



Dating Violence Trajectories in Adolescence: How Do They Relate to Sexual Outcomes in Canada?

Jacinthe Dion^{1,2} · Martine Hébert^{2,3} · Gentiana Sadikaj^{2,4} · Alice Girouard^{2,4} · Natacha Godbout^{2,3} · Alexa Martin-Storey^{2,5} · Martin Blais^{2,3} · Sophie Bergeron^{2,4}

Received: 11 October 2022 / Revised: 31 March 2023 / Accepted: 15 May 2023 / Published online: 21 June 2023
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Abstract

Dating violence during adolescence is a major public health issue: it is highly prevalent and extensive research has documented its physical and psychological consequences, yet very little has focused on its sexual consequences. The present study investigated the longitudinal associations between dating violence victimization (psychological, sexual or physical) and sexual well-being (sexual satisfaction and sexual distress) among 1442 sexually active adolescents aged between 14 and 17 years who completed at least one of three data waves (51.1% girls; 45.7% boys; 0.3% non-binary; 3.0% varying gender identity). The study also examined whether these associations differed by gender identity and sexual minority status. Adolescents completed online questionnaires on electronic tablets during class. The results indicated that psychological, physical (except for boys), and sexual dating violence victimization were all associated with lower sexual satisfaction and greater sexual distress over time. Moreover, the between-level associations between dating violence and poorer sexual outcomes were stronger among girls and gender varying adolescents than among boys. The within-level association between physical dating violence and sexual satisfaction was significant among adolescents with a nonvarying sexual minority status, but not among those with a nonvarying heterosexual status or that varied in sexual minority status. Findings offer cues for dating violence prevention and intervention programs by suggesting the need to examine sexual well-being over time.

Keywords Dating violence · Sexual satisfaction · Sexual distress · Adolescents · Sexual minority · Gender identity

Introduction

Initiating and maintaining romantic relationships emerge as prime developmental tasks for adolescents. Yet, they often lack the skills, strategies, or points of comparison needed to manage their romantic and/or sexual experiences (Kansky & Allen, 2018). As a result, youth can face significant sexual and romantic relationship challenges. One critical challenge is dating violence (DV). The results of a large Canadian population-based study indicated that DV victimization was reported by 62.7% of adolescent girls and 49.5% of boys who were in a dating relationship in the past year (Hébert et al., 2017). As for sexuality, 54% of Canadian adolescent boys and 49% of adolescent girls aged 16–21 years reported problems in their sexual functioning—i.e., difficulties with orgasm, lubrication, erection, desire, satisfaction, arousal, and pain—in the months preceding their participation in a survey (O’Sullivan et al., 2014). These findings suggest that both relationship and sexual difficulties emerge

✉ Jacinthe Dion
jacinthe_dion@uqac.ca

¹ Département des Sciences de la Santé, Université du Québec à Chicoutimi, Chicoutimi, 555, Boul. de l’Université, Saguenay, QC G7H 2B1, Canada

² Interdisciplinary Research Center on Intimate Relationship Problems and Sexual Abuse, Montreal, QC, Canada

³ Department of Sexology, Université du Québec à Montréal, Montréal, QC, Canada

⁴ Department of Psychology, Université de Montréal, Montréal, QC, Canada

⁵ Department of Psychoeducation, Université de Sherbrooke, Sherbrooke, QC, Canada

during adolescents' first experiences with intimacy. However, despite strong theoretical support for the contribution of interpersonal factors to adolescent well-being (Furman & Rose, 2015; Gómez-López et al., 2019), we know very little about how DV may shape the development of adolescent's sexual well-being over time. The lack of research on the link between DV and sexual outcomes is even more striking in sexual and gender minority (SGM) adolescents (Johns et al., 2018), especially considering that those identifying as SGM are at elevated risk for DV (Petit et al., 2021) and adverse sexual outcomes relative to their heterosexual peers (Johns et al., 2018). The present study aimed to address these gaps by examining the covarying and longitudinal associations between DV and sexual well-being among a large sample of Canadian adolescents assessed annually over three years. We also investigated whether these associations differed between SGM and heterosexual, cisgender adolescents.

Romantic Relationships and Dating Violence

Romantic relationships are a central component of adolescents' development, and reflect important experiences that may foster their positive sexual well-being (Mauer & Repucci, 2019). Being in a romantic relationship becomes normative across adolescence (Furman & Rose, 2015). These relationships tend to be more unstable and of shorter duration compared to those in adulthood, and become more enduring over time, with stronger attachment bonds forming during the transition to adulthood (Connolly & McIsaac, 2009; Seiffge-Krenke, 2003). While romantic relationships can be positive contexts for adolescent development, they can also be marked by acts of violence between young partners. According to the Centers for Disease Control and Prevention (2016), DV can be defined as a form of intimate partner violence experienced between two adolescents in a dating/romantic relationship, and includes physical, psychological and sexual violence. Prevalence rates of DV among adolescents are overwhelming: results of a meta-analysis indicated that 20% may report physical DV and 9% report sexual DV, with girls experiencing higher rates of sexual DV compared to boys (Wincentak et al., 2017). Although psychological DV was not examined in this meta-analysis, results of several studies indicate a higher prevalence rate for psychological DV compared to other forms of DV (Hébert et al., 2017; Martin-Storey et al., 2021). For example, Hébert et al. (2017) found that 56% of girls and 46% of boys reported psychological DV victimization. Adolescence being an important period of relational and sexual exploration, it is likely that DV might influence sexual well-being.

Sexual Well-Being in Adolescence

Sexual risk behaviors have dominated the research agenda on adolescent sexuality. Yet, a recent shift has spurred the examination of sexual well-being within this population (Mitchell et al., 2021). Considering that 66% of Canadian 15- to 24-year-olds have engaged in sexual intercourse (Roter-mann, 2012), it is important to better understand adolescents' sexual well-being, beyond sexual at-risk behaviors and their outcomes (such as unwanted pregnancy and HIV/STIs), generally studied among this population. Various overlapping models of sexual well-being have been proposed, focusing on different components (Harden, 2014). In particular, models identify sexual satisfaction (i.e., an affective response about the subjective appraisal of positive and negative facets of a person's sexuality; Lawrance & Byers, 1995) and the absence of sexual distress (i.e., a person's negative feelings such as worry, guilt, stress, or frustration about their sexual activity; Derogatis et al., 2008) as crucial dimensions of sexual well-being (Merwin & Rosen, 2019), that should be assessed to better understand adolescents' sexuality.

The handful of cross-sectional studies about adolescents' sexual well-being revealed that a high proportion of youth experience low sexual satisfaction and that their sexual lives can give rise to clinically significant distress (Mitchell et al., 2016; O'Sullivan et al., 2014, 2016), suggesting that a poorer sexual well-being can emerge early in individuals' sexual lives and is often distressing. Although some studies have begun to identify interpersonal/relational risk factors for poorer sexual well-being in adolescence, such as experiences of bullying (Girouard et al., 2021), as well as length or type of relationship (O'Sullivan et al., 2022), no study has investigated the role of DV. Given that engaging in a romantic relationship and developing sexual intimacy with one's partner are important developmental tasks during adolescence (Boislard et al., 2016; Kansky & Allen, 2018) and that greater DV is associated with mental health problems and lower relationship satisfaction (Kaura & Lohman, 2007), it is plausible that DV may also affect adolescent sexual well-being.

Dating Violence and Sexual Outcomes

The potential for DV to be associated with sexual well-being among adolescents is supported by a larger literature linking adult intimate partner violence to sexual well-being. Cross-sectional studies with heterosexual adults have generally linked physical and psychological intimate partner violence with poorer sexual functioning and satisfaction (Hellemans et al., 2015b; Parish et al., 2004; Sierra et al., 2021). In one of the rare studies exploring DV and sexual outcomes specifically with adolescents ($n = 4738$ sexually active and heterosexual participants), girls reporting physical DV were less

likely to report high levels of sexual satisfaction (Casique, 2019). In addition, boys reporting emotional DV victimization had a greater likelihood of reporting high levels of sexual satisfaction. Sexual DV was not related to sexual satisfaction. However, sexual satisfaction was assessed with only one item and DV was not the principal focus of this study (it was included as a control variable, and authors did not mention how it was assessed), limiting our understanding of the results. Another study was conducted among a sample of 2401 Belgian sexual minority adults (Hellemans et al., 2015a). The results revealed that psychological (but not sexual and physical) intimate partner violence was associated with lower levels of sexual satisfaction and with an increased risk of experiencing sexual distress associated with sexual dysfunction. However, sample makeup precluded comparisons across sexual identity.

Taken together, the findings of this small body of research suggest that physical and psychological DV may be associated with lower sexual well-being. Sexual DV was investigated in only two studies and was not related to sexual satisfaction. However, these five studies were all cross-sectional, only one was conducted among adolescents, and contradictory findings were found, which limit our understanding of the associations between DV and adolescents' sexual well-being over time. The current longitudinal study may help clarify these associations. Lastly, only one study included sexual minority individuals. Therefore, the reality of SGM adolescents has been little explored.

