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Examining the link between sexual self-concept and sexual communication among adolescents

Reina Evans-Paulson[a], Laura Widman[b], Julia Brasileiro[b], Anne J. Maheux[c], and Sophia Choukas-Bradley[c]

[a]Innovation Research & Training, Durham, NC; [b]North Carolina State University, Department of Psychology, Raleigh, NC; [c]University of Delaware, Department of Psychological and Brain Sciences, Newark DE

ABSTRACT

The purpose of this study was to move beyond a sexual risk framework to investigate the possible associations among three sex-positive constructs for adolescents: their sexual self-concept (i.e., their positive/negative feelings about themselves as sexual beings), their sexual communication with romantic/sexual partners, and their sexual communication self-efficacy. We also examined differences in these constructs by sexual intercourse experience and gender. Participants were 171 adolescents who had been in a dating or sexual relationship in the past year (M_{age} = 16.32 years; 64.3% girls). Compared to girls, boys had more positive sexual self-concepts but less self-efficacy to communicate with their partners about sex. Adolescents who reported having had sexual intercourse had more positive sexual self-concepts as well as more frequent partner sexual communication compared to adolescents without sexual intercourse experience. Adolescents with a more positive sexual self-concept had higher sexual communication self-efficacy and reported more frequent sexual communication. In addition, sexual communication self-efficacy partially mediated the relationship between sexual self-concept and sexual communication. Results highlight the connection between sexual self-concept and sexual communication and contribute to a growing body of work on the positive aspects of adolescent sexuality.

KEYWORDS

Sexual self-concept; sexual communication; sex-positive; sexual health; adolescence

Sex-positive outcomes (e.g., sexual agency, pleasure) are essential components of sexual wellbeing for adolescents (World Health Organization, 2020). Most literature on adolescents has focused on sexual risk (e.g., unprotected sex), leaving sex-positive components of adolescent sexuality relatively understudied. Recently, a framework of adolescent sexual wellbeing has been developed that provides a comprehensive conceptual model of sex-positive domains of healthy sexual development (Kågesten & Reeuwijk, 2021). This framework illustrates that adolescents have two interrelated experiences of sexual wellbeing: *personal sexual wellbeing* – which includes "having a positive sense of one's own (sexual)

CONTACT Reina Evans-Paulson revans@irtinc.us innovation Research & Training, 5316 Highgate Drive, Suite 125, Durham, NC 27713.

self and body and recognizing and appreciating feelings of pleasure and desire," and *relational sexual wellbeing* – which includes "outcomes related to intimate partners, such as equality in relationships [and] safe and pleasurable sexual interactions" (pg. 1, Kågesten & Reeuwijk, 2021). Guided by this model, we aim to understand the interconnections between sex-positive components of adolescents' personal and relational wellbeing. Specifically, we examine associations among adolescents' sexual self-concept (i.e., their positive/negative feelings about themselves as sexual beings), sexual communication self-efficacy, and frequency of sexual communication with partners.

Adolescent sexual self-concept

Sexual self-concept is one's view of their own sexuality and encompasses people's feelings about themselves as sexual beings (Buzzwell & Rosenthal, 1996; Tolman & McClelland, 2011). Adolescents may hold a positive or negative view of their own sexuality – for example, they may view themselves as desirable or undesirable (Hensel, Fortenberry, O'Sullivan, & Orr, 2011). There are multiple dimensions of adolescents' sexual self-concept, including sexual openness, sexual esteem, and sexual anxiety (Hensel et al., 2011). These dimensions of sexual self-concept are related to physical, mental, and relational wellbeing in adolescents and adults (Fortenberry, 2013; Heidari, Ghodusi, & Rafiei, 2017). For example, sexual esteem is related to sexual functioning and satisfaction among adults (Peixoto, Amarelo-Pires, Pimentel Biscaia, & Machado, 2018; Ziaei, Farahmand Rad, Rezaei Aval, & Roshandel, 2017). Sexual functioning and satisfaction are in turn related to relationship satisfaction (McNulty, Wenner, & Fisher, 2016).

Although, there is generally a dearth of research on sexual self-concept among adolescents, a couple of studies point to differences in adolescents' sexual self-concept by sexual activity status. These show that adolescents who are sexually active have more positive sexual self-concepts compared to adolescents who are not sexually active (Hensel et al., 2011). A longitudinal study with adolescent girls in the U.S. suggests that this may be a cyclical relationship, whereby more frequent sexual activity leads to more positive sexual self-concept development and subsequently this leads to more frequent sexual activity (Hensel et al., 2011). In another study with adolescent girls (ages 12–14) in the U.S., having engaged in sexual behavior was similarly related to more positive sexual self-concept (e.g., greater sexual arousability, greater sexual agency; O'Sullivan, Meyer-Bahlburg, & McKeague, 2006).

