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Original article

A Warm Nest or 'The Talk'? Exploring and Explaining Relations Between General and Sexuality-Specific Parenting and Adolescent Sexual Emotions

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A B S T R A C T

Purpose: The aim of the study was to explore and explain two hypothesized indirect longitudinal pathways and investigate gender differences in linking parenting factors to adolescents' sexual emotions. The general pathway expected higher parent–adolescent relationship quality to be related to more positive and less negative sexual emotions through higher adolescent global self-esteem. The sexuality-specific pathway expected more frequent parent–adolescent sexual communication to be related to more positive and less negative sexual emotions through higher adolescent sexual autonomy.
Methods: Online questionnaire data were used from three waves of Project STARS, a longitudinal study on adolescent sexual development. The analysis sample included 248 sexually experienced adolescents (M = 14.74 years at baseline). Adolescents reported on the quality of their parent–adolescent relationship, how often they discussed sexual topics with their parents, their global self-esteem, sexual autonomy, and experience of positive (happy, proud, and loved) and negative (dirty, ashamed, and guilty) emotions after having sex.
Results: Overall, adolescents experienced more positive than negative emotions after sex. Mplus path model results indicated that, first, higher parent–adolescent relationship quality was related to higher adolescent global self-esteem, but global self-esteem was not related to sexual emotions. Second, more frequent parent–adolescent sexual communication was related to more adolescent sexual autonomy, and more sexual autonomy was related to more positive and less negative sexual emotions. However, no significant indirect effects, nor gender differences were found.
Conclusions: Adolescents' sexual autonomy appears to play a particularly important role in how they experience having sex. Concrete suggestions for how the development of adolescents' sexual autonomy may be supported are discussed.

IMPLICATIONS AND CONTRIBUTION

This study investigates early adolescents' *positive and negative emotional experiences* of sexual encounters. G*eneral* and *sexuality-specific* parenting may play a role herein via two adolescent characteristics: global self-esteem and sexual autonomy. Furthermore, the *prospective longitudinal* design enabled the investigation of indirect effects over time.

The World Health Organization [1] defines sexual health as "*a state of physical, emotional, mental and social well-being related to sexuality; it is not merely the absence of disease, dysfunction, or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion,*

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discrimination and violence" (p. 5). Although this definition stresses emotional and positive aspects of adolescent sexual health, these aspects have scarcely been researched [2]. Most research focuses on sexual *behaviors* (e.g., initiation of sexual intercourse), and specifically on sexual *risk* behaviors (e.g., early sexual initiation) [3]. Hence, little is known about how adolescents *emotionally experience* their sexual behaviors. A large, cross-sectional, descriptive study in the Netherlands, investigating young people's (aged 12–25 years) sexual and reproductive health, found that sex (anything from touching to sexual intercourse) is experienced mostly positively, but that younger adolescents, girls, and lower educated adolescents experience these activities relatively more negatively [4]. Moreover, few studies focused on explaining *why* young people experience their sexual behaviors positively or negatively. Some have, for example, indicated that first intercourse was experienced more positively when it was intentional (vs. spontaneous) and when adolescents reported more exposure to parental messages about sexual freedom, less adherence to "traditional" gender roles, and greater body satisfaction [5,6]. Negative emotions (e.g., guilt), on the other hand, were experienced more often after unsafe sex and having sex with a nondating partner [7] and when there was little communication about sex with parents [8]. In addition, one study found that young women (but not men) who more strongly adhered to traditional sexual gender norms—promoting sexual modesty for girls and women, but sexual prowess for boys and men—experienced more negative emotions through decreased sexual autonomy [6]. However, these explanatory studies retrospectively investigated either first sexual intercourse or recent sexual experiences, and all did so cross-sectionally among college students or young adults (aged 18–25 years) and in one study only among young women. For educational and clinical practices, it is essential to know more about factors that contribute to younger adolescents' positive and negative sexual experiences, as important components of their sexual health.

