Teen Pregnancy Risk Factors Among Young Women of Diverse Sexual Orientations

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abstract

OBJECTIVES: Young women who are sexual minorities (eg, bisexual and lesbian) are approximately twice as likely as those who are heterosexual to have a teen pregnancy. Therefore, we hypothesized that risk factors for teen pregnancy would vary across sexual orientation groups and that other potential risk factors exist that are unique to sexual minorities.

METHODS: We used multivariable log-binomial models gathered from 7120 young women in the longitudinal cohort known as the Growing Up Today Study to examine the following potential teen pregnancy risk factors: childhood maltreatment, bullying victimization and perpetration, and gender nonconformity. Among sexual minorities, we also examined the following: sexual minority developmental milestones, sexual orientation–related stress, sexual minority outness, and lesbian, gay, and bisexual social activity involvement.

RESULTS: Childhood maltreatment and bullying were significant teen pregnancy risk factors among all participants. After adjusting for childhood maltreatment and bullying, the sexual orientation–related teen pregnancy disparities were attenuated; these risk factors explained 45% of the disparity. Among sexual minorities, reaching sexual minority developmental milestones earlier was also associated with an increased teen pregnancy risk.

CONCLUSIONS: The higher teen pregnancy prevalence among sexual minorities compared with heterosexuals in this cohort was partially explained by childhood maltreatment and bullying, which may, in part, stem from sexual orientation–related discrimination. Teen pregnancy prevention efforts that are focused on risk factors more common among young women who are sexual minorities (eg, childhood maltreatment, bullying) can help to reduce the existing sexual orientation–related teen pregnancy disparity.

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WHAT'S KNOWN ON THIS SUBJECT: Compared with their heterosexual peers, young women who are sexual minorities (eg, bisexuals and lesbians) are at heightened teen pregnancy risk. Young sexual minority women report established risk factors for teen pregnancy, such as childhood maltreatment, more frequently than heterosexuals.

WHAT THIS STUDY ADDS: There is limited research in which researchers empirically examine whether teen pregnancy risk factors vary across sexual orientation groups. To our knowledge, no authors of US-based studies have explored whether there are also additional risk factors unique to sexual minorities.

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Compared with heterosexuals, young women who are sexual minorities (eg, bisexual and lesbian) are at a heightened risk for teen pregnancy (defined as a pregnancy before age 20 years).[1–10] This population reports established risk factors for teen pregnancy, such as earlier sexual initiation,[11] more frequently than heterosexuals. It has been suggested that young women who are sexual minorities may be exposed to these established risk factors more often because of their sexual orientation or may even have additional risk factors for teen pregnancy that are unique to sexual minorities.[10,12] For example, in this research, we suggest that young women who are sexual minorities may try to avoid or cope with the stigma related to their sexual orientation by having sexual intercourse with men, putting themselves at risk for pregnancy. In previous research, data has been leveraged from Canadian adolescents, but there is limited research from the United States in which researchers have empirically examined whether teen pregnancy risk factors vary across sexual orientation groups.[13] To our knowledge, no authors of US-based studies have explored whether there are additional risk factors that are unique to sexual minorities. Therefore, we examined teen pregnancy risk factors, including a number of potential risk factors that have yet to be explored in previous research, using longitudinal data from young women of diverse sexual orientations in the United States.

The following three proposed risk factors for teen pregnancy were examined among participants of all sexual orientations: (1) childhood maltreatment, (2) bullying victimization and perpetration, and (3) gender nonconformity. The following four risk factors relevant to participants who are sexual minorities were examined among those participants: (4) sexual minority developmental milestones (eg, age at which they first identified as a sexual minority), (5) sexual orientation–related stress (eg, worry that others might think they are lesbian or bisexual), (6) sexual minority outness, and (7) lesbian, gay, and bisexual (LGB) social activity involvement.

