



Adolescents' Perception of Their Sexual Self, Relational Capacities, Attitudes Towards Sexual Pleasure and Sexual Practices: a Descriptive Analysis

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Received: 16 September 2021 / Accepted: 12 November 2021 / Published online: 2 December 2021
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Abstract

Positive psychosexual development in adolescence is crucial to sexual health. Evidence suggests that adolescent's psychosexual development is influenced by the sexual self-concept, relational skills, attitudes toward sexual pleasure, and sexual practices. To date, however, understanding of normative dispositions and experiences that positively shape adolescents' psychosexual development remains limited. The goal of the study was to provide a descriptive analysis of adolescents' perceptions of their sexual self, relational skills, and attitudes towards sexual pleasure as well as their sexual practices while considering age and gender differences. A Canadian sample of 1584 adolescents (49.7% girls, 49.4% boys and 0.9% gender diverse) aged 14 to 18 years old ($M = 15.53$, $SD = 0.93$) completed a self-reported questionnaire evaluating various aspects of sexuality and sexual practices. Results indicated that most youth are sexually active through autoerotic or partnered sexual practices, and that positive perceptions towards the sexual self, relational capacities and pleasure increase with age. Moreover, compared to girls, boys presented a more positive sexual self-concept, less positive perceptions of their relational skills and they were more likely to report autoerotic sexual practices. Cluster analysis supported classifying adolescents into the following profiles: *positive*, *mildly positive*, *mildly negative* and *negative perception of the sexual self and sexuality*. These profiles varied according to sexual practices, gender and age. This study provides further insight into general patterns and heterogeneity of adolescents' sexuality that are relevant for adapting sexuality education and sexual health intervention.

Introduction

Adolescence is a period of critical importance for psychosexual development as increased curiosity, exploration and involvement in the relational and sexual spheres contribute to shaping a persons' sexual sense of self (Tolman & McClelland, 2011). During this period, the representations of self, relationships and sexuality that form through the interpretation of sexual and relational experiences provide an important foundation for sexuality development into adulthood. While positive sexuality development in adolescence is critical for sexual health—that is, a state of physical, emotional, mental and social well-being in relation

to sexuality (WHO, 2006)—current understanding of adolescents' sexual dispositions that fall under normative development is surprisingly limited. However, studies that have examined the contribution of various psychological and relational factors to sexual health have consistently highlighted the role of the sexual self-concept (Hensel & Fortenberry, 2013), the capacity to negotiate relational dynamics (van de Bongardt & de Graaf, 2020) and attitudes toward sexual pleasure (Horne & Zimmer-Gembeck, 2005). Despite these efforts, knowledge is lacking about the nature and variability of their expression among adolescents. Thus far, research has shown that these psychosocial dimensions of sexuality develop through sexual exploration and practices, which may shape or reinforce adolescents' perceptions and feelings towards themselves and their sexuality (Hensel et al., 2011). Yet, the type and variety of sexual practices adolescents engage in, either by themselves or with partners, remain understudied as research has mostly focused on vaginal intercourse and sexual behaviors that are considered problematic or risky (Best & Fortenberry, 2013).

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A more integrated understanding of adolescents’ psychosocial dispositions towards sexuality and sexual experiences is necessary for the promotion of positive sexual development and health. As part of this effort, the present study provided a descriptive analysis of adolescents’ sexual self-concept, perceived capacity to negotiate relational dynamics, attitudes towards sexual pleasure, and sexual practices.

Conceptual Framework

A conceptual framework that is consistent with theoretical models of adolescent sexuality development that integrate psychosocial components and consider the heterogeneity of youth’ sexual dispositions and experiences was developed for the present study. The conceptual framework, presented in Fig. 1, includes three interrelated psychosocial components that have been shown to positively influence sexual health in adolescence. The first component, the sexual self-concept, is defined as the perceptions and feelings a person holds toward their own sexual qualities and behaviors (Andersen & Cyranowski, 1994). It integrates three dimensions that often recur among theoretical models and have received strong empirical support among youth: sexual esteem, sexual body-esteem and sexual anxiety (Deutsch et al., 2014; O’Sullivan et al., 2006). The sexual self-concept is considered in association with adolescents’ perception of their capacity to negotiate relational dynamics, the second component of the conceptual framework, which encompasses sexual communication with a partner and the capacity to voice one’s own thoughts and feelings in intimate relationships. Related to the other two components is sexual pleasure, in particular the perceived feelings of entitlement and efficacy in experiencing sexual pleasure. Also integrated are the interaction between psychosocial variables and autoerotic and partnered sexual practices, as well as age and gender and their influence on psychosocial variables.

The Sexual Self-Concept

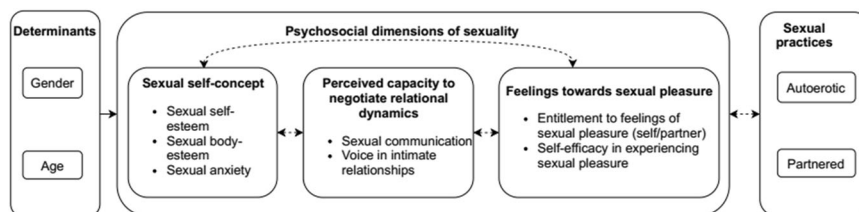
Two dimensions of the sexual self-concept have been shown to influence adolescents’ positive and negative evaluations of their sexual thoughts, feelings and behaviors, sexual esteem and sexual anxiety (Deutsch et al., 2014). Sexual esteem consists in the evaluation a person makes of

themselves as a sexual being and their capacity to express their sexuality and relate sexually to partners. It has been described as including body esteem, the perceptions a person holds towards their sexual attractiveness. Adolescents with higher sexual and body esteem hold more positive feelings toward sexual pleasure and experiences (Horne & Zimmer-Gembeck, 2005) and report more sexual satisfaction (Mastro & Zimmer-Gembeck, 2015), safer sex practices and a greater sense of competence in negotiating intimate relationships (Auslander et al., 2012; Oattes & Offman, 2007). Adolescents’ growing involvement in autoerotic and partnered sexual practices tends to be associated with increasing sexual esteem and decreasing sexual anxiety—that is, the tendency to feel discomfort or anxiety about one’s sexuality (Snell, 2001). Sexual anxiety is associated with more attitudes supportive of sexual abstinence, fewer sexual encounters (O’Sullivan et al., 2006) and less sexual satisfaction in adolescence (Hensel et al., 2011), as well as sexual dissatisfaction and dysfunctions in adulthood (Brassard et al., 2015; Dang et al., 2018). While sexual esteem and anxiety are considered instrumental in positive development and sexual health, it remains difficult to establish normative tendencies and variations based on available data.