The multisystem perspective [9] emphasizes that understanding adolescent sexuality (behaviors, cognitions, and emotions) requires examining both individual characteristics and sociocontextual factors. Parenting factors are particularly important aspects of adolescents' social context and have already repeatedly been found to be related to adolescents' sexual behaviors (for a review, refer to the study by Markham et al. [10]). Theoretically, it can be expected that the same factors may also play a role in adolescents' own emotional evaluations of these behaviors [11]. For instance, certain parenting factors may foster skills that enable adolescents to guard their sexual boundaries (e.g., timing of sexual debut) and ensure safe experiences (e.g., condom use), which may be similar to the skills necessary to ensure positive sexual experiences. The present study therefore aimed to test—as one of the first—how parenting factors play a role in how young adolescents experience sex emotionally. Consistent with the World Health Organization definition of sexual health, we hypothesized that parenting factors may foster individual characteristics and skills that enable adolescents in having sexual behaviors that yield positive emotions and avoid negative emotions [10]. More specifically, we build on two previous studies that investigated indirect pathways between parenting and youth's sexual emotional outcomes [12,13]. Doing so, we simultaneously explored two different *mechanisms* that may explain how factors within the parent–adolescent relationship, adolescents' individual characteristics, and adolescents' emotional experiences of sex may be interlinked. Theoretically, it may be expected that individual skills and parenting factors that are directly related to specific types of health behaviors (e.g., sexual behaviors) may be more strongly linked to the decisions, execution, and evaluation of those particular behaviors than generic individual skills and parenting factors. This distinction has previously been made to understand how general relationship quality, on the one hand, and sexuality-specific communication between parents and adolescents, on the other hand, moderated associations between sexual peer norms and adolescents' own sexual initiation and intention [14]. In the present study, the same general and sexuality-specific parenting factors were examined as part of two different mechanisms explaining adolescents' sexual emotions.

The first mechanism, a domain-general path, started with parent–adolescent relationship quality, characterized by warmth, closeness, and support. In the literature, higher parent–adolescent relationship quality is consistently related to later initiation of sexual intercourse and more pleasurable sexual experiences [9–11]. In their longitudinal study on young adolescents' emotional experiences of sex, Van de Bongardt et al. [13] found that adolescents who experienced a higher-quality relationship with parents reported higher levels of global self-esteem (i.e., higher evaluations of their overall value as a person [15]), which was, in turn, related to more positive experiences of sexual behaviors. Based on these previous findings, and on the multisystem perspective, we hypothesized that: (H1) higher parent–adolescent relationship quality is related to higher global self-esteem, and that higher adolescent global self-esteem is related to (H2) more positive and (H3) less negative sexual emotions. Moreover, we hypothesized that parent–adolescent relationship quality is indirectly related to adolescents experiencing (H4) more positive and (H5) less negative sexual emotions through higher global self-esteem. Our hypotheses are graphically represented in Figure 1.

The second mechanism, a sexuality-specific path, started with the frequency of parent–adolescent communication about sex. In the literature, more frequent parent–adolescent communication about sexuality has been related to later initiation of sexual intercourse [16] and more pleasurable sexual experiences [12], whereas little communication has been related to more feelings of guilt in young women after first intercourse [8]. Parents can communicate factual information (e.g., about sexual biology) or values (e.g., that sex should be pleasurable for both partners) [17], which may aid adolescents in communicating their sexual wishes and boundaries to sexual partners. Mastro and Zimmer-Gembeck [12] investigated the indirect effect between parent–adolescent sexual communication and emotional experiences of sex through sexual self-efficacy and found that young adults (aged 17–21 years) who reported a higher frequency of retrospectively remembered communication about sexuality with parents during high school also reported higher current levels of sexual self-efficacy (i.e., felt more in control of negotiating future sexual pleasure) and, in turn, evaluated their sexual experiences more positively and less negatively. Based on these findings, and the multisystem perspective, we hypothesized that (H6) more frequent parent–adolescent communication about sexuality is related to more adolescent sexual autonomy, and that more sexual autonomy is related to adolescents experiencing (H7) more positive and (H8) less negative sexual emotions. Furthermore, we expected that more parent-adolescent sexual communication is indirectly related