Childhood maltreatment is an established risk factor for teen pregnancy[14,15] and is more common among sexual minorities.[16,17] Both bullying victimization and perpetration have been associated with an increase in teen pregnancy.[18] Victims and perpetrators are more likely to experience depression, anxiety,[19,20] and low self-regard,[21] which may elevate their teen pregnancy risk. Sexual minorities report being victims and perpetrators of bullying[22,23] more often than their heterosexual peers. Although it has yet to be studied, sexual minorities may engage in sexual behaviors that put them at risk for a teen pregnancy for many reasons, including wanting to "prove" to bully victims or perpetrators that they are heterosexual.

Regarding gender nonconformity, young women who are the most feminine may be at greater risk for having a teen pregnancy. One potential pathway follows the gender intensification hypothesis,[24] which posits that young people experience increased pressure to conform to culturally sanctioned gender roles during adolescence. Therefore, young women who are the most gender conforming (ie, most feminine) may be the least prepared to negotiate contraception with a male partner, elevating their risk of pregnancy.

It is suggested in the Sexual Minority Stress Theory[25] that sexual minorities experience stress related to the stigma associated with their sexual orientation. Individuals who reach sexual minority developmental milestones (eg, identifying as mostly heterosexual, bisexual, lesbian, or gay) at younger ages may be exposed to earlier, more persistent stigma and have less well-developed coping skills compared with sexual minorities who reach milestones later.[26–28] Young women who experience sexual minority stress may seek to strengthen the perception that they are heterosexual by having sexual intercourse with men. Individuals who are not "out" to others about their sexual orientation report lower self-esteem and more anxiety[29] and may engage in behaviors that put them at risk for a teen pregnancy. Young women who are sexual minorities may view sexual intercourse with men and pregnancy as a way to stay "closeted." Being involved with the LGB community through activities like LGB social or educational events[25,30] confers social support and may act as a buffer to risk factors.[15]

We hypothesize that the following proposed risk factors would be positively associated with teen pregnancy among young women of all sexual orientations: childhood maltreatment, bullying victimization and perpetration, and gender conformity. Among sexual minorities, we hypothesize that risk factors unique to those participants would be positively associated with teen pregnancy, namely earlier timing of sexual minority developmental milestones, more sexual orientation–related stress, less outness, and less LGB social activity involvement.

METHODS

Study Population

The Growing Up Today Study (GUTS) began in 1996 when women from the Nurses' Health Study 2 enrolled their female and male children (N = 27 793), aged 9 to 14 years, into a longitudinal cohort study. The current analysis was limited to female (based on their sex assigned at birth) GUTS participants who reported their sexual orientation

TABLE 1 Characteristics by Sexual Orientation in a US-Based Cohort of Young Women ($N = 7120$)

