

## Sexual Self-Concept: Testing a Hypothetical Model for Men and Women

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*One theoretical concept receiving modest attention in contemporary sex research is the sexual self-concept (SSC). However, a lack of cohesion within this research has culminated in a collection of SSC models which overlap one another but which are not exactly the same. Therefore, a unified conceptual model of SSC needs to be established. In addition, little research has examined potential differences between genders in SSC, as most SSC research has focused on women. Using Buzwell and Rosenthal's 1996 sexual selves model as a theoretical basis, a six-factor higher-order latent SSC model was tested using confirmatory factor analysis. Lower-order factors for this model included multidimensional sexual self-esteem and sexual self-efficacy factors, as well as unidimensional arousal, anxiety, exploration, and commitment factors. A five-factor latent model (after removing the commitment and the resistance sexual self-efficacy factors) was the best-fitting model. This model was then tested for measurement and structural invariance between genders. Results indicated that while the measurement of SSC was similar between men and women, structural invariance did not hold, as men had a significantly higher latent SSC score compared to women. These findings have important implications for sexual self-concept research, as well as contributing to better understanding of human sexuality.*

Over the past 20 years, there has been a paradigm shift within sex research emphasizing a holistic view of sexual health and well-being. Health organizations and researchers now recognize emotional and mental sexual well-being as important to overall sexual health (Edwards & Coleman, 2004). Influenced by this trend, a burgeoning area of sex research that has grown in the past decade is sexual selfhood (Tolman & McClelland, 2011), defined as how individuals perceive themselves as sexual beings (Buzwell & Rosenthal, 1996). As this body of research has grown, it has become fragmented, featuring a variety of sexual selfhood measures and models that are similar but not the same. This fragmentation limits how sexual selfhood can be used to enhance understanding of human sexuality. For sexual selfhood to become a more useful construct within sex research, a cohesive, conceptual model needs to be developed

and tested. This study builds on previous sexual selfhood research, focusing on a specific area of sexual selfhood called sexual self-concept (SSC). There were two goals of this study. The first goal is to test a model based on previous SSC research and self-concept theory and research. The second goal was to examine the applicability of this model to both men and women.

### Sexual Selfhood and Sexual Self-Concept

Sexual selfhood is broadly defined as how one thinks about himself or herself as a sexual individual. Other terms that share the same conceptual definition as sexual selfhood are sexual self-concept, sexual subjectivity, and sexual self-schema. *Sexual self-concept* is the most common term within sexual selfhood research, has the largest body of research, and has the most variety in model factor structures. SSC as a whole is also a broader sexual self model compared to other models. For example, sexual self-schemata, a sexual self model that is sometimes used interchangeably with sexual self-concept, is a more specific sexual self model that focuses primarily on cognitive attributions and evaluations of the sexual self (e.g., Andersen, Cyranowski, & Espindle,

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This study was conducted as part of the first author's doctoral dissertation research at the University of Nebraska–Lincoln. The authors would like to thank Lisa J. Crockett, Gustavo Carlo, and Les Whitbeck, who provided valuable comments to the undertaking of the research presented here.

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1999). Sexual subjectivity, another sexual self model, focuses primarily on physical esteem and entitlement to sexual pleasure (Horne & Zimmer-Gembeck, 2006). Sexual self-concept models, in contrast, contain factors that deal with evaluations of cognitive, affective, interpersonal, behavioral, and physiological aspects of sexuality, as well as attributions of desire and arousal. This wider array of factors, across all models, provides a more comprehensive look at the variety of “thoughts and feelings” one can have about his or her own sexuality.

Sexual self-concept is considered an active, dynamic structure that forms by organizing perceptions of personal sexual qualities into a cohesive, internalized construct. SSC develops through both subjective interpretations of sexual experiences, as well as external feedback from others (e.g., sexual socialization, social comparisons). Other aspects of an individual’s sexuality (e.g., sexual behavior) and his or her sexual environment (for examples, see Mollen & Stabb, 2010; Thomson, 1995) form a reciprocal relationship with SSC, which develops over time. Like other domain-specific self-concepts (e.g., Marsh & Shavelson, 1985), SSC is multidimensional. Empirical models of SSC share many common lower-order factors (e.g., sexual self-esteem, self-efficacy, and anxiety), but no two models are the same. While the conceptual definition of SSC tends to be shared across models, there is less consensus for what factors belong in a model.