There may also be a relationship between sexual self-concept and gender, though the research on gender differences in sexual self-concept is less clear. While one study with U.S. high school students found girls have more

positive sexual self-concepts than boys (Rostosky, Dekhtyar, Cupp, & Anderman, 2008), another with Italian high school students found boys have more positive sexual self-concepts than girls (Marengo, Settanni, & Longobardi, 2019). Importantly, a large body of empirical and theoretical literature finds that when girls express their sexuality, they may be shamed for this behavior while boys may be praised (Kreager & Staff, 2009; Simon & Gagnon, 1986; Tolman, Anderson, & Belmonte, 2015). This gendered socialization may lead girls to believe the sexual aspects of their identity to be taboo or shameful, while boys may develop a sense of pride surrounding their sexual expression. In turn, this could lead girls to develop more negative sexual self-concepts compared to boys. Given the conflicting results on gender differences in sexual self-concept, further research examining differences in sexual self-concept by gender is needed. The development of more or less positive sexual self-concepts may be associated with important sexual health and wellbeing outcomes. One such important sexual health outcome is sexual communication.

Sexual communication in adolescence

Sexual communication is defined as communication between sexual or dating partners about topics related to sexuality (Quinn-Nilas et al., 2015) and is a critical component of sexual wellbeing for adolescents. This can include discussion about safer sex topics (e.g., condom use, contraception; Gause, Brown, Welge, & Northern, 2018; Widman, Noar, Choukas-Bradley, & Francis, 2014) as well as sex-positive topics (e.g., sexual preferences, desire; Lehmiller, Vanderdrift, & Kelly, 2014; Mark & Jozkowski, 2013). When dating/sexual partners communicate comprehensively about sexuality, they are more likely to experience better sexual and relational health outcomes – including both improved sex-positive outcomes and decreased risk-taking. For example, among adolescents, more frequent sexual communication is linked to greater relationship satisfaction and social self-efficacy (Frederick, Lever, Gillespie, & Garcia, 2017; Mark & Jozkowski, 2013; Velten & Margraf, 2017). Sexual communication with partners is also associated with adolescents' use of contraception, including condoms – leaving them at lower risk for HIV/sexually transmitted infections (STIs) and unplanned pregnancy (Gause et al., 2018; Widman et al., 2014). As a result, health communication research paradigms for STI/HIV prevention have been adapted to include components that emphasize the importance of partner communication (Catania, Kegeles, & Coates, 1990; Fisher & Fisher, 1992).

Given the benefits of sexual communication, researchers have begun to investigate which cognitive factors precede or enhance adolescents' partner sexual communication. One factor that may be related to adolescent sexual

communication is sexual self-concept. However, few studies have examined how sexual self-concept may be related to adolescent sexual communication self-efficacy and frequency of partner sexual communication.

Is sexual self-concept related to sexual communication?

Preliminary evidence suggests that a more positive sexual self-concept may be related to greater self-efficacy to communicate about sex, as well as sexual communication frequency. Studies with adults have shown that individuals with a more positive sexual self-concept report more sexual communication with their sexual partners (Blunt, 2012; Newton & McCabe, 2008; Oattes & Offman, 2007), yet fewer studies have examined these associations among adolescents. In one study with U.S. high school students, adolescents who reported having a more positive sexual self-concept also reported more self-efficacy to communicate resistive messages about sex to one's partner (e.g., say "no" to sex; Rostosky et al., 2008). Another study, conducted over two decades ago, found that sexual self-acceptance – a part of sexual self-concept – is related to communication with sexual partners about sex and contraception among adolescents ages 14–19 (Tschann & Adler, 1997). However, no recent studies have examined the links between sexual self-concept and partner communication about a range of topics related to sexuality – including risk-reduction and sex-positive topics – which are critical to adolescent sexual wellbeing.

The theory of planned behavior (Ajzen, 1985) provides theoretical grounds to expect communication self-efficacy and behavior to be linked. This theory posits that changes in self-efficacy may precede and lead to subsequent behavior change. Thus, it may be that, if there is a relationship between sexual self-concept and sexual communication behavior, this relationship is mediated by the development of sexual communication *self-efficacy*. This link has been empirically supported by studies showing strong associations between communication self-efficacy and frequency of sexual communication among adolescents in the U.S. and the United Kingdom (Milhausen et al., 2007; Quinn-Nilas et al., 2015).

