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EMPIRICAL RESEARCH

Parent-child Relationships and Sexual Minority Youth: Implications for Adult Alcohol Abuse

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Abstract

Sexual minority (lesbian, gay, bisexual, and same-sex attracted) youth and adults report elevated rates of alcohol use and abuse relative to their heterosexual peers; these differences are strongest for sexual minority girls and women. Although preliminary evidence suggests that unsupportive parenting and maladaptive parent-child relationship qualities are associated with concurrent substance use among sexual minority youth, questions remain about the long-term implications of these early familial experiences on drinking behaviors among sexual minority youth and adults. Nationally-representative prospective data ($n = 14{,}800$; 53.1% female; Wave 1 Mean age = 15.61; Wave 4 Mean age = 28.51) were used to test the longitudinal association between parent-child relationships and parental autonomy granting between the ages of 13–18, and sexual-orientation-related disparities in alcohol abuse during adulthood. The findings showed that adolescent same-sex attraction was associated with alcohol abuse during adulthood for sexual minority women and that deficits in parent-child relationship quality statistically mediated this association. No sexual orientation differences in alcohol abuse were found among men. The findings suggest that the quality of relationships with parents in early adolescence has long-lasting impact on sexual minority women's vulnerability for alcohol abuse. Early interventions that bolster supportive parent-child relationship qualities may have enduring consequences for sexual minority women's alcohol use across the life course.

Keywords Sexual minority youth · LGB youth · Parenting · Parental support · Alcohol abuse · Longitudinal

Introduction

Sexual minority (lesbian, gay, bisexual, and same-sex attracted) youth and adults are at greater risk of alcohol use, abuse, and dependence when compared to their heterosexual counterparts (Marshal et al. 2008; McCabe et al. 2009), and these disparities are typically wider for sexual minority girls (Marshal et al. 2008). These disparities are often attributed to unique stressors that sexual minority people experience such stigma, discrimination, and rejection due to their marginalized sexual identities (Meyer 2003). General population-based studies document the association between parent-child relationship quality, parental autonomy granting, and alcohol-related behaviors during the transition to adulthood (Ohannessian et al. 2016). At the same time, studies demonstrate that sexual minority youth report a lack of familial support and acceptance relative to their heterosexual peers, particularly sexual minority girls (Fish and Russell 2018). Much less is known, however, about the long-term health implications of strained parental relationships for sexual minorities as they age into adulthood. As scholars address this scarcity in research, developmental perspectives of sexual minority health are necessary to help identify the timing and focus of prevention and intervention strategies. Motivated by this gap in the literature and the compelling public health concern therein, the current study assessed whether youth reports of same-sex attraction were related to alcohol abuse during adulthood and if parent-child relationship quality

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and autonomy granting help to explain these disparities across the transition to adulthood using national representative longitudinal panel data.

Parenting, Parent-child Relationships, and Trajectories of Alcohol Use

Risk-taking tends to increase over the course of adolescence, including increased alcohol and other substance use (Steinberg 2007). Family science research on adolescent risk behavior indicates that family dynamics have an appreciable influence on these behaviors, and indicates that specific qualities of the parent-child relationship may have particular salience. For example, relationship dynamics that characterize the parent-adolescent bond or connection—such as attachment security or perceived familial support—are protective factors against maladaptive outcomes across adolescence and through the transition to adulthood (Dixon et al. 2008).

Developmental theories describe individuation processes as a central developmental task of adolescence, whereby adolescents—informed by connections to their families and communities—strive to build a sense of self apart from their parents (Steinberg 2007). During this period, parents' active pursuit of knowledge about their child's behaviors to identify and intervene against perceived inappropriate or risky behaviors decreases, whereas autonomy granting practices increase (Abar et al. 2015; Russell and Gordon 2017). As this process unfolds, adolescents independently encounter a complex social landscape, one that expands to include more information about socially accepted behavior and the attitudes that shape individuals' choices as they seek a sense of belonging—including whether and to what extent youth engage in risk behavior like substance use (Rogers and McKinney 2019). In particular, supportive parent-child relationship qualities that convey information about closeness and approval are associated with fewer risks (Kerr et al. 2010; Padilla-Walker and Son 2019). Adolescents are more likely to share details of their lives with parents with whom they shared a supportive bond characterized by open communication.

Supportive parenting that is warm and responsive seems to play a mechanistic role in buffering youth against risk, perhaps because it fosters spontaneous open communication during interactions that may convey encouragement to youth about their competence as communicators and decision makers. Thus, the extent to which adolescents should be granted freedom to make their own choices with regards to friends, unscheduled free time, and risk-taking should not be uncoupled from other supportive parenting behaviors that scaffold decision making skills needed for adolescents' ability to assess risk (Best and Miller 2010) and convey parents' support for and affection towards their adolescent thus reinforcing or strengthening a sense of positive connection between parent and child.