	Completely Heterosexual With No Same-Sex Partners	Completely Heterosexual With Same-Sex Partners	Mostly Heterosexual	Bisexual	Lesbian	*P*[a]
	84%, $n = 6003$	2%, $n = 131$	11%, $n = 774$	2%, $n = 150$	1%, $n = 62$	
Demographics, % (*n*)						
Mean age in 1996, y, SD, range: 9–15 y	11.6, 1.6	11.3, 1.4	11.3, 1.7	11.6, 1.7	11.4, 1.6	<.0001
White race and/or ethnicity	94 (5651)	92 (120)	91 (702)	91 (136)	90 (56)	.001
Potential risk factors in all participants, % (*n*)						
Childhood gender nonconformity[b]						
Below median	57 (3400)	54 (71)	44 (340)	32 (48)	32 (20)	—
Above median, below top decile	31 (1847)	34 (45)	34 (266)	38 (57)	18 (1511	—
Top decile	13 (756)	12 (15)	22 (168)	30 (45)	50 (31)	<.0001
Childhood physical and/or emotional abuse, Childhood Trauma Questionnaire, % (*n*)						
Quintile 1, least	21 (945)	15 (17)	13 (78)	6 (7)	10 (5)	—
Quintile 2	23 (1080)	21 (24)	20 (123)	13 (15)	17 (8)	—
Quintile 3	22 (989)	26 (30)	19 (116)	16 (19)	8 (4)	—
Quintile 4	20 (898)	18 (21)	23 (142)	24 (28)	31 (15)	—
Quintile 5, most	15 (684)	21 (24)	26 (162)	41 (47)	33 (16)	<.0001
Childhood threatened and/or actual physical assault, Conflict Tactic Scales, % (*n*)						
Never	9 (408)	10 (11)	8 (51)	6 (7)	13 (6)	—
Rarely or sometimes	77 (3535)	72 (84)	70 (435)	62 (72)	71 (34)	—
Often or very often	14 (651)	18 (21)	22 (135)	32 (37)	17 (8)	<.0001
Childhood sexual abuse	2 (106)	7 (8)	5 (33)	11 (12)	4 (2)	<.0001
Bullying, % (*n*)						
None	77 (3113)	63 (64)	69 (373)	59 (62)	67 (28)	—
Victim only	9 (358)	6 (6)	13 (69)	15 (16)	17 (7)	—
Perpetrator only	7 (285)	18 (18)	8 (45)	14 (15)	7 (3)	—
Victim and perpetrator	7 (275)	14 (14)	10 (53)	11 (12)	10 (4)	<.0001
Potential risk factors among participants who are sexual minorities, % (*n*)						
Sexual minority developmental milestones[c]						
Late adolescence and/or young adulthood	N/A[d]	N/A[d]	38 (168)	20 (20)	11 (5)	—
Middle adolescence	N/A[d]	N/A[d]	40 (176)	42 (43)	44 (20)	—
Early adolescence	N/A[d]	N/A[d]	22 (96)	38 (39)	44 (20)	<.0001
Sexual orientation–related stress,[e] mean, SD	N/A[d]	N/A[d]	2.3, 1.0	1.9, 0.9	1.7, 0.8	<.0001
Sexual minority outness[f]						
Everyone knows	N/A[d]	N/A[d]	9 (50)	38 (52)	69 (36)	—
Most or a few people know	N/A[d]	N/A[d]	70 (409)	58 (79)	29 (15)	—
No one knows	N/A[d]	N/A[d]	22 (129)	4 (5)	2 (1)	<.0001
LGB social activity involvement[g]						
≥6 times per y	N/A[d]	N/A[d]	3 (23)	17 (24)	56 (30)	—
<6 times per y	N/A[d]	N/A[d]	66 (462)	72 (100)	43 (23)	—
Never	N/A[d]	N/A[d]	31 (219)	10 (14)	2 (1)	<.0001
Outcome, % (*n*)						
Any pregnancy in ages <20 y	2 (117)	3 (4)	4 (28)	9 (14)	5 (3)	<.0001

N/A, not applicable; —, *P* value was calculated for categorical variable.

[a] *P* value was calculated by using an analysis of variance for continuous variables and χ^2 tests for categorical variables (except for teen pregnancy in which it was calculated by using Fisher's exact test).

[b] Median was based on 4 items from the Recalled Childhood Gender Identity and Gender Role Questionnaire.

[c] Age at which sexual minority identification, same-sex attraction, or same-sex sexual contact first occurred, categorized as late adolescence and/or young adulthood (ages 18–27 y), middle adolescence (ages 14–17 y), or early adolescence (ages ≤13 y).

[d] Data collection among mostly heterosexual, bisexual, and lesbian participants only.

[e] Sexual orientation–related stress was assessed via questions about the extent to which participants wished they were not attracted to the same sex, with response options 1 (strongly disagree) to 5 (strongly agree); higher scores are used to indicate more stress.

[f] Mean of 3 items on outness to family, friends, and people at school or work.

[g] Mean of 3 items on frequency of LGB social activity involvement.

and information on the proposed teen pregnancy risk factors between 1996 and 2010 (*N* = 7970). This study was approved by the Brigham and Women's Hospital Institutional Review Board.

