**Abstract**

Despite recurring calls for diversity and inclusion in adolescent sexuality research, our understanding of adolescents' sexual experiences beyond heteronormative vaginal intercourse remains limited. The current study examined orgasm (during masturbation and with a partner) and sexual behaviors (providing and receiving manual and oral stimulation) in middle adolescents. We conducted logistic regression and path analyses separately for cisgender ($n$ = 2738) and transgender/non-binary (TNB) youth ($n$ = 62) to explore gender and dyad type (intersection between gender and partner gender) differences among 2800 Canadian adolescents (51.4% cisgender girls, $M_{age}$ = 16.41, $SD_{age}$ = 0.55). With cisgender boys as reference, cisgender girls had lower odds of experiencing orgasm during masturbation, reported more difficulties with orgasm during partnered sex, received more manual sex, and less oral sex. TNB individuals assigned male at birth (TNBMAB) received more manual stimulation, and TNB assigned female at birth (TNBFAB) received less oral sex. For dyad type, compared to cisgender boys partnered with a girl, cisgender girls partnered with a boy and cisgender girls with a gender diverse partner (i.e., non-binary, trans, genderfluid or agender) had lower odds of having ever experienced orgasm during masturbation, reported more difficulties experiencing orgasm during partnered sex and received oral stimulation less often. Cisgender girls who were partnered with a girl did not differ from cisgender boys who were partnered with a girl. Findings may inform programs that promote sexual wellbeing among youth.

Keywords: Adolescence; Sexual Behavior; Masturbation; Orgasm; Gender differences

# Orgasm and Sexual Behavior Among Adolescents: Differences Across Genders and Dyad Configurations

Adolescence is a unique period for sexuality development and is characterized by an increased involvement in intimate relationships (Collins et al., 2009; Tolman & McClelland, 2011). Although of interest in their own right, experiences during adolescence are believed to shape sexual wellbeing through adulthood (O'Sullivan et al., 2021). Yet, past research has primarily adopted a risk-behavior framework, with a focus on intercourse with vaginal penetration and its corresponding risks (e.g., sexually transmitted infections, pregnancy; Harden, 2014). Despite a recurring call to incorporate pleasure and diversity into our understanding of adolescent sexuality (Vannier & O'Sullivan, 2012), we still know very little about youth's experiences beyond intercourse, such as orgasm or oral and manual stimulation. Moreover, while we know that adults' experiences with orgasm and sexual behavior may vary on the basis of gender and partner gender or dyad type (Blair et al., 2018; Frederick et al., 2018; Harvey et al., 2023; Lewis & Marston, 2016), the same question has received little research attention to date among adolescents. To offer a better understanding of adolescent sexuality, it is especially important to investigate how its positive aspects are related to gender and partner gender to promote sexual wellness and inclusivity (Harvey et al., 2023; Mahar et al., 2020). The current study adopted a sex-positive framework (Harden, 2014) to examine gender and dyad type differences concerning orgasm (while masturbating and during partnered sex) and sexual behaviors (providing and receiving manual and oral stimulation) among Canadian middle adolescents (i.e., 14 to 16 years old; O'Sullivan et al., 2016).

## Sexual Script Theory

Sexual script theory provides a useful conceptual framework to understand how orgasm, sexual behavior, gender and partner gender interact in the sexual context. According to this framework (Simon & Gagnon, 1986), cultural norms ("scripts") about sexuality are acquired through sexual socialization and provide instruction on appropriate sexual behavior (Masters et al., 2013; Marshall et al., 2021). The traditional sexual script (TSS), which is supported by many heterosexual individuals (Gauvin & Pukall, 2018), positions boys as sexual initiators and girls as the gatekeepers who must seek sex to foster emotional intimacy and not pleasure (Cormier & O'Sullivan, 2018; Gagnon, 1990; Masters et al., 2013; Merwin et al., 2022). According to the TSS, vaginal intercourse is given primary importance, and men's orgasm from intercourse typically signals the end of sex (Mahar et al., 2020). From adolescence, a stronger endorsement of gendered sexual scripts is linked to more negative affect and shame about one's level of sexual experience (Seabrook et al., 2016). Moreover, because of the heterosexual and cisnormative roles prescribed by the TSS, sexual and/or gender diverse youth may not endorse it (Patterson et al., 2013) and thus need to foster flexibility to guide their first sexual interactions outside of a heterosexual context (Gauvin & Merwin, 2022; Harvey et al., 2023; Horowitz & Spicer, 2013). Indeed, a qualitative study identified that sexual and/or gender diverse youth felt underprepared for their first same-sex/gender sexual experience, as they had not received information on same-gender sex through their sex education curricula (Gillepsie et al., 2022). Focusing on the sexual behaviors that all adolescents engage in may promote pleasure and communication as well as provide tools to navigate sexual challenges. Allowing adolescents to better navigate sexual difficulties has the potential to reduce sexual distress and prevent the crystallization into sexual dysfunctions in adulthood.

**Orgasm and Sexual Behaviors in Adolescence**

Youth's first sexual experiences are significant, holding crucial associations with later sexual beliefs and conduct (Coleman & Testa, 2006; Hoehn et al., 2016; Peragine et al., 2022; Reissing et al., 2012; Heywood et al., 2015; Sprecher et al., 2019). While orgasms are linked to numerous health and wellbeing benefits in adulthood (Gianotten et al., 2021, Piemonte et al., 2019; Wetzel et al., 2022), and considered as a central component of adult sexuality, there is limited research on the topic for adolescents. One study including 833 cisgender adolescents aged 14-17 years old demonstrated that girls had greater odds of own-orgasm uncertainty (Hensel et al., 2020) compared to their male partners. Another study conducted with cisgender participants showed that sexual pleasure is determined primarily by emotional intimacy and sexual desire relative to specific sexual behaviors and orgasms during this period (Beckmeyer et al., 2021). However, adolescents are often new to partnered sexual interactions, and reach this point of development with typically little knowledge regarding how to have pleasurable, satisfying sex, and communicate their needs and desires (Cormier & O'Sullivan, 2018). In a qualitative study including 53 heterosexual youth aged 18–21 years, 71% of young women and 33% of young men reported having difficulty experiencing orgasm in partnered sex, yet difficulties could be resolved if sexual preferences were addressed (Cormier & O'Sullivan, 2018). It is therefore crucial to better understand all adolescents' sexual experiences, including orgasm, to inform more inclusive sexual education programs and promote sexual wellbeing and equality during this developmentally sensitive period that can shape future adult sexual behavior and wellbeing outcomes (Resnick et al., 2012).