Parenting that scaffolds adolescents' independence across the transition to adulthood reflects a degree of sensitivity and developmental awareness, which characterize a supportive parenting approach (Baumrind 2013). Despite mixed findings regarding the association between adolescent alcohol use outcomes and a parenting style that balances controlling and demanding with warm and nurturing qualities (Koning et al. 2012), there is evidence that particular practices common to this authoritative style may be more consistent predictors of lower adolescent alcohol use (Minaie Hui et al. 2015). A supportive, warm, cohesive relationship between parent and child is associated with adaptive psychosocial development including lower levels of internalized adolescent distress, positive parent-child relationships, and lower rates of substance use and delinquency (Fletcher et al. 2004). Supportive parenting is also associated with parental autonomy granting that affords youth significant opportunities to develop self-efficacy and decision-making skills, thus promoting adaptive outcomes over time including lower alcohol use (Patock-Peckham and Morgan-Lopez 2009). The extant literature on the protective influence of autonomy granting during adolescence is nuanced; some studies report that the greatest benefit to youth risk outcomes is only seen when autonomy granting is coupled with other features of authoritative parenting (e.g., responsivity, warmth, and affection; Lanza et al. 2013).

Sexual Minority Youth, Parent-child Relationships, and Alcohol Use

Relying on the minority stress model (Meyer 2003), research often attributes sexual minority youth's disproportionate burden of health problems to the unique stressors they experience (Goldbach and Gibbs 2017). Much less is known about how parent-child relationship quality and parenting practices contribute to alcohol-related behavior during adolescence or the transition to adulthood for sexual minority youth. Research consistently documents elevated alcohol use among sexual minority youth (Marshal et al. 2008; Plöderl and Tremblay 2015) and some research has linked these higher levels of alcohol use to unsupportive social relationships (Coulter et al. 2019). Sexual minority youth are no different from their heterosexual peers in their need for supportive parenting to promote adaptive outcomes, yet sexual minority young people are more likely to report strained relationships with parents compared to their heterosexual counterparts (Fish and Russell 2018; Watson et al. 2016). Although studies have linked a lack of parental support to negative outcomes (Needham and Austin 2010; Ryan et al. 2009), relatively few studies have attempted to

test these associations over time and across different developmental periods of life (i.e., adolescent through adulthood).

An exception addresses the gap in this scholarship: A recent study estimated profiles of both familial and non-familial warmth during childhood and adolescence and assessed whether these support profiles were related to elevated risk for heavy alcohol use and alcohol use disorder during young adulthood (ages 18–25; Coulter et al. 2019). The results showed that sexual minority women, but not sexual minority men, were more likely to be members of classes characterized by low or moderate support relative to heterosexual women and men, respectively. Importantly, these support profiles, which include characteristics of parental support, explained in part sexual orientation differences in young adult alcohol abuse for women. The findings hint at how early experiences of support, or lack thereof, among sexual minority adolescence may lead to elevated risk for alcohol abuse shortly thereafter.

Finally, although studies indicate that sexual minority youth report more compromised relationships with parents, there has been a dearth of research investigating how other prominent and developmentally-specific parent-child relationship dynamics, such as autonomy granting may differ for sexual minority youth. For example, if parents sense or know about their child's same-sex sexuality and are unsupportive, they may restrict autonomy by limiting exposure to sexual minority peers or settings. Emerging research focused on parental monitoring show that greater parental monitoring among young men who have sex with men is associated with less alcohol use (Mustanski et al. 2017). Yet, studies that compare heterosexual and sexual minority girls suggest that parental monitoring does not curb substance use among sexual minority girls in the same what it does for heterosexual girls (Montano et al. 2017).

Current Study

The current study aims to extend and integrate the aforementioned literatures by testing how youth same-sex attraction is associated with parenting in the form of parent-child relationship quality and autonomy granting, and whether these processes may be associated with alcohol abuse during adulthood. Specifically, data are from the National Longitudinal Study of Adolescent to Adult Health (Add Health)—the largest and longest running nationally-representative prospective panel study to include measures of sexual minority status—to test whether the association between adolescent same-sex attraction and adult alcohol abuse is mediated by adolescent reports of parent-child relationship quality and parental autonomy granting. It was hypothesized that youth same-sex attraction would be related to later alcohol abuse (Hypothesis 1). It was also anticipated that same-sex attraction would show lower rates of parental-child relationship quality and less parental autonomy granting than their exclusively other-sex attracted peers during adolescence, and that these differences in parent-child processes would mediate the relationship between adolescent same-sex attraction and adult alcohol abuse (Hypothesis 2). All analytic models were sex-stratified given (1) a robust body of literature which documents sex differences in sexual-orientation-related alcohol abuse disparities (Hughes et al. 2016; Marshal et al. 2008) and (2) a growing set of studies that document sex differences in sexual minority youth reports of parental support (Fish and Russell 2018; Needham and Austin 2010).

Method

Data Source and Sample

Started in 1994, Add Health (Harris 2009) is one of the most comprehensive, prospective studies following youth from adolescence into adulthood. The core sample—which was selected from a larger school-based survey of 80 high schools that represented the US population—included 20,745 7–12th graders and their parents who were interviewed at baseline (Wave 1) in 1994–1995. One year later, Wave II included 14,738 of the original participants. Wave III occurred 5–6 years later, when participants were young adults (ages 18–24; $n = 15{,}197$ from Wave I) and Wave IV was conducted 7–8 years after Wave III when participants were approximately ages 24 to 32 (2007–2008) and included 15,701 of the original participants. The current study included participants who were assigned a valid weight and participated in Waves 1 and 4 ($n = 14{,}800$; $n = 7{,}864$ girls/women and $n = 6{,}936$ boys/men). Demographic characteristics for the current sample are presented in Table 1. This secondary data analysis was approved by the University of Texas and University of Maryland Institutional Review Board.