The role of adolescent development

Given that the existing research regarding the association between sexual self-concept and sexual communication is primarily among *adult* populations or otherwise limited, there is a pressing need to examine these constructs among adolescents. There are a number of reasons why adolescence represents a unique developmental stage – particularly with respect to sexual self-concept (Jamil, Harper, & Bruce, 2013) – and thus we may not be able to generalize results from studies with adults to the experiences of adolescents (Dahl, Allen, Wilbrecht, & Suleiman, 2018). For example, adolescence is a developmental period when people explore their sexual identity through many processes, including the

formation of intimate relationships (Jamil et al., 2013). With this, many teens will become sexually active or become interested in having sex, thus beginning to construct their self-concept as sexual beings (e.g., sexual self-concept; Hensel et al., 2011). Additionally, there are many unique biological factors (e.g., hormonal changes associated with puberty, rapid neurobiological development) as well as environmental influences (e.g., parental monitoring and communication, peer relations/pressure) that may differentiate sexual self-concept development among adolescents from that of adults (Dahl et al., 2018; Jamil et al., 2013). For these reasons, it is important that we examine sexual self-concept and associated constructs among adolescents, in particular. The current study is positioned to address this need.

Current study

Guided by the framework of adolescent sexual wellbeing (Kågesten & Reeuwijk, 2021), we aim to improve our understanding of positive adolescent sexuality by investigating an understudied component of adolescents' personal sexual wellbeing – sexual self-concept – and its role in partner sexual communication, a component of adolescents' relational sexual wellbeing. Upon elucidating the association between sexual self-concept and partner sexual communication, we may be better positioned to inform future intervention efforts to reduce risk and promote positive sexual experiences. Specifically, we examine differences in sexual self-concept by gender and sexual activity, associations among our sex-positive variables of interest, and the potential mediating role of sexual communication self-efficacy in the association between sexual self-concept and partner sexual communication frequency among a sample of U.S. high school students. We propose the following four hypotheses:

Hypothesis 1: Based on previous research which shows that sexually active adolescents report more positive sexual self-concepts (Hensel et al., 2011; Vickberg & Deaux, 2005), we predict that adolescents who have had sexual intercourse will have more positive sexual self-concepts than adolescents who have not had sex.

Hypothesis 2: While the empirical literature on gender differences in adolescent sexual self-concept is inconsistent, research and theory on gendered sexual socialization underscores the heightened negative sociocultural attitudes about girls' sexual expression relative to boys' (Kreager & Staff, 2009; Simon & Gagnon, 1986; Tolman et al., 2015); thus, we predict that boys will have more positive sexual self-concepts than girls.

Hypothesis 3: Preliminary research suggests that a more positive sexual self-concept is related to more sexual communication self-efficacy and frequent sexual communication (Newton & McCabe, 2008; Oattes & Offman, 2007; Rostosky et al., 2008); thus, we expect positive associations among sexual self-concept and sexual communication self-efficacy and behavior.

Hypothesis 4: Given associations among sexual self-concept, sexual communication self-efficacy, and sexual communication frequency (Milhausen et al., 2007; Rostosky et al., 2008), and based on the theory of planned behavior (Ajzen, 1985), we predict that communication self-efficacy will mediate the association between sexual self-concept and sexual communication.

Method

Study recruitment and data collection

All study procedures were approved by the university Institutional Review Board (IRB # 6148). In Spring 2018, participants were recruited from a rural high school in the southeastern U.S. as part of a larger study to test a sexual health intervention (Widman et al., 2020). Data for this study come from the pretest assessment, before participants took part in the intervention. Participants completed confidential online surveys on laptop computers in a classroom at their school. All 10^{th} and 11^{th} grade students were eligible to participate (n = 754); however, parental consent and youth assent had to be obtained before adolescents could be enrolled in the study. Among students who returned the parental consent form (n = 309), 76.7% of parents granted permission for their child to participate (n = 237). Some students (n = 11) did not complete the baseline survey for other reasons (e.g., absence from school, school dropout, refusal to participate).