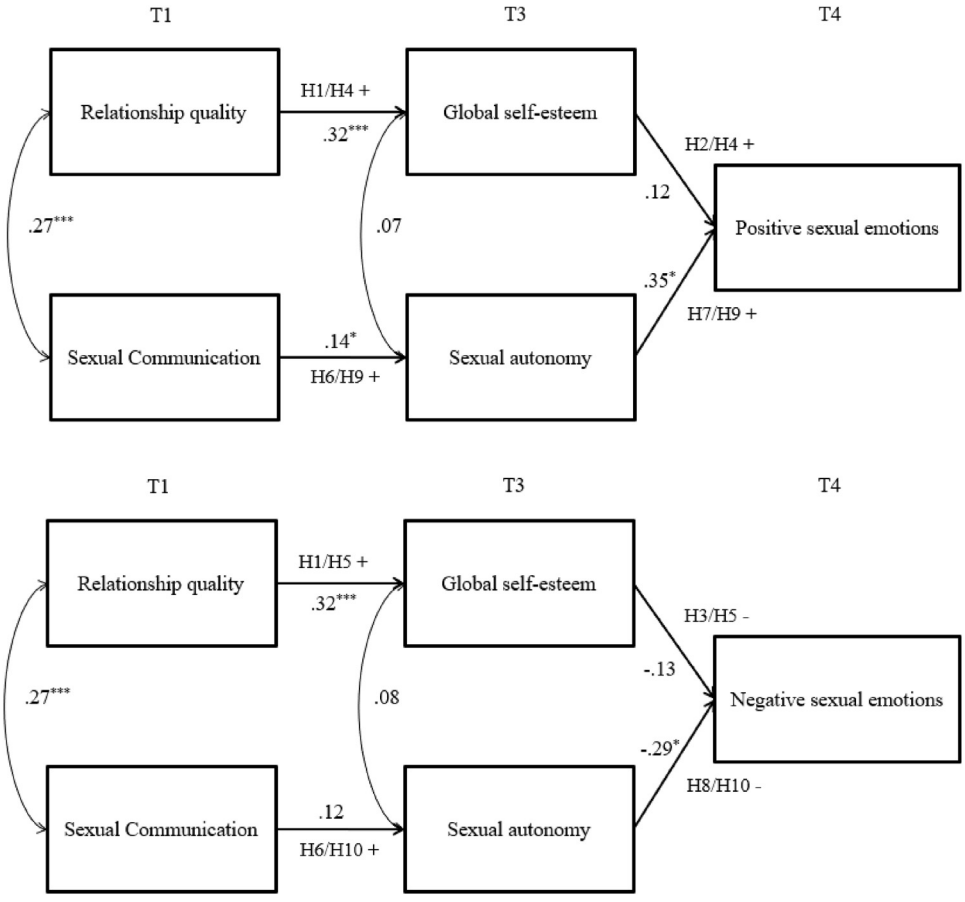

Figure 1. Hypotheses and results for the estimated models. *Notes.* Hypotheses are presented on the outside and the results on the inside of the model. The plusses indicate a positive association, the minuses indicate a negative association. Standardized coefficients are reported. Indirect effects positive emotions model: (H4) Relationship quality–Global self-esteem–Positive Emotions, $\beta = .04$, $p = .116$. (H9) Communication–Sexual autonomy–Positive Emotions, $\beta = .05$, $p = .139$. Model fit indices for the positive emotions model: $\chi^2(4) = 1.97$, $p = .741$, Root Mean Square Error of Approximation = .00, and comparative fit index (CFI) = 1.00. Indirect effects to negative emotions model: (H5) Relationship quality–Global self-esteem–Negative Emotions, $\beta = -.04$, $p = .125$. (H10) Communication–Sexual autonomy–Negative Emotions, $\beta = -.03$, $p = .109$. Model fit indices for the negative emotions model: $\chi^2(4) = 1.50$, $p = .827$, Root Mean Square Error of Approximation = .00, and CFI = 1.00. $^{*}p < .05$, $^{**}p < .01$, and $^{***}p < .001$.

through sexual autonomy to (H9) more positive and (H10) less negative sexual emotions.