Measures

Adult alcohol abuse (Wave 4)

The Add Health Wave 4 data file includes a constructed variable that reflects participants' alcohol abuse and dependence. Adult alcohol abuse was assessed using an index of five items that reflect Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) abuse symptoms (American Psychiatric Association 2000). Alcohol abuse symptoms were measured by asking questions about functional impairment and continued use in the

Table 1 Sample characteristics

	Full sample		Males			Females		
	n	*%w*	*n*	*%w*	*%m*	*n*	*%w*	*%m*
DSM IV alcohol abuse (W4)					0.03			0.03
No	11,093	72.69	6296	77.96		4797	67.57	
Yes	3701	27.31	1568	22.04		2133	32.43	
Same-sex attraction (W1)					0.81			0.79
No SSA	13,792	93.62	7386	94.67		6406	92.6	
Any SSA	887	6.38	416	5.33		471	7.4	
Same-sex attraction (W2)					25.42			26.31
No SSA	10,484	94.48	5606	95.57		4878	95.39	
Any SSA	509	4.52	279	4.43		230	4.61	
Same-sex attraction (W3)					15.69			19.46
No SSA	11,065	90.65	5801	86.97		5264	94.44	
Any SSA	1158	9.35	839	13.03		319	5.56	
Same-sex attraction (W4)					0.34			0.25
No SSA	13,718	93.17	7120	90.43		6598	95.82	
Any SSA	1036	6.83	719	9.57		317	4.18	
LGB Identity (W4)					0.89			0.81
No	14,119	96.47	7471	95.83		6648	97.1	
Yes	553	3.53	325	4.17		228	2.9	
Race/ethnicity (W1)					0.09			0.04
White	8119	67.33	4266	67.37		3853	67.28	
Black	3154	15.82	1790	16.12		1364	15.53	
Latino	2213	11.29	1151	11.25		1062	11.34	
Other	1302	5.56	652	5.26		650	5.85	
Education (W4)					0.03			0.03
<High school	1142	9.23	488	7.77		654	10.64	
High school	2396	17.94	1070	14.38		1326	21.39	
Some college	6520	42.89	3503	44.44		3017	41.39	
≥College	4736	29.94	2803	33.4		1933	26.58	
Family structure (W1)					1.87			1.99
Biological, two-parent	8135	56.74	4225	56.3		3910	57.17	
Single parent	3807	25.29	2127	25.93		1680	24.66	
Step-family/Other	2571	17.97	1367	17.77		1204	18.18	
Receipt of public assistance (W1)					14.59			13.47
No	11,618	90.6	6082	89.91		5536	91.27	
Yes	1098	9.40	636	10.09		462	8.73	

	M,	*SD*	*M*,	*SD*		*M*,	*SD*	
Adolescent alcohol use (W1)	1.44	2.69	1.25	2.35	0.75	1.65	3.01	1.27
Age (W1)	15.61	1.72	15.71	1.73	0.07	15.53	1.72	0.04
Age (W4)	28.51	1.76	28.41	1.75	0.04	28.62	1.76	0.07
Parent-child relationship quality (W1)	4.38	0.60	4.45	0.53	1.50	4.31	0.65	2.16
Parent-child relationship quality (W2)	4.27	0.61	4.33	0.54	28.01	4.21	0.67	27.-82
Parental autonomy granting (W1)	0.73	0.01	0.73	0.01	1.50	0.73	0.01	2.17
Parental autonomy granting (W2)	0.77	0.01	0.77	0.01	28.03	0.77	0.01	27.-88

%w weighted percentages, *%m* % missing

presence of negative consequences, such as work and relationship impairment. Response options include "never", "1 time", or "more than 1 time". Participants met the criteria for each symptom if they reported that a symptom occurred

"more than 1 time". Items were summed to reflect the number of alcohol abuse symptoms and dichotomized to reflect whether the participant met the criteria for adult alcohol abuse (*yes* = 1, *no* = 0), which was one or more symptoms.

Adolescent same-sex attraction (Wave 1)

Adolescent participants were asked about their romantic attraction to both boys and girls via two questions: Have you ever had a romantic attraction to a female?" and "Have you ever had a romantic attraction to a male?" Responses were *yes* = 1 and *no* = 0. By referencing participants' own sex, items were recoded into a single-item that reflected same-sex attraction (*yes* = 1 and *no* = 0).

Parent-child relationship quality (Wave 1 and 2)

Parent-child relationship quality was measured using ten items that ask youth to report on mothers/mother-like figures (5 items) and fathers/father-like figures (5 items). These items have been previously used, and show adequate reliability (Driscoll et al. 2008; Ream and Savin-Williams 2005; Watson et al. 2016; Wave 1 $\alpha = 0.873$, Wave 2 $\alpha = 0.858$). In the case where mother or father did not reside in the home, these items assess "mother" and "father" like figures (e.g., stepparents, grandparents, uncles, aunts, foster parents, etc.) that reside with and are determined by the adolescent. Items include: "How close do you feel to your mother/father" (*not at all* = 1, *very much* = 5); "How much do you think s/he cares about you?" (*not at all* = 1, *very much* = 5); and "Overall, you are satisfied with your relationship with your mother/father?" (*strongly disagree* = 1, *strongly agree* = 5). Items were summed and averaged so higher scores reflect closer parental relationships and account for the presence of one or two parents. Parent-child relationship quality indicators are not available in Wave 4.