Perceived Capacity to Negotiate Relational Dynamics

Sexual communication increases sexual satisfaction by fostering intimacy and the sharing of partners’ sexual likes and dislikes, which can favor the experience of sexual pleasure (MacNeil & Byers, 2009). Studies show that between 30 to 50% of adolescents feel confident in addressing sexuality topics with their partners (Guzmán et al., 2003; Widman et al., 2006) and that those who engage in these open discussions report more sexual satisfaction (Théorêt et al., 2017) and safer sex practices (Noar et al., 2006). In addition, the rare studies examining youth relational skills in the context of sexuality show that those who have more voice in their intimate relationships present a stronger sexual self-concept (van de Bongardt & de Graaf, 2020), more positive feelings towards sexual pleasure (Horne & Zimmer-Gembeck, 2005) and greater perceived ability to use protection (Buzwell & Rosenthal, 1996). For their part, youth who employ ineffective relational

Fig. 1 Conceptual framework for research on normative adolescent sexuality.



strategies, such as self-silencing, display poorer global communication patterns (Shulman et al., 2018). While adolescents' sexual communication skills appear to vary, their sense of self-efficacy regarding sexual communication and their capacity to have a voice in intimate relationships must be investigated.

Attitudes Towards Sexual Pleasure

During adolescence, youth evaluate whether and how sexual pleasure should fit into their lives. Adolescents and adults who derive a sense of entitlement and efficacy toward sexual pleasure present a more positive sexual self-concept, manifested by greater sexual and body esteem and fewer negative feelings toward sexuality (O'Sullivan et al., 2006; Zimmer-Gembeck & French, 2016). Individuals who hold these attitudes are also more likely to have positive emotional responses to sexual experiences (Mastro & Zimmer-Gembeck, 2015) and tend to favorably assess their sexual communication skills (Kohlberger et al., 2019) as well as their capacity to express themselves within intimate relationships (Horne & Zimmer-Gembeck, 2005). In addition, youth who have positive attitudes toward sexual pleasure and are well acquainted with their sexual desires are less likely to engage in undesired sexual activity or risky sexual behaviors (Impett et al., 2006; Kettrey, 2018). Lacking, however, is an understanding of how youth generally appraise sexual pleasure and how it fits into their larger subjective experience of sexuality. The rare studies examining adolescents' narrative pertaining to sexual pleasure suggest that some view it as a means to access physical and emotional satisfaction, while others view it negatively and feel a disconnect between their expectations relative to sexual pleasure and their ability to access it during sexual contacts (Saliars et al., 2017). However, these data were obtained primarily from girls, in qualitative studies, which does not provide a general sense of adolescents' perceived entitlement and ability to experience sexual pleasure and how these dispositions may vary.

Sexual Practices

Evidence suggests that adolescents engage in sexual practices that follow a linear trajectory from autoerotic behaviors to activities with sexual partners that progress from holding hands, hugging and kissing to more intimate touching, and genital sexual behaviors (de Graaf et al., 2009). Recent studies also show that a growing number of adolescents integrate digital technologies in their sexual life, as many report viewing pornography (Bothe et al., 2020) and exchanging sexualized text messages (sexting) (Dake et al., 2012). However, little attention has been given to the

diversity of sexual experiences in adolescence as studies to date have mostly focused on independent subsets of practices (e.g., intercourse, pornography).

Studies consistently show that the accumulation of sexual experience among female adolescents is associated with a stronger sexual self-concept (Hensel et al., 2011), more positive attitudes towards sexual pleasure (Zimmer-Gembeck et al., 2011) and a more favorable assessment of their relational abilities (Horne & Zimmer-Gembeck, 2006). However, research has also found that some adolescents with a large sexual repertoire have a poorer sexual self-concept and relational skills deficits, while the opposite is true for some adolescents with little sexual experience (Thorsen, 2018). Thus, a better understanding of the diversity of adolescents' sexual practices and their association with psychosocial dispositions is needed.

Age, Gender and Sexuality

Comparative and longitudinal studies show that sexual esteem, relational skills and favorable attitudes towards sexual pleasure increase and sexual anxiety decreases with age and sexual experience (Hensel et al., 2011). However, a study with older adolescent girls (16–25) indicates that sexual body esteem remains relatively stable through time (Zimmer-Gembeck et al., 2011). Although these trends are of great interest, current understanding of the impact of age on adolescents' sexual and psychosocial dispositions remains limited. While the literature suggests that autoerotic and partnered sexual practices increase incrementally with each additional year (Herbenick et al., 2010), lacking is a general overview of age-related trends for a combination of autoerotic, partnered and technology assisted behaviors.

