Sexual orientation

To measure sexual orientation, respondents were asked to choose the description that best fit how they thought about themselves. Respondents who selected 100% heterosexual were categorised as heterosexual and those who selected bisexual, mostly homosexual and 100% homosexual were categorised as sexual minorities. Respondents who selected mostly heterosexual and did not report any lifetime same-sex sexual partners were categorised as heterosexual; respondents who selected mostly heterosexual and reported one or more lifetime same-sex sexual partners were categorised as sexual minorities.

Gender expression

Wave V gender expression was assessed using a measure of Socially Assigned Gender Expression[26] based on how the respondent thought people would describe their appearance. Respondents were asked 'on average, how do you think people would describe your appearance, style or dress?' A dichotomous gender conformity variable was created. Women who reported their perceived gender expression as very, mostly or somewhat feminine were categorised as GC (n=6021); women who reported their gender expression as equally feminine and masculine, or somewhat, mostly, or very masculine were categorised as androgynous/GNC (n=380). Parallel coding was used for men, yielding 4754 GC men and 87 androgynous/GNC men.

SOGE status

SOGE status combined sexual orientation and socially assigned gender expression. Respondents with complete SOGE information were categorised into one of four SOGE groups: (1) GC heterosexuals, (2) GNC heterosexuals, (3) GC sexual minorities and (4) GNC sexual minorities.

Wave V SES

SES at Wave V was operationalised using seven measures. Educational attainment was defined as less than a bachelor's degree vs a bachelor's degree or higher. Employment status was categorised as employed, unemployed and not in the labour force. Personal income assessed the respondent's personal earnings before taxes, including income from wages or salaries, tips, bonuses, overtime pay and income from self-employment and was dichotomised as less than US$10 000 compared with US$10 000 or greater. The poverty-to-income needs ratio was constructed using number of people in the household and household income. Household income was collected with 13 categories ranging from less than US$5000–US$200 000 or more. To construct the poverty measure, household income was recoded using the mid-point of each category (e.g., <US$5000 was set to US$2500. For respondents who selected the highest category, ≥US$200 000 income was set to the 95% percentile of US annual family income for that survey year (i.e., 2016, US$251 183; 2017, US$261 508 and 2018, US$279 240).[29] Recoded income was then divided by the Census Bureau's household size-specific poverty thresholds for a given year.[30] The final poverty-to-income needs ratio variable was dichotomised as <100% and ≥100%.

Total household debt measured how much the respondent and household members owed in non-mortgage or non-education debt (e.g., other loans, credit card debts, medical or legal bills). Total household debt was categorised as none, US$1–US$24 999 and ≥US$25 000. Two additional SES variables assessed whether respondents experienced financial difficulties since 2008—a year that corresponds to the first full year of the 'Great Recession.' Respondents were asked whether they, their spouse, or partner fell behind on paying their bills and whether they experienced a foreclosure, eviction or repossession of something.

Covariates

Wave V race and ethnicity were combined into one variable coded as non-Hispanic white, non-Hispanic black, Hispanic (of any race) and non-Hispanic 'other'. Non-Hispanic 'other' included respondents who reported their racial identity as Asian, Pacific Islander, American Indian or Alaska Native, some other race or origin, or reported more than one race. Wave V age was continuous and ranged from 33 to 44 years. Parental education was assessed at Wave I and included <high school diploma, a high school diploma or GED, some college, ≥a bachelor's degree, and unknown parental education. Receipt of public assistance in childhood was assessed in Wave III or IV and indicated whether anyone in the household received public assistance, welfare payments or food stamps before the respondent was 18. Wave V urbanicity was defined as metropolitan versus micropolitan, small town or rural using Rural–Urban Commuting Area Codes[31] merged with Wave V data. Wave V census region included Northeast, Midwest, South and West.