Parent-child autonomy granting (Wave 1 and 2)

Parent-child autonomy granting was assessed using seven yes/no items that ask youth to reflect on whether their parents allow them to make decisions about curfew, friends, television, and bedtime. Items asked youth, "Do your parents let you make your own decisions about…", "the time you must be home on weekend nights?" and "the people you hang around with?". Items were summed and averaged to reflect the degree to which parents scaffold child autonomy. Given a lack of literature on this particular scale in the Add Health data, a confirmatory factor analysis was conducted; the results of which indicated good model fit to the data with a single factor structure ($X2 = 3289.94$, df = 15, $p < 0.001$, CFI = 0.915, RMSEA = 0.049, 95% CI: 0.044, 0.053, SRMR = 0.040; see Kline 2016).

Time invariant covariates

Based on a wealth literature highlighting sociodemographic differences in alcohol abuse (Delker et al. 2016), models adjusted effects for endogenous variables across waves to include several covariates measured at Wave 1: race/ethnicity (White [reference], Black/African American, Latinx, and Other), family structure (two-parent [reference], single-parent, and stepfamily/other), receipt of public assistance (via parental report: *yes* = 1, *no* = 0), and adolescent reported alcohol use at Wave 1, which was quantified as an average of three items that include frequency of alcohol use, average quantity when drinking, and frequency of heavy episodic drinking (see Fish et al. 2017). Models also adjust for Wave 4 covariates of alcohol abuse including education (high school [reference], less than high school, college, or professional degree) and age, in years. Models also adjusted for Wave 4 LGB identity (LGB = 1, heterosexual = 0), given that sexual minority identity is uniquely associated with alcohol abuse (via heightened discrimination) above and beyond same-sex attracted heterosexuals (see Fish and Krueger 2020). All categorical covariates were dummy coded.

Time-varying covariates

Adolescence and young adulthood are developmental periods characterized by the awareness and development of same-sex attraction (Mustanski et al. 2014). Studies often demonstrate the developmental nature of same-sex attraction and thus, same-sex attraction was modeled as a time varying covariate to adjust for the influence of fluid same-sex attraction on substance use (see Fish and Pasley 2015). Similar to Wave 1 reports, participants indicated whether they were attracted to men and women at all waves. Items were recoded to reflect same-sex attraction as *yes* = 1 and *no* = 0.

Analytic Approach

Model 1 tested whether Wave 2 reports of parent-child relationship quality and parental autonomy granting mediated the association between Wave 1 same-sex attraction and Wave 4 alcohol abuse. As a follow-up, a developmental cascade model (Model 2) was estimated to assess whether Wave 1 same-sex attraction is associated with concurrent deficits in parental relationship quality and differential parental autonomy granting, and if this difference plays a role in the mediational pathway between Wave 1 same-sex attraction and adult alcohol abuse.

All data management and preliminary analyses were conducted in Stata 15.1 (StataCorp 2017). Longitudinal associations and mediating effects for Model 1 and 2 were estimated using path analysis in Mplus 7.4 (Muthén and Muthén 1998–2017). Add Health's longitudinal sampling weights were applied to adjust for non-response across waves (Chen and Harris 2020). Missing data (see Table 1) were accounted for by using full-information likelihood (FIML) estimation procedures in Mplus (see Enders 2010). All models were run using maximum likelihood estimation with robust standard errors to assist in the estimation of indirect effects and to apply FIML procedures to account for missing data. For this reason, traditional fit indices such as chi-square test of model fit, TLI, and CLI and statistically test differences between nested and alternative models were unavailable. The use of FIML also prevented the estimations of bootstrapped indirect effects.[1]

Results

There were no significant associations between adolescent same-sex attraction and adult alcohol abuse among boys/men in the sample (see Supplementary Table 1). Therefore results are limited to girls/women. Initial main effects (i.e., non-mediational) models among women showed that there was a significant association between adolescent-same sex attraction and DSM-IV alcohol abuse after accounting for all covariates $aOR = 2.11$, $p < 0.001$ (Hypothesis 1; see Supplemental Table 1).

Among women, results from Model 1 showed that same-sex attraction at Wave 1 was inversely associated with Wave 2 parent-child relationship quality ($\beta = -0.05$, $p = 0.002$) and that Wave 2 parent-child relationship quality was inversely related to alcohol abuse at Wave 4 ($aOR = 0.80$, $p = 0.001$; Table 2). Wave 1 same-sex attraction was unrelated to Wave 2 parental autonomy granting ($\beta = -0.02$, $p = 0.313$), which was also unrelated to Wave 4 alcohol abuse ($aOR = 1.54$, $p = 0.112$). Testing of indirect effects showed a small but statistical mediating effect between adolescent same-sex attraction and alcohol abuse in adulthood via youth-reported parent-child relationship quality $b = 0.032$, $se = 0.014$, 95% CI (0.005, 0.059), $p = 0.013$ (Hypothesis 2; see Fig. 1; Table 3).

Results from Model 2 (Table 4) showed that adolescent same-sex attraction at Wave 1 was negatively associated with concurrent parent-child relationship quality ($\beta = -0.10$, $p < 0.001$), which was positively associated with Wave 2 parent-child relationship quality ($\beta = 0.61$, $p < 0.001$). Wave 2 parent-child relationship quality was negatively associated with Wave 4 alcohol abuse (aOR = 0.80, $p < 0.001$). Wave 1 same-sex attraction was positively associated with Wave 1 parental autonomy granting ($\beta = 0.04$, $p = 0.003$), which was strongly associated with Wave 2 parental autonomy granting ($\beta = 0.47$, $p < 0.001$). Wave 2 parental autonomy granting, however, was not statically related to adult alcohol abuse ($aOR = 1.54$, $p = 0.102$). The testing of indirect effects support a cascading mediational effect, whereby adolescent same-sex attraction and alcohol abuse in adulthood were sequentially mediated by parent-child relationship quality in Wave 1 and 2 respectively (see Fig. 1, Table 4), $b = 0.039$, se = 0.014, 95% CI (0.012, 0.067), $p = 0.004$. There was no evidence of indirect effect through parental autonomy granting.