With regards to gender, some studies have found similarities between boys and girls relative to sexual assertiveness (van de Bongardt & de Graaf, 2020), sexual body-esteem (Zimmer-Gembeck & French, 2016), and rate of participation in sexual activities with a partner (de Graaf et al. 2009). Gender differences pertaining to sexual esteem and anxiety have been identified in the literature, but findings are mixed. More consistent differences have been identified relative to adolescents' perceptions of their relational skills, attitudes towards sexual pleasure and sexual practices. Compared to girls, boys display greater feelings of self-efficacy and entitlement to self-pleasure (Zimmer-Gembeck & French, 2016) and are more likely to engage in autoerotic practices (Robbins et al., 2011). By contrast, girls view their relational skills more favorably (van de Bongardt & de Graaf, 2020; Widman et al., 2014) and report a higher sense of entitlement to sexual pleasure with partners (Zimmer-Gembeck & French, 2016). These results

emphasize the need to examine between and within age and gender group variability concurrently in order to move toward a more complete understanding of adolescents' experience of sexuality.

Current Study

The first objective of the study was to provide a global portrait of adolescents' sexual esteem and anxiety, perceived capacity to negotiate relational dynamics, attitudes towards sexual pleasure and sexual practices, and to determine whether they vary according to age and gender. It was hypothesized that older adolescents would exhibit more positive psychosocial dispositions and higher prevalence rates for autoerotic and partnered sexual practices. Moreover, it was expected that boys would report more autoerotic sexual practices and positive attitudes towards sexual pleasure and that girls would display more positive perceptions of their relational skills. The second objective was to verify the existence of distinct profiles based on adolescents' perceptions of their sexual self and sexuality and to compare these profiles in terms of sexual practices, age and gender. It was expected that distinct profiles characterized by adolescents' positive or negative perceptions of their sexual self, relational competences and sexual pleasure would be identified and that these would be characterized by differences in sexual practices prevalence rates, age, and gender.

Method

Participants

Participants were 1757 adolescents aged 14 to 18 years old ($M = 15.53$, $SD = 0.93$) recruited from nine high schools in the province of Quebec, Canada. Two of the schools were in the lowest socioeconomic rank according to the Quebec Ministry of Education and Higher Education; three were ranked in the middle; and four were in the province's highest ranking. A total of 173 participants were excluded as they: (a) reported being younger than 14 years old ($n = 3$); (b) did not complete the sociodemographic questionnaire as a minimum requirement ($n = 144$); or (c) provided inconsistent response patterns ($n = 26$). The final analytic sample consisted of 1584 participants (49.7% girls, 49.4% boys and 0.9% gender diverse), of which 10.9% were 14 years old, 71.5% were 15 to 16 years old, and 17.6% were 17 to 18 years old. According to participants' self-reported ethnicity, the sample consisted of individuals who were White (80.4%), Black (4.7%), Latin American (1.8%), Native (4.8%),

Middle Eastern (2.4%), South Asian (0.3%), East Asian (0.8%), Mixed (0.6) or Other (3.0%).

Procedure

The study was presented to adolescents in 7th to 9th grade, in 71 classes from nine high schools in Quebec City. Recruitment occurred both in classrooms and online, as the COVID-19 pandemic forced school closures and the adaptation of teaching to online platforms. In both cases, a class period was allotted to complete the study. The study objectives, procedure and ethical considerations were explained to students followed by a question period. Participants who agreed to take part in the study logged onto a secure website (Qualtrics Research Suite), which contained a description of the study, a consent form, and the self-report questionnaires that required approximately 45 min to complete. A letter informing parents about the study had previously been sent but parental consent was not necessary as the provincial law stipulates that adolescents who are 14 years or older can make an informed decision to participate in research projects. Ethical approval was obtained from the Ethics Committee for Research with Human Subjects of the Université Laval.

Measures

Sociodemographic questionnaire

A brief self-report questionnaire was designed to assess participants' sociodemographic characteristics. Participants were asked to specify their gender identity and sex assigned at birth. In cases when gender identity differed from their sex assigned at birth, or when participants indicated that they were trans, non-binary or questioning their gender identity, they were included in a third gender category termed *gender-diverse*.

Sexual self-concept

The sexual-esteem and sexual-anxiety subscales of the Multidimensional Sexual Self-Concept Questionnaire (MSSCQ; Snell, 2001) were used in the present study. Each subscale is comprised of five items (e.g., "I feel good about the way I express my sexual needs and desires"; "I feel anxious when I think about the sexual aspects of my life"), which are rated on a five-point Likert-type scale (1 = *not at all characteristic of me* to 5 = *very characteristic of me*). The mean scores were computed for each subscale with higher scores indicating higher levels of sexual esteem or anxiety. Reliability coefficients of the two scales with the study sample were excellent (sexual esteem $\alpha = 0.91$; sexual anxiety $\alpha = 0.85$). In addition, sexual body-esteem was

assessed using the five-item scale of the *Male Sexual Subjectivity Inventory* (Zimmer-Gembeck, 2019). Notwithstanding its title, the instrument includes gender neutral items and its use has been recommended with adolescents and young adults of all genders (Zimmer-Gembeck, 2019; Zimmer-Gembeck & French, 2016). The subscale comprised five items (e.g., “I am confident that a romantic partner would find me sexually attractive”), which are rated on a five-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*). The mean scores were computed with higher scores indicating more positive sexual body-esteem. Cronbach’s alpha was moderate in the study sample ($\alpha = 0.68$).

Capacity to negotiate relational dynamics

A seven-item scale was developed for the present study, to assess participants’ level of ease with sexual communication. Items pertain to the perceived capacity to express one’s own sexual desires and limits and to listen to a partner express their own, as well as to negotiate safe sex practices (e.g., “I would be able to talk to a partner about my feelings and concerns related to sexuality”). Participants rated their perceived level of comfort on a five-point Likert-type scale ranging from 0 (absent) to 4 (very high). A mean score was computed with higher scores indicating greater ease with sexual communication. This subscale showed good internal consistency ($\alpha = 0.84$).

