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Examining Sexual Behavior Among U.S. Transgender Adolescents

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Abstract

The health of transgender adolescents (i.e., those identifying with a gender other than their sex assigned at birth) is gaining attention from researchers, yet little work has examined normative sexual behaviors among this population. Self-identified gender minority adolescents, including those identifying as trans boys, trans girls, nonbinary, and questioning their gender identity (age range 14–18, $M_{\text{age}} = 16.0$, $n = 1,223$) from all 50 U.S. states responded to anonymous online surveys. Participants reported on their age of initiation and number of sexual partners for four sexual behaviors ranging in intimacy (i.e., sexual touching, oral sex, vaginal sex, and anal sex). Participants also indicated the gender of their sexual partners and experiences with sexually transmitted infections (STIs), STI tests, and pregnancy. Overall, transgender adolescents' age of initiating sexual behaviors and number of sexual partners are similar to those observed in prior studies of cisgender adolescents. No differences were found between gender identity subgroups on ever engaging, age of initiation, number of partners, and gender of partners across the four sexual behaviors, with some exceptions for anal sex. Participants reported low rates of STIs and pregnancy, but also low rates of STI testing. Implications for sex education and health care are discussed.

Keywords

Adolescents; transgender; gender minority; sexual behavior; sexual health

Transgender adolescents are individuals with a gender identity not aligned with one's sex assigned at birth (American Psychological Association, 2015). Transgender adolescents are gaining attention from both researchers and caregivers seeking to support their transgender adolescents' positive development (Flores et al., 2016; Brill & Kenney, 2016). Despite the increasing focus in the psychological literature on mental and behavioral health among

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transgender adolescents (e.g., Becerra-Culqui et al., 2018), few prior studies have examined sexual behavior among this population. Given the importance of sexual relationships and behavior during the adolescent developmental period (Diamond & Savin-Williams, 2009), and the possibility of unique challenges related to sexual exploration for transgender youth, it is critically important to understand transgender adolescents' sexual behavior. In this study, we offer a preliminary examination of normative and potentially risky sexual behaviors among a large national sample of transgender youth with a range of gender identities.

Although gender and sexual minority individuals are often grouped together for research purposes, gender identity differs from sexual orientation. An individual's sexual orientation refers to the gender of people one is sexually and romantically attracted to, while gender identity refers to an individual's internal sense of being female, male, or another gender identity (American Psychological Association, 2015). In this paper, we will use the terms "transgender" and "gender minority" to refer broadly to youth whose gender identity does not align with their sex assigned at birth (i.e., all adolescents who do not identify as cisgender), including adolescents who identify with binary or non-binary identities. Within these broad terms, individuals may use a range of identity labels, including trans boy/trans masculine (i.e., assigned female at birth) or trans girl/trans feminine (i.e., assigned male at birth), or a nonbinary gender identity, such as genderqueer, gender fluid, androgynous, two-spirit, or bigender (Baum et al., 2012; Golden & Oransky, 2019). Although gender and sexual minority individuals are both at risk of minority stress and related consequences (Hendricks & Testa, 2012; Meyer, 2003), the physical, social, and psychological experience of engaging in sexual behavior as a transgender individual is unique. A number of features of the adolescent developmental period, as well as aspects of negotiating and initiating a gender transition, may intersect to make transgender adolescents' sexual experiences distinct.

Features of Adolescent Development and Transgender Identity

Adolescence is a key time of physical development that makes sex and gender particularly salient, and it may be uniquely meaningful for transgender youth. During this time, adolescents experience puberty, a biological process which results in maturity of the reproductive system (Ellis et al., 2012). The salience of gender during this time is bolstered by other social forces, such as adolescents' initiation into adult gender roles (Hill & Lynch, 1983). For transgender youth, the development of sex characteristics of their sex assigned at birth may make gender particularly significant. Evidence from qualitative research suggests that many gender minority youth became aware of their transgender identity around puberty (Grossman & D'Augelli, 2006).

During adolescence, individuals also undergo intense social changes, some of which may be particularly salient for transgender adolescents' experiences. Peer approval becomes especially important during adolescence, with peers playing a disproportionate role in influencing adolescents' behaviors and experiences (Brechtwald & Prinstein, 2011). Transgender individuals often initiate a social gender transition during adolescence, including disclosing their gender identity to others, asking to be called by a different

name and by pronouns that align with their gender identity, and changing their gender expression (e.g., hair, clothing; Connolly et al., 2016; Grossman & D'Augelli, 2006; Russell et al., 2018). Transgender adolescents may experience minority stress related to “passing”—concerns about having one’s gender perceived accurately by others—which has been linked to distress and mental health among transgender individuals (Bockting et al., 2013). Negative peer reactions to disclosure of transgender identity or physical appearance as well as direct peer victimization during this developmental period likely create minority stress experiences and increase the risk for mental health symptoms among transgender adolescents (see Choukas-Bradley & Thoma, in press). These social stressors unique to gender minority adolescents could alter the trajectory of their sexual behaviors and experiences in currently unknown ways.