Statistical analysis

Descriptive and regression analyses were stratified by SAB given prior research showing different relationships between sexual orientation and SES among women and men.[10] Descriptive analyses assessed bivariate relationships between the measures of SES and SOGE status. Four logistic or multinomial regression models were fit for each SES outcome. Model 1 included only SOGE status. Model 2 included SOGE status and covariates known to vary by sexual orientation and SES (e.g., race/ethnicity, age, parental education, urbanicity) that, if omitted, could confound associations between SOGE group and SES.[6–8 10] Model 3 was adjusted for confounders and educational attainment. Model 4 was adjusted for confounders, employment status, and educational attainment. We used this model-building approach to examine the associations between SES and SOGE status with and without adjustments for educational attainment and employment status which appear to be on the causal pathway between sexual orientation and adult economic status.[10] Analyses were weighted and adjusted for survey design and conducted in Stata V.17.

RESULTS

Most (88.6%) sample members were GC and (completely) heterosexual; however, 11.4% of respondents were categorised as GNC heterosexual, GC SM or both (GNC SM) based on responses to questions about perceived gender expression, SAB and sexual orientation. As shown in table 1 and table 2, a higher proportion of women were classified as GNC heterosexual (3.7%), GC SM (10.0%) and GNC SM (2.0%) than men (1.2%, 4.8% and 1.0%, respectively). The sample was diverse on race ethnicity, childhood SES, urbanicity and region (online supplemental tables A and B). GNC and SM individuals were somewhat over-represented in lower SES ranges relative to GC heterosexuals.

Table 1 Weighted sample characteristics by sexual orientation and gender expression: women (n=6401), Add Health Wave V

	n	%	GC heterosexual % (n=5456)	GNC heterosexual % (n=260)	GC sexual minority % (n=565)	GNC sexual minority % (n=120)	P value
Total	6401	100.0	84.2	3.7	10.0	2.0	–
Sexual orientation							
100% heterosexual	5162	80.0	91.3	84.4	0.0	0.0	<0.001‡
Mostly heterosexual	989	15.4	8.7	15.6	69.0	31.2	
Bisexual	125	2.4	0.0	0.0	19.0	23.2	
Mostly homosexual	65	1.2	0.0	0.0	7.5	21.9	
100% homosexual	60	0.9	0.0	0.0	4.6	23.7	
Gender expression							
Conforming	6021	94.3	100.0	0.0	100.0	0.0	<0.001‡
Androgynous	301	4.6	0.0	89.8	0.0	62.6	
Non-conforming	79	1.1	0.0	10.2	0.0	37.4	
Educational attainment							
Less than bachelor's degree	3464	57.6	55.7	74.0	63.6	76.9	<0.001‡
Bachelor's degree or higher	2937	42.4	44.3	26.0	36.4	23.1	
Employment status							
Employed	5251	79.5	79.5	78.1	79.4	79.0	0.081
Unemployed	335	6.1	5.7	4.6	9.5	10.8	
Not in the workforce	815	14.4	14.8	17.3	11.1	10.2	
Personal income							
<US$10 000	1073	18.9	18.4	17.6	22.7	23.0	0.265
≥US$10 000	5328	81.1	81.6	82.4	77.3	77.0	
Poverty to income needs ratio							
<100% (below federal poverty line)	945	16.5	15.6	25.3	18.2	29.6	0.003†
≥100% (at or above federal poverty line)	5456	83.5	84.4	74.7	81.8	70.4	
Total other household debt							
None	862	13.2	14.1	12.5	6.8	8.0	0.005†
US$1–US$24 999	3708	59.1	58.2	63.9	64.2	61.5	
≥US$25 000	1831	27.7	27.7	23.7	29.0	30.5	
Fell behind on paying bills since 2008							
No	3077	47.0	48.9	36.9	37.4	35.2	<0.001‡
Yes	3324	53.0	51.1	63.1	62.6	64.8	
Experienced foreclosure, eviction or repossession since 2008							
No	5276	82.1	83.1	72.5	78.4	77.0	0.006†
Yes	1125	17.9	16.9	27.5	21.6	23.0	

Weighted column percentages are presented.
Percentages may not add up to 100.0 due to rounding.
*p<0.05.
†p<0.01.
‡p<0.001.
GC, gender conforming; GNC, gender non-conforming.