The Silencing the Self Scale (Jack & Dill, 1992) was used to assess the tendency to inhibit one’s own needs and self-expression in an attempt to avoid conflict with sexual or romantic partners (e.g., “I don’t speak my feelings in an intimate relationship when I know they will cause disagreement”). Respondents must indicate their level of agreement with each of the nine items of the scale, on a seven-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). Items were reverse coded to ensure that higher average scores indicate more voice within intimate relationships (Horne & Zimmer-Gembeck, 2006) and the scale had good internal validity within the sample ($\alpha = 0.78$). Participants who reported current or prior engagement in a romantic or sexual relationship were asked to use that relationship as a reference and others were asked to imagine how they would react in the situations described.

Attitudes towards sexual pleasure

Three subscales of the *Male Sexual Subjectivity Inventory* (Horne & Zimmer-Gembeck, 2005; Zimmer-Gembeck, 2019) were used to assess attitudes and feelings towards sexual pleasure: entitlement to self-pleasure (e.g., “It is okay for me to meet my own sexual needs through self-masturbation”),

entitlement to pleasure with a partner (e.g., “I think it is important for a sexual partner to consider my sexual pleasure”) and self-efficacy in experiencing pleasure (e.g., “I am able to ask a partner to provide the sexual stimulation I need”). Each subscale comprises four items rated on a five-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). For each subscale, higher mean scores indicate a greater sense of either entitlement or efficacy towards the experience of pleasure. Reliability coefficients ranged from 0.78 to 0.87 within the sample.

Variety of sexual practices

Based on the available literature on adolescent sexual behaviors, a questionnaire was elaborated to evaluate a range of sexual practices. Participants were asked to indicate whether or not (yes = 1, no = 0) they had engaged in six autoerotic (e.g., sexual fantasizing, masturbation, viewing pornographic material) and twenty-one partnered sexual practices (e.g., holding hands, kissing, sexting, masturbating a partner, engaging in oral, vaginal or anal sex).

Statistical Analyses

Using SPSS (version 27), demographics and descriptive statistics were computed. One-way analyses of variance (ANOVA) were then used to compare mean scores pertaining to psychosocial dimensions of sexuality across age and gender. Comparisons based on gender could not include the gender-diverse group as it contained too few participants ($n = 15$) for analyses. Chi-square analyses were subsequently conducted to compare prevalence rates across age and gender for all sexual practices. In order to verify the existence of distinct and homogeneous profiles of psychosocial dimensions of sexuality, a hierarchical cluster analysis using Ward’s method of squared Euclidean was conducted on the standardized Z scores for all variables using the statistical Analysis Systems Software (SAS Institute, Cary, NC, USA). Ward’s method was selected as it does not impose a cluster cutoff that restricts the analysis. Youth with missing values on at least one psychosocial dimension of sexuality were excluded from hierarchical analyses, leaving 1480 participants.

Results

Table 1 presents the means, standard deviations and inter-correlations for the eight psychosocial dimensions of sexuality included in the study. All variables pertaining to perceptions of the sexual self, relational capacities and attitudes towards sexual pleasure were significantly

Table 1 Descriptive statistics and correlations for psychosocial variables.

	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Sexual esteem	1564	2.89	1.03	–							
2. Sexual body-esteem	1573	2.99	0.86	0.19**	–						
3. Sexual anxiety	1574	2.25	0.94	–0.11**	–0.45**	–					
4. Entitlement pleasure (self)	1571	3.70	0.87	0.37**	–0.03	0.04	–				
5. Entitlement pleasure (partner)	1573	3.45	0.88	0.22**	–0.18**	0.12**	0.32**	–			
6. Sexual self-efficacy (pleasure)	1573	3.48	0.79	0.38**	0.22**	–0.19**	0.35**	0.42**	–		
7. Sexual communication	1556	2.85	0.74	0.38**	0.09**	–0.09**	0.33**	0.30**	0.50**	–	
8. Voice in intimate relationships	1495	3.14	0.70	0.11**	0.14**	–0.19**	0.06*	0.18**	0.26**	0.19**	–

p* < 0.05; *p* < 0.01.

Table 2 Gender and age comparisons across psychosocial dimensions of sexuality.

	Age category								<i>F</i>	<i>p</i>	η^2	Gender				<i>F</i>	<i>p</i>	η^2
	14		15		16		17+					Girls		Boys				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Sexual self-esteem	2.77	1.02	2.83	1.02	2.89	1.04	3.05	1.03	3.66	*	0.01	2.89	1.07	2.88	1.00	0.2	0	
Sexual body-esteem	2.88	0.86	2.91	0.84	3.00	0.87	3.18	0.84	7.11	***	0.01	2.77	0.86	3.20	0.80	56.1	***	0.07
Sexual anxiety	2.33	0.91	2.29	0.94	2.25	0.96	2.12	0.94	2.63	*	0.01	2.37	0.97	2.14	0.91	11.74	***	0.03
Entitlement pleasure (self)	3.55	0.99	3.70	0.87	3.73	0.81	3.73	0.92	1.62		0.00	3.68	0.93	3.72	0.80	0.37	0	
Entitlement pleasure (partner)	3.22	0.95	3.41	0.86	3.50	0.86	3.58	0.87	6.19	***	0.01	3.72	0.81	3.19	0.93	79.01	***	0.09
Sexual self-efficacy (pleasure)	3.25	0.82	3.45	0.77	3.52	0.77	3.58	0.80	7.55	***	0.01	3.48	0.80	3.48	0.77	3.56	*	0.01
Sexual communication	2.68	0.79	2.81	0.75	2.90	0.72	2.93	0.71	5.03	**	0.01	2.93	0.71	2.78	0.76	7.44	***	0.01
Voice in intimate relationships	3.13	0.71	3.13	0.69	3.14	0.71	3.15	0.04	0.09		0.00	3.28	0.76	2.99	0.61	33.52	***	0.04

p* < 0.05; *p* < 0.01; ****p* < 0.001.

associated with one another, except for entitlement to feelings of sexual pleasure (self), which was not significantly correlated with sexual body-esteem or sexual anxiety.