Additionally, sexual exploration occurs naturally during adolescence, when primary and secondary sex characteristics mature, individuals gain independence from their family of origin, and peer relationships become more complex (Ellis et al., 2012; Diamond & Savin-Williams, 2009). Transgender theory emphasizes the physical embodiment—or the experiential awareness of living in a human body—of gender identity (Nagoshi & Brzuzy, 2010), mirroring the focus on embodiment in the literature on sexuality (Tolman et al., 2014). Qualitative work has reported that as transgender adolescents proceed through gender-affirming experiences, they often undergo the shifting of sexual desires (Brown, 2010; Doorduyn & van Berlo, 2014), changes in frequency of engaging in sexual activities (Williams et al., 2013), challenges defining one’s sexual orientation, and/or re-discovery of one’s own body (Doorduyn & van Berlo, 2014). Additionally, concerns about passing or disclosing their transgender identity may become particularly significant when gender minority adolescents are initiating sexual behavior. Moreover, transgender individuals frequently feel dissatisfied with their bodies, especially their secondary sexual characteristics and genitals (Witcomb et al., 2015; Doorduyn & van Berlo, 2014), which are often exposed during sexual encounters. Feelings towards one’s own body, whether positive or negative, may significantly affect the quality of sexual experiences (Peplau et al., 2009) and have been associated with age of coital onset for cisgender adolescents (Kvalem et al., 2011). To the extent that transgender adolescents experience concerns about disclosing their identity or the appearance of their body, they may experience their sexuality in unique ways.

Transgender Adolescents and Sexual Behavior

The majority of studies of sexual behavior among transgender individuals have focused on adult populations, with a disproportionate focus on trans women and sexual risk behaviors. Prior work has frequently examined rates of unprotected anal intercourse (e.g., Garofalo et al., 2006), while very few studies have considered other sexual activities, such as oral or vaginal sex (e.g., Bauer et al., 2013). Moreover, the existing literature with adult populations mostly focuses on risky sexual behavior specifically relating to HIV/AIDS prevention (e.g., Silva-Santisteban et al., 2012; Reisner et al., 2017) or sex work, and particularly on sex work with majority trans women samples (e.g., Hotton et al., 2013).

Similar to that of adult transgender populations, the limited research on sexual behavior among transgender adolescents has focused primarily on risk behaviors. Work identifying

sexual risk behaviors among transgender adolescents is important, especially given that adolescents are disproportionately more likely to contract sexually transmitted diseases and report not using contraception than other age groups (CDC, 2018a; 2018b). Some prior work suggests transgender adolescents are at high risk for sexual disease or unintended pregnancy, finding high rates of sexually transmitted infections (STIs) and unprotected intercourse among this population (Reisner et al., 2019; Johns et al., 2019). However, other work suggests limited risk among transgender adolescents, such as generally low rates of unintended pregnancy and STI diagnoses (Veale et al., 2016). The majority of studies on these risk behaviors, however, focus on trans girls (Turner et al., 2017) and HIV risk prevention (e.g., Reisner et al., 2019; Fisher et al., 2018), and thus our understanding of how sexual health-related behaviors manifest among transgender youth with diverse identities is limited.

Additionally, among presumably majority cisgender samples, certain adolescent sexual behaviors, such as early sexual debut and multiple sexual partners, have also been linked to negative psychological and behavioral outcomes (Boislard et al., 2016; Kuortti & Kosunen, 2009; Elkington et al., 2010). Limited prior work has found that transgender adolescents are more likely to engage in sexual risk behaviors than their cisgender peers. One large study found that, relative to cisgender adolescents, transgender adolescents were more likely to have had sex, had sex with multiple partners in the past year, and not use protection at last sex (Eisenberg et al., 2017). Moreover, individuals assigned male at birth were more likely to have engaged in these risk behaviors than individuals assigned female at birth (Eisenberg et al., 2017). Another study examining data from a representative sample of youth in Colorado found that transgender adolescents reported more sexual partners and earlier sexual debut compared to cisgender adolescents (Kattari et al., 2019). Nationally representative data of high school students in the U.S. also found transgender adolescents were more likely to report first sex before age 13 and four or more lifetime sexual partners (Johns et al., 2019). While more work is needed to understand these behaviors among this population, there is no prior work to our knowledge comparing these behaviors among diverse gender identities within the transgender population. Importantly, studies of these potentially risky behaviors often neglect the potential for normative, non-risky sexual behaviors among transgender adolescents, which are equally important to understand.

Most studies on normative adolescent sexual experiences have focused on examining cisgender adolescents' sexual behaviors. Although national surveys of adolescent sexual behavior include transgender adolescents, the questions are often framed in ways that may not capture the experiences of gender minority adolescents (e.g., asking exclusively about vaginal sexual intercourse or referring to "opposite-sex" partners; CDC, 2018b). Although sparse, there is some prior literature that focuses on the sexual behavior of transgender adolescents, identifying rates of experiences with different behaviors and average age of sexual debut. One study with an urban community sample reported that, on average, trans girls first engaged in sexual intercourse at age 15 (Wilson et al., 2009), though age of sexual debut across various behaviors was not reported. Another study in the Netherlands examined normative sexual experiences among a small sample of transgender adolescents 10–18 years of age. In this sample, about 36% of gender minority adolescents reported experiences with kissing, 26% had experienced sexual touching, and 5% had experienced sexual intercourse

(Bunger et al., 2017). The trans boys in this sample also reported more overall sexual experience than trans girls, though trans girls reported more experience with intercourse specifically (Bunger et al., 2017).

Other work on normative sexual behaviors has investigated transgender adolescents' experiences with gender minority sexual partners and reports of number of sexual intercourse partners. In a sample of transgender adolescents and young adults ages 16–24 participating in an HIV intervention program, nearly 20% reported having had transgender partners, with trans girls and women reporting more transgender partners relative to trans boys and men (Reisner et al., 2017). Although no prior work to our knowledge has examined transgender adolescents' number of partners across a range of behaviors, prior studies have found that about 15–16% of transgender adolescents reported two or more sexual partners in the past year (Eisenberg et al., 2017) and four or more lifetime sexual partners (Johns et al., 2019). These prior studies provide important preliminary data, though more work is needed that investigates behaviors ranging in intimacy (i.e., coital and non-coital behaviors) among a large sample of adolescents with a range of gender identities.