Table 2 Weighted sample characteristics by sexual orientation and gender expression: men (n=4841), Add Health Wave V

	n	%	GC heterosexual % (n=4502)	GNC heterosexual % (n=53)	GC sexual minority % (n=252)	GNC sexual minority % (n=34)	P value
Total	4841	100.0	92.9	1.2	4.8	1.0	–
Sexual orientation							
100% heterosexual	4411	90.9	96.6	93.7	0.0	0.0	<0.001‡
Mostly heterosexual	226	5.0	3.4	6.3	34.2	12.1	
Bisexual	35	0.9	0.0	0.0	15.6	14.3	
Mostly homosexual	44	0.5	0.0	0.0	9.7	7.3	
100% homosexual	125	2.6	0.0	0.0	40.5	66.3	
Gender expression							
Conforming	4754	97.8	100.0	0.0	100.0	0.0	<0.001‡
Androgynous	62	1.6	0.0	64.8	0.0	82.1	
Non-conforming	25	0.6	0.0	35.2	0.0	17.9	
Educational attainment							
Less than bachelor's degree	3047	66.7	66.5	85.5	62.6	80.8	0.030*
Bachelor's degree or higher	1794	33.3	33.5	14.5	37.4	19.2	
Employment status							
Employed	4340	88.1	88.9	72.2	80.9	76.7	0.041*
Unemployed	248	5.6	5.3	13.9	9.9	9.3	
Not in the workforce	253	6.2	5.9	13.9	9.2	14.0	
Personal income							
<US$10 000	382	9.6	9.2	17.5	11.8	23.1	0.091
≥US$10 000	4459	90.4	90.8	82.5	88.2	76.9	
Poverty to income needs ratio							
<100% (below federal poverty line)	468	11.7	11.0	43.2	11.5	32.0	<0.001‡
≥100% (at or above federal poverty line)	4373	88.3	89.0	56.8	88.5	68.0	
Total other household debt							
None	699	14.2	14.4	40.1	7.5	0.3	<0.001‡
US$1–US$24 999	2720	57.6	57.2	47.6	62.1	86.1	
≥US$25 000	1422	28.2	28.4	12.3	30.4	13.6	
Fell behind on paying bills since 2008							
No	2672	53.3	53.9	60.2	40.9	51.5	0.056
Yes	2169	46.7	46.1	39.8	59.1	48.5	
Experienced foreclosure, eviction or repossession since 2008							
No	4105	84.1	84.5	74.7	77.8	83.7	0.147
Yes	736	15.9	15.5	25.3	22.2	16.3	

Weighted column percentages are presented.
Percentages may not add up to 100.0 due to rounding.
*p<0.05.
†p<0.01.
‡p<0.001.
GC, gender conforming; GNC, gender non-conforming.

Women

Adjusting for confounders, the risk of completing <bachelor's degree versus ≥bachelor's degree was significantly higher for all GNC and SM individuals relative to GC heterosexual peers (table 3, model 2). In fact, the odds of completing <bachelor's degree were over two times greater (odds ratio (OR) 2.2, 95% confidence interval (CI) 1.5 to 3.3) for GNC heterosexuals and GNC SM (OR 2.2, 95% CI 1.3 to 3.6) and were somewhat greater for GC SM (OR 1.4, 95% CI 1.1 to 1.9) relative to GC heterosexuals. Similarly, the likelihood of living <100% poverty versus ≥100% poverty was higher for GNC heterosexuals (OR 1.7, 95% CI 1.1 to 2.7) and GNC SM (OR 2.0, 95% CI 1.0 to 3.9) relative to their GC heterosexual counterparts. Household debt, other than mortgage and student debt, at levels between US$1 and US$24 999 (relative risk ratio (RRR) 2.3, 95% CI 1.5 to 3.7) and ≥US$25 000 (RRR 2.2, 95% CI 1.4 to 3.5) and falling behind on bills (OR 1.7, 95% CI 1.3 to 2.2) were more common among GC SM women than GC heterosexual women. GNC heterosexuals were also more likely to report falling behind on bills (OR 1.6, 95% CI 1.1 to 2.4) and to have experienced foreclosure, eviction or repossession since 2008 (OR 1.8, 95% CI 1.2 to 2.7) than GC heterosexual peers.