There were 226 participants in the final full sample; however, the analytic sample for this study only included those participants who reported having a partner in the last year (n = 178), because these were the only participants who reported their partner sexual communication – our primary outcome. A "partner" was broadly defined for participants as a "boyfriend/girlfriend, someone you dated, or someone you had a sexual relationship with." We included gender and sexual intercourse experience as covariates in all regression models since previous work has found girls and sexually active adolescents report more frequent sexual communication compared to boys and adolescents who are not sexually active (Hensel et al., 2011; Rostosky et al., 2008; Widman, Choukas-Bradley, Helms, Golin, & Prinstein, 2014). Seven participants were excluded because we could not use their covariate

data (5 participants did not report their intercourse experience; 1 participant did not provide sufficient gender identity information; 1 participant identified as gender nonbinary), yielding a final sample of 171 adolescents.

Measures

Participants reported their age, race/ethnicity, gender, sexual identity, whether they received free- or reduced-price lunch that year (a proxy for socioeconomic status), and sexual intercourse experience. Gender was assessed with one item, asking participants whether they identify as a girl, boy, or transgender or another gender identity. To assess sexual intercourse experience, we asked participants if they ever had ever had sex. For this item, we defined sex as "sexual intercourse"; however, no more explicit definition was provided to participants. Sexual identity was assessed with one item, "Please choose the description that best fits how you think about yourself," with the following answer options: "100% heterosexual (straight)," "mostly heterosexual (straight)," "bisexual- that is, attracted to men and women equally," "mostly homosexual (gay/lesbian)," "100% homosexual (gay/lesbian)," "not sure," and "other."

Sexual self-concept was assessed with 5 items from the Sexual Self-Concept Inventory (Hensel et al., 2011; O'Sullivan et al., 2006), which has been used in multiple studies with adolescents. Items (e.g., "I feel I am a desirable person"; "My feelings about sex are an important part of who I am") were rated on a 5-point scale from 1 (*strongly disagree)* to 5 (*strongly agree)*, with higher scores representing more positive sexual self-concept (Cronbach's alpha = .79). Observed means ranged from 1 to 5 prior to mean-centering the variable for analyses.

Sexual communication self-efficacy was assessed with six items from the Self-Efficacy for HIV Prevention Scale (Brown et al., 2014), which has been used in prior research with adolescent samples (Widman, Golin, Kamke, Burnette, & Prinstein, 2018; Widman et al., 2020). These items evaluated participants' belief that they could communicate about issues broadly related to safer sex with their partners, in addition to topics related to resisting sexual activity (i.e., resistive self-efficacy). Items such as, "How sure are you that you could talk to your partner about safer sex?" and "How sure are you that you could ask your partner how many people he/she has had sex with before you?" were rated on a 4-point Likert scale from 1 (*couldn't do it)* to 4 (*very sure)* with higher scores representing higher self-efficacy (Cronbach's alpha = .83). Observed means ranged from 1.5 to 4 prior to mean centering this variable for analyses.

A mean of six items adapted from the Adolescent Sexual Communication Scale (Widman & Stewart, 2019) was used to evaluate the frequency of partner sexual communication in the past year. This scale has also been

used in prior studies with adolescents – in which its reliability and validity were tested and found to be excellent (Widman et al., 2014; Widman & Stewart, 2019). A "partner" was defined for participants as a "boyfriend/girlfriend, someone you dated, or someone you had a sexual relationship with." Participants were asked: "In the past year, how often have you talked to your current or most recent dating partner about the following topics?" Items evaluated communication about six different topics: risk of pregnancy, HIV/STDs (sexually transmitted diseases), using condoms, abstinence/waiting to have sex, consent, and sexual pleasure (i.e., "what feels good about sex"). Frequency of communicating about these topics was evaluated on a 3-point Likert scale with the following response options: 0 (*never)*, 1 (*1–2 times)*, and 2 (*a few or many times)*. Items were averaged with higher scores indicating more frequent communication (Cronbach's alpha = .64). Observed means ranged from 0 to 2.

Analysis plan

First, to test Hypotheses 1 and 2, we used independent samples *t*-tests to evaluate differences in sexual self-concept. Next, to test Hypothesis 3 – to determine if there was a relationship between sexual self-concept and partner sexual communication self-efficacy as well as frequency of partner sexual communication – we ran regression models controlling for gender and sexual intercourse. Finally, to test Hypothesis 4, we ran a simple mediation model (model 4) using PROCESS to determine if the relationship between sexual self-concept and frequency of partner sexual communication was mediated by partner sexual communication self-efficacy (Hayes, 2017). Continuous predictors (sexual self-concept and self-efficacy) were mean-centered and categorical covariates were dummy coded [gender (0 = *girl*, 1 = *boy*); sexual intercourse experience (0 = *never had sex*, 1 = *had sex*)]. Figure 1 shows the mediation model we tested.