Sexual Orientation

Detailed information about sexual orientation has been collected on every GUTS questionnaire since 1999 by using an item adapted from the Minnesota Adolescent Health Survey[31] that asks about feelings of attraction and identity. The item read, "Which of the following best describes your feelings?'' and included the following response options: completely heterosexual (attracted to persons of the opposite sex), mostly heterosexual, bisexual (equally attracted to men and women), mostly homosexual, completely homosexual (gay or lesbian, attracted to persons of the same sex), and not sure. This item was combined with a question about the sex of sexual partners that read, "During your life, the person(s) with whom you have had sexual contact is (are):" and included the following response options: "I have not had sexual contact with anyone, female(s), male(s), and female(s) and male(s)." These data allowed participants to be categorized by all 3 dimensions of sexual orientation (ie, identity, behavior, and attraction), thereby allowing participants to endorse an identity such as completely heterosexual while also reporting behaviors such as having same-sex partners.

Sexual orientation groups were modeled by using the report at age 19 years (closest to most of the teen pregnancies) as follows: completely heterosexual with no same-sex partners (reference group [ref]), completely heterosexual with same-sex partners, mostly heterosexual, bisexual, and lesbian (made up of the mostly homosexual and completely homosexual groups). We ran sensitivity analyses using the sexual orientation report at age 16 years (preceding most of the teen pregnancies); the results did not reveal meaningful change. For the mediation analyses, the sexual minority groups were collapsed into a single group for statistical power and interpretation ease.

Potential Risk Factors for Teen Pregnancy

Childhood Maltreatment

In 2007, participants reported childhood maltreatment before age 11 years. Physical and/or emotional abuse was measured by using 5 items from the Childhood Trauma Questionnaire,[32] capturing the frequency with which adults in and outside of the family as well as siblings did the following: yelled or screamed, said hurtful or insulting things, punished the child in a way that seemed cruel, hit so hard it left bruises or marks, and made the child feel important (reverse coded). To make comparisons across the literature, we created a score summing across all potential perpetrators and all items, as has been done previously,[33] to categorize the amount of physical and/or emotional abuse into quintiles. The lowest quintile was used to indicate the least abuse (including none) and the highest quintile was used to indicate the most abuse. Threatened or actual physical assault was measured with 4 items from the Conflict Tactics Scales,[34] capturing the frequency with which adults in and outside of the family as well as siblings did the following: pushed, grabbed, or shoved; spanked for discipline; and threatened or actually did kick, punch, or hit with something that could hurt or physically attacked in another way. As has been done previously, we combined perpetrator groups and categorized any such reports into: never (ref), rarely or sometimes, and often or very often. Sexual abuse was measured with 2 additional questions.[35] The first question was about being touched by or forced to touch an adult or older child in a sexual way when the participant did not want to, and a second question asked about an adult or older child forcing or attempting to force sexual activity by threatening, holding down, or hurting the participant.[36] We considered any participant with such reports as being sexually abused (yes or no). The 3 types of childhood maltreatment (physical and/or emotional abuse, threatened or actual physical assault, and sexual abuse) were all examined separately.

Bullying Victimization and Perpetration

Using 2 items adapted from the World Health Organization Health Behavior of School-aged Children Survey,[37] participants reported in 2001 the frequency of past-year bullying victimization and perpetration. Items were measured on a 5-point Likert scale ranging from "I haven't been bullied or I haven't bullied anyone" to "several times a week." We categorized bullying experiences as none, victim only, perpetrator only, or both victim and perpetrator.