The Present Study

The present study contributes to the growing literature on transgender adolescents' sexual experiences by exploring normative, potentially risky, and health-related sexual behaviors in a nationwide sample of U.S. transgender adolescents. Comparisons are drawn between trans boys and trans girls, as well as adolescents identifying as nonbinary and those who report questioning their gender identity. Although prior work focuses primarily on adults and risk behaviors, the experience of being a transgender person—especially during adolescence—likely affects a broad range of sexual experiences. Understanding these behaviors among adolescents with diverse identities will help researchers better understand how to promote sexual health in gender minority youth.

Specifically, this study will explore (1) the percentage of transgender adolescents who engage in four specific sexual behaviors: sexual touching, and oral, vaginal, and anal sex; (2) the average number of partners and age of first sexual experiences across these behaviors; (3) the percentage of transgender adolescents reporting two or more partners across each behavior; (4) the percentage of participants reporting sexual experience with a gender minority partner; and (5) sexual health-related behaviors, including history of pregnancy and experiences of STI diagnoses and tests.

Method

Participants

Participants were self-identified gender minority adolescents ranging in age from 14 to 18 ($M_{\text{age}} = 16.0$, $n = 1,223$) living in the U.S. More information about participant demographic characteristics is presented in Table 1.

Procedure

Both transgender and cisgender participants were recruited via advertisements on Facebook and Instagram from July–October 2018 as part of a larger study on adolescent mental and behavioral health (Salk et al., 2020). Advertisements used to recruit transgender participants included pictures of racially/ethnically diverse adolescents and read: “Teenagers needed for online health study! Click now to participate in research!” These advertisements targeted social media users associated with interest labels such as “Genderqueer,” “Transgender,” and “Gender Identity.” Based on zip code data, participants lived in all 50 states and Washington, DC. The full sample included 1,938 gender minority participants. Gender minority participants who completed all relevant questionnaire items ($n = 1,223$) were included in the final analytic sample. Compared to the full sample of gender minority participants ($n = 1,938$), adolescents in the final analytic sample ($n = 1,223$) were not significantly different in terms of age, gender identity group, or race.

Participants provided assent and then remotely completed anonymous questionnaires hosted on a secure server. To promote honest answers, participants completed the anonymous questionnaires on personal devices (e.g., tablets, cell phones, computer). The study was conducted with a waiver of parental permission to minimize risk for stigmatization and rejection by family members. Participants also viewed a message regarding safety and security before starting the survey. Ten participants were randomly selected to receive a \$50 electronic gift card. The University of Pittsburgh Human Research Protection Office approved this study. All members of the research team identify as cisgender. More information about study recruitment and procedures can be found elsewhere (Salk et al., 2020).

Measures

Sex Assigned at Birth and Gender Identity.—Participants reported on sex assigned at birth as male, female, or intersex. Participants who indicated assigned intersex at birth ($n = 11$) were not included in the current sample because of an inability to categorize their sex assigned at birth. Participants reported their gender identity by responding to the question “How do you identify your gender identity? Check all that apply” with the following options: male, female, transgender, female to male transgender/FTM, male to female transgender/MTF, trans male/trans masculine, trans female/trans feminine, genderqueer, gender expansive, intersex, androgynous, nonbinary, two-spirited, third gender, agender, not sure, and other (option for free response). Gender minority identities were categorized into five groups, ensuring differentiation between both binary or nonbinary current identities and male or female sex assigned at birth within groups (see Thoma et al., 2019). Identity groups included: *trans boy*, *trans girl*, *nonbinary assigned male at birth*, *nonbinary assigned female at birth*, and *questioning*. Participants were assigned to the *trans boy* group if they reported any of the following gender identities: female to male transgender/FTM, trans male/trans masculine, and/or a combination of female sex assigned at birth and “male” as gender identity. Participants were assigned to the *trans girl* group if they reported any of the following gender identities: male to female transgender/MTF, trans female/trans feminine, and/or a combination of male sex assigned at birth and “female” as gender identity. Participants were assigned to the nonbinary groups (*nonbinary assigned male at birth* or

nonbinary assigned female at birth, depending on their reported sex assigned at birth) if they reported any of the following current identities: genderqueer, gender expansive, intersex, androgynous, nonbinary, two-spirited, third gender, or agender, and only if they reported no binary gender identities (i.e., they did not select male, female, FTM, or MTF as gender identity). Empirical support for this approach to categorization has been found in prior studies using these data (Salk et al., 2020; Thoma et al., 2019). Participants were assigned to the *questioning* group if they selected only “not sure” and made no other selection for gender identities. There was not a sufficient subsample of questioning adolescents to divide this subgroup by sex assigned at birth within analyses. Additionally, participants indicated whether they had taken any steps towards a medical gender transition by indicating “yes” or “no” to 6 behaviors (i.e., taken hormones, taken hormone blockers, had silicone injections, had surgery to modify chest, had surgery to modify genitals, or had any cosmetic surgery or procedure for transgender-related purposes).