SSC literature typically features two types of research. The first focuses on building SSC measures (e.g., O’Sullivan, Meyer-Bahlberg, & McKeague, 2006; Snell, 1998; Vickberg & Deaux, 2005). The second focuses on relationships between SSC and other variables, such as contraceptive use (Winter, 1988), sexual behavior (Breakwell & Millward, 1997; Hensel, Fortenberry, O’Sullivan, & Orr, 2011), sexual self-efficacy (Rostosky, Dekhtyar, Cupp, & Anderman, 2008), sexual socialization (Aubrey, 2007), or sexual emotionality and gender roles (Garcia, 1999). SSC models are typically created via an exploratory factor or component analysis of a proposed SSC measure. Items used in SSC measures are typically generated via focus groups, interviews, or subject panels (Breakwell & Millward, 1997; O’Sullivan et al., 2006; Winter, 1988) or are adapted from other SSC measures (Hensel et al., 2011; Rostosky et al., 2008; Vickberg & Deaux, 2005). However, there are rarely a priori hypotheses of what factors should be included in SSC models based on previous research and theory. These exploratory methods have long been viewed by psychometric researchers as being insufficient, such that explicit hypothesis testing is necessary to advance understanding of measures and models developed with factor analytic approaches (Gorsuch, 1983, p. 134). Furthermore, results of such techniques can fluctuate based on specific modeling choices, resulting in potential misrepresentation of the true factor structure (Fabrigar, Wegener, MacCallum, & Strahan,

1999). While individual items and factors in previous studies may be specific components of SSC, the entirety of the scale and its subsequent latent factor structure may be an incomplete portrayal of SSC.

### Testing a Conceptual Model of SSC

While evaluating a hypothesized conceptual SSC model requires a strong, theoretical and empirical foundation based on prior literature, there are no specific theories pertaining to the SSC construct. With this in mind, we chose a broader sexual self model to test the conceptual SSC model. Buzwell and Rosenthal’s 1996 sexual self model was chosen given that the six factors in the model were supported by previous empirical SSC research and by self-concept research. Buzwell and Rosenthal’s (1996) original study, later replicated by Smith and Rosenthal (1998), was a taxonomical examination of different sexual self styles in adolescence based on a sexual self model. The sexual self model contained six lower-order factors (sexual self-esteem, sexual self-efficacy, arousal, exploration, anxiety, and commitment), which were proposed to form a higher-order latent factor of sexual selfhood. The authors drew on three areas of research relating sexual self-belief to sexual practices. The first two, focusing on sexual self-esteem and sexual self-efficacy, were supported with sex research investigating both sexual self components and broader self-concept theory and research. The third, focusing on sexual self-perceptions (e.g., sexual anxiety, exploration, arousal, and commitment), was based on Goggin’s (1989) work examining sexual self-perceptions and sexual health. While many researchers use Buzwell and Rosenthal’s sexual self conceptual definition, there has been very little examination of their conceptual model. Only one study has examined aspects of Buzwell and Rosenthal’s model as lower-order factors that can contribute to a higher-order latent sexual self construct (Aubrey, 2007). To date, no study has tested Buzwell and Rosenthal’s full model as a potential higher-order factor model of SSC. Through examining the SSC literature, these six factors are common components of other SSC models. Therefore, Buzwell and Rosenthal’s sexual self model may potentially serve as a cohesive, comprehensive SSC model.

### Comparing Buzwell and Rosenthal’s Sexual Self Model to Other SSC Models

Nine different SSC models were evaluated with respect to how they relate to Buzwell and Rosenthal’s six-factor model.<sup>1</sup> As seen in Table 1, every factor within

<sup>1</sup>These models were found by searching PsychInfo and Google Scholar using the term *sexual self-concept*. Models were included only if they were referred to as “sexual self-concept” models in the study.