Although the present study fundamentally builds on these two studies [12,13], it also adds five critical components. First, we aimed to explain why adolescents experience their sexual behaviors positively and/or negatively while for the first time considering both domain-general and sexuality-specific parenting factors *and* individual characteristics. Second, instead of using an aggregated measure of sexual emotions, similar to Van de Bongardt et al. [13], we assessed adolescents' positive and negative sexual emotions separately, following the approach of Mastro and Zimmer-Gembeck [12]. Quantitative and qualitative studies among youth have shown that positive and negative emotions are not strongly inversely related [6], and that positive and negative sexual emotions, such as happiness and fear, can occur concurrently [7]. Third, instead of measuring sexual self-efficacy (i.e., the expected future ability to ensure sexual pleasure) [12] we measured sexual autonomy (i.e., the self-perceived ability to ensure sexual pleasure and control) to examine how this current skill affected adolescents' sexual emotions. Fourth, expanding previous studies on sexual emotions, and specifically Mastro and Zimmer-Gembeck's study [12], we longitudinally studied a sample of *young adolescents*, which enabled us to investigate the factors associated with early sexual experiences *prospectively*. Finally, gender differences in the hypothesized indirect pathways were exploratively assessed. Previous studies have shown that boys tend to experience sexual behaviors more positively than girls, and that the direct linkages between these sexual emotions and domain-general and sexuality-specific parenting and individual skills are stronger for girls than for boys [6,12]. However, gender differences in the indirect links between these specific factors have not yet been tested.

Methods

Design

We used three waves of data collected within a longitudinal study on adolescent sexual development in the Netherlands: "Project STARS" (*Studies on Trajectories of Adolescent Relationships and Sexuality*). Data were used from T1 (Fall 2011), T3 (Fall 2012), and T4 (Spring 2013). This ensured a maximum number of

adolescents with experiences of sexual behavior by T4 and allowed us to model the maximum over-time association between parenting factors at T1 and emotional experiences of sex at T4, through individual characteristics at T3.

Participants

The Project STARS sample consisted of 1,297 adolescents (aged 9.98–17.89 years at T1). The present study comprised only secondary school students (n = 1,132), as elementary school pupils did not report on all concepts of interest. Five adolescents were excluded from the analyses because they completed none of the measurement occasions of interest (T1/T3/T4). Participants reporting no sexual experience at any time point were excluded because they could not report on all variables of interest (n = 862). Thirty-six adolescents reported inconsistently about sexual behavior experience over time (e.g., *yes* at T1 and T3 and *no* at T4). For 17 cases, it was impossible to correct this inconsistency using the majority rule (i.e., adjusting the value based on which answer was given most); these cases were excluded. The final analysis sample consisted of 248 participants (142 boys, 57.3%), with a mean age of 14.74 years (SD = 1.23) at T1 and 16.02 years (SD = 1.20) at T4. Girls and boys did not differ significantly in age, $t(246) = 1.60$, $p = .110$, ethnicity (Western vs. non-Western cultural background), $\chi^2(1) = .18$, $p = .675$, or education level according to the Dutch stratified education system: high (i.e., senior general education and preuniversity education) versus low (i.e., prevocational education), $\chi^2(1) = 2.87$, $p = .090$.