Gender Nonconformity

Participants responded in 2005 and 2007 to 4 items from the Recalled Childhood Gender Identity and Gender Role Questionnaire[38] about behaviors during childhood up to age 11 years regarding media characters imitated or admired, roles taken in pretend play, favorite toys and games, and feelings of femininity or masculinity. Response options were on a 5-point scale, ranging from "always women or girls or very 'feminine'" to "always boys or men or very 'masculine.'" We calculated a mean of the 4 questions and modeled this into

TABLE 2 Multivariable Relative Risk of Teen Pregnancy in a US-Based Cohort of Young Women ($N = 7120$)

	Teen Pregnancy RR (95% CI)	
	Individual Variable Models[a]	Models Simultaneously Adjusted for Other Significant Variables[b]
Sexual orientation		
Completely heterosexual with no same-sex partners	Ref	Ref
Completely heterosexual with same-sex partners	1.51 (0.56–4.03)	1.71 (0.62–4.74)
Mostly heterosexual	1.78 (1.18–2.69)	1.32 (0.73–2.37)
Bisexual	4.67 (2.74–7.97)	2.34 (1.14–4.81)
Lesbian	2.37 (0.76–7.37)	1.14 (0.16–8.13)
Potential risk factors in all participants		
Childhood gender nonconformity[c]		
Below median	Ref	N/A[b]
Above median, below decile	0.90 (0.64–1.26)	N/A[b]
Top decile	1.00 (0.65–1.55)	N/A[b]
Childhood physical and/or emotional abuse		
Quintile 1, least	Ref.	Ref
Quintile 2	0.58 (0.29–1.16)	0.52 (0.24–1.09)
Quintile 3	0.83 (0.43–1.58)	0.62 (0.30–1.27)
Quintile 4	1.04 (0.56–1.92)	0.62 (0.30–1.27)
Quintile 5, most	2.30 (1.34–3.95)	1.65 (0.90–3.03)
Childhood threatened and/or actual physical assault		
Never	Ref	N/A[b]
Rarely or sometimes	0.93 (0.48–1.77)	N/A[b]
Often or very often	1.33 (0.64–2.76)	N/A[b]
Childhood sexual abuse	4.81 (2.78–8.32)	2.97 (1.52–5.79)
Bullying		
No bullying involvement	Ref	Ref
Victim only	0.93 (0.47–1.85)	0.56 (0.22–1.43)
Perpetrator only	2.95 (1.88–4.63)	2.27 (1.30–3.97)
Victim and perpetrator	2.40 (1.44–4.00)	1.98 (1.09–3.62)
Potential risk factors among participants who are sexual minorities		
Sexual minority developmental milestones[d]		
Late adolescence and/or young adulthood	Ref	N/A[b]
Middle adolescence	5.67 (1.30–24.82)	N/A[b]
Early adolescence	3.15 (0.61–16.18)	N/A[b]
Sexual orientation–related stress[e]	0.97 (0.71–1.31)	N/A[b]
Sexual minority outness[f]		
Everyone knows	Ref.	N/A[b]
Most or a few people know	0.86 (0.40–1.84)	N/A[b]
No one knows	0.48 (0.15–1.54)	N/A[b]
LGB social activity involvement[g]		
≥6 times per y	Ref	N/A[b]
<6 times per y	1.51 (0.37–6.22)	N/A[b]
Never	2.14 (0.49–9.28)	N/A[b]

N/A, not applicable.

[a] Each model used to assess the association with teen pregnancy is adjusted for age and race and/or ethnicity and is not adjusted for other variables.

[b] The model used to assess the association with teen pregnancy is adjusted for age and race and/or ethnicity and is simultaneously adjusted for the other statistically significant variables (sexual orientation, childhood physical and/or emotional abuse, childhood sexual abuse, and bullying); therefore, the other risk factors do not have any estimate in this model.

[c] Median was based on 4 items from the Recalled Childhood Gender Identity and Gender Role Questionnaire.

[d] The age at which sexual minority identification, same-sex attraction, or same-sex sexual contact first occurred, categorized as late adolescence and/or young adulthood (ages 18–27 y), middle adolescence (ages 14–17 y), or early adolescence (ages ≤13 y).

[e] Sexual orientation–related stress was assessed via questions about the extent to which participants wished they were not attracted to the same sex, with response options 1 (strongly disagree) to 5 (strongly agree); higher scores are used to indicate more stress and RR of teen pregnancy for a 1 U change in sexual orientation–related stress.