Results

Participant demographics

There were 171 adolescents (110 girls; 61 boys) in our final analytic sample. Participants ranged in age from 15–18 years old (M_{age} = 16.32 years). The sample was 47.4% White, 25.7% Black, 22.8% Hispanic, and 4.1% other races/ethnicities and 49.1% received free- or reduced-price lunch. Regarding sexual identity, 77.2% of participants identified as 100% heterosexual, 9.9% were mostly heterosexual, 4.7% were bisexual, 1.8% were mostly gay/lesbian, 2.3%

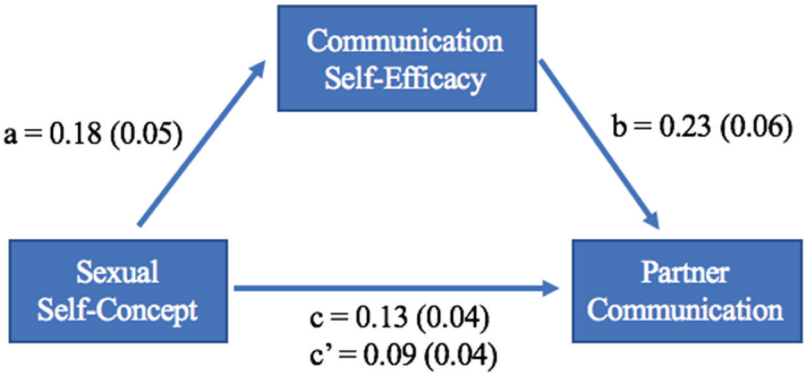

Figure 1. Simple mediation model predicting partner sexual communication with standardized path coefficients and standard errors. *Note.* n = 171. All paths were statistically significant or had a 95% confidence interval that did not contain 0. Covariates in this model were sexual activity (0 = never had sexual intercourse; 1 = had sexual intercourse) and gender (0 = girl; 1 = boy). Sexual self-concept and sexual self-efficacy are mean-centered. ab path = 0.04 (0.02), 95% CI (0.01, 0.08)

were 100% gay/lesbian, 1.8% were not sure of their identity, and 2.3% identified as another sexual identity. More than half (63.7%) of participants had ever had sexual intercourse.

Descriptive statistics

Our first two hypotheses were supported (see Table 1): on average, adolescents who reported sexual intercourse experience had more positive sexual self-concepts than adolescents who had not had sexual intercourse. Boys had more positive sexual self-concepts than girls (p = .05). Adolescents who reported sexual intercourse experience were more likely to communicate with partners about sex compared to adolescents who had not had sexual intercourse; however, there was no difference across groups in their sexual communication self-efficacy. Girls had more sexual communication self-efficacy than boys. There were no gender differences in frequency of sexual communication.

Relationship between sexual self-concept and sexual communication

In support of Hypothesis 3, sexual self-concept was positively related to partner sexual communication self-efficacy and partner sexual communication, such that adolescents with more positive sexual self-concepts reported higher self-efficacy and more frequent partner communication (see Table 2). The full model predicting partner sexual communication, including sexual self-concept, sexual communication self-efficacy, and covariates, was significant, $F(4,166) = 12.10$, $p < .001$; $R^2 = 0.23$. This model explained 23% of the variance in sexual communication – our primary behavioral outcome. In

Table 1. Descriptive statistics.

Variable	Full Sample *M* (*SD*)	Girls *M* (*SD*)	Boys *M* (*SD*)	Between Group Comparison *t* (*p* value)	*d*	Had sexual intercourse *M* (*SD*)	Had not had sexual intercourse *M* (*SD*)	Between Group Comparison *t* (*p* value)	*d*
Sexual Self-Concept	3.46 (0.88)	3.37 (0.89)	3.64 (0.83)	−1.97 (.050)	0.31	3.61 (0.84)	3.20 (0.89)	−2.99 (.003)	0.47
Sexual Communication Self-Efficacy	3.40 (0.60)	3.54 (0.50)	3.14 (0.68)	4.07 (<.001)	0.67	3.37 (0.61)	3.46 (0.58)	0.99 (.325)	0.15
Sexual Communication Frequency	0.91 (0.48)	0.93 (0.50)	0.85 (0.44)	1.08 (.282)	0.17	1.02 (0.42)	0.71 (0.52)	−3.93 (<.001)	0.66

n = 171 for all between group analyses. *d* = Cohen's *d*. Cohen's d effect sizes are categorized as small (0.2), medium (0.5), or large (0.8)

Table 2. Regression analyses examining the association of sexual self-concept with partner sexual communication self-efficacy and partner sexual communication frequency.

