

Title: Teen pregnancy among bisexual adolescent females

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Abstract

Several studies have now shown that sexual minority females, variously “defined” by identity or biological sex of partners, are more likely to experience a teen pregnancy. However, work to date has not been based on nationally representative samples. We examine the association between adolescent females’ partnering patterns before age 18 (different-sex partners only [DS; referent], both same-sex and different-sex partners [SS/DS], no pre-18 partners [NO]) and the likelihood of a teen pregnancy using data from the National Longitudinal Study of Adolescent Health. In an unadjusted model, respondents (Rs) reporting SS/DS partnering before age 18 had marginally ($p < .10$) higher odds of experiencing a teen pregnancy compared with Rs who reported exclusively DS partnering. However, the association was not significant in subsequent models controlling for demographic characteristics and childhood sexual abuse. Possible contributors to these findings and their implications will be further discussed in the full paper.

Introduction

Relatively little research has been conducted on the reproductive health needs of sexual minority adolescent females. However, this is an area of increasing interest as studies have indicated that sexual minority females, variously “defined” by orientation identity or biological sex of partners, are more likely to experience a teen pregnancy (Charlton et al., 2013; Saewyc et al., 1999) compared to heterosexual peers, and also differ on risk behaviors related to teen pregnancy such as earlier age of first vaginal intercourse, greater numbers of both male and female partners, and poorer contraception practices (Austin et al., 2008; Blake et al., 2001; Case et al., 2004; Charlton et al., 2011, 2013; Garofalo et al. 1998; Klein 2005; Saewyc et al., 1999;). Further, several studies suggest that bisexual females, both in adolescence and in young adulthood, may be at greatest risk of poor reproductive health outcomes (Robin et al., 2002; Russell, Franz, & Driscoll, 2001; Tornello et al., 2014). Processes related to minority stress, coupled with higher likelihood of physical and sexual abuse among sexual minority females (Austin et al., 2008; Blake et al., 2001; Case et al., 2004; Charlton et al., 2011, 2013; Klein 2005; Saewyc et al., 1999; Tornello et al., 2014), have been proposed as mechanisms linking greater sexual risk taking to minority status. Vaginal intercourse and subsequent pregnancy may also reflect attempts to either disguise or “test” sexual orientation (i.e., “heterosexual immersion”).

In this study we examine the association between adolescent females’ partnering patterns before age 18 (different sex partners only, same-sex and different-sex partners, no partners) and the likelihood of a teen pregnancy using data from the National Longitudinal Study of Adolescent Health. We rely on partnering patterns rather than orientation identity to capture adolescents who are actually “at risk” of pregnancy. Based on minority stress theory and earlier empirical work, we hypothesize that adolescents with SS/DS partners will be more likely to report a teen pregnancy than either DS or NO groups. We also hypothesize that any identified association will be mediated by age at first sex and effective contraception.

Methods

Data: We use data from the National Longitudinal Study of Adolescent Health (Add Health), a prospective study following a nationally representative probability sample of adolescents in grades 7-12 during the 1994-1995 school year. To date, one in-school and four in-home interviews have been completed. Data for the present analysis were primarily collected at the in-home interview at Wave IV (2008; respondents aged 24-32), though some demographics were collected at Wave I/baseline. All Add Health procedures were approved by the non-Biomedical Institutional Review Board (IRB) at the University of North Carolina at Chapel Hill; present analyses were deemed exempt.

Inclusion criteria for the present analysis are participation in Waves I and IV (n=15,701), valid sampling weight (n=14,785), female biological sex (n=7,857), age of vaginal sexual debut at 19 or younger (n=6,364), and non-missing data on all analytic variables (n=6,013).

Measures

Outcome: *teen pregnancy.* A complete pregnancy history was collected at Wave IV. For each reported pregnancy, Rs recorded the month and year the pregnancy ended. Teen pregnancy was defined as having a pregnancy, regardless of outcome, that ended before age 20.

Predictor of interest: *partnering patterns (sexual orientation).* At Wave IV Rs reported the number of male and female sex partners before age 18. We coded as: different-sex sexual

partners only (DS; referent), both same-sex and different-sex partners (SS/DS, bisexual orientation), or no sexual partners (NO) before age 18 (Note: for the last group there may have been partners at ages 18 and 19).