Sexual Behavior Measures.—Participants reported on whether they have engaged in the following sexual activities: sexual touching (defined as “touching genitals beneath the clothes”), oral sex (“contact between mouth and genitals”), vaginal sexual intercourse (“penis inserted into vagina”), and anal sexual intercourse (“penis inserted into anus/butt hole”). Participants also reported on the age when they first engaged in each aforementioned sexual activity, and the number of partners with whom they had engaged in each sexual activity. The question asking about age of initiation was used to identify participants who had ever engaged in these behaviors; those who indicated “I have never done this” were coded as having not engaged in the behavior whereas those who indicated an age were coded as having engaged in the behavior. Items were adapted from national studies of adolescent behavior (e.g., CDC, 2018b) and reflect previous work on adolescent sexual behavior investigating the incidence, timing, and number of partners for each of these four sexual behaviors ranging in intimacy (e.g., van de Bongardt et al., 2015).

Gender of Sexual Partners.—Participants reported on the genders of individuals with whom they had had sexual experiences (i.e., sexual touching, oral sex, vaginal sex, or anal sex). They were asked to choose all that applied from the following list: male, female, transgender, trans male/trans masculine, trans female/trans feminine, genderqueer, nonbinary, agender, not sure, other (option for free response), or not applicable. This variable was dichotomized into (1) having had sexual experience but with no trans/nonbinary partners, and (2) having had sexual experience with at least one trans/nonbinary partner(s). If participants reported no sexual experience or responded with only choosing the “not sure” option, their response was coded as “missing.”

Sexual Health-Related Behaviors.—Participants were asked to indicate if they had ever been pregnant or gotten someone pregnant, had an STI test, or been told by a doctor or nurse that they had an STI. Examples of STIs (HIV, HPV, genital warts, herpes, gonorrhea, and chlamydia) were given as a reference for the participants. These questions were adapted from national surveys assessing sexual health risk behaviors among adolescents and adults (e.g., CDC, 2018a) and are behaviors frequently targeted in intervention work to mitigate sexual risk behavior and outcomes (e.g., Goesling et al., 2014).

Data Analytic Plan: Descriptive statistics were used to assess rates of each behavior within each gender identity subgroup. To identify differences in sexual behaviors between gender identity subgroups, chi-square tests of independence and ANOVAs were conducted. Models were first run without covariates. Post-hoc pairwise comparisons were run to assess differences among the five gender identity groups. A Bonferroni correction was used to adjust for multiple comparisons, with the new significance threshold of .005 (10 comparisons for each behavior: $10/.05 = .005$). For univariate analyses that detected significant differences between groups after the Bonferroni correction, multivariate models were run controlling for age and race, as age and race are both associated with sexual behavior patterns among adolescents (Eitle & Thorsen, 2018; CDC, 2018b). For multivariate models, linear regression and logistic regression were used, respectively, for continuous and dichotomous outcomes. For these analyses, race was dummy coded with 1 = white and 0 = all other groups, and gender identity groups were dummy-coded with trans boys as the reference group (as this group was the largest).

Results

Table 1 displays detailed demographic characteristics of the sample, including gender identity labels, sexual identity, race, age, and medical transition experience. The majority of the participants (89.9%) were assigned female at birth. The majority (66%) of participants identified with a non-monosexual identity (i.e., bisexual, queer, or pansexual), with 18.4% identifying as gay/lesbian/homosexual, and very few (3.1%) identifying as heterosexual. A substantial minority (7.6%) indicated “other” for sexual identity and wrote-in “asexual.” A sizeable minority of participants (11.86% of total sample) indicated having taken any steps towards a medical gender transition.

Table 2 displays, split by gender identity group, the percentage of gender minority adolescents who reported having engaged in sexual touching, oral sex, vaginal sex, and anal sex, as well as the average age of first engagement in each sexual behavior, the average number of partners with whom participants had engaged in each sexual behavior, the percentage of participants who reported having had two or more partners for each behavior, and the percentage of participants who reported having had a gender minority sexual partner for any sexual behavior. Among the total sample, 53.88% reported engaging in at least one of the four sexual behaviors. Across the gender groups, average age of initiation for each behavior was 13.8 for sexual touching, 14.49 for oral sex, 14.94 for vaginal sex, and 15.06 for anal sex, with no significant differences across gender groups. Across the gender groups, the average number of partners was 2.0 for sexual touching, 1.7 for oral sex, 1.4 for vaginal sex, and 1.1 for anal sex. Out of those who reported any sexual experiences, 40.82% reported at least one gender minority partner. There were no significant differences across gender groups for percentage who reported sexual behavior with a gender minority partner, average number of partners, or percentage who reported two or more partners, with two exceptions: Nonbinary adolescents assigned male at birth were more likely to report a greater number of anal sex partners and to have had two or more anal sex partners than trans boys and nonbinary adolescents assigned female at birth.

Multivariate analyses were conducted to examine if differences in these behaviors across gender groups held after controlling for age and race. Using multiple regression and logistic regression, respectively, being a nonbinary adolescent assigned male at birth was associated with more anal sex partners ($b = .60, p < .001$) and greater likelihood of reporting two or more anal sex partners, ($OR = 3.28, p = .002$), even after controlling for age and race.

Table 2 displays the percentage of participants that reported experiences with STI testing, STI diagnosis, and pregnancy by gender group. Out of participants who reported having engaged in any sexual behavior, 8.3% of the participants reported having had an STI test, 5.3% reported having been diagnosed with an STI, and 6.1% of the participants reported having been pregnant or having gotten someone pregnant. There were no significant differences in any of these sexual health-related behaviors between the gender minority subgroups.