Dating Violence and Sexual Well-Being Among Sexual and Gender Minority Adolescents

SGM youth report higher levels of dating violence than their heterosexual, cisgender peers (Dank et al., 2014; Martin-Storey, 2015; Petit et al., 2021)—findings which are consistent across multiple forms of DV (i.e., physical, verbal, and sexual) (Martin-Storey et al., 2021). In-line with the minority stress framework (Meyer, 2003), the heightened vulnerability of SGM adolescents to DV may be explained by the higher stigma and discrimination they encounter (Martin-Storey & Fromme, 2021; Martin-Storey et al., 2021), as well as via their greater probability of reporting childhood maltreatment (Roberts et al., 2012). These experiences (i.e., discrimination, victimization and childhood maltreatment) both increase the likelihood of reporting DV and may exacerbate the impact of DV on sexual well-being outcomes.

Although romantic relationships and sexual well-being are understudied in all adolescents, the scarcity of data is even greater for SGM, with research generally being cross-sectional and focusing almost exclusively on risk-based assessments of sexual health (Johns et al., 2018; Whitton et al., 2019). In a study conducted among SGM boys ($n = 678$) aged 16–21, 20% reported being “somewhat” or less satisfied with

their sex lives in the past 30 days than heterosexual cisgender boys. Sexual distress was not examined in this study. Given that SGM adolescents may experience heightened stigma during the development of their sexual identities (Li et al., 2019), more studies are needed to better understand how DV may affect sexual well-being among these groups of adolescents.

The Current Study

The purpose of this longitudinal study was to examine the associations between DV victimization and sexual well-being over time among Canadian adolescents. More specifically, we aimed to examine how three forms of DV (psychological, sexual and physical) experiences measured once per year over three years could influence two sexual outcomes: sexual satisfaction and sexual distress. It was expected that all forms of greater DV would be associated with lower sexual satisfaction and greater sexual distress over time. Moreover, we aimed to examine potential sexual/gender identity-based differences (i.e., heterosexual, cisgender vs. SGM adolescents). It was hypothesized that these aforementioned associations would be similar among cisgender boys and girls, but stronger among SGM adolescents.

Method

Participants

A sample of 1,442 sexually active adolescents aged between 14 and 17 who had been in at least one dating relationship in the past 12 months were recruited in the predominantly French province of Quebec (Canada). These adolescents participated in at least one of three waves of data collections over three years. Specifically, wave 1 was completed by 887 participants ($M_{\text{age}} = 14.62$, $SD = 0.66$), wave 2 by 570 participants ($M_{\text{age}} = 15.5$, $SD = 0.57$), and wave 3 by 932 participants ($M_{\text{age}} = 16.43$, $SD = 0.650$), for a total of 2,389 completed surveys/observations. Groups were created based on adolescents' reported gender identity and sexual minority status. Over the three waves, the majority of participants reported being girls (51.11%; $n = 737$) or boys (45.63%; $n = 658$), whereas four participants (0.3%) reported being non-binary, and 43 (2.98%) reported different gender identities over time (i.e., varying gender identity). Regarding sexual orientation, 76.98% of the participants reported being heterosexual (76.98%; $n = 1110$), 4.05% ($n = 45$) reported being bisexual, 2.07% ($n = 23$) reported being plurisexual, 0.63% ($n = 7$) reported being lesbian/gay, 0.63% ($n = 7$) reported questioning their sexual orientation, 1.26% ($n = 14$) answered “none of the above”, 0.36% ($n = 4$) did not provide their sexual orientation, and 16.09% ($n = 232$) reported a different

sexual orientation across waves (i.e., that varied in sexual minority status). Of the whole sample, the majority of participants identified with the French-Canadian/Quebecker culture (72.1%), 13.0%, the Canadian culture, and 14.9% reported other cultural identities (e.g., American, European, Indigenous, etc.). Most adolescents (65.6%) in this study lived with both parents.

Procedure

Data were collected as part of an ongoing Canadian longitudinal study on sexual well-being and victimization that began in 2018. A total of 49 schools were initially invited to take part to the study; 16 did not reply to the invitation, 11 declined (i.e., reported having another ongoing research project or that their teachers could not free in-class periods for the completion of questionnaires), and 22 took part in the study. The participating schools were from different socioeconomic backgrounds which ensured sample diversity. Participants were required to be at least 14 years old, in grade 9 and attending a French or English public or private high school. Prior to enrollment, participants received detailed information about the study and provided informed consent. Then, every year for a period of three years, they completed a 40-min self-reported anonymous survey (Qualtrics Research Suite) in their classrooms on tablets provided by research assistants. Wave 1 data collection took place between November 2018 and March 2020, wave 2 between October 2019 and March 2021, and wave 3 between October 2020 and March 2022. During April to June 2020, schools were closed as a result of the pandemic and students completed the survey at home (i.e., 2.4% of participants at wave 1, and 22.4% of participants at wave 2). An identification code was used as an anonymous identifier to match students' questionnaires at each follow-up (from wave 1 to wave 3) (Ripper et al., 2017; Yurek et al., 2008). To generate their unique identification code, students answered the same eight questions that were not expected to change from wave to wave (e.g., the first letter of your mother's or female caregiver's first name, the first letter of the city where you were born, etc.), in addition to their date of birth.

Study participation was compensated with a 10\$ online gift certificate. In Quebec, consenting adolescents aged 14 years and older could participate in the study without parental consent. Not relying on parental consent can ensure the safety of students involved in the study, and prevent sampling biases that may distort the results (O'Sullivan & Thompson, 2014).

Measures

Sociodemographic information was collected (e.g., age, cultural identity, and sex assigned at birth) using a questionnaire created by the research team.

Gender Identity was assessed using one item about the gender identity (Bauer et al., 2017; "boy;" "girl;" "indigenous or other cultural gender minority identity (e.g., Two-spirit);" "non-binary, gender fluid, or something else (e.g., genderqueer);" and "other" (with specification). This measure was used at each wave. Adolescents were categorized as nonvarying girls, nonvarying boys or nonvarying non-binary adolescents if they reported the same gender identity at each wave; for those who provided information at only one wave, they were also classified in one of those three categories. Adolescents who participated in more than one wave and who reported different gender identities across waves were classified as gender varying adolescents.

Sexual Minority Status was assessed using one item (Weinrich, 2014) ("straight;" "I do not know yet, or I am currently questioning my sexual orientation;" "gay or lesbian or homosexual;" "heteroflexible;" "homoflexible;" "bisexual;" "queer;" "pansexual;" "asexual;" "none of the above;" "I don't want to answer;" "other" (with specification). Adolescents completed this item at each wave. Those who indicated that they were heterosexual at each wave were classified as reporting a nonvarying heterosexual, those who reported a sexual minority identity at each wave were classified as a nonvarying sexual minority (i.e., those reporting having another sexual orientation than heterosexual); for those who completed only one wave, they were also classified in one of these two categories. Those who reported a varying sexual orientation across waves were classified as varying in sexual minority status.

Dating Violence Victimization was assessed at each wave using the 10-item Conflict in Adolescent Dating Relationships Inventory—Short form (CADRI-S) (Fernandez-Gonzalez et al., 2012), which is an abbreviated form of the CADRI (Wolfe et al., 2001). This questionnaire assesses the three forms of DV victimization on a 4-point Likert Scale (from never (0) to often (six times and more) experienced in the past 12 months with an actual or past partner). For each form of DV, a higher score indicates having experienced more DV victimization. Cronbach's alphas ranged from 0.64 to 0.77 for the three data waves (Cronbach's alphas ≤ 0.7 were found at wave 1).

Sexual satisfaction was evaluated using the Global Measure of Sexual Satisfaction (Lawrance & Byers, 1992), which has been used previously with adolescents (e.g., Blunt-Vinti et al., 2016). This questionnaire includes five items rated on a 7-point Likert scale asking whether their sexual relationship with their partner varies from good (7) to bad (0), pleasant (7) to unpleasant (0), positive (7) to

negative (0), satisfying (7) to unsatisfying (0), and valuable (7) to worthless (0). Greater scores indicate greater sexual satisfaction (α ranging from 0.91 to 0.92 for the three data waves).

Sexual distress was measured using a short 3-item version (Böthe et al., 2021) of the Female Sexual Distress Scale (FSDS; Derogatis et al., 2002), modified and adapted for use with boys and SGM adolescents (O’Sullivan et al., 2014). Items are rated on a five-point Likert scale from 0 (never) to 4 (always), and assesses how often in the past month a sexual difficulty caused distress (e.g., “How often did you feel distressed about your sex life?”; α = ranging from 0.68 to 0.79 for the three data waves).