It is common for adolescents to engage in a variety of sexual behaviors, such as masturbation and partnered manual or oral stimulation, before or instead of having penetrative sex (Beckmeyer et al., 2021). Focusing on penile–vaginal intercourse (PVI) in adolescent

research can perpetrate the view that PVI constitutes the "gold standard" of sexual activity, while manual or oral stimulation consist of foreplay or abstinence (Byers et al., 2009). This truncated view of sex does not encompass sexual/gender diverse adolescents' experiences, which may not include PVI in their sexual script (Gauvin & Pukall, 2018). Engaging in solo or partnered masturbation has been shown to promote positive body image (Kennis et al., 2023) and foster intimacy (Coleman & Bockting, 2013; Montemayor, 2018) in cisgender participants. However, we also know that girls can report conflicting feelings related to masturbation, such as pleasure, awkwardness and guilt (Foust et al., 2022). A study conducted among a US national probability sample (Herbenick et al., 2010) showed that by 17 years of age, 78.9% of boys and 52.4% of girls had engaged in solo masturbation during their lifetime, and 20.3% of boys and 19.7% of girls had engaged in partnered masturbation. Whilst innovative, this study did not measure orgasm during masturbation which is needed to better understand the respective roles of gender and partner gender in adolescents' sexual experiences (Bell & McClelland, 2018). Moreover, oral stimulation has been associated with agency and entitlement to pleasure in young adults (Fava & Bay-Cheng, 2012). Studies of US adolescents have found that 20%–55% have engaged in oral stimulation previously (Child Trends, 2005; Herbenick et al., 2010; Lindberg et al., 2008; Mosher et al., 2002). The field of sexual behavior is lacking current and comprehensive data with contemporary adolescents that encompass diverse dyad configurations and gender identities.

***Orgasm, Sexual Behaviors, and Gender***

Gender has been shown to be a significant predictor of the orgasm gap (i.e., the finding that cisgender men, on average, have more orgasms than cisgender women during heterosexual partnered sex; Conley & Klein, 2022; Wetzel & Sanchez, 2022) among late adolescents and young adults, with cisgender girls reporting significantly greater difficulty experiencing orgasm

than cisgender boys (Cormier & O'Sullivan, 2018; O'Sullivan & Majerovich, 2008; O'Sullivan et al., 2016). The gendered discrepancy around orgasm could be explained in part by an emphasis on intercourse in heterosexual contexts or differences between genders in sexual entitlement (Mahar et al., 2020). Indeed, this can be reflected in the sexual behaviors that partners engage in during sexual activities as most girls/people with female anatomy need direct clitoral stimulation to orgasm, and yet they receive it less than boys/people with male anatomy receive penile stimulation (Mintz & Guitelman, 2020). In support of this explanation, there is evidence that lesbian women have a significantly higher probability of orgasm than heterosexual or bisexual women (Garcia et al., 2014). Reports from late adolescents and young adults, while limited, suggest that there are gender differences in providing and receiving manual as well as oral stimulation (Lewis & Marston, 2016), with boys receiving it more often than girls (Chambers, 2007; Herbenick et al., 2010; Jozkowski & Satinsky, 2013;Vannier & O'Sullivan, 2012; Wood et al., 2016). However, most studies looking at youth's first sexual experiences used retrospective designs or young cisgender adult samples (Peragine et al., 2022), leaving key questions unanswered regarding middle adolescents (i.e., 14 to 16 years old).

Also, orgasm and sexual behaviors of TNB youth, a growing and increasingly recognized population (Diamond, 2020; Richards et al., 2016), remains scarce (Cerwenka et al., 2014). Previous studies primarily focused on adults who underwent gender affirmative hormone or surgical treatment (Holmberg et al., 2019; Gil-Llario et al., 2021; Zaliznyak et al., 2023). We also know that the discomfort or dysphoria caused by gender incongruence may lead to negative sexual experiences, including difficulties reaching orgasm and avoidance of certain behaviors (Anzani et al., 2021; Holmberg et al., 2019). In general, the limited amount of studies document worse sexual experiences in adult trans women compared to adult trans men (Cerwenka et al.,

2014; De Cuypere et al., 2005; Gil-Llario et al., 2021), potentially due to greater gender dysphoria (Gil-Llario et al., 2021). To the best of our knowledge, no research examined sexual behavioral differences between cisgender and TNB youths, yet it is needed to provide differential interventions for transgender adolescents.

### *Orgasm, Sexual Behaviors, and Partner Gender*

Recent research emphasizes that partner's gender, or dyad type, might be more appropriate than individual gender to explain satisfaction with sexual experiences and orgasm in adults (Harvey et al., 2023; Peragine et al., 2023). Across two studies focusing on heterosexual, lesbian, and bisexual adult women (*N* study 1 = 476, *N* study 2 = 482) women who were partnered with women reported greater clitoral stimulation and orgasm expectations than women who were partnered with men (Dickman et al., 2024). This is linked to findings that cisgender women are more likely to orgasm when they masturbate, or have sex with a woman, than when they have sex with a man (Frederick et al., 2018; Peragine et al., 2023). A likely reason for this orgasm discrepancy is that cisgender women are not getting the clitoral stimulation they may need to orgasm when partnered with cisgender men (Mintz, 2017). Women with a same-gender partner report more frequent and adequate stimulation than women with a different-gender partner (Blair et al., 2018). However, such questions are left unanswered for adolescents.

## The Current Study

The current study examined differences in orgasm (while masturbating and during partnered sex) and sexual behaviors (providing or receiving manual and oral stimulation) across individual gender (cisgender boy, cisgender girl, TNB assigned male a birth [TNBMAB], TNB assigned female at birth [TNBFAB]) and dyad type (intersection between gender and partner gender) in a large sample of middle adolescents. We controlled for previous sexual partnered

experience in all analyses. Based on previous adult studies on heterosexual scripts and socialization (Harvey et al., 2023; Wetzel & Sanchez, 2022), we hypothesized that cisgender boys would present higher odds of experiencing an orgasm while masturbating and with a partner compared to cisgender girls. Based on Sexual Script Theory (Simon & Gagnon, 1986), we also hypothesized that cisgender boys would receive more manual and oral stimulation than would cisgender girls and that cisgender girls would provide more manual and oral stimulation than would cisgender boys (Vannier & O'Sullivan, 2012). As we were unable to draw on sufficient literature to hypothesize about gender diverse adolescents' experiences, we examined this research question in an exploratory manner. For dyad types, we predicted that cisgender boys partnered with a girl (reference category) would present higher odds of experiencing an orgasm while masturbating and with a partner than any other dyad configuration (Blair et al., 2018; Frederick et al., 2018).

## Method

### Participants

The sample consisted of 2800 participants ($M_{age}$ = 16.41, $SD_{age}$ = 0.55), ranging from 15 to 18 years old. In terms of their sex assigned at birth, 1485 (53.0%) were female and 1315 (47.0%) were male. As for gender, 1309 (46.8%) identified as a boy, 1448 (51.7%) as a girl, 43 (1.5%) identified as non-binary, gender fluid, two-spirit, or "other". Regarding gender modality (Ashley, 2022), 24 identified as transgender (0.9%), 2756 (98.4%) did not, and 20 (0.7%) were questioning their gender (i.e., whether they identify as trans or not). Most identified as heterosexual (*n* = 2279; 81.4%), 123 (4.4%) were questioning their sexual orientation, 50 (1.8%) identified as gay or lesbian, 36 (1.3%) as heteroflexible, four (0.1%) as homoflexible,169 (6.0%) as bisexual, 18 (0.6%) as queer, 60 (2.1%) as pansexual, 11 (0.4%) as asexual, 31 (1.1%) chose

the “none of these categories” or “other” answer options, and 19 (0.7%) refused to answer. The majority of participants identified their culture as French Canadian. A total of 1884 (67.3%) had been in a relationship prior to the study, and 1494 (53.6%) had been sexually active (i.e., exchanged manual or oral stimulation, and/or had penetrative sexual activity). Every participant who had previously masturbated ($n$ = 2159) answered the orgasm during masturbation item, but only the sexually active ($n$ = 1494) participants answered about orgasm during partnered sexual activities. The sociodemographic characteristics of sexually active participants can be found in Table 1.