Mediators: We used *age at first vaginal sex* as reported at Wave IV. *Effective contraception* was determined by whether the respondent had an unintended or intended first pregnancy (“Thinking back to the time just before this pregnancy with [initials], did you want to have a child then?”) and if she used contraception in the month before her first pregnancy (“In the month before you got pregnant were you or [partner initials] using any kind of birth control, including condoms?”). If a respondent had an unintended pregnancy, she was categorized as an ineffective contraceptive (regardless of reported contraceptive use). If a respondent had an intended pregnancy or had a history of sexual activity with no reported pregnancies, the respondent was categorized as an effective contraceptive. The latter category allowed for the inclusion of respondents for whom contraception use was not directly measured in Wave IV.

Confounder: *Childhood sexual abuse (CSA)* was determined by the question, “Before your 18th birthday, how often did a parent or other adult caregiver touch you in a sexual way, force you to touch him or her in a sexual way, or force you to have sexual relations?” An answer of one or more times was coded 1.

Sociodemographic covariates: Self-identified *race/ethnicity* was coded as non-Hispanic white (referent), Hispanic (any race), non-Hispanic black, non-Hispanic other). *Parental education* was the highest level of education obtained by either of the R’s parents or caregivers (less than high school; high school graduate/general education diploma; some college or post-high school business, trade, or vocational school; or college graduate or more [referent]) and was reported by the resident mother in the parent wave I in-home interview. *Poverty* was defined as the proportion of families with dependents younger than 18 years of age and with income below the poverty level in 1989, taken from the Add Health Wave I contextual data. A neighborhood with <11.6% of families below the poverty level was designated as low poverty; between 11.6% and 23.9% signified medium poverty; and >23.9% signified high poverty. *Adolescent family structure* at the Wave I interview was based on Rs’ reports of living with two biological parents (referent), two parents where at least one is not a biological parent (other two parent household), single parent, or living in any other type of household structure. Respondents’ birth year captured cohort differences. *Birth years* ranged from 1974 to 1983.

Parent-child relationship quality was measured by respondents’ ratings of closeness, satisfaction with communication, overall relationship satisfaction, and the extent to which they felt their parent was warm and loving toward them; all questions used a five-point Likert scale for responses. Individual scores were calculated for each parent by summing responses across items (range: 5-20). *Urbanicity of adolescent residence*, taken from Wave 1 contextual data, determined whether respondent resided in census block groups that were in completely urbanized areas (1) or not.

Analysis Plan: To assess the association between partnering patterns and teen pregnancy, a series of step-wise logistic regression models were fit in STATA 13, adjusted to account for Add Health’s sampling design and survey weights:

M1: Odds of teen pregnancy as predicted by sexual orientation (dummy-coded as described above, with “different-sex sexual partners only” as the referent)

M2: Additionally controlling for demographic covariates listed above

M3: Expansion of M2 to control for history of childhood sexual abuse

M4: Expansion of M3, to control for age of sexual debut

M5: Expansion of M4, to control for contraception effectiveness at time of pregnancy

Results

Across the 6,013 respondents included for analysis, a total of 1,482 teen pregnancies were reported (accounting for 24.6% of the sample). The majority of respondents (Rs) reported exclusively DS sexual partnering before age 18 (77.3%; n=4576), with slightly more than 18% reporting no sexual partnering before 18, and 4.3% reporting both different-sex and same-sex partners.

Table 1 depicts the distributions of key analytic variables across the sexual orientation groups (cross-tabulation of all analysis variables by partnering groups will be included in the full paper). On average, Rs with a bisexual partnering history (SS/DS partnering) were the most likely to experience a teen pregnancy, had the youngest age of sexual debut, were the least likely to be effective contraceptors, and were the most likely to experience childhood sexual abuse.

Results from the logistic regression models are presented in Table 2. In the unadjusted model (M1), Rs reporting SS/DS partnering before age 18 had marginally ($p < .10$) significantly higher odds of experiencing a teen pregnancy compared with Rs who reported exclusively DS partnering (OR=1.51; 95% CI=0.94, 2.43). However this association was not significant in subsequent models. History of CSA was significantly positively predictive of teen pregnancy when first added to the model (M3; OR=1.47; 95% CI=1.05, 2.04), but this association appeared to be fully mediated by the sexual risk behaviors added in M4 and M5. Later age of sexual debut (M4; OR=0.81; 95% CI=0.75, 0.88) and more effective contraception use (M5; OR=0.37, 95% CI=0.30, 0.46) were associated with lower odds of teen pregnancy.