Data Analytic Strategy

Descriptive statistics and correlations were computed. Maximum likelihood estimator with robust standard errors (MLR) was used to compare differences among categories of gender identity and sexual orientation in the study variables. The $-2\log$ likelihood test was used to evaluate the differences. This test is distributed as chi-squared with degrees of freedom equal to the difference in the number of parameters between the two nested models (Satorra & Bentler, 2010).

Sexuality may follow a developmental trajectory, the observations were non-independent (i.e., data from each wave, i.e., Level 1 or within-person, were nested within each participant, i.e., Level 2 or between-persons), and the data structure was unbalanced (i.e., number of data points was unequal among participants). Therefore, a multilevel growth modeling approach was adopted to study links between DV (psychological, sexual or physical) and sexual outcomes (sexual satisfaction and sexual distress) over three years (Objective 1). Separate analyses were conducted to examine each form of DV on each sexual outcome. Given the small subsample of non-binary participants ($n = 4$), we were not able to include them in the analyses, to allow models to be estimated.¹

The following describes the steps used to test each model, as illustrated by the model examining the effect of psychological violence on sexual satisfaction. First, we fitted an unconditional multilevel growth model in which, at the within-person level, sexual satisfaction at a particular wave was modeled as a function of the effect of age (in years; centered such that age 0 = 15 years) at a given wave and a residual error (i.e., random and non-random unmeasured influences on sexual satisfaction at the same wave). Both the

linear effect of age and the quadratic effect of age were estimated as well as their corresponding variances. In addition, the covariance between the intercept, estimated as random (i.e., varying across participants) and the random linear effect of age was estimated. We fixed the estimate of these parameters to zero when the model fit did not worsen according to the $-2\log$ likelihood test.

Second, the effect of the time-varying covariate, psychological violence, was added in the model (see Fig. 1). To separate the between-person effect of participants’ overall psychological violence across the three waves from the effect of psychological violence on sexual satisfaction at a given wave, psychological violence was centered within each participant; that is, a participant’s mean psychological violence was subtracted from the participant’s psychological violence score at a given wave. The centered scores were entered as predictors of sexual satisfaction at that wave. The mean of psychological violence across all waves was entered as a predictor of sexual satisfaction at the between-person level. For the predictor at this level, group-mean centering was applied; the centered scores represent the individual’s relative standing within the group on psychological violence. Given the centering of the age variable (i.e., age 0 = 15 years), the random intercept in this model represents the expected sexual satisfaction at age 15 for a participant having experienced the average level of psychological violence. The within-person effect of psychological violence on sexual satisfaction was modeled as random. Its variance and covariance with the random intercept were estimated and fixed to 0 based on the results of the $-2\log$ likelihood test.

Third, two different models examined the gender identity and sexual minority status moderations (Objective 2). Gender identity and sexual minority status were entered as a $k - 1$ number of dummy variables, where k represents the number of gender identity and sexual minority status categories, respectively. In each of these models, the interactions between each of the $k - 1$ dummy variable and the within-person and between-person predictors, respectively, were entered. For the model examining moderation by gender identity, the two dummy variables entered were scored such that 1 represented nonvarying girls and gender varying adolescents, respectively. The reference category was non-varying boys. For the model examining moderation by sexual minority status, nonvarying sexual minority adolescents were the reference category, for nonvarying heterosexuals and adolescents varying in sexual minority status. Significant interactions were probed by calculating the intercepts and slopes for each level of the dummy variable. We used the Wald test to examine whether the moderating effect of gender identity and sexual minority status differed across categories. When no difference was found between two or more categories, the pooled estimate across these categories was reported.

¹ Data on these participants regarding means, standard deviations, etc., are available from the first author for individuals seeking to conduct meta-analyses on non-binary populations relating to the outcomes investigated in the current study.

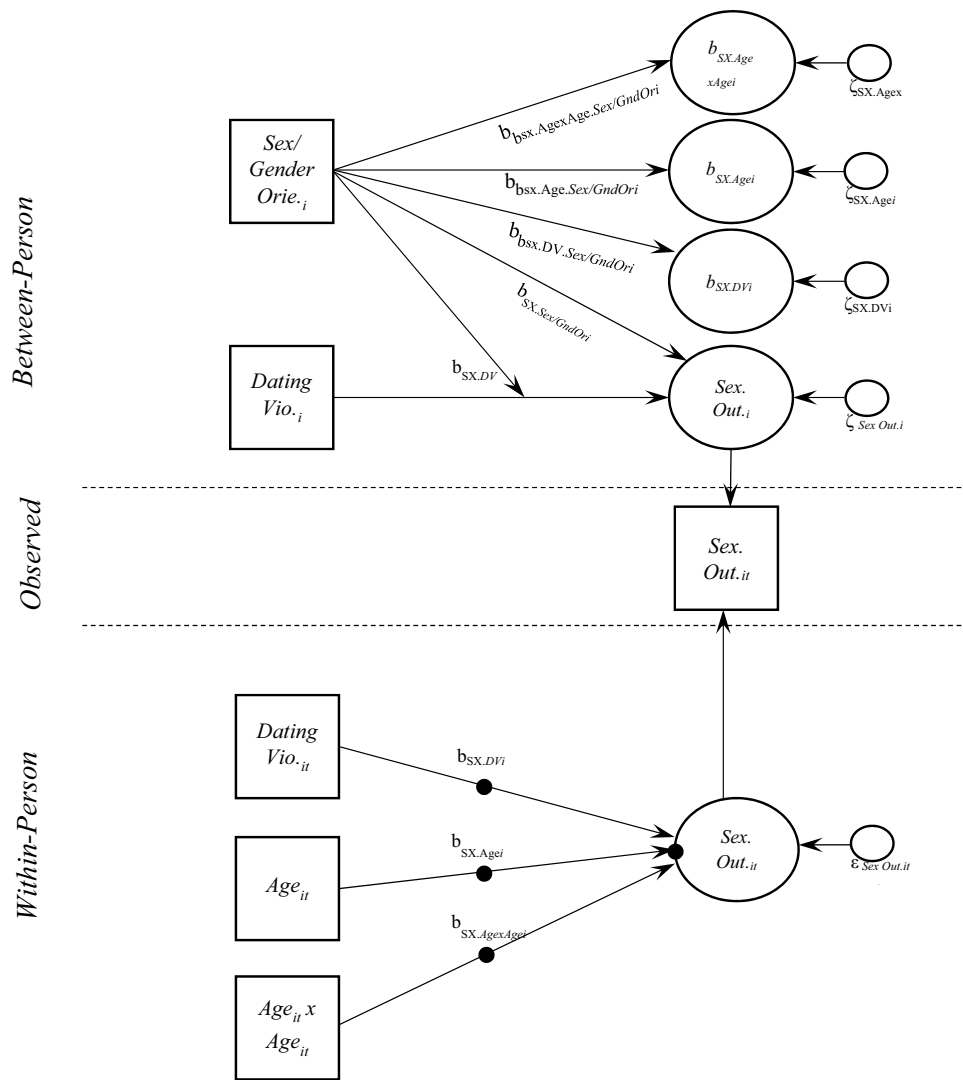


Fig. 1 Diagram of the multilevel growth model analyzed. Note, not all parameters are diagramed. The covariances among random intercept and random slopes are excluded. Squares represent observed variables, ovals represent latent variables, black-filled circles represent random slopes. “Sex. Out.”=Sexual outcome variables; “Dating Vio.”=Dating violence variables; “Sex/Gender Ori.”=Sexual/Gender identity; “ b_{SX, DV_i} ”=Within-person random slope of sexual outcome variable on dating violence variable; “ b_{SX, Age_i} ”=Within-person random slope of sexual outcome variable on (linear) age; “ b_{SX, Age_i^2} ”=Within-person random slope of sexual outcome variable on (quadratic) age squared; “_i”=subscript indicating participant; “_{it}”=subscript indicating timepoint; “ $\epsilon_{Sex, Out_{it}}$ ”=residual error at the within-person level; “ ζ_{Sex, Out_i} ”=residual variance of

the random intercept, Sex.Out_i; “ ζ_{SX, DV_i} ”=residual variance of the random slope, b_{SX, DV_i} ; “ ζ_{SX, Age_i} ”=residual variance of the random linear age slope, b_{SX, Age_i} ; “ ζ_{SX, Age_i^2} ”=residual variance of the random quadratic age slope, b_{SX, Age_i^2} . “ $b_{SX, DV}$ ”=between-person slope of sexual outcome variable on dating violence variable; “ $b_{SX, Sex/GndOri}$ ”=between-person slope of sexual outcome variable on dating violence variable; “ $b_{bsx, DV, Sex/GndOri}$ ”= between-person slope of b_{SX, DV_i} on sexual identity or gender identity variable; “ $b_{bsx, Age, Sex/GndOri}$ ”= between-person slope of b_{SX, Age_i} on sexual identity or gender identity variable; “ $b_{bsx, Age, Sex/GndOri}$ ”= between-person regression slope of b_{SX, Age_i^2} on sexual identity or gender identity variable

All analyses were performed in Mplus (Version 8.8; Muthén and Muthén, 1998–2017) using MLR.