[f] Mean of 3 items on outness to family, friends, and people at school or work.

[g] Mean of 3 items on frequency of LGB social activity involvement.

tertiles of nonconformity (below median, above median but below top decile, and top decile), so as to not assume linearity, as has been done in previous literature.[33] Therefore, the participants who are the most gender conforming were categorized below the median and the participants who are the least gender conforming were categorized in the top decile. Data were used from 2005, and we imputed any missing data from 2007.

Sexual Minority Developmental Milestones

In 2010, 3 items were adapted from the Sexual Risk Behavior Assessment Schedule-Youth[39] to assess the age at

TABLE 3 Proportion of Sexual Orientation and Teen Pregnancy Association Mediated by Risk Factors in a US-Based Cohort of Young Women ($N = 7120$)

Sexual Orientation	Proportion Mediated (P) by Risk Factors			
	Childhood Physical and/or Emotional Abuse	Childhood Sexual Abuse	Bullying	Childhood Physical and/or Emotional Abuse and Sexual Abuse and Bullying
Completely heterosexual with no same-sex partners	Ref	Ref.	Ref	Ref
Sexual minority[a]	0.38 (0.01)	0.32 (0.03)	N/A[b]	0.45 (0.02)

N/A, not applicable.

[a] Sexual minority includes completely heterosexual with same-sex partners, mostly heterosexual, bisexual, and lesbian.

[b] No mediation.

which the following milestones first occurred among participants who are sexual minorities: identifying as mostly heterosexual, bisexual, lesbian, or gay; sexual attraction to girls; and sexual contact with girls. On the basis of adolescent development and previous literature,[27] we categorized the youngest age of reaching sexual minority identification, same-sex attraction, or same-sex sexual contact into late adolescence and/or young adulthood (ages 18–27 years), middle adolescence (ages 14–17 years), and early adolescence (ages ≤13 years).

Sexual Orientation–Related Stress

Answering an item adapted from Wright and Perry's Sexual Identity Distress Scale,[40] participants who are sexual minorities indicated in 2003 and 2005 on a 1 to 5 scale ("1 = strongly disagree" to "5 = strongly agree") the extent to which they wished they were not attracted to the same sex; scores from 2003 to 2005 were averaged, and higher scores were used to indicate more stress.

Sexual Minority Outness

Answering items adapted from D'Augelli et al,[41] participants who are sexual minorities indicated in 2003 and 2005 their level of sexual orientation outness to family, friends, and people at school or work using a 5-option scale from "everyone knows" to "no one knows." We created a mean score of these 3 items from both years, categorized as "everyone knows," "most or a few people know," and "no one knows."

LGB Social Activity Involvement

In 2003 and 2005, 3 items adopted from Rosario et al[42] were used to assess the participation in LGB social activities of a participant who is a sexual minority. Participants indicated how often they went to LGB social events, cafes, dance clubs, bars, or hung around these places; went to LGB meetings or educational events at a community center or other place; and read or watched LGB magazines, newspapers, books, Web sites, videos, or movies. A 7-level response option ranged from "2 or more times per week" to "never" with 5 other middle-response options. We used a mean score of these items from both years and categorized this as occurring ≥6 times per year, <6 times per year, or never.

It is possible that some of the proposed risk factors, including bullying victimization and perpetration, sexual orientation–related stress, and LGB social activity involvement were reported after some participants' pregnancies, so we ran sensitivity analyses excluding any individuals whose pregnancies occurred after the report of these factors; the results did not reveal meaningful change.

Teen Pregnancy

In 1999, lifetime histories of pregnancy were collected from all participants; in each subsequent questionnaire, current pregnancies have been queried. As is done in the literature,[43] participants who had any pregnancies occurring before age 20 years were categorized as ever having a teen pregnancy.