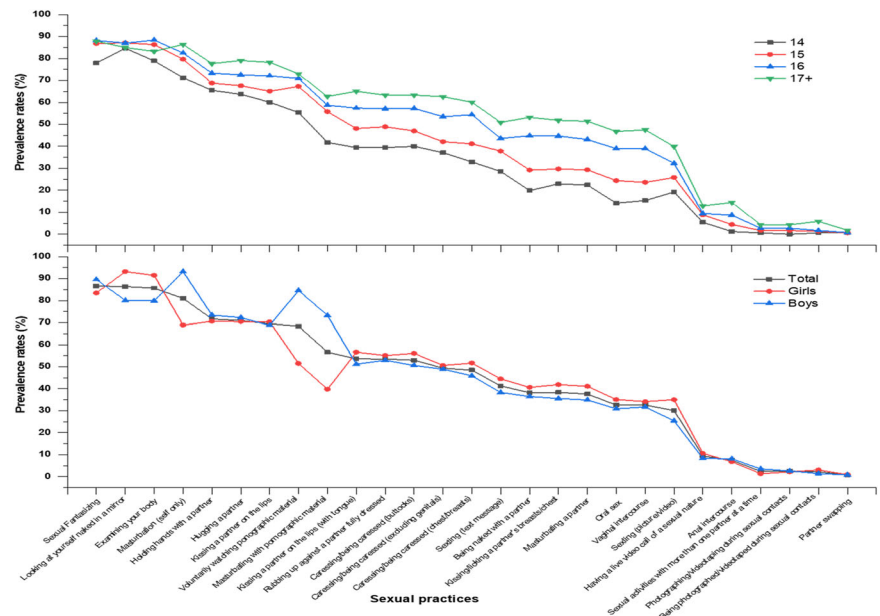
Psychosocial Dimensions and Sexual Practices Across Age and Gender

As shown in Table 2, an analysis of variance revealed significant differences across age groups for all variables except for entitlement to sexual pleasure (self) and voice in intimate relationships. As expected, increasing age was associated with an increase in sexual esteem, sexual body-esteem, entitlement to sexual pleasure (partner), self-efficacy in experiencing pleasure, and sexual communication scores, and a gradual decrease in sexual anxiety scores. While reaching statistical significance, the effect sizes were small ($\eta^2 = 0.00–0.01$). In partial support of hypothesized gender differences, boys reported higher sexual body-esteem whereas girls reported higher sexual anxiety, entitlement to sexual pleasure (partner), sexual communication and voice in intimate relationships. However, the mean

differences for these variables were small ($\eta^2 < 0.06$) except for sexual body-esteem ($\eta^2 = 0.07$), and entitlement to sexual pleasure (partner) ($\eta^2 = 0.09$) that were moderate.

Figure 2 presents the prevalence rates of various sexual practices, ranked from most to least prevalent according to age and gender. The majority of youth in the study reported engaging in some level of sexual activity. More precisely, 98.42% reported having engaged in at least one form of autoerotic practice and 74.70% had one or more physical encounters with a partner, at the time of the study. Sexual practices follow a linear progression with autoerotic practices and light partnered sexual practices preceding more intimate sexual behaviors. A third of the sample reported having engaged in oral sex or vaginal intercourse. Less than 3% of youth reported engaging in sexual practices such as photographing sexual contacts, participating in sexual activities with more than one partner at a time, or partner swapping. As expected, age was associated with a linear increase on all autoerotic and partnered sexual practices. Significant age differences were found for all sexual practices except for “looking at yourself naked in a mirror”, “having a video call of a sexual nature” and “partner

Fig. 2 Sexual practices across age and gender.



swapping”, which did not vary across age groups. Most differences between age groups were small except for “being naked with a partner” ($\phi_c = 0.23$), “oral sex” ($\phi_c = 0.22$) and “vaginal intercourse” ($\phi_c = 0.23$). In line with study hypotheses, significant gender differences with moderate effects were found for boys who reported more masturbation (self), $\chi^2(1, N = 1552) = 149.51, p < 0.001, \phi = -0.31$, pornography viewing, $\chi^2(1, N = 1426) = 180.47, p < 0.001, \phi = -0.36$, and pornography viewing accompanied with masturbation, $\chi^2(1, N = 1551) = 176.31, p < 0.001, \phi = -0.34$, than girls.

Profiles of Psychosocial Dimensions of Sexuality

For the hierarchical profile analyses, solutions were investigated for one to 1478 clusters. The assessment of the pseudo t2 statistic showed that the first local peak (i.e. value that is markedly larger than the previous and subsequent values) was associated with a four-cluster solution (three-cluster solution = 141, four-cluster solution = 148, five-cluster solution = 111, etc.). The pseudo F statistic suggested that solutions with fewer clusters represented better solutions as large values indicate more suitable solutions and these values decrease with each additional cluster. While these statistics suggested that the data could be clustered into two or four clusters, inspection of the dendrogram showed that a four-cluster model was more meaningful and had greater explanatory power in capturing the underlying clusters of adolescents while remaining parsimonious. Figure 3 presents the four extracted clusters and Table 3 presents mean scores for all psychosocial dimensions of sexuality used to determine the clusters. The first group, labelled *Positive*

perception of the sexual self and sexuality, included 15.7% of the sample and was characterized by the highest mean scores for sexual esteem, sexual body-esteem, positive attitudes and feelings towards sexual pleasure and positive perceptions of their communication skills and voice in intimate relationships, and the lowest scores for sexual anxiety. The second cluster, named *Mildly positive perception of the sexual self and sexuality* comprised 52.9% of the sample and was characterized by moderate scores for all psychosocial dimensions. The third cluster, labelled *Mildly negative perception of the sexual self and sexuality* included 10.7% of the sample. This cluster was characterized by the lowest scores pertaining to positive perceptions of communication skills and attitudes and feelings towards sexual pleasure, as well as low sexual self-esteem and marked self-silencing in relationships. Adolescents in this group reported low sexual anxiety. The last profile named *Negative perception of the sexual self and sexuality*, included 20.7% of the sample. Results showed that this group presented the highest mean scores for sexual anxiety as well as the lowest scores for sexual body-esteem and voice in intimate relationships. This group was further characterized by low scores for sexual esteem, positive perceptions of their communication skills, self-efficacy in experiencing sexual pleasure and entitlement to sexual pleasure (self), as well as above average scores of entitlement to sexual pleasure (partner).