Results

Descriptive Results

Overall, more than 40% of participants who reported dating in the past 12 months experienced at least one form of DV (psychological, sexual or physical violence) at each wave.

Descriptive statistics are presented in Tables 1 and 2. Correlational analyses indicated that all variables of interest were associated within the expected direction (see Table 3).

Across all waves, gender varying adolescents and boys reported more physical DV than girls, respectively (see Table 4). Gender varying adolescents and girls reported more sexual DV than boys, respectively. Girls reported more psychological DV than boys. Regarding sexual satisfaction, no differences were found across gender. Gender varying adolescents reported more sexual distress than boys.

When comparing participants by sexual minority status, across all waves, adolescents with a nonvarying sexual minority status reported more physical DV than nonvarying heterosexual adolescents and those that varied in sexual minority status (see Table 5). Nonvarying heterosexual adolescents reported less sexual DV than the two other groups. They also reported the smallest amount of psychological DV, followed by adolescents that varied in sexual minority status, with those with a nonvarying minority sexual minority status reporting the highest levels. For both sexual satisfaction and sexual distress, heterosexual adolescents reported more sexual satisfaction and less sexual distress than the other two groups.

Sexual Satisfaction

Change in Sexual Satisfaction Over Time

The results from the best-fitting unconditional multilevel growth model indicated a linear effect, suggesting increased sexual satisfaction over time (i.e., an intercept of sexual satisfaction at age 15 of 29.31 and a linear effect of age of 0.36 units per year over three years; see left section of Table 6; see Table S1 in the online supplementary materials presenting all the effects). The intraclass correlations were 0.22, indicating that 22% of the variance in sexual satisfaction's scores was explained by individual differences (i.e., between-person level) while the remaining 78.0% was explained by changes within a participant across waves (individual-person level) and error.

Associations Between Psychological Dating Violence and Sexual Satisfaction

At both the within-person and between-person levels, psychological violence was negatively related to sexual satisfaction (see left side of Table 7). These findings indicate that sexual satisfaction decreased when participants reported higher psychological DV than usual (i.e., within-person level). In addition, relative to participants who reported lower overall psychological DV, those who reported higher DV also reported lower sexual satisfaction (i.e., between-person level).

Gender Identity as a Moderator Gender identity moderated only the between-person association. As there were no differences between girl and gender varying adolescent estimates, $p = 0.376$, the estimates were pooled. Relative to boys, girls and gender varying adolescents reported a stronger association between psychological DV and sexual satisfaction, $b = -3.23$, $SE = 1.10$, $p = 0.003$, such that for girls and gender varying adolescents, greater psychological DV was related to decreased sexual satisfaction, $b = -2.95$, $SE = 0.58$, $p < 0.001$ —an association that was not significant for boys, $b = 0.28$, $SE = 0.94$, $p = 0.763$.

Sexual Minority Status as a Moderator Sexual minority status did not moderate either the within-person or the between-person associations between psychological DV and sexual satisfaction.

Associations Between Physical Dating Violence and Sexual Satisfaction

Physical DV was unrelated to sexual satisfaction at either level (see left side of Table 8).

Gender Identity as a Moderator Only the between-person association between physical DV and sexual satisfaction was moderated by gender identity. Girl and gender varying adolescent estimates were pooled as no difference was found between them, $p = 0.745$. Relative to boys, girls and gender varying adolescents reported a stronger negative association between physical DV and sexual satisfaction, $b = -4.50$, $SE = 0.92$, $p < 0.001$. More specifically, for girls and gender varying adolescents, greater physical DV was related to decreased sexual satisfaction, $b = -3.11$, $SE = 0.72$, $p < 0.001$; the reverse was observed for boys: greater physical DV was associated with increased sexual satisfaction, $b = 1.38$, $SE = 0.57$, $p = 0.015$.

Sexual Minority Status as a Moderator Sexual minority status moderated only the within-person association. Adolescents that varied in sexual minority status and nonvarying heterosexual adolescents were pooled as no difference was found between them, $p = 0.592$. Relative to nonvarying heterosexual adolescents or those with a varying sexual minority status, adolescents with a nonvarying sexual minority status had a stronger within-person association between physical DV and sexual satisfaction, $b = 4.47$, $SE = 0.83$, $p < 0.001$. Specifically, for adolescents with a nonvarying sexual minority status, sexual satisfaction decreased when participants reported higher physical DV than usual, $b = -4.19$, $SE = 1.17$, $p < 0.001$; this association was not significant among nonvarying heterosexual adolescents and those with a varying sexual minority status, $b = 0.28$, $SE = 0.58$, $p = 0.624$.

Table 1 Descriptive statistics according to gender identity

| Wave | Variables | Boys | | | | | Girls | | | | | Varying | | | | |
|------|------------------------|----------|----------|-------|------|-------|----------|----------|-------|------|-------|----------|----------|-------|------|-------|
| | | <i>n</i> | <i>M</i> | % | SD | Range | <i>n</i> | <i>M</i> | % | SD | Range | <i>n</i> | <i>M</i> | % | SD | Range |
| 1 | Sexual distress | 418 | 1.26 | | 1.72 | 0–10 | 441 | 1.87 | | 2.10 | 0–10 | 24 | 2.21 | | 2.41 | 0–7 |
| | Sexual satisfaction | 413 | 29.45 | | 5.99 | 5–35 | 423 | 28.95 | | 6.17 | 5–35 | 24 | 30.38 | | 4.21 | 21–35 |
| | Physical violence | 418 | .07 | 8.37 | .31 | 0–3 | 441 | .06 | 5.67 | .29 | 0–3 | 24 | .17 | 20.83 | .43 | 0–2 |
| | Psychological violence | 418 | .19 | 42.58 | .29 | 0–2 | 441 | .22 | 51.02 | .36 | 0–2.5 | 24 | .20 | 45.83 | .39 | 0–2 |
| | Sexual violence | 418 | .03 | 3.83 | .17 | 0–2 | 441 | .10 | 11.56 | .33 | 0–3 | 24 | .06 | 8.33 | .22 | 0–1 |
| 2 | Sexual distress | 241 | 1.79 | | 2.02 | 0–9 | 304 | 2.68 | | 2.41 | 0–11 | 20 | 2.80 | | 2.86 | 0–9 |
| | Sexual satisfaction | 245 | 29.69 | | 5.99 | 5–35 | 299 | 29.19 | | 6.18 | 5–35 | 19 | 28.05 | | 6.83 | 14–35 |
| | Physical violence | 245 | .07 | 7.35 | .26 | 0–1.5 | 305 | .04 | 4.59 | .25 | 0–3 | 20 | .10 | 10.00 | .34 | 0–1.5 |
| | Psychological violence | 245 | .19 | 49.80 | .29 | 0–2 | 305 | .21 | 44.92 | .38 | 0–2.5 | 20 | .26 | 55.00 | .39 | 0–1.5 |
| | Sexual violence | 245 | .03 | 2.86 | .22 | 0–3 | 305 | .11 | 13.11 | .36 | 0–3 | 20 | .30 | 25.00 | .53 | 0–1.5 |
| 3 | Sexual distress | 369 | 1.72 | | 1.98 | 0–12 | 527 | 2.40 | | 2.28 | 0–11 | 31 | 2.58 | | 2.74 | 0–11 |
| | Sexual satisfaction | 363 | 30.58 | | 5.15 | 5–35 | 525 | 29.75 | | 5.76 | 5–35 | 30 | 29.43 | | 6.64 | 12–35 |
| | Physical violence | 369 | .10 | 9.76 | .38 | 0–3 | 529 | .04 | 4.91 | .20 | 0–2 | 31 | .05 | 6.45 | .19 | 0–1 |
| | Psychological violence | 369 | .19 | 51.49 | .29 | 0–2 | 529 | .21 | 52.55 | .33 | 0–2.5 | 31 | .19 | 48.39 | .32 | 0–1.5 |
| | Sexual violence | 369 | .03 | 3.25 | .20 | 0–3 | 529 | .14 | 15.31 | .40 | 0–3 | 31 | .10 | 12.90 | .27 | 0–1 |