Adjusting for respondent education (table 3, model 3), led to a slight attenuation in the association between sexual and gender minority status and poverty—rendering these associations statistically insignificant. Associations between SOGE status and household debt, falling behind on bills, and foreclosure, eviction, or repossession were also slightly attenuated with the addition of respondent education to models; however, these associations remained statistically significant. The further addition of employment status to these models (model 4) made no appreciable difference, with one exception. After accounting for employment, GC SM women were somewhat more likely to

Table 3 Regression models for SES indicators: women (n=6401), Add Health Wave V

		SOGE status (ref: GC heterosexual)		
SES indicators	**Model no**	**GNC heterosexual**	**GC sexual minority**	**GNC sexual minority**
Educational Attainment				
Less than bachelor's degree OR (95% CI)	Model 1	2.3 (1.5 to 3.4)‡	1.4 (1.1 to 1.8)*	2.6 (1.5 to 4.7)‡
	Model 2	2.2 (1.5 to 3.3)‡	1.4 (1.1 to 1.9)*	2.2 (1.3 to 3.6)†
	Model 3	–	–	–
	Model 4	–	–	–
Employment status				
Unemployed RRR (95% CI)	Model 1	0.8 (0.4 to 1.8)	1.7 (0.9 to 3.0)	1.9 (0.8 to 4.6)
	Model 2	0.8 (0.4 to 1.8)	1.6 (0.9 to 2.9)	1.8 (0.7 to 4.4)
	Model 3	0.7 (0.3 to 1.5)	1.5 (0.9 to 2.7)	1.5 (0.6 to 4.0)
	Model 4	–	–	–
Not in the workforce RRR (95% CI)	Model 1	1.2 (0.7 to 2.1)	0.8 (0.5 to 1.1)	0.7 (0.3 to 1.5)
	Model 2	1.1 (0.6 to 1.9)	0.7 (0.5 to 1.0)	0.6 (0.3 to 1.4)
	Model 3	1.0 (0.6 to 1.7)	0.7 (0.5 to 1.0)*	0.6 (0.3 to 1.3)
	Model 4	–	–	–
Personal income				
<US$10 000 OR (95% CI)	Model 1	1.0 (0.6 to 1.6)	1.3 (1.0 to 1.7)	1.3 (0.7 to 2.4)
	Model 2	0.9 (0.5 to 1.6)	1.3 (1.0 to 1.7)	1.2 (0.6 to 2.2)
	Model 3	0.8 (0.4 to 1.3)	1.2 (0.9 to 1.6)	1.1 (0.5 to 2.0)
	Model 4	0.7 (0.4 to 1.3)	1.4 (1.0 to 1.9)*	1.3 (0.6 to 2.9)
Poverty to income needs ratio				
<100% OR (95% CI)	Model 1	1.8 (1.2 to 2.7)†	1.2 (0.8 to 1.7)	2.3 (1.2 to 4.2)†
	Model 2	1.7 (1.1 to 2.7)*	1.3 (0.9 to 1.8)	2.0 (1.0 to 3.9)*
	Model 3	1.4 (0.9 to 2.3)	1.2 (0.8 to 1.7)	1.7 (0.9 to 3.3)
	Model 4	1.6 (1.0 to 2.5)	1.2 (0.8 to 1.7)	1.9 (0.8 to 4.3)
Total other household debt				
US$1–US$24 999 RRR (95% CI)	Model 1	1.2 (0.7 to 2.1)	2.3 (1.5 to 3.6)‡	1.9 (0.8 to 4.4)
	Model 2	1.3 (0.8 to 2.2)	2.3 (1.5 to 3.7)‡	1.7 (0.8 to 4.0)
	Model 3	1.2 (0.7 to 2.0)	2.2 (1.4 to 3.5)‡	1.6 (0.7 to 3.6)
	Model 4	1.2 (0.7 to 2.0)	2.2 (1.4 to 3.5)‡	1.6 (0.7 to 3.6)
≥US$25 000 RRR (95% CI)	Model 1	1.0 (0.5 to 1.7)	2.2 (1.4 to 3.4)‡	1.9 (0.9 to 4.4)
	Model 2	1.0 (0.5 to 1.8)	2.2 (1.4 to 3.5)‡	1.8 (0.8 to 4.0)
	Model 3	0.9 (0.5 to 1.7)	2.2 (1.4 to 3.4)‡	1.7 (0.8 to 3.9)
	Model 4	0.9 (0.5 to 1.7)	2.2 (1.4 to 3.3)‡	1.8 (0.8 to 3.9)
Fell behind on paying bills				
Yes OR (95% CI)	Model 1	1.6 (1.1 to 2.4)†	1.6 (1.2 to 2.1)‡	1.8 (1.0 to 3.1)*
	Model 2	1.6 (1.1 to 2.4)*	1.7 (1.3 to 2.2)‡	1.6 (0.9 to 2.9)
	Model 3	1.4 (1.0 to 2.1)	1.6 (1.2 to 2.1)‡	1.4 (0.7 to 2.7)
	Model 4	1.4 (1.0 to 2.1)	1.6 (1.2 to 2.0)†	1.4 (0.7 to 2.6)
Experienced foreclosure, eviction or repossession				
Yes OR (95% CI)	Model 1	1.9 (1.3 to 2.8)†	1.4 (1.0 to 1.9)	1.5 (0.8 to 2.6)
	Model 2	1.8 (1.2 to 2.7)†	1.4 (1.0 to 2.0)	1.3 (0.8 to 2.3)
	Model 3	1.6 (1.1 to 2.4)*	1.3 (0.9 to 1.9)	1.2 (0.7 to 2.0)
	Model 4	1.6 (1.1 to 2.4)*	1.3 (0.9 to 1.8)	1.2 (0.7 to 2.1)