Confounders

Potential confounders included baseline age in years (continuous) and race and/or ethnicity (white, another race and/or ethnicity). In sensitivity analyses, we explored whether estimates significantly changed when adjusting for other covariates, such as region of residence at age 19 years (the report closest to most of the teen pregnancies), coded as West, Midwest, South, or Northeast; the results did not reveal meaningful change. Missing data on all potential cofounders were <0.01%, so we used a complete case approach.

Statistical Analysis

First, we examined the association between sexual orientation, the potential risk factors, and teen pregnancy using bivariate models. Then, we used multivariate regression from log-binomial models adjusted for potential confounders. To account for sibling clusters, we estimated the variance using generalized estimating equations with a compound symmetry working correlation matrix. To examine if each variable was a risk factor for teen pregnancy, we fit models for each individual potential risk factor, resulting in risk ratios (RRs) and 95% confidence intervals (CIs). We also fit a model simultaneously adjusting for the variables that were statistically significant risk factors. Finally, we calculated the percent

of the sexual orientation and teen pregnancy association mediated by the statistically significant risk factors using the publicly available %mediate macro[44]. All analyses were conducted by using SAS version 9.3 (SAS Institute, Inc, Cary, NC).

RESULTS

Of the 7120 participants in our sample, 84% (n = 6003) identified as completely heterosexual with no same-sex partners, 2% (n = 131) identified as completely heterosexual with same-sex partners, 11% (n = 774) identified as mostly heterosexual, 2% (n = 150) identified as bisexual, and 1% (n = 62) identified as lesbian.

Compared with completely heterosexuals with no same-sex partners, sexual minorities experienced more childhood maltreatment, more bullying victimization and perpetration, and greater gender nonconformity. Among participants who are sexual minorities, lesbians reached sexual minority developmental milestones at the youngest age, whereas bisexual and mostly heterosexuals reported the highest amounts of sexual orientation–related stress, being the least out about their sexual orientation, and having the least LGB social activity involvement (Table 1).

A total of 2% (n = 166) of participants had a teen pregnancy. Compared with completely heterosexuals with no same-sex partners, there was not a statistically significant elevated risk of a teen pregnancy for completely heterosexuals with same-sex partners (RR: 1.51; 95% CI: 0.58–4.03), but mostly heterosexuals (RR: 1.78; 95% CI: 1.18–2.69) and lesbians (RR: 2.37; 95% CI: 0.76–7.37) had ∼2 times the risk, and bisexuals (RR: 4.67; 95% CI: 2.74–7.97) had nearly 5 times the risk (Table 2).

In individual models, childhood maltreatment and bullying victimization and perpetration were each associated with teen pregnancy. After simultaneously adjusting for the significant risk factors, the sexual orientation–related teen pregnancy disparities were attenuated (Table 2). When testing for mediation, 38% of the disparity was explained by physical and/or emotional abuse, and 32% of the disparity was explained by childhood sexual abuse. Bullying was not a statistically significant mediator. Together, childhood maltreatment and bullying explained 45% of the sexual orientation–related teen pregnancy disparity (Table 3).

In individual models of the potential risk factors unique to sexual minorities, reaching sexual minority developmental milestones earlier was associated with an increase in teen pregnancy (Table 2). Because data were available only among sexual minorities, no further mediation analyses were conducted for those risk factors.

None of the sensitivity analyses (modeling sexual orientation at age 16 years, excluding pregnancies that occurred before the proposed risk factor was assessed, and adjusting for geographic region) made any meaningful differences in the results.

DISCUSSION

Young women who are sexual minorities in this cohort, particularly bisexuals, were significantly more likely than their heterosexual peers to experience a teen pregnancy. The higher teen pregnancy prevalence among sexual minorities was partially explained by childhood maltreatment and bullying. One additional variable, the earlier age of sexual minority developmental milestones, was a significant risk factor for teen pregnancy among sexual minorities.