%—Percentage of participants who endorsed at least one DV event

Table 2 Descriptive statistics according to sexual minority status

| Wave | Variables | Heterosexual | | | | | Minority | | | | | Varying | | | | |
|------|------------------------|--------------|----------|-------|------|-------|----------|----------|-------|------|-------|----------|----------|-------|------|-------|
| | | <i>n</i> | <i>M</i> | % | SD | Range | <i>n</i> | <i>M</i> | % | SD | Range | <i>n</i> | <i>M</i> | % | SD | Range |
| 1 | Sexual distress | 684 | 1.47 | | 1.89 | 0–10 | 64 | 2.38 | | 2.13 | 0–8 | 135 | 1.84 | | 2.14 | 0–10 |
| | Sexual satisfaction | 665 | 29.49 | | 5.98 | 5–35 | 62 | 28.34 | | 6.14 | 11–35 | 132 | 28.44 | | 6.00 | 5–35 |
| | Physical violence | 684 | .06 | 6.87 | .26 | 0–3 | 64 | .19 | 15.62 | .54 | 0–3 | 135 | .07 | 5.93 | .31 | 0–2 |
| | Psychological violence | 684 | .17 | 45.61 | .29 | 0–2 | 64 | .30 | 54.69 | .48 | 0–2.5 | 135 | .24 | 49.63 | .40 | 0–2.5 |
| | Sexual violence | 684 | .05 | 6.14 | .25 | 0–3 | 64 | .13 | 17.19 | .32 | 0–1.5 | 135 | .10 | 11.85 | .29 | 0–2 |
| 2 | Sexual distress | 419 | 2.17 | | 2.21 | 0–10 | 25 | 2.92 | | 2.53 | 0–8 | 121 | 2.66 | | 2.54 | 0–11 |
| | Sexual satisfaction | 418 | 29.48 | | 6.17 | 5–35 | 24 | 28.08 | | 4.85 | 13–35 | 121 | 29.23 | | 6.18 | 5–35 |
| | Physical violence | 423 | .06 | 6.38 | .27 | 0–3 | 25 | .06 | 8.00 | .21 | 0–1 | 122 | .04 | 4.10 | .20 | 0–1.5 |
| | Psychological violence | 423 | .20 | 47.75 | .34 | 0–2.5 | 25 | .33 | 64.00 | .41 | 0–2 | 122 | .21 | 42.62 | .35 | 0–2 |
| | Sexual violence | 423 | .06 | 7.57 | .26 | 0–3 | 25 | .14 | 20.00 | .30 | 0–1 | 122 | .15 | 12.30 | .49 | 0–3 |
| 3 | Sexual distress | 711 | 1.97 | | 2.07 | 0–12 | 48 | 2.77 | | 2.46 | 0–11 | 168 | 2.68 | | 2.55 | 0–11 |
| | Sexual satisfaction | 703 | 30.43 | | 5.28 | 5–35 | 46 | 28.91 | | 6.05 | 8–35 | 169 | 28.86 | | 6.36 | 5–35 |
| | Physical violence | 711 | .06 | 6.61 | .28 | 0–3 | 48 | .10 | 10.42 | .35 | 0–2 | 170 | .07 | 7.06 | .28 | 0–2 |
| | Psychological violence | 711 | .19 | 51.20 | .30 | 0–2.5 | 48 | .30 | 62.50 | .43 | 0–2 | 170 | .21 | 52.35 | .33 | 0–2 |
| | Sexual violence | 711 | .08 | 9.28 | .32 | 0–3 | 48 | .19 | 16.67 | .57 | 0–3 | 170 | .10 | 13.53 | .29 | 0–2 |

% Percentage of participants who endorsed at least one DV event

Associations Between Sexual Dating Violence and Sexual Satisfaction

Greater sexual violence predicted lower sexual satisfaction at both the within- and the between-person levels (see left side Table 9). At the within-person level, a negative relation between sexual violence and sexual satisfaction indicated

that greater sexual DV than usual was associated with lower sexual satisfaction. In addition, the results suggested that relative to participants who reported lower overall sexual DV, those who reported greater sexual DV also reported lower sexual satisfaction.

Gender Identity as a Moderator Only the between-person association between sexual DV and sexual satisfaction was

Table 3 Associations between sexual distress, sexual satisfaction, and dating violence in Wave 1, Wave 2, and Wave 3

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---------------|---------|---------|--------|---------|--------|---------|--------|--------|--------|--------|--------|--------|-------|------|----|
| 1. DistressT1 | | | | | | | | | | | | | | | |
| 2. DistressT2 | .40*** | | | | | | | | | | | | | | |
| 3. DistressT3 | .30*** | .38*** | | | | | | | | | | | | | |
| 4. SatisfT1 | -.17*** | -.18** | -.08 | | | | | | | | | | | | |
| 5. SatisfT2 | -.19*** | -.25*** | -.13* | .23** | | | | | | | | | | | |
| 6. SatisfT3 | -.14** | -.19*** | .31*** | .19** | .26*** | | | | | | | | | | |
| 7. PhyT1 | .05 | .13 | .05 | -.05 | -.17 | -.01 | | | | | | | | | |
| 8. PhyT2 | .10 | .15* | .17** | -.07 | -.01 | -.15 | .30 | | | | | | | | |
| 9. PhyT3 | .01 | .09 | .05 | .03 | .03 | -.02 | .31** | .36* | | | | | | | |
| 10. PsyT1 | .17*** | .12 | .13* | -.10** | .01 | -.01 | .46*** | .19* | .15* | | | | | | |
| 11. PsyT2 | .20*** | .18*** | .23*** | -.07 | -.08 | -.14* | .28* | .54*** | .25* | .37*** | | | | | |
| 12. PsyT3 | .09* | .07 | .18*** | .00 | .03 | -.16*** | .23*** | .20* | .41*** | .28*** | .37*** | | | | |
| 13. SexT1 | .21*** | .10* | .16*** | -.15*** | -.04 | -.22*** | .22** | .09 | .08 | .42*** | .13* | .19*** | | | |
| 14. SexT2 | .16** | .30*** | .21*** | -.14** | .19*** | -.21** | .40** | .49*** | .27* | .23* | .40*** | .16 | .27** | | |
| 15. SexT3 | .04 | .14* | .20*** | -.03 | -.03 | -.23*** | -.03 | .17 | .21*** | -.01 | .16 | .37*** | .12 | .31* | |

2389 observations from 1442 participants

* $p < .05$; ** $p < .01$; *** $p < .001$. T1 = Wave 1; T2 = Wave 2; T3 = Wave 3; Distress = Sexual Distress; Satisf = Sexual Satisfaction; Phy = Physical Violence; Psy = Psychological Violence; Sex = Sexual Violence

Table 4 Comparisons of participants according to gender identity

| Variables | Boys | Girls | Varying | Boys vs. varying $\Delta\chi^2$ | Boys vs. varying $\Delta\chi^2$ | Girls vs. varying $\Delta\chi^2$ |
|------------------------|--------------------|--------------------|--------------------|------------------------------------|------------------------------------|-------------------------------------|
| Sexual distress | 1.54 ^b | 2.28 ^a | 2.33 ^a | 53.98*** | 7.03** | .02 |
| Sexual satisfaction | 29.79 ^a | 29.28 ^a | 29.56 ^a | 3.64 | .08 | .12 |
| Physical violence | .08 ^a | .05 ^b | .10 ^a | 6.07* | .23 | 7.42** |
| Psychological violence | .17 ^a | .21 ^b | .21 ^{ab} | 8.00** | .99 | .00 |
| Sexual violence | .03 ^b | .12 ^a | .14 ^a | 45.00*** | 29.60*** | .17 |

Between 2341 and 2382 observations

The $\Delta\chi^2$ value represents the difference in fit between two nested models. Significant effects are in bold. * $p < .05$; ** $p < .01$; *** $p < .001$. Estimates marked by different superscript letters were found to be statistically different

Table 5 Comparisons of participants according to sexual minority status

| Variables | Heterosexual | Minority | Varying | Heterosexual vs. minority $\Delta\chi^2$ | Heterosexual vs. varying $\Delta\chi^2$ | Minority vs. varying $\Delta\chi^2$ |
|------------------------|--------------------|-------------------|-------------------|---|--|--|
| Sexual distress | 1.80 ^b | 2.61 ^a | 2.42 ^a | 19.11*** | 26.60*** | .61 |
| Sexual satisfaction | 29.81 ^a | 29.46 | 28.69 | 7.29** | 11.54*** | .14 |
| Physical violence | .06 ^a | .14 ^b | .06 ^a | 23.60*** | .03 | 15.45*** |
| Psychological violence | .18 ^a | .30 ^b | .22 ^c | 18.98*** | 4.40* | 5.35* |
| Sexual violence | .07 ^b | .18 ^a | .11 ^a | 26.72*** | 32.34*** | 2.60 |

Between 2338–2382 observations

The $\Delta\chi^2$ value represents the difference in fit between nested models. Significant effects are in bold. * $p < .05$; ** $p < .01$; *** $p < .001$. Estimates marked by different superscript letters were found to be statistically different