**Procedure**

We conducted recruitment in two distinct phases from both large urban and rural areas to ensure sample diversity: 1) school recruitment and 2) participant recruitment within selected schools. We approached schools with varying socioeconomic and ethnic backgrounds. Of the 50 schools we invited, 23 agreed to take part in the study, 17 did not reply to the invitation, and 10 declined. All schools involved were located in the province of Québec, Canada. The current study used data from the third wave of data collection, occuring between October 2020 and March 2022, as part of an ongoing longitudinal study on adolescents’ sexual health. To be eligible, adolescents had to be attending high school and be in the 11$^{th}$ grade, as data collection took place in class. Of 2893 potential participants, 40 students refused to participate, for a participation rate of 98.62%. Of the 2853 adolescents who agreed to participate, we excluded one due to inconsistent answers, and we excluded 52 as they failed at least two of the three attention questions in the survey (1.82%), resulting in the final sample of 2800 adolescents. Eligible participants completed online questionnaires in class, through a secure platform (Qualtrics). All participants provided informed consent before starting the self-reported survey. Surveys took

approximately 30 to 45 minutes to complete. We embedded three attention checks throughout the survey (Thomas & Clifford, 2017). Participants received $10 gift card following each survey as compensation. The institutional review boards of the universities involved granted ethics approval, and the study adhered to the Declaration of Helsinki.

## Measures

### *Sociodemographic Characteristics, Gender, Sexual Orientation*

We collected sociodemographic information (i.e., age, sex assigned at birth, ethnicity, etc.) with a researcher-derived questionnaire. We measured gender using the following question (Bauer et al., 2017): "What gender or gender identity do you identify with?" We provided the following answer options: *Boy; girl; other cultural gender diverse identity (e.g., two-spirit); non-binary, gender fluid or something else (e.g., genderqueer); and other (with specification).* We assessed gender modality with the following question: "Some people are trans (including transgender, transsexual, persons having undergone a transition/gender-affirming process, etc.). Are you a trans person?" We offered answer options: *No, I am not a trans person; Yes, I am a trans man; Yes, I am a trans woman; Yes, I am a non-binary trans person; I am questioning my gender identity; I don't know what it is.* We then combined both information regarding gender and gender modality to create four gender groups: *Cisgender boys* (46.4%), *cisgender girls* (51.4%), *TNB youth AMAB* (including gender diverse, two-spirit, gender fluid, and questioning teens; 0.5%) and *TNB youth AFAB* (1.0%). We made this decision based on previous literature stating that adherence to traditional gender roles is present in the trans and gender diverse community (Dolarez et al., 2024) and that sex assigned at birth may prevail regarding the influence of current gender expectations on sexual development and scripts (i.e., orientation towards caregiving, entitlement to sexual pleasure, sexual assertiveness, tendency to initiate

sexual encounters, etc.; Gil-Llario et al., 2021). Further, as the minimum age for genital reconstructive surgery is 18 years of age where the study was conducetd, participants were assumed to have genitals aligning with their sex assigned at birth. We dummy coded the gender categories for the analyses.

We collected information about participants'sexual orientation using the following item based on prior recommendations (Weinrich, 2014): "People describe their sexual orientation in different ways. Which expression best describes your current sexual orientation? If no expression describes you, check "None of the above" and write the answer that describes you personally" (*heterosexual; gay/lesbian; heteroflexible; homoflexible; bisexual; asexual; pansexual; queer; I do not know yet or I am currently questioning my sexual orientation; none of the above; I don't want to answer; other*).

***Partnered Sexual Experience***

We assessed partnered sexual experience for all participants using two dichotomous (*yes/no*) questions asking whether participants "had ever exchanged sexual stimulation (manual or oral) with someone, with their consent", and whether they "ever had sex with vaginal or anal penetration with someone, with their consent" (Institut de la Statistique du Québec, 2018). Those who answered no to both questions were not asked any further question about their sexual activity.

We obtained partnered sexual experience by substracting adolescent's age at dyadic sexual debut ("How old were you the first time you had vaginal or anal sex with your consent?") from their current age ("How old are you?"). Partnered sexual experience in our sample ranged from zero to six years.

***Sexual Behavior***

Only those with previous partnered sexual experience could answer the four separate sexual behavior items taken from the Quebec survey on the health of high school youth (Institut de la Statistique du Québec, 2018) and adapted by our research team to be more inclusive of sexual/gender diverse individuals' sexuality. These were: "When you have (have had) sexual activities with a partner (with your consent), how often did you manually stimulate his or her genitals?" "When you have (have had) sexual activities with a partner (with your consent), how often did your partner manually stimulate your genitals?" "When you have (have had) sexual activities with a partner (with your consent), how often did you orally stimulate his or her genitals?" and "When you have (have had) sexual activities with a partner (with your consent), how often did your partner orally stimulate your genitals?" Answer options ranged from 0 (*never*) to 4 (*always*).

***Orgasm during Masturbation***

We assessed experiences of orgasm while masturbating in all participants who had previously masturbated (77.1% of total sample) with a dichotomous (1 = *yes*/ 0 = *no*) item developed by our research team: "When you masturbate, have you ever reached orgasm?".

***Difficulties with Orgasm during Partnered Sexual Activities***

We measured difficulties with orgasm in partnered sexual activity only in participants who had previous partnered sexual experience, with an item from the Arizona Sexual Experiences Scale (ASEX, McGuahuey et al., 2000): "How easily can you reach an orgasm with a partner?" The item was scored on a 6-point scale ranging from 0 (*never*) to 6 (*extremely easily*). We modified this item for the purpose of the study to reflect orgasm with a partner instead of orgasm in general.

***Partner Gender and Dyad Type***

After participants were asked about their relational history ("Did you ever go out with someone? *Going out with someone means you are dating the person or forming a couple. This relationship may have lasted only a few days or many weeks, months or years"), they were given three options to describe if this person identified as "Boy", "Girl", or "Other gender, please specify if you wish".

We created the dyad type category by combining adolescents' self-reported gender and the self-reported gender of their partner. This resulted in twelve categories: cisgender boys partnered with a girl, cisgender girls partnered with a boy, cisgender boys partnered with a boy, cisgender girls partnered with a girl, cisgender boys with a gender diverse partner (i.e., non-binary, trans, genderfluid, or agender partner), cisgender girls with a gender diverse partner, TNBFAB partnered with a boy, TNBFAB partnered with a girl, TNBFAB with a gender diverse partner (i.e., non-binary, trans, genderfluid, or agender partner), TNBMAB partnered with a girl, TNBMAB partnered with a boy, and TNBMAB with a gender diverse partner (See Table 1 for descriptive statistics). Logistic regression and path analyses were only conducted with the cisgender participants due to small sample sizes for TNB participants. Descriptive analyses for these participants can be found in Table 2. Two categories were not included in the descriptive analyses because they did not comprise any sexually active participants: TNBFAB partnered with a boy and TNBMAB partnered with a girl.