Table 2 Model 1: Parent-child relationship mediation between adolescent same-sex attraction and DSM-IV alcohol abuse among females

	b	*se*	*aOR*	*95% CI / se*	*p*
Wave 4 DSM-IV alcohol abuse regressed on:					
Same-sex attraction (W1)	0.73	0.16	2.07	(1.52, 2.85)	<0.001
Parent-child relationship quality (W1)	−0.21	0.06	0.80	(0.72, 0.92)	0.001
Parental autonomy granting (W1)	0.41	0.26	1.54	(0.90, 2.50)	0.112
Race/ethnicity					
White [ref]					
Black/African American	−1.19	0.12	0.31	(0.24, 0.38)	<0.001
Latinx	−0.51	0.17	0.61	(0.43, 0.84)	0.003
Other	−0.43	0.16	0.65	(0.48, 0.88)	0.006
Family Structure (W1)					
Two-parent [ref]					
Single-parent	0.07	0.09	1.07	(0.90, 1.29)	0.408
Step-family/other	0.25	0.11	1.28	(1.03, 1.60)	0.024
Adolescent alcohol use (W1)	0.14	0.02	1.15	(1.10, 1.20)	0.000
Receipt of public assistance (W1)	−0.17	0.19	0.85	(0.57, 1.23)	0.381
Education (W4)					
High school [ref]					
Less than high school	0.86	0.25	2.40	(1.46, 3.84)	<0.001
Some college	1.27	0.25	3.60	(2.90, 5.79)	<0.001
College or more	1.57	0.26	4.88	(2.92, 7.94)	<0.001
Age (W4)	−0.16	0.03	0.85	(0.81, 0.90)	<0.001
Sexual identity (W4)					
Heterosexual [ref]					
LGB	−0.01	0.22	0.99	(0.64, 1.53)	0.968
Same-sex attraction (W4)	0.64	0.15	1.88	(1.41, 2.54)	<0.001
Wave 2 parent-child relationship quality regressed on:					
Same-sex attraction (W1)	−0.15	0.05	−0.05	(−0.08, −0.02)	0.002
Wave 2 parental autonomy granting regressed on:					
Same-sex attraction (W1)	0.02	0.02	0.02	(−0.02, 0.06)	0.313

[1] The Mplus bootstrap option does not work with the FIML missing data procedure nor the integration statement requirements to estimate the indirect effects with weighted survey data (Muthén 2015).