	Sexual Communication Self-Efficacy					Sexual Communication Frequency				
	B	*SE*	*p*	r^a	R^2	*B*	*SE*	*p*	r^a	R^2
Gender	−0.44	0.09***	<.001	−.32		−0.15	0.07*	.044	−.08	
Sexual Activity	−0.12	0.09	.185	−.08		0.27	0.07***	<.001	.31	
Sexual Self-Concept	0.18	0.05**	<.001	.18		0.13	0.04**	.002	.27	
					.169***					.158***

n = 171. Gender: 0 = girl, 1 = boy. Sexual Activity: 0 = never had sexual intercourse, 1 = had sexual intercourse. *B* = unstandardized beta. R^2 = R-squared. *$p < .05$. **$p < .01$. ***$p < .001$.
[a]zero-order correlations are included for both models.

addition, Hypothesis 4 was supported: partner sexual communication self-efficacy partially mediated the relationship between adolescent sexual self-concept and partner sexual communication (see Figure 1).

Discussion

In this sample of adolescents who had had a sexual or dating partner in the past year, we found that adolescents who had a more positive sexual self-concept were also more confident in their sexual communication with partners and communicated about sex more frequently. Further, we found that sexual communication self-efficacy partially mediated the association between sexual self-concept and frequency of sexual communication, such that sexual self-concept was positively associated with sexual communication self-efficacy, which was in turn positively associated with frequency of sexual communication. Previous literature suggests adolescents and young adults who communicate with their partners about sexuality experience greater sexual wellbeing, including decreased sexual risk taking and improved sex-positive outcomes (Mark & Jozkowski, 2013; Widman et al., 2014). Thus, this study highlights a potential avenue for increasing sexual communication through strengthening adolescents' sexual self-concept.

By focusing on sexual self-concept, a sex-positive aspect of sexuality, this study is in line with calls for more research to holistically examine both sex-positive and sexual risk behavior among youth (Harden, 2014). Sex-positive constructs are those that are not solely focused on decreasing sexual risks (e.g., STIs/HIV) but also promoting sexual pleasure and agency. Additionally, a new emergent framework of adolescent sexual wellbeing (Kågesten & Reeuwijk, 2021) encourages researchers to attend to the connections between both personal and relational dimensions of sexual wellbeing and sex-positive components of adolescent sexuality. In this study, we found an association between two sex-positive constructs: sexual self-concept and sexual communication. In our literature review, we illustrate the connection between sexual communication and decreasing sexual risk. In line with other recent conceptualizations of adolescent sexuality (Fortenberry, 2016; Harden, 2014; Kågesten & Reeuwijk,

2021; Tolman & McClelland, 2011), this study suggests that to understand the multifaceted experience of sexual wellbeing, both sex-positive and sexual risk constructs and both personal and relational dimensions must be examined – as these components and dimensions are interrelated.

Several personal and interpersonal factors may explain the connection between sexual self-concept and partner sexual communication among adolescents. Some research suggests sexual self-concept is linked to higher general self-esteem and extraversion (Firoozi, Azmoude, & Asgharipoor, 2016; Salehi, Tavakol, Shabani, & Ziaei, 2015). Having a positive sexual self-concept may increase adolescents' confidence and comfort around their partners – especially in sexual situations – and therefore facilitate greater self-efficacy to communicate about sex and more frequent sexual communication. In addition, adolescents may acquire a more positive sexual self-concept through communication with their parents about sex (Lou, Chen, Li, & Yu, 2011). During these conversations, adolescents may have the opportunity to build the confidence around sexuality that they need to communicate with their partners and also the sex-specific communication skills they need to engage in healthy conversations about sex (Hargie, 2010). For example, parent-child sexual communication is linked to communication with dating partners among adolescents (Widman et al., 2014). Certain types of parent-child communication about sex, such as communication about sex-positive topics (e.g., sexual desire; Evans, Widman, Kamke, & Stewart, 2020), may facilitate the development of adolescents' sexual self-concept; however, more research is needed in this area.