Discussion

This study is among the first to investigate a broad range of sexual behaviors—including both normative sexual experiences and those related to sexual health—in a national sample of gender minority adolescents. The initiation of sexual relationships and behavior are a central component of the adolescent developmental stage (Diamond & Savin-Williams, 2009), and these experiences are likely unique for transgender adolescents. Although some prior work has identified sexual risk behavior among transgender adolescents in particular contexts (e.g., HIV prevention) and with subsets of transgender adolescents (e.g., trans girls), very little is known about normative patterns of sexual initiation, coital and non-coital sexual behaviors, and sexual health behaviors among transgender adolescents with diverse gender identities.

Sexual Behaviors Among Transgender Adolescents

Participants in this sample reported if they had ever engaged in a range of sexual behaviors and their age of first initiating each behavior. Transgender participants in this sample were more likely to report engagement with sexual touching and oral sex than engagement with intercourse, and those who had engaged in sexual behavior reported earlier ages of initiation in non-coital sexual behaviors than for intercourse. Specifically, gender minority youth in this sample reported having first engaged in sexual touching and oral sex around 14 years of age and engaging in vaginal and anal sex at around 15 years of age. These results are aligned with prior work that found trans girls report first engaging in sex (defined as oral, vaginal, or anal intercourse) around age 15 (Wilson et al., 2009). These findings are also consistent with prior data from cisgender adolescents that found individuals are likely to engage in non-coital activities before intercourse (Boislard et al., 2016), as well as nationally representative data reporting 14 as the average age of first intercourse among adolescents in the United States (Cavazos-Rehg et al., 2009). These results suggest that transgender adolescents may be likely to initiate sexual behavior in a pattern similar to cisgender adolescents. More work is needed to confirm these findings and qualitatively identify how sexual behaviors differ among transgender adolescents relative to their cisgender peers,

including the physical and mental health outcomes related with engaging in such behavior as a gender minority individual.

Participants also reported on the number and gender of their sexual partners. The present study found that about 22% of the total sample and about 41% of the sexually active participants reported having a sexual experience with at least one gender minority partner. These rates are consistent with prior work. To our knowledge, only one study has examined rates of having a gender minority sexual partner among trans girls and trans boys, finding that about 20% of all participants reported a gender minority partner (Reisner et al., 2017). In terms of number of sexual partners, some prior work suggests that transgender adolescents are at greater risk of having a high number of sexual partners compared to their peers (Eisenberg et al., 2017; Dowshen et al., 2016; Johns et al. 2019). Prior work has found that young adults reporting 1–3 lifetime sexual partners are less likely to experience sexual health problems, such as STI diagnoses or unintended pregnancy, than those reporting more sexual partners (Kahn & Halpern, 2018). The average number of partners across behaviors reported by this sample was relatively low, ranging from 1–3. Additionally, less than half of sexually active participants reported two or more partners for most behaviors. These findings are notable, as the bulk of prior studies with this population have highlighted risk behaviors among this population or have specifically recruited at-risk groups. Our results, in contrast, suggest low levels of risk. These results suggest that more work is needed to understand what characteristics define transgender adolescents who are at greater risk than others.

Comparisons of Sexual Behaviors Between Transgender Groups

Comparisons across gender identity groups in our sample revealed few differences. These findings were somewhat surprising, given that some work with transgender adolescents has reported differences across trans boys and trans girls. For example, prior work suggests that transgender adolescents assigned male at birth may be more likely to have engaged in intercourse and to have had more sexual partners, though less likely to have engaged in kissing or sexual touching, than adolescents assigned female at birth (Bungener et al., 2017; Eisenberg et al., 2017). Additionally, one prior study examining gender of sexual partners found that trans girls are more likely to report a gender minority partner than other groups (Reisner et al., 2017), though no differences in this behavior were observed in this sample. The only significant difference across gender minority groups was found for anal sex; adolescents who identified as nonbinary assigned male at birth were more likely to report anal sex than all other groups. These findings are largely consistent with the prior literature regarding anal sex among cisgender adolescents, which has found that cisgender men and boys, particularly those who have sex with same-sex partners, report engaging in more anal sex than cisgender girls and women or those with exclusively other-sex partners (Leichliter et al., 2007; Udry & Chantala, 2002). Given that condomless anal sex, and particularly condomless receptive anal sex, is a more efficient mode of transmission of HIV compared with other sexual behaviors (e.g., Varghese et al., 2002), future research designed to characterize HIV-related sexual risk behaviors among nonbinary adolescents assigned male at birth could be warranted. The lack of significant group differences for other groups and across other behaviors highlights broad similarities in the normative sexual experiences of gender minority adolescents.

The general lack of differences across gender groups in this sample is particularly notable given that relatively few adolescents in this sample reported having taken any medical gender transition steps. Thus, most were engaging in sexual behavior with the primary and secondary sex characteristics aligning with their sex assigned at birth and without physiological changes (e.g., altered sex drive) associated with hormone replacement therapy. For example, although transgender adolescents often feel aversion to their genitalia (Doorduyn & van Berlo, 2014; Witcomb et al., 2015), over 20% of trans boys (i.e., adolescents with a vagina) reported engaging in penile-vaginal intercourse, similar to the rates of other gender minority peers. The relatively low numbers of adolescents engaging in any medical transition steps, particularly surgical steps, highlights the difficulty of obtaining these medical interventions for transgender adolescents who desire them. Future work should explore how taking medical gender transition steps—and the barriers to doing so—may affect transgender adolescents' sexual activity and their emotional reactions to these experiences.