Table 6 Estimates of the associations between age and sexual outcomes

| Parameter | Sexual satisfaction | | Sexual distress | |
|--|---------------------|--------------|-----------------|------------|
| | Unstd. (SE) | 95% CI | Unstd. (SE) | 95% CI |
| $b_{SX, Age_i}: Age_{it} Sex.Out_{it}$ | .36 (.12)** | .03, .73 | .30 (.06)*** | .19, .41 |
| $b_{SX, AgexAge_i}: Age_{it} \times Age_{it}^2 Sex.Out_{it}$ | | | -.10 (.04)* | -.18, -.02 |
| Mean ($Sex.Out_{it}$) | 29.31 (.15)*** | 28.96, 29.65 | 1.92 (.06)*** | 1.79, 2.04 |
| Var ($\epsilon_{Sex.Out_{it}}$) | 26.93 (2.07)*** | 21.16, 31.32 | 3.07 (.17)*** | 2.73, 3.41 |
| Var ($\zeta_{Sex.Out_{it}}$) | 8.04 (1.44)*** | 5.64, 12.81 | 1.58 (.16)*** | 1.26, 1.91 |

2344 observations from 1420 participants for the sexual satisfaction model; 2379 observations from 1437 participants for the sexual satisfaction model

* $p < .05$; ** $p < .01$; *** $p < .001$

“Unstd” = Unstandardized; “CI” = Confidence interval; “Sex.Out.” = Sexual outcome variables; “Psy Vio.” = Psychological violence; “i” = subscript indicating participant; “t” = subscript indicating time-point; Var = Variance; “ b_{SX, Age_i} ” = Within-person random slope of sexual outcome variable on (linear) age; “ $b_{SX, AgexAge_i}$ ” = Within-person random slope of sexual outcome variable on (quadratic) age squared; “ $\epsilon_{Sex.Out_{it}}$ ” = residual error at the within-person level; “ $\zeta_{Sex.Out_{it}}$ ” = variance of the random intercept, $Sex.Out_{it}$. The variance of random linear age slope, b_{SX, Age_i} , the variance of the random quadratic age slope, and the covariance between random intercept and random linear age slope were fixed to zero

Table 7 Estimates of the associations between psychological violence, age, and sexual outcomes

| Parameter | Sexual satisfaction | | Sexual distress | |
|--|---------------------|--------------|-----------------|------------|
| | Unstd. (SE) | 95% CI | Unstd. (SE) | 95% CI |
| $b_{SX, Age_i}: Age_{it} Sex.Out_{it}$ | .39 (.12)*** | .16, .61 | .28 (.06)*** | .17, .39 |
| $b_{SX, AgexAge_i}: Age_{it} \times Age_{it}^2 Sex.Out_{it}$ | | | -.09 (.04)* | -.17, -.01 |
| $b_{SX, Psy_i}: Psy Vio_{it} Sex.Out_{it}$ | -2.20 (.59)*** | -3.35, -1.05 | .67 (.26)* | .16, 1.18 |
| $b_{SX, Psy_i}: Psy Vio_{it} Sex.Out_{it}$ | -1.94 (.53)*** | -2.97, -.90 | 1.24 (.19)*** | .87, 1.61 |
| Intercept($Sex.Out_{it}$) | 29.31 (.15)*** | 29.01, 29.56 | 1.91 (.06)*** | 1.79, 2.04 |
| Var($\epsilon_{Sex.Out_{it}}$) | 26.57 (2.07)*** | 22.53, 30.62 | 2.86 (.18)*** | 2.50, 3.23 |
| Var($\zeta_{Sex.Out_{it}}$) | 8.02 (1.43)*** | 5.21, 10.37 | 1.55 (.17)*** | 1.26, 1.91 |

2342 observations from 1419 participants for the sexual satisfaction model; 2376 observations from 1435 participants for the sexual satisfaction model

* $p < .05$; ** $p < .01$; *** $p < .001$

“Unstd” = Unstandardized; “CI” = Confidence interval. “Sex.Out.” = Sexual outcome variables; “Psy Vio.” = Psychological violence; “i” = subscript indicating participant; “t” = subscript indicating time-point; Var = Variance; “ b_{SX, Age_i} ” = Within-person random slope of sexual outcome variable on (linear) age; “ $b_{SX, AgexAge_i}$ ” = Within-person random slope of sexual outcome variable on (quadratic) age squared; “ b_{SX, Psy_i} ” = Within-person random slope of sexual outcome variable on psychological violence; “ b_{SX, Psy_i} ” = Between-person slope of sexual outcome variable on psychological violence; “ $\epsilon_{Sex.Out_{it}}$ ” = residual error at the within-person level; “ $\zeta_{Sex.Out_{it}}$ ” = residual variance of the random intercept, $Sex.Out_{it}$. The variance of random linear age slope, the variance of the random quadratic age slope, the variance of the random slope, b_{SX, Psy_i} , and the covariance between random intercept and random linear age slope were fixed to zero

moderated by gender identity. Girl and gender varying adolescent estimates were pooled as they did not significantly differ, $p = 0.676$. Relative to boys, girls and gender varying adolescents reported a stronger between-person negative association between sexual violence victimization and sexual satisfaction, $b = -5.26$, $SE = 1.21$, $p < 0.001$; for these adolescents, greater sexual DV was associated with lower sexual satisfaction, $b = -5.11$, $SE = 0.68$, $p < 0.001$; this association was not significant for boys, $b = 0.15$, $SE = 1.00$, $p = 0.884$.

Sexual Minority Status as a Moderator No moderation by sexual minority status of the within-person and between-person associations, respectively, was found.

Sexual Distress

Change in Sexual Distress Over Time

The results from the unconditional multilevel growth model suggested that the best-fitting model was a decelerating positive trajectory (i.e., an intercept at age 15 of 1.92, a linear

Table 8 Estimates of the associations between physical violence, age, and sexual outcomes

| Parameter | Sexual satisfaction | | Sexual distress | |
|--|---------------------|--------------|-----------------|------------|
| | Unstdn. (SE) | 95% CI | Unstdn. (SE) | 95% CI |
| $b_{SX, Age_i}: Age_{it} \text{ Sex.Out}_{it}$ | .36 (.12)** | .13, .59 | .30 (.06)*** | .19, .41 |
| $b_{SX, Age_i}: Age_{it} \times Age_{it} \text{ Sex.Out}_{it}$ | | | -.10 (.04)* | -.18, -.02 |
| $b_{SX, Phy_i}: Phy \text{ Vio}_{it} \text{ Sex.Out}_{it}$ | .07 (.60) | -1.10, 1.25 | .04 (.29) | -.53, .60 |
| $b_{SX, Phy_i}: Phy \text{ Vio}_i \text{ Sex.Out}_i$ | -.50 (.70) | -1.86, .87 | .61 (.19)*** | .23, .99 |
| Intercept (Sex.Out_i) | 29.31 (.15)*** | 29.01, 29.60 | 1.91 (.06)*** | 1.79, 2.04 |
| Var ($\epsilon_{\text{Sex.Out}_{it}}$) | 26.99 (2.08)*** | 22.92, 31.06 | 3.06 (.17)*** | 2.72, 3.40 |
| Var ($\zeta_{\text{Sex.Out}_i}$) | 7.97 (1.44)*** | 5.15, 10.80 | 1.56 (.16)*** | 1.23, 1.88 |

2342 observations from 1419 participants for the sexual satisfaction model; 2376 observations from 1435 participants for the sexual satisfaction model

* $p < .05$; ** $p < .01$; *** $p < .001$

“Unstdn”=Unstandardized; “CI”=Confidence interval; “Sex. Out.”=Sexual outcome variables; “Phy Vio.”=Physical violence; “i”=subscript indicating participant; “t”=subscript indicating time-point; Var=Variance; “ b_{SX, Age_i} ”=Within-person random slope of sexual outcome variable on (linear) age; “ $b_{SX, Age_i \times Age_i}$ ”=Within-person random slope of sexual outcome variable on (quadratic) age squared; “ b_{SX, Phy_i} ”=Within-person random slope of sexual outcome variable on physical violence; “ b_{SX, Phy_i} ”=Between-person slope of sexual outcome variable on physical violence; “ $\epsilon_{\text{Sex Out}_{it}}$ ”=residual error at the within-person level; “ $\zeta_{\text{Sex Out}_i}$ ”=residual variance of the random intercept, Sex.Out_i . The variance of random linear age slope, the variance of the random quadratic age slope, the variance of the random slope, b_{SX, Phy_i} , and the covariance between random intercept and random linear age slope were fixed to zero