**Statistical Analyses**

We examined descriptive statistics, Chi-Square and Kruskal-Wallis tests using SPSS® 28. We conducted Chi-Square and Kruskall-Wallis H tests with Bonferonni post-hoc tests to examine the presence of significant differences across participant gender and dyad type

regarding orgasm (during masturbation or with a partner), and sexual behavior (providing and receiving manual stimulation, providing and receiving oral stimulation).

We used Mplus® 8.4 statistical software package (Muthén & Muthén, 2017) for logistic regression and path analyses. We conducted four separate models models as more participants provided responses to the orgasm during masturbation question ($n$ = 2150), compared to sexually active adolescents who answered the partnered sexual behavior questions ($n$ = 1481). Model 1 employed logistic regression with WLSMV estimator to examine the differences across participants' dyad type concerning the orgasm during masturbation outcome using six dichotomized, dummy coded variables for dyad type (cisgender boys partnered with a girl [reference category], cisgender girls partnered with a boy, cisgender boys partnered with a boy, cisgender girls partnered with a girl, cisgender boys with a gender diverse partner, and cisgender girls with a gender diverse partner). Models 2 and 3 used multiple regression to examine the differences across gender and dyad type concerning difficulties with orgasm during partnered sexual activities and the sexual behavior ordinal outcomes (providing manual and oral stimulation and receiving manual and oral stimulation) with the same dummy-coded predictors as presented above for Model 1. Lastly, model 4 tested gender differences in the orgasm and sexual behavior outcomes using four dichotomized, dummy coded variables for gender (cisgender boys [reference category], cisgender girls, TNB youth AMAB, TNB youth AFAB). We controlled for partnered sexual experience in all models. We used the weighted least squares mean- and variance-adjusted estimator (WLSMV) for categorial outcomes, as well as maximum-likelihood estimation (MLR) for continuous outcomes (Finney & DiStefano, 2013). Missing values represented 0.1% for gender, sexual orientation, and partner gender, 0.4% for partnered sexual experience, from 0.3% to 0.6% for sexual behaviors, 0.3% for orgasm via masturbation,

and 7.7% for difficulties with orgasm via partnered sexual activities. As the data were not missing completely at random (Little's MCAR tests $p < .000$), we employed the full information maximum likelihood (FIML) estimation method following previous recommendations (Newman, 2014).

## Results

### Gender-Based Descriptive Statistics and Comparisons

Descriptive statistics for orgasm and sexual behavior by gender and by group for cisgender participants are shown in Table 2. Chi-square tests for individual gender showed that cisgender boys ($M = 0.86$, $SD = 0.36$) were significantly more likely to report that they had ever experienced orgasm during masturbation than cisgender girls ($M = 0.72$, $SD = 0.44$); $\chi^2(2, N = 2038) = 38{,}44$, $p < .001$. Kruskal-Wallis tests showed that cisgender girls ($M = 3.84$, $SD = 1.42$, Mdn = 4.00, $p < .001$) had significantly more difficulty experiencing orgasm with a partner than cisgender boys ($M = 2.79$, $SD = 1.31$, Mdn = 3.00, $p < .001$) and received less oral stimulation than cisgender boys ($M = 1.85$, $SD = 1.27$, Mdn = 3.00, $p = .02$). Kruskal-Wallis tests demonstrated no significant differences between genders regarding providing/receiving manual stimulation and providing oral stimulation (all $p$s > .001). Descriptive statistics for orgasm and sexual behavior by gender and dyad type for TNB participants are shown in Table 3.

### Examining Differences in Orgasm during Masturbation across Gender and Dyad Type

#### *Gender*

Controlling for sexual experience, logistic regression analyses results showed that the odds of having ever experienced orgasm during masturbation decreased significantly by 55% (OR = 0.45, 95% CI [-.58, -.33], $p < .001$) for cisgender girls compared to cisgender boys (See

Table 4). No significant difference was observed on orgasm experience during masturbation between TNB and cisgender participants (all *p*s >.32).

***Dyad Type***

Controlling for sexual experience, logistic regression analyses results showed that the odds of having ever experienced orgasm during masturbation decreased significantly by 56% (OR = 0.44, 95% CI [-.58; -.31], $p < .001$) for cisgender girls partnered with a boy and by 56% (OR = 0.44, 95% CI [-.62; -.25], $p < .001$) for cisgender girls with a gender diverse partner, both compared to cisgender boys partnered with a girl. Cisgender girls partnered with a girl did not have lower odds of experiencing orgasm during masturbation compared to cisgender boys partnered with a girl ($p = .74$; see Table 5). However, the sample size for cisgender girls who were partnered with girls was small ($n = 50$) and this result should be replicated in future studies. The models were fully saturated.

**Examining Differences across Gender and Dyad Type for Difficulties with Orgasm during Partnered Sexual Activity and Sexual Behavior**

***Gender***

Controlling for sexual experience, results from multiple regression showed that, compared to cisgender boys, cisgender girls reported significantly more difficulties experiencing orgasm during partnered sexual activity ($\beta = .20$ [95% CI .15, .25], $p < .001$). There were no differences in difficulties with orgasm between cisgender girls partnered with a girl and cisgender boys partnered with a girl ($p = .86$; see Table 5). Also, cisgender girls ($\beta = .06$ [95% CI .01, .11], $p = .02$) and TNBMAB ($\beta = .03$ [95% CI .00, .06], $p = .05$) reported receiving significantly more manual stimulation compared to cisgender boys. Cisgender girls ($\beta = -.10$

[95% CI -.15, .05], $p < .001$) and TNBFAB ($\beta$ = -.05 [95% CI -.10, -.00], $p$ = .04) reported receiving significantly less oral stimulation compared to cisgender boys.

***Dyad Type***

For cisgender participants ($n$ = 1481-2738), controlling for sexual experience, results from multiple regression showed that, compared to cisgender boys partnered with a girl, cisgender girls partnered with a boy and cisgender girls with a gender diverse partner reported significantly more difficulties experiencing orgasm during partnered sexual activity ($\beta$ = .20 [95% CI .15, .25], $p < .001$); ($\beta$ = .09 [95% CI .03, .15], $p < .001$) and received oral stimulation significantly less often ($\beta$ =-.09 [95% CI -.14, -.03], $p$ = .01; ($\beta$ =-.07 [95% CI -.05, .04], $p$ = .01). Associations were weak. There were no significant differences between dyad types for the following outcomes: providing manual stimulation, receiving manual stimulation, providing oral stimulation (See Table 5). R-square values for Model 3 showed that all the predictors explained 2.3% of the variance of providing manual sex, 1.2% of the variance of receiving manual sex, 2.8% of the variance of providing oral sex, 3.6% of the variance of receiving oral sex, and 3.7% of the variance of difficulties with orgasm during partnered sex. For TNB participants ($n$ = 29-62), small sample sizes prevented the examination of meaningful differences in sexual behaviors and orgasm across dyad types. Hence, results are only presented at the descriptive level in Table 3.