Sexual Health Behaviors

Regarding sexual health behaviors, transgender adolescents in this sample reported low rates of ever experiencing pregnancy or an STI, although they also reported low rates of ever having an STI test. Although some prior work has found that transgender adolescents are at high risk for contracting STIs (Reisner et al., 2019; Johns et al., 2019), the majority of prior work is with at-risk samples. Among a national sample of Canadian adolescents, transgender youth reported few experiences with unintended pregnancy and STIs (Veale et al., 2016). The low rates of STI diagnoses and unintended pregnancies found in this sample highlights a degree of sexual health among this population. The current results from a nationwide community sample may better reflect the experiences of transgender adolescents across the U.S. than prior work with at-risk samples. Future work should continue to address this topic with community and national, rather than exclusively at-risk, samples of transgender adolescents. However, the low rates of STI tests reported in this sample indicate some participants may have undiagnosed STIs. Existing national data on adolescents in the U.S. show that most adolescents reported never receiving an STI test (Cuffe et al., 2016). The low rates of testing may increase the possibility of adolescents living with an untreated STI. Half of all new STI reports each year are among individuals between the ages of 15 to 24 and nearly a quarter of HIV diagnoses are in populations ages 13 to 24 (CDC, 2018a). Future work should continue to examine sexual health-related behaviors among transgender adolescents, including barriers to getting STI tests among broad samples of adolescents in otherwise low-risk contexts.

Strengths, Limitations, and Future Directions

Our recruitment strategy and large nationwide sample offer many strengths. Previously, nationwide large-scale data on adolescent sexual behavior were mostly collected in classroom settings. In a public environment surrounded by peers, it is possible that adolescents' responses to sensitive questions related to sexual behaviors may be altered. Previous studies have found that collecting data on sensitive information such as sexual behavior in a classroom setting likely encourages response biases (Robertson et al., 2018). In such contexts, it is possible participants may report higher or lower numbers of sexual

experiences to conform to perceived peer expectations (e.g., Siegel et al., 1998) or that they may answer questions differently due to the possibility of peers learning about their answers. The current study promoted privacy by allowing participants to provide anonymous self-reports using personal devices such as smart phones and tablets in a private environment, thus likely promoting more honest and less biased reporting. That said, it is important to note that because our study recruitment was conducted through social media, our recruitment strategy missed adolescents who do not use social media. However, research suggests that 81% of teens in the U.S. use social media (Rideout & Robb, 2018); thus, it is unlikely that these recruitment methods substantially biased the sample.

Additionally, data were collected at one single time point with participants at different ages throughout adolescence. Sexual behavior typically increases in frequency and intimacy as adolescents age (CDC, 2018a; Cavazos-Rehg et al., 2009) and thus comparisons across entire gender groups—though necessary to retain statistical power—may have missed important group differences at various developmental stages across adolescence. Age was included as a covariate in multivariate analyses to isolate the effect of belonging to each diverse gender group, but future work should identify gender group differences within early, mid, and late adolescent samples separately to see if the similarities found in this sample persist. Future research should also use longitudinal designs to assess how sexual exploration unfolds as gender minority youth develop through adolescence, if these trajectories differ among subgroups of transgender adolescents, and if sexual experiences (e.g., specific receptive and insertive behaviors) change over the course of a gender transition. Finally, more data is also needed to explore the social and emotional outcomes of sexual behavior in gender minority adolescents, which could be best assessed with longitudinal data.

While a strength of our study is the broad range of sexual behaviors assessed, another important limitation concerns the specific language used in the assessment of sexual behaviors. After considering many options for how to assess specific sexual behaviors, we made the intentional decision to use precise definitions for each sexual behavior, rather than allowing adolescents to self-define these behaviors. For example, we decided to use the language of “penis inserted into vagina” to define “vaginal intercourse.” If we had not included a definition of vaginal intercourse, then some adolescents likely would have defined vaginal intercourse differently; for example, they may have included sexual experiences with vaginally inserted sex toys within this definition. In deciding to include precise anatomical definitions, we knew there was a risk that adolescents would feel we were invalidating their sexual experiences (e.g., the experience of a trans boy who has a vagina but takes a “top” role involving penetration; Moran, 2013). However, we decided this risk was outweighed by the goal of ensuring a more precise understanding of adolescents’ reports, and in order to be able to compare transgender adolescents’ reports in this study to those of cisgender youth in prior studies. We recognize, however, that some adolescents may still have interpreted these items in alternate ways than we intended (e.g., interpreting “penis” to mean a phallic sex toy or prosthetic penis rather than a human penis). We hope adolescents felt able to report on their broad range of sexual behaviors through our assessment of sexual touching and oral sex, in addition to vaginal and anal sex. Future quantitative work should distinguish between the traditional definitions of sexual behavior

used in this study and broader, more inclusive definitions of sexual behavior by also providing measures of sexual behaviors involving sex toys and/or prosthetics rather than human genitalia.

Implications

The current study provides much-needed data regarding gender minority adolescents' experiences with various sexual behaviors that can inform sexual education and prevention programming. Existing school-based sexuality education programs narrowly define teen sex as heterosexual and coital, which largely neglects and marginalizes sexual and gender minority youth's experiences (Bay-Cheng, 2003; Bradford et al., 2018). The present study highlights that transgender adolescents are exploring their sexuality in normative ways. Teachers, parents, and sexual educators should validate and support their experiences, especially given work showing that sexual initiation during adolescence is both normative and potentially promotive of well-being (Harden, 2014). Gender minority adolescents need inclusive, informative resources to support them as they explore sexuality safely. Schools and sex education programs can use inclusive language and promote sexual health in various contexts including for non-heterosexual and noncoital behaviors. Additionally, health care providers should be aware that gender minority adolescents are engaging in sexual behaviors and, while remaining attentive to subgroups of transgender adolescents who are at higher risk, recognize that transgender adolescents are also engaging frequently in non-risky sexual experiences (see Hoffman et al., 2009). More work understanding transgender adolescents' sexual experiences will help schools and health services to better provide information and resources on sex education and sexual health provision.