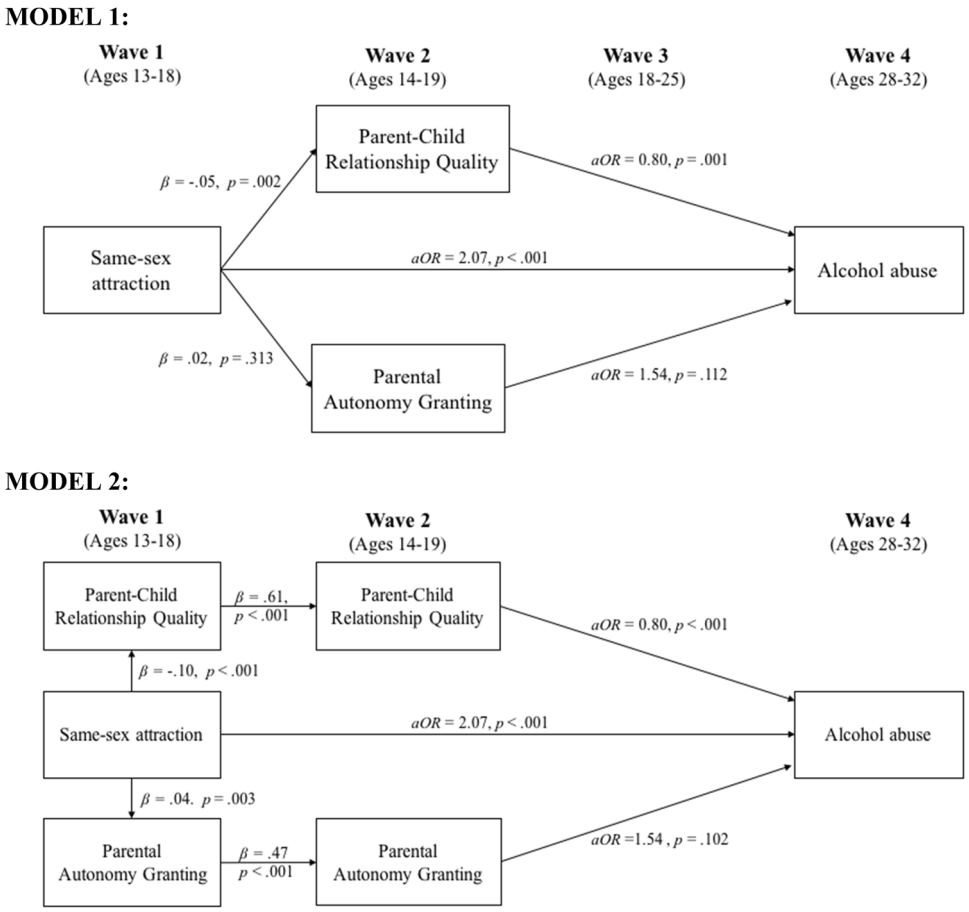

Fig. 1 Path analysis models testing the mediating influence of parent-child relationship quality and parental-child autonomy granting in the association between adolescent same-sex attraction and adult alcohol abuse among females. Parent-child relationship quality and parental autonomy granting were regressed on Wave 1 covariates and alcohol abuse was regressed on all Wave 1 and 4 covariates (not shown). Models were estimated with maximum likelihood estimation with robust standard errors to accurately test indirect effects and to account for missing data. For this reason, it was not possible to provide traditional fit indices such as chi-square test of model fit, TLI, CLI, RMSEA, and SRMR, or statistically test differences between nested and alternative models. The Mplus bootstrap option also does not work with this estimator nor the integration statement that are required to estimate indirect effects with weighted survey data. It was also therefore unable to provide bootstrapped confidence intervals for indirect effects

Discussion

Sexual minority youth and adults—and sexual minority females in particular—are at greater risk for substance use relative to their heterosexual peers (Marshal et al. 2008; Plöderl and Tremblay 2015). These disparities are often attributed to minority stressors that include compromised familial relationships as a result of having a sexual minority identity (Goldbach and Gibbs 2017; Russell and Fish 2016). Despite preliminary evidence that unsupportive parenting and strained parent-child relationships are associated with substance use among sexual minority youth (Needham and Austin 2010; Ryan et al. 2009), questions remain about the long-term implications of these early familial experiences on sexual minority drinking behaviors (Mereish 2019).

The findings presented here are among the first to document the enduring health consequences of compromised parent-child relationships during adolescence for sexual minority girls/women. Among sexual minority women, youth same-sex attraction was associated with reduced parent-child relationship quality, which in turn was associated with adult alcohol abuse. These findings both support and extend current literature on sexual minority health trajectories across the transition to adulthood. Similar to cross-sectional studies, the findings here show that sexual minority youth, and sexual minority girls in particular, demonstrated deficits in parent-child relationship quality (Fish and Russell 2018; Needham and Austin 2010). The findings presented here also corroborate work by Coulter et al. (2019): For women, adolescent deficits in parent-child relationship quality help to explain, in part, sexual orientation differences in alcohol abuse in adulthood. These results add to and extend these findings by isolating parent-child relationship quality as a key mechanism of risk for

Table 3 Total, indirect, and direct effects of adolescent same-sex attraction on adult alcohol abuse via adolescent and young adult parent-child relationship quality and parental autonomy granting

	b	*se*	95% CI	*p* value
MODEL 1:				
Total	0.774	0.162	(0.460, 1.09)	<0.001
Total indirect	0.040	0.018	(0.005, 0.074)	0.022
Indirect (via relationship quality)	0.032	0.014	(0.005, 0.059)	0.019
Indirect (via autonomy granting)	0.007	0.008	(−0.008, 0.023)	0.355
Direct	0.734	0.160	(0.420, 1.049)	<0.001
MODEL 2:				
Total	0.774	0.165	(0.450, 1.10)	<0.001
Total indirect	0.048	0.017	(0.015, 0.081)	0.004
Indirect (via relationship quality)	0.039	0.014	(0.012, 0.067)	0.004
Indirect (via autonomy granting)	0.009	0.006	(−0.003, 0.020)	0.154
Direct	0.726	0.161	(0.410, 1.04)	<0.001

alcohol abuse across the life course for sexual minority women, and assessing how early awareness of same-sex attraction are temporally associated with decreased support from parents, which in turn is prospectively associated with alcohol abuse at later periods in the life course.

There were no sexual orientation differences in alcohol abuse among men. Research generally supports that sexual-orientation-related disparities in substance abuse, and excessive alcohol use and abuse in particular, are more consistent and robust for sexual minority women relative to sexual minority men (Hughes et al. 2016; Plöderl and Tremblay 2015). These sex/gender differences are not well understood, but have been attributed to a number of factors, including sexual minority women's rejection of traditional gender norms, the fact that heterosexual men drink at higher rates than heterosexual women, and sexual minority women's elevated rates of physical and sexual victimization across the life course (Hughes et al. 2016). Still, other research highlights that sexual minority men may be more susceptible to elevated rates of substance abuse outside of alcohol (e.g., cigarette use, "club drugs"; McCabe et al. 2009; Plöderl and Tremblay 2015). Future research should consider how parental and familial relationships may play a unique role for risk across different substances given that there appear to be unique patterns of risk among sexual minority youth and adults on the basis of sex/gender.