## Discussion

The current study aimed to provide new insights concerning the differences in orgasm and sexual behaviors among adolescents, focusing on variations across gender and dyad configurations. Results illustrate a broader concern at the intersection of sexuality and equity between cisgender boys and girls. Specifically, cisgender girls were disadvantaged compared to

cisgender boys, as they had lower odds of experiencing orgasm during masturbation and during partnered sexual activity. Also, they received less oral sex. And compared to cisgender boys, TNBMAB received more manual stimulation, and TNBFAB received less oral sex. As for dyad configurations, compared to cisgender boys partnered with a girl, cisgender girls partnered with a boy and cisgender girls with a gender diverse partner had lower odds of having ever experienced orgasm during masturbation, reported more difficulties experiencing orgasm during partnered sex and received oral stimulation less often. Cisgender girls who were partnered with a girl did not differ on the sexual outcomes from cisgender boys who were partnered with a girl. This work moves the literature beyond the risk framework to a more integrated and holistic view of youth's sexual lives, including the factors that help determine the variety of their sexual repertoire and the orgasms that they experience.

## Gender Differences in Orgasm and Sexual Behavior

### *Orgasm in both Cisgender and Trans and Non-Binary Participants*

Consistent with our hypothesis, cisgender girls had lower odds of having ever experienced orgasm during masturbation compared to cisgender boys. This result suggests that, for adolescents, there is an orgasm gap during masturbation, contrary to what we see in adults where similar orgasm rates were found across genders during masturbation (Carvalheira & Leal, 2013; Mahar et al., 2020). This result could be explained by women's later age of onset for masturbation and generally lower rate of masturbation frequency compared to men (Robbins et al., 2011; Wade et al., 2005). Masturbation is particularly stigmatized for girls, which can result in internalized feelings of shame and guilt (Carvalheira & Leal, 2013; Fahs & Frank, 2014; Kaestle & Allen, 2011). In addition, the discrepancy in orgasm rates across boys and girls could be explained by most formal sexual education programs' lack of focus on the clitoris

(Ampatzidis et al., 2021). Although there are a multitude of didactic resources to carry out sex-positive sexuality education, various fears, discomfort, and resistance may remain among adults (e.g., teachers, parents; Stewart et al., 2022).

In addition, also consistent with our hypothesis, cisgender girls were more likely to report difficulties with orgasm during partnered sexual activity compared to cisgender boys. This finding further supports the notion of orgasm gap during partnered sex among adolescents, which could be due to the cultural messages about prominence of boys' pleasure and girls' lack of self-efficacy in achieving pleasure (Vannier & O'Sullivan, 2012). Our results also offer additional evidence concerning the enduring traditional sexual script in adolescence (Vannier & O'Sullivan, 2012), whereby the pleasure of girls partnered with a different-gender or a gender-minority partner might be hindered due to the emphasis on intercourse and thus underprioritizing of clitoral stimulation (Mahar et al., 2020). Such a gap may also be a product of adolescents' age and insufficient knowledge about and experience with the pleasurable aspects of their body and ways to communicate with their partners (Widman et al., 2014). A recent study tracking sexual problems among late adolescents/young adults (18-24 years) found that orgasm was the only area that was persistently difficult to experience for young women but that improvements were noted across time and relationships (O'Sullivan et al., 2021).

No significant differences emerged between cisgender and TNB participants regarding the orgasm outcomes. The absence of significant differences could be explained by the small sample size of TNB participants, or the fact that we had to combine information from transgender and non-binary youth, which could have limited our ability to detect substantial differences (Eiduson et al., 2022). Moreover, binary trans youths and non-binary youths may experience important differences in body and gender dysphoria that can impact their experience of sexual pleasure.

Nonetheless, novel sexual experiences in adolescence have been identified as universally satisfying and stressful for both cisgender and gender diverse individuals (McClelland, 2014; Lindley et al., 2020), which points to the fact that there might be more similarities than differences in youths' sexual experiences at this stage of their development. Still, we acknowledge the unique reality of TNB adolescents, including distinctive challenges (e.g., body (dis)satisfaction and comfort, feeling misunderstood by partners) and strengths (e.g., community support, gender-affirmation opportunities, and boundary setting skills) that can contribute to their sexual experiences (Eiduson et al., 2022; Martin & Coolhart, 2022). Such experiences can be difficult to capture with quantitative research (Lindley et al., 2020). Further research on the sexual scripts of adolescents across gender identities and dyad types is essential to design interventions that provide differential care for transgender adolescents.

### *Sexual Behavior in Cisgender and Trans and Non-Binary Participants*

We found that cisgender girls reported receiving manual stimulation significantly more often, yet receiving oral stimulation significantly less often, than cisgender boys. This finding is consistent our initial hypothesis, which was grounded in the Theory of Sexual Scripts (Simon & Gagnon, 1986), as well as the social norms that position girls as givers and caretakers (Sakaluk et al., 2014). Additionally, it contrasted with a previous study indicating that girls typically provid more manual stimulation than boys (Jozkowski & Satinsky, 2013). Higher rates of received manual stimulation could reflect some distancing or discomfort, due to cultural constructions of vulvas and vaginas as shameful (Fahs, 2014) and disgusting (Jenkins et al., 2018). Moreover, past research among cisgender adults and young adults showed a greater frequency of oral sex received by cisgender men than by cisgender women (Vannier & O'Sullivan, 2012; Wood et al., 2016), potentlially reflecting social norms prioritizing men's sexual pleasure over women's

(Braun & Kitzinger, 2001). In addition, despite girls' increasing reported propensity to ask for oral sex, it is possible that they might continue to feel uncomfortable receiving it, ultimately worrying about their genital aesthetics or about "taking too long" to orgasm (Lewis & Marston, 2016). Genitals are not comparable across gender in all respects of course; ease of access for oral sex, the possibility of menstruation, and positioning requirements vary despite our inclination to view them as parallel in these respects.

Also, TNBMAB reported receiving manual stimulation significantly more often than cisgender boys. This result could be explained by differences in preferences for sexual activity between these groups, for example engaging in sexual scripts that do not include PVI (Gauvin & Pukall, 2018), leaving more space for manual stimulation. Indeed, some might not be comfortable to use their genitals because of genital dysphoria or some might have partners who do not have a vagina (Gil-Llario et al., 2021). Lastly, TNBFAB reported receiving oral stimulation significantly less often than cisgender boys. This finding could be linked to previous studies mentioning that sexuality is deeply impacted by early socialization, gender norms, and expectations. Indeed, socialized gender rather than current gender as well as gender dysphoria might play a bigger role in sexual scripts and sexual expectations, or lack thereof (Gil-Llario et al., 2021; Harvey et al., 2023; Ridgeway et al., 2011). Also, this could also be explained by the fact that TNB youth can experience genital dysphoria and thus refrain from wanting their genitals to be stimulated (Gil-Llario et al., 2021).