Despite the low prevalence of sexual health problems among this population, the present study also highlights the low rates of STI tests reported by participants in this sample. Previous work has shown that adolescents, even those who are at high risk of STIs, often underestimate their vulnerability to STIs and related conditions (Ethier et al., 2003; Nsuami & Taylor, 2012). Adolescents report forgoing STI testing in part due to this misperception of risk, but also because of financial constraints or concerns about confidentiality (Cuffe et al., 2016). Adolescents in the sample were from across the United States and some—particularly those in rural areas—may not have access to sexual health clinics with free or affordable services. Moreover, transgender adolescents in the process of socially transitioning or who are beginning to explore their sexuality may have concerns about parental confidentiality. Removing barriers to sexual health care for transgender adolescents, including making clinics affordable and accessible across U.S. communities so that adolescents can access care without their parents, may increase rates of STI testing. Additionally, greater access to information about preventative sexual health, including the importance of sexual protection for a variety of genders and sexual identities (Bay-Cheng, 2003; Bradford et al., 2018), may protect transgender adolescents from acquiring STIs or experiencing unwanted pregnancies.

Conclusions

Our study is among the first to examine various sexual behaviors, including normative and potentially risky sexual behaviors ranging in intimacy, in adolescents with diverse gender minority identities. Despite most prior work focusing on high risk among this population,

present findings highlight that transgender adolescents overall report a normative set of sexual experiences and initiation. Moreover, we show that recruiting through social media sites for the transgender adolescent population is a feasible way to study sexual behavior among a community sample of transgender adolescents. As research continues to investigate the sexual behaviors of transgender adolescents, greater resources can be deployed to promote sexual and emotional health among this population.

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Table 1.

Demographic Characteristics

Gender Identity	Trans Boys <i>n</i> = 654	Trans Girls <i>n</i> = 68	Nonbinary AFAB <i>n</i> = 399	Nonbinary AMAB <i>n</i> = 48	Questioning/Unsure <i>n</i> = 54
Age <i>M</i> (<i>SD</i>)	16.01 (1.19)	16.18 (1.16)	15.93 (1.21)	16.19 (0.96)	15.56 (1.08)
Race <i>n</i> (%)					
White/Caucasian	440 (67.28)	49 (72.06)	279 (69.92)	28 (58.33)	32 (59.26)
Black/African American	49 (7.49)	2 (2.94)	29 (7.27)	7 (14.58)	5 (9.26)
Hispanic/Latinx	57 (8.72)	4 (5.88)	25 (6.27)	4 (8.33)	7 (12.96)
Asian/Pacific Islander	17 (2.60)	3 (4.41)	7 (1.75)	0	2 (3.70)
Other or mixed race	91 (13.91)	10 (14.71)	59 (14.79)	9 (18.75)	8 (14.81)
Sexual orientation ¹ <i>n</i> (%)					
Heterosexual	31 (4.74)	2 (2.94)	1 (0.25)	1 (2.08)	3 (5.56)
Gay/lesbian/homosexual	135 (20.64)	16 (23.53)	55 (13.78)	14 (29.17)	5 (9.26)
Bisexual	152 (23.24)	15 (22.06)	58 (14.54)	7 (14.58)	16 (29.63)
Queer	115 (17.58)	9 (13.24)	75 (18.80)	9 (16.67)	4 (7.41)
Pansexual	153 (23.39)	21 (30.88)	146 (36.59)	10 (20.83)	17 (31.48)
Asexual	37 (5.66)	3 (4.41)	42 (10.53)	6 (12.50)	5 (9.26)
Questioning/unsure	5 (0.76)	1 (1.47)	0	0	1 (1.85)
Other	22 (3.36)	0	22 (5.51)	1 (2.08)	3 (5.56)
Medical Transition <i>n</i> (%)					
Taken hormone blockers	44 (6.73)	6 (8.82)	3 (0.75)	2 (4.17)	0
Taken hormones	106 (16.21)	8 (11.76)	7 (1.75)	2 (4.17)	1 (1.85)
Gotten silicone injections	0	1 (1.47)	0	0	0
Had surgery to modify chest	20 (3.06)	1 (1.47)	1 (0.25)	0	0
Had surgery to modify genitalia	1 (0.15)	0	0	0	0
Had any transgender-related surgery or procedure	6 (0.92)	1 (1.47)	0	0	0

Note. Percentages are within-column. AMAB = assigned male at birth, AFAB = assigned female at birth.

¹ Some columns within sexual orientations may not sum to group total; 4 trans boys and 1 trans girl indicated "prefer not to respond."

Table 2.