Our results provide mixed evidence for differential autonomy granting for sexual minority youth and its ability to help explain, in part, sexual orientation differences in alcohol abuse in adulthood. Our cascade model (Model 2) showed a statistical relationship between same-sex attraction and parental autonomy granting, whereby sexual minority girls reported more autonomy-granting from parents relative to their heterosexual peers in Wave 1; This effect carried forward, but was unrelated to adult alcohol abuse. These findings are consistent with a previous study on parental monitoring, which found that sexual minority girls were less likely than heterosexual girls to report parental solicitation of knowledge about their location and activities (Montano et al. 2017, 2018). This same article also noted that sexual minority girls were less likely to share accurate information with parents. Together these findings suggest that there may be something unique about the relationship between parents and their sexual minority female children with respect to monitoring or sharing information. Although results showed no longitudinal association between autonomy-granting and alcohol abuse in adulthood, further studies should continue to explore intervening mechanisms that may link processes of autonomy-granting with health and risk behaviors later in adulthood. More generally, the results call attention to the fact that there are other relevant parent-child processes that deserve attention in the context of sexual minority youth development and health (see Newcomb et al. 2019). Autonomy granting is an important construct for assessing trajectories of substance use across adolescence and the transition to adulthood in the general population (Minaie Hui et al. 2015; Gordon et al. 2020) and should, alongside other familial process, be a focus of research when assessing the development and health of sexual minority young people.

Our findings with regard to parent-child relationship quality and risk for alcohol abuse among sexual minority women are consistent with minority stress theory (Meyer 2003). Poor mental health and maladaptive coping strategies among sexual minority people, such as alcohol abuse, emanate from chronic stressors that arise in response to a stigmatized sexual orientation. Although minority stressors are often operationalized as discrete experiences of stigma such as LGB-specific instances of discrimination, bullying, and rejection, minority stress theory also emphasizes how sexual minority people may also experience elevated rates of everyday stressors, which include strained interpersonal relationships (Krueger et al. 2020; Meyer 2003). In the case of our study, these chronic stressors are related to deficits in parental-relationship quality. The results are consistent with previous research which highlights compromised familial relationships as a result of sexual minority status (D'Augelli et al. 2008), and adjacent research that elucidates the negative health consequences of parental rejection (Ryan et al. 2009). This study links these two processes and extends them to demonstrate how they work in concert to influence the long-term health of sexual minority women. That is, same-sex attracted girls reported lower levels of parental warmth, closeness, and caring than their other-sex attracted peers, and these difference in parental relationship quality carried forward across adolescence and were associated with elevated odds of alcohol abuse in adulthood. As such, policies, programs, and practices that address both overt forms of discrimination, but also more subtle but

Table 4 Model 2: Parent-child relationship quality cascade mediation between adolescent same-sex attraction and adult alcohol abuse among females

	b	*se*	*OR/B*	*95% CI*	*p* value
Wave 4 DSM-IV alcohol abuse regressed on:					
Same-sex attraction (W1)	0.73	0.16	2.07	(1.51, 2.83)	<0.001
Parent-child relationship quality (W2)	−0.22	0.06	0.80	(0.71, 0.90)	<0.001
Parental autonomy granting (W2)	0.43	0.26	1.54	(0.92, 2.58)	0.102
Race/ethnicity					
White [ref]					
Black/African American	−1.19	0.11	0.31	(0.24, 0.38)	<0.001
Latinx	−0.50	0.17	0.61	(0.44, 0.84)	0.003
Other	−0.43	0.16	0.65	(0.48, 0.88)	0.006
Family Structure (W1)					
Two-parent [ref]					
Single-parent	0.07	0.09	1.07	(0.90, 1.28)	0.458
Step-family/other	0.24	0.11	1.28	(1.03, 1.59)	0.029
Adolescent alcohol use (W1)	0.14	0.02	1.15	(1.10, 1.20)	<0.001
Receipt of public assistance (W1)	−0.16	0.19	0.85	(0.58, 1.25)	0.418
Education (W4)					
High school [ref]					
Less than high school	0.87	0.25	2.40	(1.48, 3.90)	<0.001
Some college	1.28	0.25	3.60	(2.21, 5.88)	<0.001
College or more	1.59	0.26	4.88	(2.95, 8.08)	<0.001
Age (W4)	−0.16	0.03	0.85	(0.81, 0.90)	<0.001
Sexual identity (W4)					
Heterosexual [ref]					
LGB	−0.01	0.22	0.99	(0.64, 1.54)	0.969
Same-sex attraction (W4)	0.63	0.15	1.88	(1.40, 2.53)	<0.001
Wave 2 Parent-Child Relationship Quality Regress on:					
Parent-child relationship quality (W1)	0.61	0.02	0.61	(0.57, 0.64)	<0.001
Same-sex attraction (W2)	−0.04	0.05	−0.01	(−0.09, 0.02)	0.440
Race/ethnicity					
White [ref]					
Black/African American	0.03	0.01	0.01	(−0.01, 0.04)	0.220
Latinx	0.00	0.00	0.00	(−0.04, 0.04)	0.960
Other	−0.12	−0.04	−0.04	(−0.08, −0.00)	0.041
Family Structure (W1)					
Two-parent					
Single-parent	−0.04	−0.03	−0.03	(−0.06, 0.01)	0.128
Step-family/other	−0.08	−0.04	−0.04	(−0.07, −0.02)	0.001
Adolescent alcohol use (W1)	−0.01	0.01	−0.03	(−0.06, 0.01)	0.117
Receipt of public assistance (W1)	0.04	0.04	0.02	(−0.02, 0.06)	0.332
Wave 2 Parental Autonomy Granting Regressed on:					
Parental autonomy granting (W1)	0.45	0.02	0.47	(0.44, 0.51)	<0.001
Same-sex attraction (W2)	0.02	0.01	0.02	(−0.00, 0.05)	0.067
Race/ethnicity					
White [ref]					
Black/African American	−0.02	0.01	−0.03	(−0.07, 0.01)	0.102
Latinx	−0.04	0.01	−0.05	(−0.09, −0.01)	0.006
Other	−0.03	0.02	−0.03	(−0.07, 0.01)	0.125
Family Structure (W1)					
Two-parent					
Single-parent	0.02	0.01	0.05	(0.01, 0.08)	0.014
Step-family/other	0.01	0.01	0.02	(−0.02, 0.05)	0.302
Adolescent alcohol use (W1)	0.01	0.00	0.06	(0.02, 0.10)	0.002
Receipt of public assistance (W1)	−0.03	0.01	−0.04	(−0.07, −0.01)	0.013
Wave 1 parent-child relationship quality regressed on:					
Same-sex attraction (W1)	−0.29	0.06	−0.10	(−0.13, −0.06)	<0.001
Wave 1 parental autonomy granting regressed on:					
Same-sex attraction (W1)	0.04	0.02	0.04	(0.02, 0.07)	0.003