Educational attainment referent: ≥bachelor's degree.
Employment status referent: employed; personal income referent: ≥US$10 000.
Poverty to income needs ratio referent: ≥100%; total other household debut referent: none.
Fell behind on paying bills referent: no; experienced foreclosure referent: no.
Model 1: bivariate association between SOGE status and SES indicator; model 2: model 1 adjusted for sociodemographic characteristics; model 3: model 2 adjusted for educational attainment; model 4: model 3 adjusted for employment status.
*p<0.05.
†p<0.01.
‡p<0.001.
GC, gender conforming; GNC, gender non-conforming; OR, odds ratio; RRR, relative risk ratio; SES, socioeconomic status; SOGE, sexual orientation and gender expression.

report low personal incomes compared with GC heterosexual women.

Men

Adjusting for confounders (table 4, model 2), the risk of being unemployed, among those in the workforce, was greater for GNC heterosexuals (RRR 2.6, 95% CI 1.1 to 6.3) and GC SM (RRR 2.2, 95% CI 1.2 to 4.2) relative to GC heterosexual men. The likelihood of living <100% poverty vs ≥100% poverty was higher for GNC heterosexuals (OR 5.1, 95% CI 2.1 to 12.3) and GNC SM (OR 3.5, 95% CI 1.3 to 9.8) relative to their GC heterosexual counterparts. GC SM were more likely to report