Gender and Age across Profiles

Comparisons of psychosocial dimensions of sexuality, gender and age across identified profiles are shown in Table 3.

Fig. 3 Patterns of psychosocial dimensions of sexuality in adolescents.

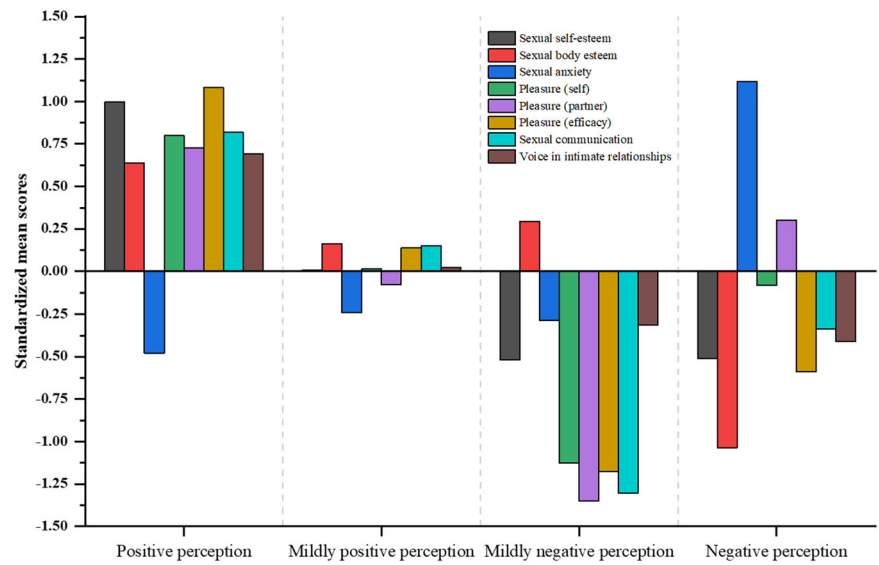


Table 3 Descriptive statistics of standardized scores and chi-square comparisons across profiles.

	Positive perception		Mildly positive perception		Mildly negative perception		Negative perception		F	η^2	Statistically significant differences between profiles
	M	SD	M	SD	M	SD	M	SD			
Sexual self-esteem	1.00	0.70	0.01	0.92	-0.52	1.00	-0.51	0.79	154.12***	0.24	1 > 2 > 3, 4
Sexual body esteem	0.64	0.92	0.16	0.84	0.29	0.83	-1.04	0.72	220.59***	0.31	1 > 2, 3 > 4
Sexual anxiety	-0.48	0.75	-0.24	0.82	-0.29	0.93	1.12	0.79	248.43***	0.34	4 > 2, 3 > 1
Pleasure (self)	0.80	0.62	0.02	0.89	-1.13	1.08	-0.08	0.89	152.93***	0.41	1 > 2, 4 > 3
Pleasure (partner)	0.73	0.77	-0.08	0.84	-1.35	0.90	0.30	0.82	213.27***	0.24	1 > 4 > 2 > 3
Pleasure (efficacy)	1.08	0.62	0.14	0.74	-1.18	0.93	-0.59	0.88	340.14***	0.30	1 > 2 > 4 > 3
Sexual communication	0.82	0.69	0.15	0.72	-1.31	1.32	-0.34	0.80	236.50***	0.33	1 > 2 > 4 > 3
Voice in intimate relationships	-0.76	0.91	-0.02	0.87	0.37	1.01	0.44	1.01	83.83***	0.15	1 > 2 > 3, 4

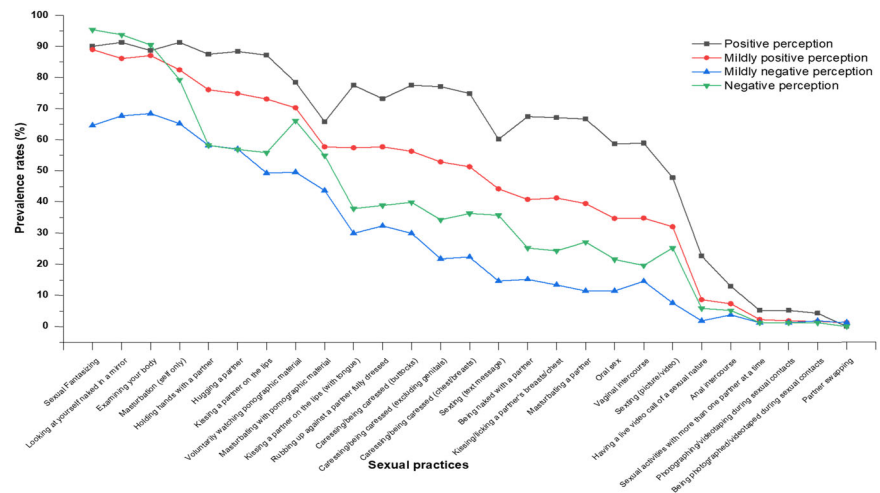
	Positive perception		Mildly positive perception		Mildly negative perception		Negative perception		χ^2
	n	%	n	%	n	%	n	%	
Gender									$\chi^2(6, N = 1478) = 76.36, p < 0.001$
Male	97	41.8	428	54.7	109	69	103	33.7	
Female	133	57.3	346	44.2	44	27.8	198	64.7	
Gender diverse	2	0.9	8	1	5	3.2	5	1.6	
Age									$\chi^2(9, N = 1478) = 47.60, p < 0.001$
14	13	5.6	76	9.7	33	20.9	37	12.1	
15	56	24.1	282	36.1	58	36.7	106	34.6	
16	103	44.4	290	37.1	44	27.8	116	37.9	
17+	60	25.9	134	17.1	23	14.6	47	15.4	