enduring stress are necessary to combat and address sexual orientation-related health disparities.

With regard to the practical implications of this work, our findings are largely relevant to programs and practices for sexual minority young people. Prevention and intervention programs and strategies for sexual minority youth should consider the importance of including a focus on strengthening parent-child relationships, as they appear (not surprisingly) to have long-lasting impact on the health of sexual minority adults. Even with the overwhelming agreement that parents matter for the health and wellness of youth, there is a relatively small literature on the role of family in the positive, health, and development of sexual minority young people (Newcomb et al. 2019). Parental support cannot be assumed in the context of sexual minority young people, nor can one assume that supportive parents display an absence of other behaviors that are simultaneously undermining and harmful. For example, a parent can say that they are support of a young person's sexual identity, but undermine these statements by policing their clothing, who they hang out with, and disclosure of this identity to other family members. Family programs have shown to be effective and often times more effective that individual treatment for supporting youth and altering maladaptive or risky behavior (Brody et al. 2010; Prado et al. 2012)—but these perspectives have yet to gain significant traction in the sexual minority youth health promotion scholarship (Newcomb et al. 2019). An exception is individual therapeutic approaches: Attachment-Based Family Therapy (Diamond et al. 2016) models with sexual minority young people have shown to be an effective strategy for mending ruptures that occur in the family system as a result of rejecting parental behaviors in reaction to adolescent same-sex attraction. In short, there is much work to be done in this area, both in the degree to which family dynamics influence sexual minority youth health, but also the strategies that bolster and repair parent-child relationships in ways that support the positive development and health of sexual minority youth.

Despite the contributions, there are several limitations to note. First, it was not possible to know whether parents were aware of youth's same-sex attraction (i.e., if they were out) during adolescence or if youth identified as LGB given that Add Health did not include items assessing sexual identity until adulthood. Second, global measures of parenting and relationship quality provide important information, but the Add Health study does not assess sexuality-specific parenting practices. Other studies have documented cross-sectional links between parental rejection of youth's sexual minority identities and substance use behaviors (Ryan et al. 2009); sexuality-specific parenting practices could make a lasting difference for sexual minority youth in ways that general measures of parenting and relationships do not. Third, the data on parenting behaviors were limited to youth reports. Future studies would benefit from using multisource data on parenting practices, and its impact on sexual minority youth substance use and wellbeing. Finally, given the analytic approach it was not possible to assess model fit, or to compare fit across our two models—this is a regrettable limitation but does not discount the gravity of our findings. With more analytic advancements for estimating model fit with complex data, future studies that are able to address these limitations will be necessary to help validate the associations documented here. Finally, Add Health participants were adolescents in the 1990s, and thus their experiences as young sexual minorities would likely differ from today's youth. Yet despite significant social change toward legal and policy inclusion for sexual minorities, there is evidence that compromised relationships between parent and sexual minority youth are not improving over time: A recent study found a growing disparity in the perception of family connectedness and parent support among sexual minority youth compared to their heterosexual counterparts (Watson et al. 2019). Given the continued or even growing sexual orientation disparity in parent-adolescent relationships, our findings continue to be relevant for sexual minority youth, and these associations deserve investigation among contemporary cohorts.

Conclusion

The current study aimed to understand the degree to which adolescent family processes are associated with later vulnerability for substance use among sexual minority adults. Our findings suggest that same-sex attracted adolescents experience deficits in parent-child relationship quality, and those deficits are implicated in well-established disparities in alcohol abuse between sexual minority and heterosexual women. As the quality and quantity of data on the experiences of sexual minority youth continues to expand, it is critical to examine the factors that shape the health of sexual minority people. Prospective studies in particular have the capacity to not only inform the contextual factors that should be addressed, but equally importantly when they seem most salient for shaping health and wellness across the life course.

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Authors' Contributions J.N.F. conceived of the study, carried out the statistical analysis, drafted several sections of the original manuscript, and participated in the design and coordination of the drafted manuscript; B.S.R. helped inform the study design and drafted sections of the manuscript; R.W.J. drafted several sections of the manuscript; S.T.R. helped inform the study design and drafted sections of the manuscript. All authors read and approved the final manuscript.

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Data Sharing and Declaration The data that support the findings of this study are available from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill team, but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. However, data are available from the authors upon reasonable request and with permission of the Add Health program.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval The University of Texas and the University of Maryland Institutional Review Boards granted exemption from human subjects review for the current study given that data are anonymous and publically available.

Informed Consent The current study design uses secondary data; therefore, informed consent was not necessary. Informed consent was obtained as part of the original study.

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