Procedure

Participants were recruited from four secondary schools across the Netherlands. Eligible adolescents and their parents received information about the study and the possibility to decline participation. Of the approached adolescents, 9.2% decided not to participate or were not allowed by their parents. Participants completed online questionnaires in classrooms during school hours. Researchers and trained assistants introduced the study, ensured maximum privacy, answered questions, and guaranteed confidentiality. Participants received book certificates after each completed questionnaire (€5 at T1, €10 at T3, and €12,50 at T4). Project STARS was approved by the ethics board of the Faculty of Social and Behavioral Sciences of the Utrecht University, the Netherlands.

Instruments

All instruments are described in detail in Appendix A.

Parent–adolescent relationship quality was assessed with two subscales of the *Network of Relationships Inventory* [18]: Satisfaction and Conflict. Both subscales included three items (Appendix A). The conflict items were reverse coded to ensure that higher mean scores of all six items indicated higher relationship quality (Cronbach's $\alpha = .90$) [13].

Frequency of sexual communication with parents was measured with four items (Appendix A). Higher mean scores indicated more frequent sexual communication (Cronbach's $\alpha = .85$) [14].

Global self-esteem was assessed with five items adapted from Harter's [19] *Self Perception Scale* (Appendix A). Higher average scores indicated higher global self-esteem (Cronbach's $\alpha = .85$) [13].

Sexual autonomy was assessed with five items (Appendix A) [6]. Item #3 correlated negatively with the other items (after reverse coding) and was therefore excluded from the scale. A higher average score on the final four-item scale indicated more sexual autonomy (Cronbach's $\alpha = .83$).

Sexual emotions were assessed with three positive and three negative emotions (Appendix A) [13]. Higher mean scores indicated more frequent positive or negative emotions (Cronbach's $\alpha = .82$ and .84, respectively).

Data analysis

Missing value analysis in SPSS version 25 (IBM) showed missing values in relationship quality (6.9%), sexual communication (8.5%), global self-esteem (15.7%), sexual autonomy (33.5%), and positive and negative sexual emotions (32.7%). Little's Missing Completely At Random test indicated the data were not missing completely at random, $\chi^2(50) = 83.96$, $p = .002$. Missing data were handled using full information maximum likelihood estimation in Mplus Version 8 [20], which provides more accurate results than listwise deletion [21]. To account for nonnormality in the data, robust maximum likelihood estimation was used, which corrects for deviations from multivariate normality by computing robust standard errors and adjusted chi-square values [22]. Analyses were conducted in three steps. First, univariate gender differences in the variables of interest were examined using t-tests. For positive and negative sexual emotions, differences in median scores were tested, using nonparametric Mann-Whitney U and Wilcoxon Signed Rank tests, as these scores were nonnormally distributed. Second, our hypotheses were tested by estimating two path models, one for positive and one for negative sexual emotions, using structural equation modeling in Mplus Version 8 [20]. Third, to test for gender differences, multigroup analyses were performed with all paths initially constrained to be equal for boys and girls and subsequently performing Wald tests after freely estimating one path at a time. Model fit was considered good when Root Mean Square Error of Approximation (RMSEA) was $\leq .05$ and comparative fit index was $\geq .95$ [23]. Standardized regression coefficients of $\beta = .10$ were interpreted as small, $\beta = .30$ as medium, and $\beta \geq .50$ as large effects [24].

Results

Descriptive statistics and preliminary analyses

Table 1 shows the descriptive statistics of all variables for boys and girls separately, including gender difference tests. Boys had significantly higher mean levels of global self-esteem than girls and experienced significantly less negative emotions after having sex. Bivariate correlations (Pearson and Spearman) between all variables are also shown in Table 2.

Path models: tests of gender differences

The fully gender-constrained models showed good to excellent model fit (Table 3). Although at face value, the strength and significance of some relations seemed to differ for boys and girls, Wald tests did not confirm any significant gender differences. Therefore, both final models were fitted to the total sample (Figure 1).