The association between sexual self-concept and partner sexual communication frequency was partially mediated by self-efficacy to communicate with partners about sex. This is in line with health behavior theories, such as the theory of planned behavior (Ajzen, 1985), information-motivation-behavior skills model (Fisher, Fisher, Williams, & Malloy, 1994), and AIDS risk reduction model (Catania et al., 1990), which suggest that cognitive change can lead to behavior change. We found that sexual self-concept is related to communication behavior through its association with self-efficacy; however, the fact that this was only partial mediation indicates there may be other variables that mediate this relationship which have not yet been identified and should be investigated in future studies.

This study found that, on average, boys have more positive sexual self-concepts than girls. Gender norms may contribute to these gender differences. Empirical and theoretical literature on gendered sexual socialization indicates that adolescents are taught implicitly and explicitly–by their parents, peers, and the media–that girls and boys should behave differently in sexual situations (Evans et al., 2020; Hust, Rodgers, & Ran, 2013; Kreager & Staff, 2009; Simon & Gagnon, 1986). Sexual script theory asserts that while boys and men are taught that they should pursue and enjoy sex, girls are taught to be sexual "gate keepers" – concerned with the risks of sex and, in many cases, charged with preventing sexual activity (Simon & Gagnon, 1986; Wiederman, 2015). In

line with this, when boys express their sexuality, they may be praised (especially by peers) while when girls confidently pursue sex, they are more likely to be shamed (Kreager & Staff, 2009; Tolman et al., 2015). Through these processes, girls are taught to suppress their sexuality and thus, may have a more negative sexual self-concept than boys. Importantly, if girls do not feel they can express their preferences and boundaries in sexual situations, this could have harmful health consequences (Widman et al., 2014; Zimmer-Gembeck, 2013). More research is needed to thoroughly examine *why* there are gender differences in sexual self-concept and what can be done to create more equitable environments for girls and boys as they develop their sexuality. To facilitate more equitable treatment, it may be necessary to promote girls' sexual self-concept and all adolescents' respect for others' sexuality (across gender identity).

It is also important to note that previous studies have found gender differences in sexual self-concept among adolescents, though the direction of these findings has been inconsistent. While some studies, including the current study, show boys have higher sexual self-concepts than girls (Marengo et al., 2019), others show the opposite: girls have higher sexual self-concepts (Rostosky et al., 2008). Differences in the way sexual self-concept is measured across studies may explain some of the inconsistencies. Some studies, including the current investigation, evaluate sexual self-concept with items reflecting adolescents' perception of their physical appearance (e.g., "I feel I am a desirable person"; Hensel et al., 2011; O'Sullivan et al., 2006). Previous research has shown that adolescent girls have lower body satisfaction than boys (Wang et al., 2019). To the extent that sexual self-concept measures are in part tapping into body image, research may find that girls have lower sexual self-concept. In the study by Rostosky et al. (2008), body image is not as central to the sexual self-concept measure – instead the measure is focused on sexual self-esteem and anxiety – and girls are found to have higher sexual self-concepts compared to boys. Relatedly, gendered socialization may also influence the accuracy of adolescents' reports of constructs and behaviors related to sexuality (e.g., boys may overemphasize their sexuality whereas girls may underreport; Siegel, Aten, & Roghmann, 1998).

We found that adolescents who engaged in sexual intercourse had more positive sexual self-concepts than adolescents who had not had sex. This is consistent with other research on adolescent sexual self-concept and sexual activity (Hensel et al., 2011). Adolescence is a time of sexual identity development, marked by increased sexual activity (Fortenberry, 2016; Harden, 2014). Together, these findings lend themselves to a more nuanced understanding of adolescent sexuality – that sexual activity during adolescence is not inherently bad and instead can be a developmentally appropriate, normative experience (Fortenberry, 2016; Harden, 2014; Tolman & McClelland, 2011). Sexual self-concept changes and develops throughout adolescence and into adulthood as people gain sexual experience and form expectations around their sex lives

(Hensel et al., 2011). The co-development of sexual self-concept and sexual initiation during adolescence may have lasting impacts on adolescents' future sexual and dating relationships.

Limitations and future directions

This is the only recent study to investigate the relationship between sexual self-concept and sexual communication among adolescents. Although this study helps to fill a clear gap in the extant literature on adolescent sexual self-concept and sexual communication, it has some limitations that highlight important directions for future research. First, this study utilized a cross-sectional, correlational design; thus, the temporal ordering of the associations explored in this study remain unclear. Longitudinal studies are needed to confirm that changes in sexual self-concept precede sexual communication. As previously discussed, the relationship between sexual self-concept and sexual activity is cyclical (Hensel et al., 2011), whereby improvements in sexual self-concept relate to more frequent future sexual activity, which then relates to improved sexual self-concept at future time points. Future research could explore whether a similar cyclical relationship exists between sexual self-concept and sexual communication.