Table 4 Regression models for SES indicators: men (n=4841), Add Health Wave V

		SOGE status (ref: GC heterosexual)		
SES indicators	**Model no**	**GNC heterosexual**	**GC sexual minority**	**GNC sexual minority**
Educational Attainment				
Less than bachelor's degree OR (95% CI)	Model 1	3.0 (1.1 to 8.1)*	0.8 (0.6 to 1.2)	2.1 (0.8 to 5.7)
	Model 2	1.9 (0.8 to 4.8)	0.8 (0.6 to 1.2)	1.5 (0.6 to 4.1)
	Model 3	–	–	–
	Model 4	–	–	–
Employment status				
Unemployed RRR (95% CI)	Model 1	3.3 (1.3 to 8.1)*	2.1 (1.1 to 3.8)*	2.0 (0.4 to 9.6)
	Model 2	2.6 (1.1 to 6.3)*	2.2 (1.2 to 4.2)*	1.6 (0.3 to 7.8)
	Model 3	2.4 (1.0 to 5.8)	2.3 (1.2 to 4.5)*	1.6 (0.3 to 7.6)
	Model 4	–	–	–
Not in the workforce RRR (95% CI)	Model 1	2.9 (0.8 to 11.2)	1.7 (0.7 to 4.0)	2.8 (0.6 to 13.6)
	Model 2	2.8 (0.7 to 11.8)	1.7 (0.8 to 3.9)	2.8 (0.6 to 12.7)
	Model 3	2.6 (0.6 to 11.2)	1.8 (0.8 to 4.1)	2.6 (0.6 to 12.5)
	Model 4	–	–	–
Personal income				
<US$10 000 OR (95% CI)	Model 1	2.1 (0.7 to 6.4)	1.3 (0.7 to 2.3)	3.0 (0.9 to 9.7)
	Model 2	1.6 (0.5 to 4.7)	1.3 (0.7 to 2.4)	2.6 (0.8 to 8.2)
	Model 3	1.4 (0.5 to 4.3)	1.4 (0.8 to 2.5)	2.5 (0.8 to 8.0)
	Model 4	0.6 (0.3 to 1.6)	0.9 (0.4 to 1.9)	2.0 (0.6 to 6.0)
Poverty to income needs ratio				
<100% OR (95% CI)	Model 1	6.1 (2.9 to 13.1)‡	1.0 (0.6 to 1.9)	3.8 (1.3 to 10.7)*
	Model 2	5.1 (2.1 to 12.3)‡	1.1 (0.6 to 2.0)	3.5 (1.3 to 9.8)*
	Model 3	4.7 (1.9 to 11.8)†	1.1 (0.6 to 2.1)	3.4 (1.2 to 9.7)*
	Model 4	4.2 (1.4 to 12.4)†	0.8 (0.4 to 1.7)	3.0 (1.1 to 7.8)*
Total other household debt				
US$1–US$24 999 RRR (95% CI)	Model 1	0.3 (0.1 to 0.7)†	2.1 (1.0 to 4.3)*	68.2 (17.2 to 270.9)‡
	Model 2	0.3 (0.1 to 0.6)†	2.1 (1.0 to 4.2)*	59.7 (13.9 to 256.8)‡
	Model 3	0.2 (0.1 to 0.6)†	2.1 (1.0 to 4.3)*	58.1 (13.5 to 249.8)‡
	Model 4	0.3 (0.1 to 0.6)†	2.3 (1.1 to 4.8)*	67.4 (14.7 to 308.5)‡
≥US$25 000 RRR (95% CI)	Model 1	0.2 (0.1 to 0.4)‡	2.0 (1.0 to 4.4)	21.7 (3.7 to 126.5)‡
	Model 2	0.1 (0.0 to 0.4)‡	2.1 (0.9 to 4.5)	18.7 (3.0 to 116.2)†
	Model 3	0.1 (0.0 to 0.3)‡	2.1 (1.0 to 4.6)	18.4 (2.9 to 115.1)†
	Model 4	0.1 (0.0 to 0.4)‡	2.3 (1.0 to 5.2)*	21.4 (3.3 to 137.5)†
Fell behind on paying bills				
Yes OR (95% CI)	Model 1	0.8 (0.4 to 1.7)	1.7 (1.2 to 0.4)†	1.1 (0.4 to 2.7)
	Model 2	0.6 (0.3 to 1.3)	1.8 (1.2 to 2.5)†	1.0 (0.4 to 2.3)
	Model 3	0.5 (0.2 to 1.2)	1.9 (1.3 to 2.8)†	0.9 (0.4 to 2.2)
	Model 4	0.5 (0.2 to 1.1)	1.8 (1.2 to 2.6)†	0.8 (0.3 to 2.3)
Experienced foreclosure, eviction or repossession				
Yes OR (95% CI)	Model 1	1.9 (0.8 to 4.5)	1.6 (1.0 to 2.4)*	1.1 (0.3 to 3.5)
	Model 2	1.4 (0.6 to 3.2)	1.6 (1.0 to 2.4)*	0.9 (0.3 to 2.8)
	Model 3	1.3 (0.6 to 2.9)	1.7 (1.1 to 2.6)*	0.9 (0.3 to 2.7)
	Model 4	1.2 (0.5 to 2.8)	1.7 (1.1 to 2.5)*	0.9 (0.3 to 2.7)