Contrary to the significant differences across genders in receiving manual and oral sex, no differences were found with regards to providing manual and oral stimulation. This could be explained by the nature of the sample which is comprised of individuals and not dyads. Indeed, discrepancies may appear in the ratio of received and given stimulation as participants were not

necessarily partnered with each other in the present sample (Montemayor, 2018). Another plausible explanation could be due to social desirability or recall biases, where participants could overreport the amount of manual or oral stimulation given (Boislard & Fortin, 2015).

**Dyad Type Differences in Orgasm and Sexual Behavior for Cisgender Participants**

Considering partner gender in addition to participants' own gender offered more nuanced findings and echo a larger gender equity issue documented in adults (Conley & Klein, 2022; Dickman et al., 2024). Notably, in accordance with our initial hypothesis, we observed that cisgender girls partnered with a boy and cisgender girls with a gender diverse partner had lower odds of having ever experienced orgasm during masturbation compared to cisgender boys partnered with a girl. Also, both reported more difficulties experiencing orgasm during partnered sexual activities and received oral stimulation significantly less often than cisgender boys partnered with a girl. Importantly, there were no differences between cisgender girls and cisgender boys who were partnered with girls regarding orgasm during masturbation and during sexual activity. Our findings corroborate those of past studies whereby women partnered with cisgender men were the most disadvantaged when it came to sexual satisfaction, orgasm frequency, and reception of oral sex (Blair et al., 2018; Frederick et al., 2018, Garcia et al., 2014; Peragine et al., 2023). This discrepancy can be linked to girls' traditional gender roles or sexual scripts (Masters et al., 2013; Sakaluk et al., 2014), including challenges with sexual self-assertiveness, entitlement to sexual pleasure (Klein & Conley, 2022) or lack of expectation to experience orgasm with a cisgender boy - that all may contribute to a self-fulfilling prophecy (Peragine et al., 2023; Tsui & Nicoladis, 2004).

However, contrary to previous studies conducted among adults, differences in experiences with orgasm in our study were not specific to the partnered context and also apply to

the solitary context (i.e., orgasm through masturbation). This finding is novel and likely reflects poor sexual education with regards to female anatomy and the clitoris (Ampatzidis et al., 2021; Warshowsky et al., 2019). Also, our findings sadly demonstrate that traditional gendered sexual scripts and roles are enduring despite more egalitarian contemporary relationships (Dolezal et al., 2024). Lastly, similar reports for giving and receiving manual sex, as well as giving oral sex across cisgender dyads could be explained by self-report biases, a sample comprised of individuals rather than couples, as well as the small variance in the manual stimulation variable (Boislard & Poulin, 2015; Montemayor, 2018). Future studies should include adolescent couples to better understand their sexual behaviors (Couture et al., 2023).

**Limitations, Strengths, and Future Studies**

The results of this study must be considered within the context of its limitations. Sensitive topics such as partnered sexual behaviors or orgasms are associated with numerous response biases that can influence results, such as attempts to reduce cognitive dissonance, question comprehension, recall accuracy, and social desirability (Boislard & Poulin, 2015). Also, binary language was used for some of the sexual behavior measures. Moreover, due to the small number of TNB youth or youth involved with same-gender or a gender diverse partner in the sample, we were limited in our ability to examine adequately powered between-group differences. Another limitation includes that the orgasm during masturbation item provided dichotomous answer options (yes/no), while adolescents can be unsure of whether they experienced an orgasm or not. Further, participants' partners' genders were categorized based on a single question about gender identity, which participants may have answered without disclosing a transgender history (Harvey et al., 2023). Lastly, schools who accepted to participate in our sexuality research project might not be representative of all high schools and might reflect sampling bias.

Despite these limitations, the present study provides novel and inclusive findings on contemporary adolescent experiences of orgasm and sexual behavior, including TNB youths. The inclusion of partner gender offered a more nuanced and complex understanding of orgasm and sexual behavior in adolescents across diverse dyad configurations (Peragine et al., 2023). In addition, it challenges the risk-focused perspective typically adopted in studies of middle adolescents by advancing a sex positive framework, providing perspective about a crucial phase in the trajectory of young people's lives. These sexual activities are some of the earliest and possibly most influential in establishing patterns that could well endure into adulthood. Prospective studies using an intersectional framework with larger number of sexual minority and TNB participants are needed to explore nuances across these stigmatized populations, and to answer the growing call to consider adolescent sexuality as unique and legitimate, not only as mimicking adult behaviors or reflecting adult constructs of sex (Bernardini, 2019; O'Sullivan et al., 2021).

## Conclusion

The current study provided a portrait of adolescents' experiences with sexual behaviors and orgasm across genders and dyad type. We found evidence that cisgender girls, especially when partnered with a boy, were disadvantaged compared to cisgender boys. Indeed, they had lower odds of having ever experienced orgasm during masturbation, were more likely to report orgasm difficulties during partnered sexual activity and received oral stimulation less often. Findings overall highlight the need for comprehensive sex-positive sexual education curricula that benefit all adolescents equally (Ampatzidis et al., 2021; Koepsel, 2016). It seems paramount to address sexual communication, sexual likes and dislikes, myths about penetrative orgasms, and sexual double standards in youth (Harvey et al., 2023; Wetzel & Sanchez, 2022).

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**Table 1**

*Detailed Sociodemographic Characteristics of the Total Sample and of Sexually Active Participants*