**Table 1.** Examination of Factors within Sexual Self-Concept Models in Previous Literature through Buzwell and Rosenthal's Sexual Self Theory

<b>Buzwell and Rosenthal's Sexual Self Factor</b>						
<b>Model</b>	<b>Sexual Self-Esteem</b>	<b>Sexual Self-Efficacy</b>	<b>Anxiety/Negative Affect</b>	<b>Exploration</b>	<b>Arousal</b>	<b>Commitment</b>
Aubrey, 2007	Perceptions of worth as a sexual person, pride in one's own sexual behaviors or conduct, and perceptions of sexual attractiveness	Perception of ability and competence as a sexual agent, ability to engage in sexual behavior/safe sexual behavior, competence as a sexual partner, and ability to obtain sexual satisfaction	Negative thoughts or feelings (e.g., anxiety) of oneself as a sexual person, or perception of oneself as having negative feelings toward sex.	Perception of oneself as sexually adventurous, willing to experiment, or open to engaging in a variety of sexual behaviors	Sexual interest	None
Breakwell & Millward, 1997	Sexual esteem Body image self-consciousness None	Sexual assertiveness	Sexual anxiety	None	Sexual interest	None
Garcia, 1999	Sexual attractiveness	Responsibility items (Women's sexual awareness factor)	None	Exploration items (Men's relationship issues factor, women's sexual awareness factor)	Interest in sex items (Men's relationship issues factor, women's sexual awareness factor)	Commitment items (Men's socio-emotional and relationship issues factor, women's relationship responsiveness factor)
Hensel, Fortenberry, O'Sullivan, & Orr, 2011	Sexual experience	In control over sex items (Men's control factor)	Sexual anxiety	Sexual openness	None	None
O'Sullivan, Meyer-Bahlburg, & McKeague, 2006	None	Sexual agency	Negative sexual affect	None	Sexual arousability	None
Snell, 1998	Sexual esteem Sexual satisfaction	Sexual self-efficacy Motivation to avoid risky sex	Sexual anxiety Sexual depression Fear of sex	Permissiveness Deviance	Sexual responsiveness	None
Rostosky, Dekhtyar, Cupp, & Anderman, 2008	Sexual esteem	None	Sexual anxiety	Sexual openness	None	None
Vickberg & Deaux, 2005	None	Having an active role in sexuality (agentic sexuality factor) Responsibility and carefulness (reserved approach factor)	Negative associations	Openness and experimentation (agentic sexuality factor)	Sexual motivation	None
Winter, 1988	Items concerning positive feelings toward having sex	None	Items concerning negative feelings toward having sex	None	None	None
						Faithfulness (reserved approach factor)

Buzwell and Rosenthal's model was featured in at least one SSC model. SSC factors were classified as matching one of Buzwell and Rosenthal's factors based on similarity of conceptual definitions. Except for Snell (1998) and Garcia (1999), no SSC model contained factors that did not fit into one of the six factors in Buzwell and Rosenthal's model. Snell's and Garcia's models were the only models containing preformed factors (i.e., subscales on a self-concept measure) rather than factors created by a factor analysis. However, there is little information provided in Snell's and Garcia's studies, or in accompanying articles by the authors (e.g., Garcia & Carrigan, 1998; Snell, Fisher, and Walters, 1993; Snell, 2001), as to why these extra factors relate to a latent factor of SSC. There is also little documentation exploring the factor structure of these scales such that all subscales may relate to a higher-order latent trait of SSC. For example, it is possible that some of the extra factors within Garcia's or Snell's models are covariates of SSC but are not part of the underlying factor structure of SSC itself (e.g., Garcia & Carrigan's [1998] romanticism factor, which was the only model factor not related to other sexual variables). Furthermore, while Snell previously explored the potential factor structure of a similar measure—the Multidimensional Sexuality Questionnaire (MSQ), which featured 12 of the 20 subscales and had items similar to his Multidimensional Sexual Self-Concept Questionnaire (MSSCQ; Snell, Fisher, & Walters, 2001)—the factor structure had poor fit, indicating that each of the subscales was not an individual factor contributing to an underlying latent factor. Therefore, the factors in Garcia's and Snell's models that were not related to Buzwell and Rosenthal's model were not included in the conceptual model for this study.