Educational attainment referent: ≥bachelor's degree.
Employment status referent: employed.
Personal income referent: ≥US$10 000.
Poverty to income needs ratio referent: ≥100%.
Total other household debut referent: none.
Fell behind on paying bills referent: no.
Experienced foreclosure referent: no.
Model 1: bivariate association between SOGE status and SES indicator; model 2: model 1 adjusted for sociodemographic characteristics; model 3: model 2 adjusted for educational attainment; model 4: model 3 adjusted for employment status.
*p<0.05.
†p<0.01.
‡p<0.001.
GC, gender conforming; GNC, gender non-conforming; OR, odds ratio; RRR, relative risk ratio; SES, socioeconomic status; SOGE, sexual orientation and gender expression.

having fallen behind on bills (OR 1.8, 95% CI 1.2 to 2.5) and having experienced foreclosure, eviction or repossession since 2008 (OR 1.6, 95% CI 1.0 to 2.4) than GC heterosexuals. One exception to this overall pattern was lower risk of household debt among GNC heterosexual minority men (RRR 0.3, 95% CI 0.1 to 0.6) compared with conforming heterosexual peers.

As observed among women, adjusting for respondent education (model 3), led to a slight attenuation in the association between SOGE status and poverty among GNC heterosexual and GNC SM men. The addition of employment status to these models (model 4) further slightly reduced the association between sexual and gender group membership and poverty among GNC heterosexual and GNC SM men but had little impact on associations between SOGE status and falling behind on bills and foreclosure. However, adjusting for education produced a slight increase in the magnitude of the association between being a GC SM and unemployment, falling behind on bills and foreclosure.

DISCUSSION

Building on studies that have examined gender typicality and SES outcomes,[6–8] the aim of this study was to examine the associations between sexual orientation, socially assigned gender expression and SES separately by SAB in the nationally representative Add Health cohort. We hypothesised that gender nonconformity and SM status would be negatively associated with multiple indicators of SES among women and men. The overall pattern of associations among both women and men was largely of heightened risk for lower SES among GNC sexual minorities relative to GC heterosexuals. Among women, gender nonconformity and/or minority sexual orientation were associated with poorer SES outcomes, including lower educational attainment, living in poverty, household debt, falling behind on bills and experiencing foreclosure or eviction. As observed at Wave IV, adjusting for differences in educational attainment across groups attenuated associations in several indicators of economic status[10] including risk of poverty, household debt, falling behind on bills, and foreclosure, eviction, or repossession.