Another limitation was that all of our measures were self-reported; thus, social desirability bias may have influenced our results. In addition, our measure of sexual communication included frequency of communication; however, there are other aspects of communication between partners (e.g., quality, tone, timing) which may impact wellbeing. Finally, our measure of sexual activity did not include a specific definition of "sexual intercourse," a decision that was based primarily on school administrators' concerns regarding providing explicit definitions of sexual behavior. Thus, it is possible that participants may have conceptualized sexual intercourse differently. For example, in answering the question about sexual intercourse experience, some participants may have considered just experiences of penile–vaginal sex, while other participants may have considered a broader range of sexual experiences. In the future, researchers may be wise to include a more explicit definition of sex when assessing sexual activity. With that said, one advantage of allowing adolescents to self-define the term "sexual intercourse" is that it can avoid invalidating the sexual experiences of sexual and gender minority youth (for a discussion of this issue, see Maheux, Zhou, Thoma, Salk, & Choukas-Bradley, 2020).

This study included a single, relatively small sample of adolescents from the southeastern U.S. – which may limit the generalizability of results. Additionally, we were not able to attend to issues of sexual identity in this paper as the vast majority of participants identified as "heterosexual" or "mostly heterosexual." Future studies investigating the relationship between sexual self-concept and sexual communication among other populations of adolescents are needed to better understand the generalizability of the current

study results. Studies that investigate these associations in samples of LGBTQ+ adolescents, early adolescents, and pregnant and parenting adolescents may help to highlight unique pathways to healthy partner sexual communication. In addition, studies that examine cross-cultural conceptualizations of sexual self-concept – perhaps using qualitative methodologies – may help us to understand the components of sexual self-concept that are culture-specific and those that are more universal.

Conclusion

Adolescence is a time of development during which teens may engage in sexual behaviors, explore their sexuality, and develop the skills needed to communicate with their partners about sex. Unfortunately, few studies have investigated sex-positive constructs that emphasize the normativity of sexuality. The current study contributes to this limited literature. We found that sexual self-concept is linked to frequency of partner sexual communication about a number of topics, including pregnancy, consent, and sexual pleasure. Importantly, the broader literature suggests that communicating comprehensively about sex could have a number of physical, mental, and relationship health benefits.

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Notes on contributors

Reina Evans-Paulson, PhD, is a Research Scientist at innovation Research & Training in Durham, North Carolina. She conducts research related to adolescent and young adult health with a focus on implementation and evaluation of sexual health interventions, parent and family influences on adolescent sexuality, and sexual communication. She holds a B.S. in Behavioral Neuroscience from St. Edward's University and a PhD in Applied Social and Community Psychology from North Carolina State University.

Laura Widman, PhD, is an associate professor of psychology at North Carolina State University. Her research focuses on understanding and improving adolescent health, with an emphasis on sexual communication skill development and HIV/STD prevention. Her recent research also incorporates digital technologies to deliver health programming to teens.

Julia Brasileiro is a PhD Student in the Department of Applied Social and Community Psychology at North Carolina State University. She holds B.A. and MPH degrees in public health from the University of North Carolina at Chapel Hill, Gillings School of Global Public Health. Her research focuses on understanding how psychosocial factors intersect with adolescent sexual health. In addition she is interested in using behavioral and implementation science theories to adapt and implement programs to improve adolescent sexual health and wellbeing.

Anne J. Maheux is a Ph.D. student in Developmental and Social Psychology at the University of Delaware. She received her B.A. in Psychology from the University of Vermont and M.S. in Psychology from the University of Pittsburgh. Anne studies sociocultural influences on adolescent development with a focus on the role of gendered norms in sexual behavior, mental health, and academic achievement.

Sophia Choukas-Bradley, Ph.D., is an assistant professor in the Department of Psychological and Brain Sciences at the University of Delaware. She holds a B.A. degree in Psychology from Brown University and a Ph.D. in Clinical Psychology from the University of North Carolina at Chapel Hill. Her research focuses on understanding interpersonal and sociocultural influences on adolescent mental health, with an emphasis on gender and sexuality.

ORCID

Reina Evans-Paulson http://orcid.org/0000-0001-7397-6969
Laura Widman http://orcid.org/0000-0001-8117-5467

Data availability statement

The data that support the findings of this study are available from the corresponding author, Reina Evans-Paulson, upon reasonable request.

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