### Examining Buzwell and Rosenthal through Self-Concept Literature

The measurement of self-concept, as well as its likely factor structure, is debated among researchers, as there are various different theoretical models (Byrne, 1996). Markus and Wurf (1987) argued that self-concept has both cognitive and affective components, which has been demonstrated in domain-specific self-concept research, such as academic self-concept (e.g., Arens, Yeung, Craven, & Hasselhorn, 2011; Marsh, Craven, & Debus, 1999). The six-factor SSC model has both affective (e.g., sexual self-esteem, arousal, anxiety) and cognitive (e.g., sexual self-efficacy) components. Previous self-concept research has indicated that self-esteem and self-efficacy are core components of self-concept (Oyserman, Elmore, & Smith, 2012).

There is less research on other potential dimensions of self-concept that relate to the six-factor SSC model; however, there are theoretical arguments and empirical evidence supporting that these other factors are aspects

of self-concept. The anxiety factor in SSC is consistent with Markus and Wurf's (1987) argument that there are both positive and negative affective components within self-concepts, as opposed to a unidimensional factor of low to high self-esteem. The sexual arousal factor for the SSC model is similar to the self-concept affect factor, which is defined as the level of interest in the specific domain the self-concept represents (Marsh et al., 1999). As domain-specific behavioral engagement is also an important aspect of self-concept formation (e.g., Shavelson, Hubner, & Stanton, 1976), the different types of sexual behaviors engaged in may also be important in defining one's SSC, relating to the SSC exploration factor. This may be particularly true as individuals start to increase the types of sexual stimuli that they enjoy and the associations between stimuli and affective/behavioral responses change (Fisher, 1986). Finally, social contexts and relationships with others are considered distinct domains of self-concept (e.g., Marsh & O'Neil, 1984; Byrne & Shavelson, 1996) such that by late adolescence individuals have specific self-representation factors for their perceptions of how they relate to specific others (friends, family, romantic partners), indicating that the commitment factor may be its own distinct self-concept (e.g., perception of oneself in a committed sexual relationship). While not all potential SSC factors have strong support within the general self-concept literature, given the difficulty in defining self-concept there is at least some level of support suggesting all factors may be components of a higher-order SSC factor. Taking these studies together, the use of Buzwell and Rosenthal's model as a cohesive SSC model is supported by previous SSC and self-concept research.

### SSC and Gender

To build a cohesive model of SSC, one must also account for potential gender differences. SSC may operate differently in men and women at both a structural level (i.e., differences in how the lower-order factors contribute to a higher latent factor of SSC) and as well as at a measurement level (i.e., differences in how an instrument measures a latent lower-order factor of SSC). Most SSC literature focuses on women (Aubrey, 2007; Hensel et al., 2011; O'Sullivan et al., 2006; Winter, 1988). Only one study has examined gender differences in SSC models, reporting that SSC factor structures were indeed different between genders (Breakwell & Millward, 1997).

Sexuality is a main component of socially proscribed and internalized gender roles, and thus how men and women perceive themselves as sexual beings may be different. Sexual and gender roles have an influence on individual perceptions of general sexuality as well as personal sexuality. For example, Tolman (2006) highlighted the role of compulsory heterosexuality (i.e., societal

push toward heterosexual norms through enforcing sexual roles and sexual behavior regulation) through examining the development of sexuality in adolescent girls. Although men and women may be similar in their sexual desires, feelings, and thoughts, societal sexual roles can be internalized, influencing an individual's sexuality. As SSC is formed in part by comparison with and feedback from others, these differences may influence how individuals perceive themselves not only as sexual *beings* but as sexual *men or women*. Individuals who conduct themselves sexually in a manner consistent with hegemonic masculinities and femininities (i.e., the "preferable" ways men and women should act) may receive more positive feedback and appraisal. For example, research examining the sexual double standard (i.e., that sexually active women are looked upon less favorably than sexually active men) suggests that a violation of societal sexual roles through expression of one's sexuality can lead to poorer evaluations from others (Crawford & Popp, 2003).