| | Total sample (N = 2786-2800) | Sexually active participants (N = 1477-1494) |
|---|---|---|
| | N (%) | N (%) |
| Sex assigned at birth | | |
| Boy | 1315 (47.0%) | 704 (47.1%) |
| Girl | 1485 (53.0%) | 790 (52.9%) |
| Age | | |
| 15 | 10 (0.4%) | 3 (0.2%) |
| 16 | 1706 (60.9%) | 841 (56.3%) |
| 17 | 1009 (36.0%) | 600 (40.2%) |
| 18 | 75 (2.7%) | 50 (3.3%) |
| Gender | | |
| Cisgender Boy | 1295 (46.4%) | 689 (46.6%) |
| Cisgender Girl | 1436 (51.4%) | 759 (51.4%) |
| Transgender and Non-Binary Youth (TNB) | 15 (0.5%) | 8 (0.5%) |
| Assigned Male at Birth (AMAB) | | |
| TNB Youth (TNB) Assigned Female at Birth (AFAB) | 29 (1.0%) | 11 (0.7%) |
| Sexual Orientation | | |
| Heterosexual | 2279 (81.4%) | 1228 (82.2%) |
| Questioning | 123 (4.4%) | 42 (2.8%) |
| Gay or lesbian | 50 (1.8%) | 26 (1.7%) |
| Heteroflexible | 36 (1.3%) | 26 (1.7%) |
| Homoflexible | 4 (0.1%) | 3 (0.2%) |
| Bisexual | 169 (6.0%) | 101 (6.8%) |
| Queer | 18 (0.6%) | 11 (0.7%) |
| Pansexual | 60 (2.1%) | 36 (2.4%) |
| Asexual | 11 (0.4%) | 0 (0.0%) |
| None of these categories/Other | 31 (1.1%) | 18 (1.2%) |
| Refused to answer | 19 (0.7%) | 4 (0.3%) |
| Dyad Type | | |
| Cisgender Boy Partnered with a Girl | 859 (45.6%) | 633 (42.7%) |
| Cisgender Boy Partnered with a Boy | 12 (0.6%) | 10 (0.7%) |
| Cisgender Boy with a Gender Diverse Partner | 2 (0.1%) | 1 (0.1%) |
| Cisgender Girl Partnered with a Boy | 921 (48.9%) | 698 (50.0%) |
| Cisgender Girl Partnered with a Girl | 50 (2.7%) | 32 (2.3%) |
| Cisgender Girl with a Gender Diverse Partner | 5 (0.3%) | 3 (0.2%) |
| TNBMAB Partnered with a Girl | 2 (0.1%) | 1 (0.1%) |
| TNBMAB Partnered with a Boy | 7 (0.4%) | 4 (0.3%) |
| TNBMAB with a Gender Diverse Partner | 3 (0.2%) | 3 (0.2%) |
| TNBFAB Partnered with a Boy | 12 (0.6%) | 7 (0.5%) |
| TNBFAB Partnered with a Girl | 9 (0.5%) | 4 (0.3%) |
| TNBFAB with a Gender Diverse Partner | 0 (0.0%) | 0 (0.0%) |
| Ethnicity | | |
| French Canadian | 1847 (66.0%) | 1065 (71.3%) |
| Canadian | 406 (14.5%) | 191 (12.8%) |
| American | 22 (0.2%) | 11 (0.7%) |
| Western European | 28 (1.0%) | 13 (0.9%) |
| Eastern European | 24 (0.9%) | 16 (1.1%) |
| African | 36 (1.3%) | 19 (1.3%) |
| Asian | 83 (3.0%) | 33 (2.2%) |

| | | |
|---|---|---|
| Aboriginal/First Nations | 43 (1.5%) | 14 (0.9%) |
| Middle Eastern | 27 (1.0%) | 21 (1.4%) |
| Latin/ South American | 92 (3.3%) | 23 (1.5%) |
| Greek/Italian | 55 (2.0%) | 32 (2.1%) |
| Pakistani/Hindu | 6 (0.2%) | 2 (0.1%) |
| Caribbean | 9 (0.3%) | 6 (0.4%) |
| Haitian | 101 (3.6%) | 38 (2.5%) |
| Multi-Cultural | 27 (1.0%) | 10 (0.7%) |
| Dating and romantic relationship experience | | |
| Yes | 1884 (67.3%) | 1406 (94.1%) |
| No | 913 (32.6%) | 88 (5.9%) |
| Partnered sexual experience | | |
| Yes | 1494 (53.6%) | 100.0% |
| No | 1295 (46.4%) | 0.0% |

**Table 2**

*Descriptive Statistics and Comparisons of Cisgender Participants' Partnered Sexual Behaviors and Orgasm by Gender and Dyad Type (n = 1503-2145)*

| | Gender | | | Dyad Type | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cisgender Girls (*n* = 958) *M* (*SD*) | Cisgender Boys (*n* = 1147) *M* (*SD*) | ***p* value** | Cisgender Girls with Gender Diverse Partner (*n* = 3) *M* (*SD*) | Cisgender Girls Partnered with a Girl (*n* = 37) *M* (*SD*) | Cisgender Girls w Partnered with a Boy (*n* = 666) *M* (*SD*) | Cisgender Boys with Gender Diverse Partner (*n* = 2) *M* (*SD*) | Cisgender Boys Partnered with a Girl (*n* = 783) *M* (*SD*) | Cisgender Boys Partnered with a Boy (*n* = 12) *M* (*SD*) | ***p* value** | **$\epsilon^2$** |
| **Orgasm via Masturbation** | 0.73 (0.44) | 0.85 (0.36) | **<.001** | 0.00 (0.00) | 0.86 (.35) | 0.75 (0.43) | 0.50 (0.71) | .87 (0.34) | 0.83 (0.39) | **<.001** | .09 |
| | **Gender** | | | **Dyad Type** | | | | | | | |
| | Cisgender Girls (*n* = 721-761) *M* (*SD*) | Cisgender Boys (*n* =624-686) *M* (*SD*) | ***p* value** | Cisgender Girls with Gender Diverse Partner (*n* = 2) *M* (*SD*) | Cisgender Girls Partnered with a Girl (*n* = 28-30) *M* (*SD*) | Cisgender Girls w Partnered with a Boy (*n* = 653-693) *M* (*SD*) | Cisgender Boys with Gender Diverse Partner (*n* = 1) *M* (*SD*) | Cisgender Boys Partnered with a Girl (*n* = 573-628) *M* (*SD*) | Cisgender Boys Partnered with a Boy (*n* = 10) *M* (*SD*) | ***p* value** | **$\epsilon^2$** |
| **Orgasm Difficulties via Partnered Sexual Activity** | 2.79 (1.28) | 2.35 (0.95) | **<.001** | 2.50 (2.12) | 2.68 (1.28) | 2.81 (1.28) | 4.00 (0.00) | 2.36 (0.94) | 2.30 (1.34) | .76 | .04 |
| **Providing Manual Stimulation** | 2.80 (1.11) | 2.80 (1.18) | .28 | 3.00 (0.00) | 3.00 (0.95) | 2.85 (1.06) | 3.00 (0.00) | 2.87 (1.13) | 3.20 (1.03) | .65 | .01 |
| **Receiving Manual Stimulation** | 2.84 (1.10) | 2.70 (1.19) | .31 | 2.50 (0.70) | 2.97 (0.85) | 2.90 (1.05) | 2.00 (0.00) | 2.78 (1.12) | 2.90 (1.29) | .45 | .01 |
| **Providing Oral Stimulation** | 2.02 (1.29) | 1.90 (1.31) | .23 | 3.00 (0.00) | 1.97 (1.33) | 2.07 (1.27) | 2.10 (0.00) | 1.94 (1.29) | 2.20 (1.23) | .88 | .01 |
| **Receiving Oral Stimulation** | 1.85 (1.27) | 2.10 (1.33) | **.02** | 1.00 (0.00) | 2.10 (1.28) | 1.89 (1.25) | 2.00 (0.00) | 2.13 (1.30) | 2.10 (1.60) | .52 | .01 |

*Note. CI* = confidence interval, *M* = mean, *SD* = standard deviation, $\epsilon^2$ = epsilon-squared.