Table 9 Estimates of the associations between sexual violence, age, and sexual outcomes

| Parameter | Sexual satisfaction | | Sexual distress | |
|--|---------------------|--------------|-----------------|------------|
| | Unstdn. (SE) | 95% CI | Unstdn. (SE) | 95% CI |
| $b_{SX, Age_i}: Age_{it} \text{ Sex.Out}_{it}$ | .37 (.12)** | .14, .60 | .29 (.06)*** | .18, .40 |
| $b_{SX, Age_i}: Age_{it} \times Age_{it} \text{ Sex.Out}_{it}$ | | | -.10 (.04)* | -.18, -.02 |
| $b_{SX, Sex_i}: Sex \text{ Vio}_{it} \text{ Sex.Out}_{it}$ | -1.90 (.61)** | -3.11, -.70 | 1.00 (.26)*** | .49, 1.50 |
| $b_{SX, Sex_i}: Sex \text{ Vio}_i \text{ Sex.Out}_i$ | -4.09 (.63)*** | -5.33, -2.86 | 1.80 (.24)*** | 1.34, 2.26 |
| Intercept (Sex.Out_i) | 29.32 (.15)*** | 29.03, 29.61 | 1.91 (.06)*** | 1.79, 2.04 |
| Var ($\epsilon_{\text{Sex.Out}_{it}}$) | 26.96 (2.06)*** | 22.93, 30.99 | 2.99 (.17)*** | 2.66, 3.33 |
| Var ($\zeta_{\text{Sex.Out}_i}$) | 6.76 (1.36)*** | 4.10, 9.42 | 1.40 (.16)*** | 1.09, 1.71 |

2342 observations from 1419 participants for the sexual satisfaction model; 2376 observations from 1435 participants for the sexual satisfaction model

* $p < .05$; ** $p < .01$; *** $p < .001$

“Unstdn”=Unstandardized; “CI”=Confidence interval; “Sex. Out.”=Sexual outcome variables; “Sex Vio.”=Sexual violence; “i”=subscript indicating participant; “t”=subscript indicating time-point; Var=Variance; “ b_{SX, Age_i} ”=Within-person random slope of sexual outcome variable on (linear) age; “ $b_{SX, Age_i \times Age_i}$ ”=Within-person random slope of sexual outcome variable on (quadratic) age squared; “ b_{SX, Sex_i} ”=Within-person random slope of sexual outcome variable on sexual violence; “ b_{SX, Sex_i} ”=Between-person slope of sexual outcome variable on sexual violence; “ $\epsilon_{\text{Sex Out}_{it}}$ ”=residual error at the within-person level; “ $\zeta_{\text{Sex Out}_i}$ ”=residual variance of the random intercept, Sex.Out_i . The variance of random linear age slope, the variance of the random quadratic age slope, the variance of the random slope, b_{SX, Sex_i} , and the covariance between random intercept and random linear age slope were fixed to zero

increase in sexual distress at age 15 of 0.30 points per year, which decelerated by 0.20 points per year over the duration of the study; see right side of Table 6). These findings suggest that sexual distress initially increased and peaked at the age of 16.5 years, followed by a decrease over time. The intraclass correlations were 0.33.

Associations Between Psychological Dating Violence and Sexual Distress

Psychological DV was positively related to sexual distress at both the within-person and between-person levels (see right side of Table 7). Sexual distress increased when participants reported greater psychological DV than usual

(i.e., within-person level). Moreover, sexual distress was higher among participants who reported greater psychological DV than participants who reported lower psychological violence. A significant $\chi^2(1) = 10.73$, $p < 0.001$ for the $-2\log$ likelihood test suggested significant variability in the within-person effect of psychological violence on sexual distress across participants.

Gender Identity as a Moderator Only the between-person association between psychological violence and sexual distress was moderated by gender identity. No difference between the two estimates of girls and gender varying adolescents was found, $p = 0.810$; and thus, they were again pooled. Relative to boys, girls and gender varying adolescents reported a stronger positive association between psychological DV and sexual distress, $b = 0.92$, $SE = 0.36$, $p = 0.009$; such that for these adolescents, greater psychological DV was related to greater sexual distress, $b = 1.52$, $SE = 0.25$, $p < 0.001$; the association was also positive but weaker among boys, $b = 0.59$, $SE = 0.26$, $p = 0.021$.

Sexual Minority Status as a Moderator Sexual minority status did not moderate the within-person and the between-person associations between psychological violence and sexual distress.

Associations Between Physical Dating Violence and Sexual Distress

Physical violence was positively related to sexual distress only at the between-person level (see right side of Table 8). Relative to participants who reported lower overall physical DV, those who reported greater DV also reported higher sexual distress.

Gender Identity as a Moderator Only the between-person association between physical DV and sexual distress was moderated by gender identity. Girl and gender varying adolescent estimates were pooled as no difference was found between them, $p = 0.539$. Girls and gender varying adolescents, relative to boys, reported a stronger positive association between physical DV and sexual satisfaction, $b = 0.73$, $SE = 0.32$, $p = 0.022$; for these adolescents, higher levels of physical violence was associated with greater sexual distress was, $b = 1.14$, $SE = 0.24$, $p < 0.001$; the association was positive but weaker among boys, $b = 0.41$, $SE = 0.21$, $p = 0.050$.

Sexual Minority Status as a Moderator No moderation of the association between physical violence and sexual distress by sexual minority status at either level was found.

Associations Between Sexual Dating Violence and Sexual Distress

Sexual violence was positively related to sexual distress at both the within- and the between-person levels (see right side of Table 9). At the within-person level, greater sexual DV than usual at a given wave was associated with higher sexual distress. Relative to participants who reported lower overall sexual violence, those who reported greater sexual DV reported higher sexual distress. A significant $\chi^2(1) = 7.57$, $p < 0.01$ for the $-2\log$ likelihood test suggested significant variability in the within-person relation of sexual violence and sexual distress across participants.

Gender Identity as a Moderator Only the between-person association between sexual DV and sexual distress was moderated by gender identity. The two estimates of girls and gender varying adolescents were pooled as no difference was found between them, $p = 0.176$. Relative to boys, girls and gender varying participants reported a stronger positive association between sexual violence victimization and sexual distress, $b = 1.38$, $SE = 0.44$, $p = 0.002$; for these adolescents, greater sexual DV was related to greater sexual distress, $b = 1.92$, $SE = 0.24$, $p < 0.001$; while the association was not significant among boys, $b = 0.53$, $SE = 0.38$, $p = 0.157$.

Sexual Minority Status as a Moderator Sexual minority status did not moderate the within-person and the between-person associations between sexual DV and sexual distress.

Discussion

Very little research has identified the developmental antecedents of adolescents' sexual well-being. This study aimed to examine the longitudinal associations between three forms of DV victimization and two sexual outcomes—sexual satisfaction and sexual distress, as well as gender and sexual orientation differences therein. Overall, each form of DV predicted sexual satisfaction and distress over time, with some differences at the within- and between-person levels, and according to gender identity and sexual minority status.

Dating Violence Victimization, Sexual Outcomes, and Gender Differences

Among girls and gender varying adolescents, all forms of DV were associated with lower sexual satisfaction and higher sexual distress. These results are consistent with those of previous cross-sectional studies on the link between psychological and physical DV and lower sexual satisfaction or higher sexual distress among adult women (Hellmans et al., 2015b; Parish et al., 2004; Sierra et al., 2021) and adolescent girls

(only for physical DV, Casique, 2019). The finding regarding gender varying adolescents is quite novel, yet consistent with the gender minority stress model (Hendricks & Testa, 2012). The violence experienced within the relationship may exacerbate a mobilization (fight/flight) or an immobilization (freeze/flop) response during sexual activities, which leaves little room for developing sexual pleasure, and can increase sexual distress. It may also be that the negative effects associated with DV, including lower mindfulness capacities (Dion et al., 2021) and self-regulatory mechanisms (Valdivia-Salas et al., 2022) may lead to lower sexual well-being. Contrary to Casique (2019) and Hellmans et al. (2015b), we found that sexual DV was associated with lower sexual satisfaction and higher sexual distress among girls and gender varying adolescents, which may be due to the longitudinal framework used in our study, compared to their cross-sectional designs, as well as to our measures, which included several items that may have captured a wider range of sexual DV experiences and sexual satisfaction affective responses. Following sexual DV (or physical and psychological DV experienced during sexual activities), it may be difficult for an individual to place trust in a partner who is or has caused harm (Amar & Alexy, 2005). In cases where the participant is still in a relationship with the perpetrator of sexual DV, the bond may feel unsafe and threatening, and extra precautions may be taken by the victims (Amar & Alexy, 2005). For those participants who experienced sexual DV with previous (but not current) partners, sexual DV may have a lasting impact on sexual well-being. For example, in a recent cross-sectional study conducted among adults, sexual partner violence exposure was 12.7 times higher among women with sexual dysfunction compared to women with no sexual dysfunction (Güvenç et al., 2022).