Table 1
Descriptive statistics and correlations

	Boys (n = 142)		Girls (n = 106)		Gender difference test		
	M	SD	M	SD	t	df	p
Relationship quality	4.45	.77	4.30	1.03	1.17	177	.246
Sexual communication	2.21	1.00	2.27	1.05	.46	225	.646
Global self-esteem	4.22	.65	3.53	.94	6.22	155	<.001
Sexual autonomy	4.80	.79	4.98	.83	1.36	163	.176
Positive sexual emotions[a]	4.00	—	4.00	—	—	—	.639
Negative sexual emotions[a]	1.33	—	1.66	—	—	—	.032

M = mean; SD = standard deviation.
[a] For the positive and negative sexual emotions, median scores and results of nonparametric Mann-Whitney U tests are reported because the scores were nonnormally distributed. These tests do not yield statistics, only p values.

Final positive sexual emotions model

Domain-general path. Higher parent–adolescent relationship quality at T1 was significantly moderately related to higher adolescent global self-esteem at T3. However, global self-esteem was not significantly related to positive sexual emotions at T4. The hypothesized domain-general indirect path was also nonsignificant.

Sexuality-specific path. More frequent parent–adolescent communication about sex at T1 was significantly weakly related to more sexual autonomy at T3. More sexual autonomy was, in turn, significantly moderately related to more positive emotions at T4. However, the sexuality-specific indirect path was nonsignificant.

Final negative emotions model

Domain-general path. Similar to the positive emotions model, higher parent–adolescent relationship quality at T1 was significantly moderately related to higher global self-esteem at T3. Global self-esteem was also not significantly related to negative sexual emotions at T4. We also found no significant domain-general indirect path.

Sexuality-specific path. Although in the negative sexual emotions model, the relation between frequency of parent–adolescent communication at T1 and adolescent sexual autonomy at T3 was of comparable size to the path in the positive sexual emotions model, here it was nonsignificant. More sexual autonomy was significantly moderately related to less negative sexual emotions at T4. Yet, we found no significant sexuality-specific indirect path.

Table 2
Correlations between variables of interest

	1	2	3	4	5[a]	6[a]
1. Relationship quality	—	.34**	.36**	−.05	.06	−.15
2. Sexual communication	.20*	—	.17	.10	.07	.00
3. Global self-esteem	.24*	.24*	—	.10	.11	−.17
4. Sexual autonomy	.24*	.20	.20	—	.30*	−.32*
5. Positive sexual emotions	.15	.07	.08	.16	—	−.25*
6. Negative sexual emotions	.05	−.04	.12	−.09	−.06	—

The correlations below the diagonal represent the correlations for boys; statistics above the diagonals represent the correlations for girls.
*$p < .05$, **$p < .01$.
[a] Because of the nonnormal distribution of the positive and negative emotions variables, these correlations are Spearman's Rho's.

Post-hoc analyses

Because of the unanticipated finding of the nonsignificant indirect effect between parent–adolescent relationship quality and sexual emotions via global self-esteem, which was in contrast with Van de Bongardt et al.'s [13] study, we conducted post-hoc analyses (Appendix B). Hereto, we computed one sexual emotion score by recoding the negative emotions scores and averaging them with the positive emotions scores to indicate one overall measure of positive sexual emotions. All model paths were similar in strength and direction, but the indirect domain-general path was indeed significant in this analysis, $\beta = .05$, $p = .030$, consistent with the study of Van de Bongardt et al. [13].