**Table 3**

*Descriptive Statistics for Trans and Non-Binary Participants' Partnered Sexual Behaviors and Orgasm by Gender and Dyad Type*

| | Gender | | Dyad Type | | | | |
|---|---|---|---|---|---|---|---|
| | Trans & Non-Binary AMAB (*n* = 12) *M* (*SD*) | Trans & Non-Binary AFAB (*n* = 22) *M* (*SD*) | TNBMAB with Gender Diverse Partner (*n* = 2) *M* (*SD*) | TNBMAB Partnered with a Girl (*n* = 6) *M* (*SD*) | TNBMAB Partnered with a Boy (*n* = 2) *M* (*SD*) | TNBFAB Partnered with a Girl (*n* = 8) *M* (*SD*) | TNBFAB Partnered with a Boy (*n* = 9) *M* (*SD*) |
| **Orgasm via Masturbation** | 0.83 (0.39) | 0.77 (0.43) | 0.67 (0.52) | 0.83(0.41) | 1.00 (.00) | 0.75 (0.46) | 0.67 (0.50) |
| | **Gender** | | **Dyad Type** | | | | |
| | Trans & Non-Binary AMAB (*n* = 6-8) *M* (*SD*) | Trans & Non-Binary AFAB (*n* = 12) *M* (*SD*) | TNBMAB with Gender Diverse Partner (*n* = 1-3) *M* (*SD*) | TNBMAB Partnered with a Girl (*n* = 4) *M* (*SD*) | TNBMAB Partnered with a Boy (*n* = 1) *M* (*SD*) | TNBFAB Partnered with a Girl (*n* = 4) *M* (*SD*) | TNBFAB Partnered with a Boy (*n* = 6-7) *M* (*SD*) |
| **Orgasm Difficulties via Partnered Sexual Activity** | 2.33 (1.03) | 3.30 (1.57) | 2.00 (0.00) | 2.50 (1.29) | 2.00 (0.00) | 2.25 (1.89) | 4.00 (0.89) |
| **Providing Manual Stimulation** | 2.88 (1.13) | 2.64 (0.92) | 3.33 (1.15) | 2.25 (0.95) | 4.00 (0.00) | 3.00 (0.82) | 2.43 (0.98) |
| **Receiving Manual Stimulation** | 3.13 (0.64) | 2.55 (1.21) | 3.67 (0.58) | 2.75 (0.50) | 3.00 (0.00) | 2.00 (1.83) | 2.86 (0.69) |
| **Providing Oral Stimulation** | 2.13 (1.46) | 1.55 (1.37) | 2.67 (2.30) | 1.50 (0.58) | 3.00 (0.00) | 1.50 (1.29) | 1.57 (1.51) |
| **Receiving Oral Stimulation** | 2.63 (1.10) | 1.45 (1.37) | 3.00 (1.73) | 2.50 (0.58) | 2.00 (0.00) | 1.00 (1.41) | 1.71 (1.38) |

*Note. CI* = confidence interval, *M* = mean, *SD* = standard deviation.

**Table 4**

*Regression Models Linking Gender to Orgasm and Sexual Behaviors in all Participants (n = 1481-2159)*

| | **TNBMAB (vs Cisgender Boys)** | | | **TNBFAB (vs Cisgender Boys)** | | | **Cisgender Girl (vs Cisgender Boys)** | | |
|---|---|---|---|---|---|---|---|---|---|
| | **OR** | **95% CI** | ***p*** | **OR** | **95% CI** | ***p*** | **OR** | **95% CI** | ***p*** |
| Orgasm via Masturbation | -.10 | [-.87; .66] | 0.79 | -.20 | [-.80; .41] | 0.52 | -.45 | [-.58; -.33] | **<.001** |
| | **β** | **95% CI** | ***p*** | **β** | **95% CI** | ***p*** | **β** | **95% CI** | ***p*** |
| Orgasm Difficulties via Partnered Sexual Activities | .01 | [-.05; .05] | 0.99 | .07 | [-.00; .15] | 0.06 | .20 | [.15; .25] | **<.001** |
| Providing Manual Stimulation | .01 | [-.04; .06] | 0.79 | -.02 | [-.05; .02] | 0.30 | -.01 | [-.06; .05] | 0.83 |
| Receiving Manual Stimulation | .03 | [.00; .06] | **0.05** | -.02 | [-.07; .04] | 0.55 | .06 | [.01; .11] | **0.02** |
| Providing Oral Stimulation | .01 | [-.04; .07] | 0.60 | -.03 | [-.08; .02] | 0.22 | .05 | [-.01; .10] | 0.08 |
| Receiving Oral Stimulation | .03 | [-.01; .08] | 0.15 | -.05 | [-.10; -.00] | **0.04** | -.10 | [-.15; .05] | **<.001** |

Note. Partnered sexual experience was added as a control variable.

**Table 5**

*Regression Models Linking Dyad Type to Orgasm and Sexual Behaviors in Cisgender Participants (N=1481-2738)*

| | Girls Partnered with a Boy (vs Boys Partnered with a Girl) | | | Girls Partnered with a Girl (vs Boys Partnered with a Girl) | | | Girls with a Gender Diverse Partner (vs Boys Partnered with a Girl) | | | Boys Partnered with a Boy (vs Boys Partnered with a Girl) | | | Boys with a Gender Diverse Partner (vs Boys Partnered with a Girl) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **OR** | **95% CI** | ***p*** | **OR** | **95% CI** | ***p*** | **OR** | **95% CI** | ***p*** | **OR** | **95% CI** | ***p*** | **OR** | **95% CI** | ***p*** |
| Orgasm via Masturbation | -.44 | [-.58; -.31] | **<.001** | -.10 | [-.67; .47] | 0.74 | -.44 | [-.62; -.25] | **<.001** | -0.03 | [-.74; .67] | 0.93 | .11 | [-.34; .56] | 0.62 |
| | **β** | **95% CI** | ***p*** | **β** | **95% CI** | ***p*** | **β** | **95% CI** | ***p*** | **β** | **95% CI** | ***p*** | **β** | **95% CI** | ***p*** |
| Orgasm Difficulties via Partnered Sexual Activities | .20 | [.15; .25] | **<.001** | .01 | [-.05; .06] | 0.86 | .09 | [.03; .15] | **0.01** | -0.02 | [-.06; .02] | 0.45 | .02 | [-.03; .07] | 0.41 |
| Providing Manual Stimulation | -.01 | [-.06; .05] | 0.76 | -.05 | [-.11; .00] | 0.06 | .03 | [-.02; .08] | 0.23 | .02 | [-.02; .07] | 0.29 | -.01 | [-.06; .04] | 0.66 |
| Receiving Manual Stimulation | .07 | [.01; .12] | 0.19 | -.02 | [-.07; .03] | 0.39 | .04 | [-.01; .09] | 0.11 | -.01 | [-.06; .04] | 0.75 | -.01 | [-.06; .04] | 0.66 |
| Providing Oral Stimulation | .05 | [-.00; .10] | 0.07 | -.02 | [-.08; .04] | 0.56 | .04 | [-.02; .09] | 0.17 | .03 | [-.02; .08] | 0.27 | -.01 | [-.06; .05] | 0.87 |
| Receiving Oral Stimulation | -.09 | [-.14; -.03] | **0.01** | -.03 | [-.08; .02] | 0.21 | -.07 | [-.12; -.02] | **0.01** | -.01 | [-.05; .04] | 0.87 | -.01 | [-.07; .04] | 0.63 |

Note. Partnered sexual experience was added as a control variable.