With these findings, we build on the existing research about sexual orientation–related teen pregnancy disparities. For example, Saewyc et al[10] examined teen pregnancy risk factors across sexual orientation groups using data from teens in British Columbia, Canada. In addition to established teen pregnancy risk factors, the authors examined factors that may be unique to sexual minorities. Compared with heterosexual peers, female participants who are sexual minorities experienced sexual initiation at an earlier age and were more likely to have been sexually abused, both of which are teen pregnancy risk factors. Our results from previous analyses support the finding of an earlier age at sexual initiation for young women who are sexual minorities,[11] and the current study supports the sexual abuse finding.

In that same study, Saewyc et al[10] were also able to calculate an enacted stigma (defined as the exclusion, harassment, discrimination, and violence resulting from the disclosure or even suspicion of a sexual minority identity) composite score, including information on the following: experiencing discrimination on the basis of race, physical appearance, or sexual orientation; being excluded by others at school, being insulted or teased, or being physically assaulted; or experiencing verbal or physical sexual harassment. Compared with participants who are sexual minorities without teen pregnancies, participants with teen pregnancies reported more sexual orientation–based discrimination and a higher enacted stigma score. In the current study, we did not have available data on sexual orientation–related discrimination to make such a comparison. However, the higher prevalence of childhood maltreatment and bullying in our participants who are sexual minorities relative to heterosexuals may, in part, stem from sexual orientation–related discrimination.

In another study that was based on data from Canadian teens and health

care providers, Travers et al[12] used qualitative data to examine teen pregnancy risk factors. The focus groups discussed several potential risk factors, many of which stemmed from heterosexism. For example, male and female participants spoke about a lack of sexual health information directed toward sexual minorities, including limited knowledge about their risk of having or being involved in a teen pregnancy. Participants also mentioned teens who are sexual minorities feeling a desire to prove their heterosexuality or hide their sexual minority status or even conform to heterosexual norms through sexual activity with a different gender or sex.

Goldberg et al[13] used the US-based National Longitudinal Study of Adolescent to Adult Health data to examine how certain established teen pregnancy risk factors attenuate sexual orientation disparities. As in the current study, sexual orientation–related teen pregnancy disparities in that cohort were partially attenuated by factors such as a history of childhood sexual abuse.

The current study does have some limitations. GUTS data were not available on sexual orientation–based discrimination or on the measures needed to create an enacted stigma score. However, we examined novel factors that had yet to be explored, including gender nonconformity, sexual minority developmental milestones, sexual orientation–related stress, sexual minority outness, and LGB social activity involvement. Whereas bullying has been a focus in previous research, we were able to look at this with more nuance by examining not only bullying victimization but also bullying perpetration, which proved to be a strong teen pregnancy risk factor in this sample. Similarly, childhood maltreatment has been the focus in previous research, but our data allowed us to examine differences in the type of abuse.

The GUTS participants were children of Nurses' Health Study 2 participants, so results from this sample may not generalize to other populations; this cohort is predominantly of white race and/or ethnicity, their mothers are all nurses, and the majority of participants' annual household incomes during their childhood was ≥$75 000. Teen pregnancy is a relatively rare outcome in this sample, which limits the statistical power. It is possible that we lacked the data to detect small- to moderate-sized associations for some of the proposed risk factors; future researchers should test these factors with an even larger sample size. Data on teen pregnancy risk factors were available for young women only, so future researchers should explore teen pregnancy involvement among young men who are sexual minorities as well.

CONCLUSIONS

Teen pregnancy prevention efforts should focus on risk factors such as childhood maltreatment and bullying among young people of all sexual orientations. These risk factors are more common among young women who are sexual minorities compared with heterosexual peers; therefore, this focus can help to reduce the existing sexual orientation–related teen pregnancy disparity. Future researchers should explore how these risk factors and others that are unique to sexual minorities (eg, reaching sexual minority developmental milestones earlier) may be linked to sexual orientation–based discrimination and stigma; such data can inform teen pregnancy prevention efforts.

ABBREVIATIONS

CI: confidence interval
GUTS: Growing Up Today Study
LGB: lesbian, gay, and bisexual
Ref: reference group
RR: risk ratio

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