Discussion

In contrast to earlier studies, we find only a marginal association between SS/DS partnering and the likelihood of teen pregnancy in our national sample. This marginal association is eliminated when standard demographic controls are included in the model. At least one other study, focused on American Indian adolescents in Minnesota, has also failed to find an association with pregnancy (Saewyc et al., 1998). However unlike present analyses, identity served as the measure of orientation in that study. It is not clear whether the absence of an association in present analyses reflects sampling differences across studies, our focus on sexual partnering versus identity, or some other factor. We did find, like other studies, that experiencing CSA, earlier age at first vaginal intercourse, and ineffective contraception are associated with sexual orientation as measured by partnering. Contributors to these findings and their theoretical and practice implications will be further discussed in the full paper.

Table 1. Distribution of key variables across partnering categories

	No Pre-18 partners	Different Sex only	Same-sex +Different sex	Total
Teen Pregnancy, %	7.82	27.92	36.89	24.61
Age Vaginal Sex, mean(y)	18.3	15.3	14.4	15.79
History of childhood sexual abuse, %	4.21	6.65	16.02	6.61
Effective contraception use, %	77.54	68.17	51.62	69.18
TOTAL, n(%)	1201 (18.4)	4576 (77.3)	236 (4.3)	6,013

All percentages weighted to reflect Add Health Sample design (Ns are unweighted)

Table 2. Weighted odds ratios (OR) and 95% confidence intervals (CI) of Teen Pregnancy by partnering pattern

	M1 (Crude)		M2 (+Demographics)		M3 (+Childhood Sex Abuse)		M4 (+Age Sexual Debut)		M5 (+Effective Contraception)	
	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI
Sexual Orientation										
None Pre-18	0.22	0.16,0.30***	0.22	0.16,0.30***	0.22	0.17,0.30***	0.42	0.28,0.63***	0.44	0.30,0.65***
OS+SS	1.51	0.94,2.43+	1.31	0.77,2.23	1.26	0.74,2.17	1.09	0.63,1.90	0.95	0.54,1.66
partners										
Childhood Sex Abuse					1.47	1.05,2.04*	1.30	0.93,1.82	1.23	0.87,1.74
Age Sexual Debut							0.81	0.75,0.88***	0.81	0.75,0.88***
Effective Contraception									0.37	0.30,0.46***
Poverty										
Medium			1.11	0.90,1.37	1.11	0.90,1.36	1.13	0.92,1.39	1.15	0.93,1.43
High			1.36	1.03,1.79*	1.35	1.03,1.78*	1.37	1.04,1.81*	1.39	1.07,1.81*
Birth Year			0.72	0.57,0.91**	0.72	0.57,0.91**	0.72	0.56,0.91**	0.72	0.56,0.92**
Race/Ethnicity										
Non-Hispanic Black			1.55	1.15,2.10**	1.57	1.17,2.12**	1.55	1.15,2.09**	1.35	1.02,1.80*
Hispanic			1.68	1.22,2.32**	1.67	1.21,2.29**	1.64	1.19,2.27**	1.65	1.21,2.23**
Non-Hispanic Other			1.29	0.87,1.92	1.27	0.85,1.90	1.32	0.89,1.96	1.29	0.88,1.90
Parental Education										
Less than HS			2.43	1.77,3.33***	2.43	1.77,3.34***	2.32	1.68,3.18***	2.22	1.59,3.12***
High School			2.05	1.57,2.67***	2.04	1.56,2.65***	1.91	1.46,2.48***	1.86	1.43,2.42***
Some College			1.73	1.32,2.28***	1.72	1.31,2.26***	1.63	1.24,2.15***	1.58	1.20,2.09**
Adolescent Family Structure										
Other two-parent			1.37	1.13,1.65**	1.34	1.11,1.61**	1.24	1.01,1.52*	1.20	0.98,1.47+
Other Single parent			3.16	2.09,4.78***	3.02	2.00,4.58***	2.76	1.85,4.13***	2.70	1.76,4.14***
Parental Relationship Quality			1.44	1.17,1.77***	1.42	1.16,1.74***	1.33	1.08,1.63**	1.35	1.09,1.68**
Urbanicity of Adolescent Residence			0.95	0.93,0.98**	0.95	0.93,0.98**	0.96	0.93,0.99**	0.97	0.94,1.00*
Urbanicity of Adolescent Residence			1.19	0.96,1.47	1.19	0.96,1.47	1.17	0.94, 1.44	1.11	0.90, 1.37

OR= Odds Ratio; CI= Confidence Interval

+p<.10, *p<.05, **p<.01, ***p<.001

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