Discussion

Little research has focused on how multisystem factors contribute to the way adolescents emotionally experience their sexual behaviors. The aim of the present study was to explore and explain two pathways (one domain general and one sexuality specific) through which parents *and* individual characteristics may contribute to these experiences. First, although we found that adolescents with higher quality parent–adolescent relationships showed higher levels of global self-esteem, we found no relation between global self-esteem and positive or negative sexual emotions. This contrasting finding with Van de Bongardt et al.'s [13] study indicates that investigating positive and negative sexual emotions separately changed the meaning of this variable. In Van de Bongardt et al.'s [13] study, the negative sexual emotion items were reversed and averaged with the positive sexual emotion items, with a higher score indicating overall more frequent positive emotions after having sex. However, with this approach, the sexual emotions construct may consist of different combinations of experienced sexual emotions: some adolescents might experience all emotions (both positive and negative) only sometimes, some may experience both positive and negative emotions often, some may often experience positive and rarely experience negative emotions, and some might rarely experience either positive or negative emotions after sex. Whereas high global self-esteem thus appears to be related to an overall positive evaluation of sexual experiences when positive and negative emotions are combined [13], the present study contributes to more "clean" results in terms of what predicts positive and what predicts negative emotions separately.

Second, our finding that more frequent parent–adolescent communication about sex was related to more adolescent sexual autonomy, and that more sexual autonomy was related to more positive *and* less negative emotions over time, resembles previous findings by Mastro and Zimmer-Gembeck [12]. However, unlike their study, we did not find a significant sexuality-specific indirect path. Possibly, this difference may reside in the fact that Mastro and Zimmer-Gembeck [12] investigated young adults and their retrospectively remembered sexual communication throughout their adolescence, whereas the participants in our present study were still in the early and middle stages of adolescence. Therefore, for some adolescents, sexual communication may not have been relevant at the time it was measured. As such, it may relate less strongly to the reported sexual

Table 3
Results of the path models for boys and girls separately and gender difference Wald tests

	Path coefficients						Difference test	
	Girls			Boys			Wald test	*p*
	b	SE_b	β	*B*	SE_b	β		
Positive emotions								
Relationship quality—global self-esteem	.32***	.07	.36***	.18*	.08	.22*	1.77	.183
Sexual communication—sexual autonomy	.07	.09	.09	.16*	.07	.20*	.55	.460
Global self-esteem—positive sexual emotions	.11	.10	.14	.10	.14	.08	.00	.988
Sexual autonomy—positive sexual emotions	.35*	.14	.40*	.40	.31	.36	.03	.867
Negative emotions								
Relationship quality—global self-esteem	.32***	.07	.35***	.18*	.08	.22*	1.79	.181
Sexual communication—sexual autonomy	.06	.10	.07	.14	.07	.18	.52	.469
Global self-esteem—negative sexual emotions	−.11	.09	−.12	−.02	.13	−.02	.28	.597
Sexual autonomy—negative sexual emotions	−.46***	.12	−.47***	−.15	.18	−.15	2.12	.146

Model fit for the positive emotions model: $\chi^2(12) = 10.17$, $p = .602$, Root Mean Square Error of Approximation = .00, and CFI = 1.00. Model fit for the negative emotions model: $\chi^2(12) = 13.65$, $p = .323$, Root Mean Square Error of Approximation = .03, and CFI = .95.
CFI = comparative fit index; SE = standard error.
*$p < .05$, **$p < .01$, and ***$p < .001$.

emotions than in a study where communication over the whole adolescent period was considered.

Third, although we observed gender differences in the median scores on global self-esteem and negative emotions, we did not find gender differences in any of the investigated multisystem relations. Although possibly consistent with Hyde's [25] gender similarity hypothesis, stating that boys/men and girls/women are psychosexually more similar than different, it is also possible that other unmodeled factors account for these observed differences. Girls' higher scores on negative sexual emotions might be explained by the sexual double standard, stating that boys are generally expected (by society and significant others) to be sexually active and to enjoy sexual behaviors, whereas girls are commonly expected to be sexually conservative, reactive, and passive [26,27]. In addition, girls are more likely to experience sexual coercion or physical pain during sexual intercourse [4]. Future studies should investigate in larger and older samples, which gender differences and similarities exist in multisystem predictors of young people's emotional evaluations of their sexual behaviors.