*** $p < 0.001$.

Results indicated that the four profiles included boys and girls of all ages. Nevertheless, boys were overrepresented in the *Mildly positive perception* and *Mildly negative perception*, whereas girls were more numerous in the *Positive*

perception and *Negative perception*. The largest proportion of 14-year olds are found in the *Mildly negative perception*, the largest proportion of 15-year olds are found in the *Mildly positive perception* and *Mildly negative perception*,

Fig. 4 Sexual practices across profiles of psychosocial dimensions of sexuality.



and the largest proportion of 16, 17 and 18-year olds are found in the *Positive perception*.

Patterns of Sexual Practices across Profiles

Figure 4 shows the prevalence rates of sexual practices across the four profiles. The *Positive perception* profile is associated with the highest prevalence rates on all autoerotic and partnered sexual practices, with the exception of sexual fantasizing, looking at oneself naked in a mirror and examining one's body. By contrast, youth in the *Mildly negative perception* profile, showed the lowest prevalence rates on all autoerotic and partnered sexual practices. Interestingly, prevalence rates for the autoerotic sexual practices in the *Negative perception* profile are similar to those of the *Positive* and *Mildly positive perception* whereas partnered practice prevalence rates are much lower.

Discussion

Most studies examining adolescent sexuality have focused on the prevention of undesired sexual outcomes (e.g., STIs, pregnancy), but a growing body of theoretical and empirical research highlights the importance of dispositions and experiences that promote sexual health. As part of this undertaking, the present study provides a descriptive overview of adolescents' perceptions of their sexual self, relational capacities, attitudes towards sexual pleasure and their sexual practices, factors that have been identified as shaping their psychosexual development. Results indicate that most adolescents have mildly positive perceptions of their sexual self and relational abilities, and positive expectations toward sexual pleasure. With regards to sexual practices, the study found that the vast majority of adolescents between the ages of 14 and 18 engage in some form of autoerotic or partnered

sexual activities. While still understudied, sexual fantasies, masturbation, and autoerotic technology-assisted sexual practices are reported by a large proportion of adolescents, suggesting that these practices may be well-integrated into their sexual repertoire. Other practices that are often the object of media attention, such as being photographed by a partner during sexual activities or having more than one partner at a time, were reported by a small subgroup of adolescents only, suggesting that they are not part of the typical sexual repertoire in adolescence.

Results of the present study show that as adolescents grow older, they become more comfortable with their sexuality as evidenced by a stronger sexual self-concept, a more favorable view of their relational skills, and a sense of entitlement or efficacy related to the experience of sexual pleasure with a partner. However, contrary to previous findings with older female youth (16–25 years; Horne & Zimmer-Gembeck, 2006; Zimmer-Gembeck et al., 2011), age does not appear to be associated with adolescents' capacity to voice their thoughts and feelings within intimate relationships or feel entitled to experience sexual self-pleasure. It may be that one's attitudes towards self-pleasure or assertiveness in relationships are more deeply influenced by socialization experiences or individual traits that may become more flexible in early adulthood or remain stable in time. In addition, results show that older youth adopt more diversified autoerotic and partnered sexual practices, which combined with gradual cognitive and affective maturation, can yield a change in perceptions of the self, relationships, and sexuality, which in turn can shape future behavior (Deutsch et al., 2014; Hensel et al., 2011). In spite of the age differences identified, similar linear trends are found across all age groups providing additional evidence that adolescents vary in terms of the timing and rhythm at which they progress across the continuum of sexual practices. In light of this wide age-related heterogeneity, it seems

important that programs aiming to help youth attain, maintain or improve sexual health provide them with information and tools early on, to explore their developing sexuality in a pleasurable and safe manner when they feel ready (Breuner et al., 2016). In parallel, positive sexuality promotion efforts would benefit from validating the experience of adolescents who may feel out of step with their peers given their small sexual repertoire, when in fact they are not.

In support of prior work, the present study also highlights both similarities and differences between boys and girls with regards to their perceptions of their sexual self and sexuality as well as sexual practices. Compared to girls, boys presented a more positive sexual self-concept characterized by greater sexual body-esteem and less sexual anxiety, but less favorable views of their capacity to negotiate relational dynamics. They were also more likely to report autoerotic sexual practices despite any significant gender difference in partnered behaviors. Differences in adolescents' perception of their sexual self, relational abilities and experiences may in part be due to internalized gender roles. This can include, for boys, repression of vulnerability, and for girls, pressure to be sexually attractive or sexual double standards that hold girls responsible for preventing sexual activity or negative outcomes; these standards may make girls less focused on developing a positive sexual sense of self and instead focus on being better communicators. Interestingly however, no significant gender differences regarding perceived efficacy in experiencing pleasure or feelings of entitlement to self-pleasure were identified, whereas girls seemingly had higher expectations with regards to experiencing pleasure with a partner. Similar trends have been identified in an older sample (Zimmer-Gembeck & French, 2016) and may be partly explained by a cultural shift in some Western societies wherein growing attention has been given to women's sexual pleasure, which may have increased women's expectations regarding the experience of pleasure during sexual contacts. Whether these results suggest a disconnect between girls' expectations and experience of sexual pleasure remains to be further examined. Taken together, these gender and age patterns highlight the need to foster a discourse that centers around developing a positive sense of self, relationships and sexuality for all genders and ages, and sustaining it over time as adolescents vary considerably in terms of their experience of sexuality and the development thereof.