Among men, a similar overarching pattern of elevated risk for poorer economic status among GNC sexual minorities relative to GC heterosexual men was observed. Among men, gender non-conformity and/or minority sexual orientation were associated with unemployment, living in poverty, household debt, falling behind on bills and experiencing foreclosure or eviction. Adjusting for education, in addition to employment status, led to slight attenuations in associations between sexual and gender minority status and poverty for men as well. Similar to Wave IV analyses,[10] adjusting for education produced a slight increase in the magnitude of the association between being a GC SM and poorer economic outcomes (e.g., unemployment, falling behind on bills and foreclosure).

The pattern of heightened risk of lower SES among sexual and/or gender minorities is in keeping with prior published research. While sexual orientation, gender expression and gender identity are distinct dimensions of identity, prior research has found similar patterns of lower SES among sexual minorities and transgender people—those for whom SAB differs from their gender identity.[10 15 27 32] Transgender individuals have lower rates of employment, lower household incomes and higher rates of poverty compared with those of cisgender men.[15] Similarly, transgender people have lower rates of employment, higher rates of poverty and higher rates of food insecurity compared with cisgender individuals.[32] Furthermore, SM women have lower educational attainment, higher rates of unemployment, are poor or near poor, and are more likely to have received public assistance compared with heterosexual women; SM men have lower personal income compared with heterosexual men.[10]

Our study has several strengths that contribute to this literature. It is one of the first to examine socially assigned gender expression and sexual orientation jointly in relation to SES in the USA. It uses data from Add Health, which has been following a population-based cohort since they were adolescents in the 90s. The longitudinal design of Add Health allowed us to control for parental and household characteristics in adolescence and early adulthood that are related to adult SES. Furthermore, we use a fuller picture of SES by using seven measures: education, employment and income, which are common, and indicators such as household debt, trouble paying bills, and experiencing foreclosure, eviction, or repossession, providing a more complete assessment of SES and how it varies by SOGE.

Our study also has limitations. Given the relatively small number of respondents who were androgynous or nonconforming in their perceived gender expression, we were unable to look at the association between the degree of nonconformity and SES. Associations may differ between individuals who are androgenous and those who are viewed as on the opposite end of the gender spectrum (i.e., highly masculine women). We also combined mostly heterosexual, bisexual, mostly homosexual and completely homosexual into one SM group to increase statistical power. The trade-off is a lack of information about the experiences of specific groups (e.g., bisexually identified people). Second, we did not have data about lifetime and recent employment discrimination that may directly impact SES. Third, our sample did not have enough transgender respondents to examine associations separately for transgender and cisgender respondents, thus, findings are generalisable only to the cisgender population. Findings may not generalise to younger or older cohorts of people.

Given these limitations, there is a need to replicate findings in a larger sample that includes people across the age spectrum and allows for examination of potential heterogeneity of associations between SOGE and SES across racial-ethnic groups.[10] Findings suggest the need to examine upstream factors such as stigma and discrimination that vary by sexual orientation identity and gender expression as determinants of population patterns of SES. Research on gender expression and outness in shaping the socioeconomic status of transgender people is also needed.

Acknowledgements This research uses data from Add Health, funded by grant P01 HD31921 (Harris) from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), with cooperative funding from 23 other federal agencies and foundations. Add Health is currently directed by Robert A. Hummer and funded by the National Institute on Aging cooperative agreements U01 AG071448 (Hummer) and U01AG071450 (Aiello and Hummer) at the University of North Carolina at Chapel Hill. Add Health was designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill. No direct support was received from grant P01-HD31921 or cooperative agreements U01 AG071448 and U01AG071450.

Contributors KJC led the conceptualisation of the project. SMH led the writing and conducted the analysis. All authors interpreted the results and contributed to the writing and editing of the manuscript. SMH is the guarantor for the study.

Funding This study was funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (P2CHD050924, R01HD087365, T32HD091058), the National Institute on Minority Health and Health Disparities (R01HD087365) and the Office of the Director, National Institutes of Health (U54CA267735).

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval This study was deemed exempt from human subjects review by the UCLA North Campus IRB.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data may be obtained from a third party and are not publicly available. Data are available at https://addhealth.cpc.unc.edu.

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