Four additional noteworthy findings contribute to the current literature on adolescent sexual health. First, we found that the young, sexually experienced adolescents in our sample experienced their sexual behaviors mostly positively and rarely negatively. The presence of positive emotions in combination with the absence of negative emotions concerning sexual experiences is a relevant indicator of sexual health [1,2,26]. Furthermore, consistent with previous research [6,7], adolescents' positive and negative sexual emotions were not clearly inversely related. This highlights the importance of focusing on positive and negative emotions separately, as adolescents' sexual health cannot be assumed from the presence of positive or the absence of negative emotions alone.

Second, although girls and boys equally often experienced positive emotions after sex, girls more often experienced negative emotions, as was also found in a previous study [5]. Apparently, girls still seem to be missing an important part of sexual health: the absence of negative emotions [28]. This seems to be a persisting problem [27,29], which requires attention from research, practice, and policymakers.

Third, we found that adolescents who talked with their parents about sexual topics more frequently reported higher levels of sexual autonomy 6 months later. Although this relation was statistically small [24], it indicates the significance of sexuality-specific parenting for adolescents' individual sexual skills and adds to a growing body of literature stressing the importance of parent–adolescent sexual communication for adolescents' sexual health [12,30–32].

Fourth, similar to the findings of Mastro and Zimmer-Gembeck [12] and Sanchez et al. [33], sexual autonomy was related to more positive [12] *and* less negative emotions concerning sexual experiences [12,33]. Thus, being in control during sex and able to refuse unwanted sex might not only enable adolescents to experience sex positively but also protect them from negative sexual experiences. This highlights sexual autonomy as an important individual skill to focus on during conversations and education about sexuality with adolescents.

Limitations and future directions

Our study provides relevant new insights into how and why young adolescents emotionally experience their sexual behaviors as something more positive or more negative. However, it also had some limitations. First, although adolescents' perceptions of parenting factors are more strongly related to their sexual behaviors and experiences than parent reports [34], adolescent reports may provide a one-sided view of parenting factors. Future studies may use multi-informant or observational designs to tease apart adolescents' and parents' perceptions of their relationship quality or sexual communication [35].

Second, despite an overall large sample (N = 1,297), the Project STARS sample was relatively young, and therefore only a small subsample reported sexual behavior experience by T4 (n = 248). This possibly resulted in less statistical power to find small or medium significant effects. Following adolescents over a longer period would result in a larger analysis sample because with increasing age, more adolescents become sexually active [36]. Relatedly, this would allow to investigate whether sexual autonomy and emotions change over time, along with the changes in sexual behavior experience. For instance, sexual autonomy might increase with the frequency of having sex, as adolescents learn more about their sexual preferences and gain more confidence and effective ways to communicate them [37]. Moreover, using a larger sample would allow for investigating

individual effects, as different adolescents could be driving different links within the current hypothesized models, and conclusions about the indirect effects may not apply to all adolescents (for analysis suggestions, refer to the study of Hamaker et al. [38]).

Third, although we examined the frequency of parent–adolescent sexual communication, other sexuality-specific parenting factors warrant investigation as well, including the diverse content and the quality of parent–adolescent conversations about sexuality [17,29,31]. Research indicated that mostly love, relationships, and safe sex are discussed by parents and adolescents, whereas topics such as emotions and pleasure are generally least discussed [29]. Rogers et al. [17] found that communication in the form of "lecturing" (i.e., cautioning and warning about the negative consequences of sex in a harsh and/or demeaning tone) was related to earlier sexual initiation. Thus, especially high-quality communication about more intimate topics (e.g., pleasure and emotions) could be an important focus for at-home and in-school sexuality education, for adolescents to develop their individual skills for establishing sexual experiences that are more positive and less negative.

In conclusion, sexual autonomy appears to be a particularly important individual skill for adolescents' establishment of more positive and less negative sexual experiences. Parents and sex educators (i.e., teachers and health care professionals) may foster this skill through communication about sex. Acknowledging not only the importance of frequency but also content and tone of sexual communication could significantly support also the emotional aspects of adolescents' sexual health [1].

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Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jadohealth.2019.08.015.

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