Sexual Behaviors Within and Between Gender Groups

	Trans Boys <i>n</i> = 654	Trans Girls <i>n</i> = 68	Nonbinary AFAB <i>n</i> = 399	Nonbinary AMAB <i>n</i> = 48	Questioning/ Unsure <i>n</i> = 54	<i>F</i> (df1, df2), <i>p</i> value/ χ^2 (df), <i>p</i> value
Report ever engaging <i>n</i> (%)						
Sexual touching	347 (53.06)	41 (60.29)	215 (53.88)	28 (58.33)	22 (40.74)	χ^2 (4) = 5.31 <i>p</i> = .26
Oral sex	230 (35.17)	31 (45.59)	145 (36.34)	23 (47.92)	14 (25.93)	χ^2 (4) = 8.22 <i>p</i> = .08
Vaginal sex	133 (20.34)	17 (25.0)	82 (20.55)	9 (18.75)	12 (22.22)	χ^2 (4) = 1.01 <i>p</i> = .91
Anal sex ^{<i>I</i>}	54 (8.26)	9 (13.24)	31 (7.77)	10 (20.83)	2 (3.70)	χ^2 (4) = 12.99 <i>p</i> = .01
Age of first engagement <i>M</i> (<i>SD</i>)						
Sexual touching	13.82 (1.85)	14.44 (1.83)	13.79 (1.87)	13.61 (1.71)	13.23 (1.80)	<i>F</i> (1, 651) = 1.08, <i>p</i> = .30
Oral sex	14.47 (1.77)	14.45 (1.91)	14.62 (1.78)	14.00 (1.57)	14.43 (1.16)	<i>F</i> (1, 441) = 0.001, <i>p</i> = .97
Vaginal sex	14.95 (1.65)	14.59 (1.84)	15.02 (1.65)	15.22 (0.97)	14.67 (1.37)	<i>F</i> (1, 251) = 0.001, <i>p</i> = .97
Anal sex	15.11 (1.79)	14.89 (2.26)	15.26 (1.88)	14.20 (1.23)	15.50 (0.71)	<i>F</i> (1, 104) = 0.27, <i>p</i> = .61
Number of partners <i>M</i> (<i>SD</i>)						
Sexual touching	2.18 (1.43)	1.62 (1.06)	2.14 (1.37)	2.31 (1.32)	2.30 (1.53)	<i>F</i> (1, 590) = 0.03, <i>p</i> = .87
Oral sex	1.93 (1.27)	1.67 (1.24)	1.86 (1.19)	2.30 (1.61)	2.0 (1.30)	<i>F</i> (1, 441) = 0.11, <i>p</i> = .74
Vaginal sex	1.78 (1.22)	1.81 (1.47)	1.79 (1.22)	1.67 (1.32)	1.92 (1.51)	<i>F</i> (1, 247) = 0.03, <i>p</i> = .87
Anal sex	1.44 (1.06) ^{<i>a</i>}	2.12 (1.46)	1.29 (0.69) ^{<i>b</i>}	3.18 (1.54) ^{<i>ab</i>}	3.0 (2.83)	<i>F</i> (1, 104) = 8.44, <i>p</i> = .004
Two or more partners <i>n</i> (%)						
Sexual touching	164 (47.26)	13 (31.71)	101 (46.98)	18 (64.29)	12 (54.55)	χ^2 (4) = 7.97 <i>p</i> = .09
Oral sex	104 (45.21)	10 (32.26)	66 (45.52)	11 (47.83)	7 (50.0)	χ^2 (4) = 1.86 <i>p</i> = .76
Vaginal sex ^{<i>I</i>}	50 (37.59)	5 (29.41)	32 (39.02)	3 (33.33)	5 (41.67)	χ^2 (4) = 0.54 <i>p</i> = .97
Anal sex ^{<i>I</i>}	11 ^{<i>a</i>} (20.37)	4 (44.4)	6 ^{<i>b</i>} (19.35)	9 ^{<i>ab</i>} (90.0)	1 (50.0)	χ^2 (4) = 20.30 <i>p</i> < .001
Had gender minority partner <i>n</i> (%)						
	157 (44.73)	13 (31.71)	79 (36.41)	12 (42.86)	8 (36.36)	χ^2 (4) = 4.89 <i>p</i> = .30

Note. Percentages are within-column. Group means and inferential statistics are unadjusted. The percentages for “Two or more partners” represent the percentage of participants of that gender group that have had two or more partners, out of all participants in that gender group that have ever engaged in that behavior. The percentages for “Had a gender minority partner” represent the percentage of participants of that gender group that have had a gender minority sexual partner, out of all participants in that gender group that have ever engaged in any sexual behavior (i.e., sexual touching, or oral, vaginal, or anal sex).

^{*I*} Indicates analyses where some expected values were less than 5

^{*ab*} values that share a superscript are significantly different from each other at *p* = .005 after Bonferroni correction (.05/10 = .005)

Table 3. Sexual Health-Related Behaviors of Sexually Active Participants, Within and Between Gender Groups

	Sexually Active Trans Boys <i>n</i> = 351	Sexually Active Trans Girls <i>n</i> = 41	Sexually Active Nonbinary AFAB Adolescents <i>n</i> = 217	Sexually Active Nonbinary AMAB Adolescents <i>n</i> = 28	Sexually Active Questioning/ Unsure Adolescents <i>n</i> = 22	χ^2 (df), <i>p</i> value
STI test ¹	23 (6.55)	4 (9.76)	24 (11.06)	1 (3.57)	3 (13.64)	χ^2 (4) = 4.70 <i>p</i> = .32
STI diagnosis ¹	17 (4.84)	0 (0)	15 (6.91)	1 (3.57)	2 (9.09)	χ^2 (4) = 3.56 <i>p</i> = .47
Experienced pregnancy ¹	18 (5.13)	1 (2.44)	18 (8.29)	1 (3.57)	2 (9.09)	χ^2 (4) = 3.44 <i>p</i> = .49

Note. AMAB = assigned male at birth, AFAB = assigned female at birth. Experienced pregnancy = having been or gotten someone pregnant. Percentages represent the percentage of participants of that gender group that reported the behavior, out of sexually active participants in that gender group (i.e., those that reported ever engaging in sexual touching, or oral, vaginal, or anal sex).

¹Indicates analyses where some expected values were less than 5