Variations in the experience of sexuality

In line with the study hypothesis, the identification of four profiles suggested that variability in adolescents'

psychosocial dispositions and sexual practices extends beyond the identified age and gender differences. The largest group comprising over half of the sample, labelled *Mildly positive perception of the sexual self and sexuality*, shows that most youth have not yet developed a strong positive or negative sexual self-concept or sense of their relational capacities, nor have they taken a clear stance relative to their attitudes towards sexual pleasure. Although these dimensions appear to be trending in a positive direction, they appear to be very underdeveloped which suggests that support is needed during adolescence to ensure that these dispositions develop smoothly, in light of relational and sexual experiences. These findings, combined with studies showing that adolescents want sexuality education programs to incorporate more topics related to the affective dimensions of sexuality, negotiating healthy relationship dynamics, and sexual desire and pleasure, underscore the importance of acknowledging their relevance in the design of pedagogical interventions (Descheneaux et al., 2018).

Approximately one sixth of youth are distinguished by highly positive perceptions of their sexual self, competence, communication skills and relationship negotiation skills. They also hold positive feelings regarding sexual pleasure and their capacity to experience it. Adolescents in this *Positive perceptions* profile tend to be older and be more likely to report having engaged in autoerotic and partnered sexual practices. These findings are in line with general trends identified in the literature whereby sexual experience and psychosocial dimensions of sexuality influence one another (Hensel et al., 2011; Horne & Zimmer-Gembeck, 2006). These results also provided support for the importance of considering that both younger and inexperienced youth may also exhibit positive self-views and attitudes towards sexuality thus highlighting the need to further explore individual or contextual factors that shape positive psychosocial dimensions of sexuality.

Youth in the last two profiles appeared to face at least some challenges related to psychosexual development. Approximately ten percent of youth fell in the *Mildly negative perception* profile, characterized by poor sexual esteem, negative perceptions of relational skills and sexual pleasure, but low sexual anxiety. A larger proportion of 14-year olds and inactive youth fall into this profile, which may indicate that it is more representative of youth who are less far along in their psychosexual development. Finally, 20% of youth reported strikingly *Negative perceptions of their sexual self and sexuality* characterized by higher levels of sexual anxiety combined with negative perceptions of sexual self, competence, communication skills and self-expression within intimate relationships. In addition, these youth presented a disconnect between their

feelings of entitlement to sexual pleasure and low sense of efficacy in attaining it with a partner. Interestingly, these adolescents were as likely to engage in masturbation, pornography viewing or technology assisted sexual behaviors (e.g., sexting), but far less likely to adopt in-person partnered behaviors. Based on the available data, it is not possible to determine whether negative perceptions of the sexual self and sexuality prevent adolescents in this group from seeking out in-person partnered behaviors or whether the quality of the sexual experiences negatively influences their sexual self-perceptions. Still, members of this group seem particularly vulnerable and additional efforts must be made to support the development of healthy psychosocial dimensions of sexuality among youth who face additional challenges, as they transition into adulthood, given the known influence of these dispositions on sexual health and well-being (Hensel & Fortenberry, 2013; Tolman et al., 2003).

Study Limitations and Future Directions

Results of the present study must be interpreted in light of certain limitations. First, adolescents were recruited from schools in Quebec City which has a fairly homogeneous population. This limited the capacity to recruit enough gender-diverse youth to conduct group comparisons based on gender. In addition, the ethnocultural homogeneity of the sample impedes the generalization of results to ethnocultural and racialized communities. Second, 15 and 16-year-old adolescents are overrepresented in the sample compared to 14 and 17 to 18-year-olds. This may have influenced age group comparisons and profile generation. Third, although self-reported questionnaires are the norm for examining adolescent sexuality, sensitive topics such as this one are associated with additional bias (e.g. attempts to reduce cognitive dissonance) that can influence results, in addition to general biases relative to question comprehension, recall accuracy, and social desirability (Boislard & Poulin, 2015).

These descriptive results offer avenues for future studies. First, in line with the aforementioned limitations, results need to be replicated in other samples of adolescents, namely in sexually and ethnoculturally diverse samples. The field is also in need of prospective studies that can capture the development of psychosocial dimensions of sexuality in time. Finally, as sexual health encompasses promoting positive dimensions of sexuality as well as preventing negative outcomes, future work would benefit from examining sexual and psychosocial dimensions in relation with known obstacles to sexual health, such as sexual coercion in order to overcome the either/or binary of positive versus problematic adolescent sexuality.

Conclusion

The need for an increased focus on normative aspects of sexuality during adolescence has been highlighted both in theory and research, to increase current understanding of general trends in adolescent development. The present study contributes to the field of adolescent sexuality and development by providing a descriptive analysis of adolescents' sexual self-concept, perceptions of sexuality as well as sexual practices. Results show that most adolescents are sexually active but that there are important differences in their experience of sexuality. Such differences must be taken into account to provide youth with sexuality education and interventions that promote sexual health and well-being in a way that is tailored to their reality and needs.

Acknowledgements The authors would like to express their gratitude to the students, teachers and school principals who have participated in this study.

Authors' Contributions J.K. conceived the study, elaborated its design, coordinated the data collection and acquired the data, performed statistical analyses, interpreted results, drafted and reviewed the manuscript; M.A.Y. participated in the design and conception of the study and reviewed the manuscript; G.M.M. participated in the design and conception of the study, participated in the interpretation of the data, helped draft the manuscript and reviewed the manuscript. All authors reviewed and approved the final manuscript.

Data Sharing and Declaration The datasets generated and analyzed during the current study are not publicly available but are available from the corresponding author upon reasonable request.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethical Approval The questionnaire and methodology for this study were approved by the Human Research Ethics committee of the Université Laval (Ethics approval number: 2019-337 A-4 R-1).

Informed Consent Informed consent was obtained from each individual participants in the study

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