Among boys, different patterns emerged. First, the association between psychological or sexual DV and sexual satisfaction was not significant, which differs from past studies among adult men (Hellmans et al., 2015b; Parish et al., 2004; Sierra et al., 2021). Second, an unexpected result was found among boys: physical DV was associated with greater sexual satisfaction, which diverges from what previous studies among adults have shown (Hellmans et al., 2015b; Parish et al., 2004; Sierra et al., 2021). This finding partly echoes results of Casique (2019) who found an increased likelihood of experiencing sexual satisfaction among boys who reported psychological DV. Sexual interactions could provide a context whereby boys who are victims of physical DV could regain some control in the relationship, given they are socialized to exert more power in sexual interactions (Carter, 2014). Sex may also remain a space where they can connect with their partner, potentially counterbalancing their victimization. Relative to girls' victimization, boys' victimization experiences may be less likely to result in fear or injury (Hamby & Turner, 2013), and may in fact

reflect relationships characterized by affect dysregulation and mutual violence, yet with a strong sexual bond, resulting in their higher sexual satisfaction. However, our results also indicate that boys' physical and psychological (but not sexual) DV was related to their greater sexual distress (e.g., worrying about sex and being distressed about your sex life), which aligns with findings from a previous cross-sectional study (Hellmans, 2015b). These results suggest that both sexual satisfaction and distress may coexist among victimized adolescent boys, warranting more scientific attention. Nevertheless, these associations between psychological and physical DV and sexual distress were weaker among boys, compared to girls and gender varying adolescents.

Current finding revealed gender differences in the link between DV and sexual outcomes, which differed from the findings documented in previous studies with adults. These differences may also be associated with cultural factors such as the sexual double standard, where girls are discouraged from having sex, while boys receive more sex-positive encouragement and experience more sex-positive emotions (Boislard et al., 2016). Boys may be less likely to associate DV with their sexual well-being, as they are receiving more positive messaging about sexual experiences from outside of relationship contexts. While these DV and sexual outcomes were not linked across boys at the between-level, at an individual (within) level, experiencing greater rates of DV than usual was linked with less sexual satisfaction and more sexual distress, supporting the hypothesis that DV may lead to lower sexual well-being when considered in temporal context.

Girls and gender varying adolescents generally reported stronger associations between DV and sexual well-being than boys. They also reported higher rates of DV and sexual distress. These findings echo the gender gap observed in mental health outcomes in adolescents around the world, with girls reporting worse average mental health than boys (Campbell et al., 2020). Although no study has investigated the DV prevalence rate or the sexual distress among gender varying adolescents, these results nevertheless align with the literature on SGM adolescents, and particularly gender minority adolescents (Martin-Storey et al., 2021; Norris & Orchowski, 2020). Overall, our findings, along with those of past research (Hunter et al., 2021; Newcomb et al., 2020), point to the complex nature of gender disparities in victimization and adverse sexual outcomes. These findings are potentially anchored in incongruence between expectations and reality in supposedly more "gender equal" countries (Campbell et al., 2020). Further research is needed to understand how gender identity and gender norms may play a role in self-reported rates of DV and psychological well-being outcomes.

Dating Violence Victimization, Sexual Outcomes, and Sexual Minority Status

Our second hypothesis, that the three forms of DV and sexual well-being would be more strongly associated among sexual minority adolescents, was not supported. In fact, only one moderation by sexual minority status was found at the within-level. Adolescents with a nonvarying sexual minority status who experienced a higher than usual level of physical DV also experienced simultaneous lower sexual satisfaction, whereas no significant association was observed among other groups. In addition, adolescents with a sexual minority status (varying or nonvarying) reported experiencing higher levels of sexual and psychological DV as well as lower sexual well-being compared to heterosexual adolescents. Adolescents with a nonvarying sexual minority status also reported the highest level of physical and psychological DV. Although adolescents with a sexual minority status were more exposed to victimization, the consequences of this victimization were not greater in terms of understanding sexual well-being. The absence of significant differences in our sample may reflect that the processes that link DV and sexual well-being outcomes among sexual minority and heterosexual adolescents are similar. It may be that minority stressors contribute to greater risk for both DV and poorer sexual well-being, but that they do not shape the links between these constructs. We also had little information regarding the genders of sexual partners in the current study. The gender of sexual partner(s), more so than sexual orientation itself, may lead to variation in outcomes among sexual minority adolescents. Partner gender may impact a variety of factors relevant to DV and sexual well-being in terms of the visibility of a sexual minority identity, the impact of gender roles on the relationship and the likelihood of identity-based dating violence within a relationship. For example, the results of Petit et al. (2021) found that adolescents with multigender sexual attraction or sexual partners as well as those in same-gender relationships were at higher risk of DV compared to those with different-gender relationships. More research is thus needed to understand sexual minorities in heterosexual compared to same-sex/gender relationships. Further studies should include minority stress measures (e.g., discrimination, internalized homo- and bi-negativity) in DV research (Martin-Storey & Fromme, 2021), which may mediate and/or moderate the relationships between DV and sexual outcomes.

Limitations, Strengths, and Future Studies

Findings of this study should be interpreted in light of its limitations. First, although we had three time points for each variable used in this study, these data are correlational, limiting causal interpretations. Furthermore, we had a moderate attrition over time, which is typical in longitudinal studies,

but may limit the generalization of the results. In addition, some of the CADRI-S subscales had a lower internal consistency (i.e., alphas between 0.6 and 0.7; George & Mallery, 2003). These lower coefficients—possibly due to the heterogeneity of the forms of DV to which adolescents have been exposed and to the diversity of patterns of DV co-occurrence across individuals—could have underestimated the longitudinal associations between DV and sexual well-being. The overall proportion of individuals with sexual minority/gender minority identities was limited in this sample, and findings should be replicated within a larger sample, where variation between different sexual minority identities (rather than just stability of sexual minority identity) could be examined. Our study did not assess DV perpetration, but only DV victimization. As both tend to co-occur among adolescents (Coker et al., 2014), including among sexual minority adolescents (Blais et al., 2022), we may wonder if mutual violence could be at play in some of the associations found between DV and sexual well-being. Beyond these limitations, important strengths of this research are the use of a large sample and the longitudinal design, combined with robust statistical techniques. Specifically, this design allowed us to include adolescents who became sexually active at later ages (i.e., at wave 2 or 3), and not only those who were active at 14 years. To move the field a step further, future studies should also examine how to prevent DV and promote sexual well-being, in particular following a violent relationship.

Conclusion

The present study expanded the existing literature concerning the negative effects of DV on the well-being of adolescents, by increasing knowledge on its association with sexual well-being among heterosexual, cisgender and SGM adolescents. Overall, all forms of DV (apart from physical DV among boys) may lead, to different extents, to the development of sexual dissatisfaction and sexual distress across genders. Our results also provide a refined understanding of how those associations vary according to gender identity and sexual orientation, with girls and gender varying adolescents presenting worse outcomes. Moreover, given the high prevalence of DV victimization, which may damage adolescents' early romantic and sexual relationships, it is essential to intervene among perpetrators to prevent the occurrence of DV. Policy-making should focus on promoting healthy self-regulatory capacities and healthy dating and sexual relationships during adolescence—a critical period of life involving more modifiable factors that ultimately shape future adult outcomes. In the context of the United Nations calling upon governments to ensure all adolescents are provided with quality and inclusive comprehensive sex education, and that receiving this education is a human right (United Nations General Assembly, 2018), school-based sex education could promote sexual

well-being and positive dating relationships as well as raise awareness about DV.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10508-023-02625-3>.

Acknowledgements The authors would like to thank Mylène Desrosiers and Camélia Dubois for their assistance with data collection.

Author Contributions Conceptualization was contributed by Jacinthe Dion, Martine Hébert, Gentiana Sadikaj, Alice Girouard, Natacha Godbout, Alexa Martin-Storey, Martin Blais, and Sophie Bergeron. Methodology was contributed by Jacinthe Dion and Sophie Bergeron. Formal analysis was contributed by Gentiana Sadikaj. Investigation was contributed by Jacinthe Dion, Martine Hébert, Gentiana Sadikaj, Alice Girouard, Natacha Godbout, Alexa Martin-Storey, Martin Blais, and Sophie Bergeron. Writing—original draft preparation was contributed by Jacinthe Dion. Writing—review and editing was contributed by Martine Hébert, Alice Girouard, Natacha Godbout, Alexa Martin-Storey, Martin Blais, and Sophie Bergeron. Funding acquisition was contributed by Jacinthe Dion and Sophie Bergeron. Resources were contributed by Jacinthe Dion and Sophie Bergeron.

Funding This work was supported by a grant from the Canadian Institutes of Health Research awarded to Sophie Bergeron and Jacinthe Dion.

Availability of Data and Materials The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Code Availability Not applicable.

Declarations

Conflict of interest The authors have no competing interests to declare that are relevant to the content of this article.

Informed Consent Informed consent was obtained from all individual participants included in the study. In Quebec (Canada), adolescents can provide their own informed consent from age 14. Not relying on parental consent can ensure the safety of students involved in the study and can prevent sampling biases that may distort the results.

Research Involving Human Participants and/or Animals Research involved human participants. Approval was obtained from the ethics committee of University du Québec à Chicoutimi and the Université de Montréal. The study was carried out under the Declaration of Helsinki.

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