Other gender theories support a hypothesized difference between male and female SSC factor structures. Theories examining social constructions of gender, such as script theory, propose that sexual behavior and sexuality mean different things to men and women. For example, Gagnon and Simon (1973) proposed that the meaning of sexuality is tied to individual pleasure for men and interpersonal relationships for women. While contrasts between men's and women's sex roles in industrialized nations such as the United States may be diminishing, how men and women behave sexually, and what those behaviors mean to both the individual and society, are still reflections of a patriarchal culture that upholds traditional sex roles as a form of social control (Rutter & Schwartz, 2012). Other researchers, such as Baumeister (2000), have suggested that men and women show differences in erotic plasticity, where women's sexual response can be much more influenced by social and cultural contexts than men's sexual response, indicating that a woman's sexuality may be highly influenced by the cultural and sexual norms endorsed within her society.

The multidimensional nature of SSC may highlight sexual-role and gender-role differences. Different factors within the six-factor SSC model could relate to different sex roles; internalization of these roles may influence SSC factor structure. A sexual self-concept influenced by traditional male sex roles (see Connell & Messerschmidt, 2005) could emphasize different lower-order factors than a sexual self-concept influenced by traditional female sex roles (see Reid & Bing, 2000; Schippers, 2007). As the proposed six-factor model contains lower-order factors related to specific aspects of traditional male and female sex roles (e.g., commitment for women, exploration and arousal for men), the social feedback men and women receive may differentially influence the structures of their sexual self-concepts.

## Current Study

While previous research indicates there is a specific group of factors that relates to a higher-order latent factor of SSC, there are still questions about which factors are indicative of an overall SSC factor. Furthermore, it is unknown if a potential cohesive SSC factor can apply to both genders. The purpose of this study was to test a conceptual model of sexual self-concept and examine its applicability to men and women. Hypothesis 1 proposed that all six lower-order factors as indicated by Buzwell and Rosenthal's 1996 study (sexual self-esteem, sexual self-efficacy, arousal, anxiety, exploration, and commitment) would relate to one another in such a way that would indicate a single underlying latent SSC factor. Hypothesis 2 proposed that the conceptual SSC model would differ between men and women, evidenced by a lack of measurement invariance between men and women for the higher-order SSC factor (i.e., there will be different factor model parameters between men and women).

## Method

### Participants

The sample consisted of 230 individuals from the United States, all participants from an online survey pool. The participants were 40% men, mean age 23.3 ( $SD = 1.65$ ), 60% Caucasian American, 22% Asian American, 6.5% African American, 5.22% Hispanic, 2.17% Native American, and 3.91% Other (e.g., biracial). Most participants reported a "completely heterosexual" orientation (76%) based on a 7-point Kinsey scale measure, with 12% of participants reporting "mostly heterosexual," 6% reporting "bisexual," and 2% or less reporting "somewhat heterosexual" or "somewhat" to "completely homosexual" orientations. Most participants reported being in a romantic relationship (59.57%). The majority of these participants reported a relationship length between one to two years (40%) or three to five years (25.37%) and that they were living with their significant other (55%). Most individuals who were in a relationship stated they were "committed to each other" (not married or engaged) (48.51%), with a smaller number reporting that they were dating (25.37%), engaged (15.67%), or married (10.45%).

### Measures

The measures for this study were part of a larger questionnaire that included questions about demographic characteristics and the six-factor SSC conceptual model, as well as questions about previous sexual behavior, future sexual intentions, and sexual communication with others.

*Sexual self-concept measure.* Sexual self-concept was measured by the original questionnaire from Buzwell and Rosenthal's 1996 sexual self study. The SSC questionnaire was composed of three measures: sexual self-esteem, sexual self-efficacy, and sexual attitudes, the latter of which contained subscales measuring sexual arousal, exploration, anxiety, and commitment (Buzwell, 1996). Changes were made to the measures (as detailed in this section); however, psychometric modeling (i.e., the latent trait analyses described in the results section) was used to obtain empirical support for these decisions. The final questionnaire contained 77 items. Both the original and empirically modified questionnaires and psychometric data are available upon request.

*Sexual self-esteem.* This scale was a 24-item measure evaluating self-esteem within the sexual domain. Item response options were altered from the original 4-point scale to a 5-point scale allowing for greater variability (*Strongly agree* to *Strongly disagree*). There were four subscales: sexual behavior, sexual attractiveness, sexual conduct, and body perception. The 5-item sexual behavior subscale ( $\alpha = .82$  for women,  $\alpha = .79$  for men) assessed perceptions of one's sexual activity. The 6-item sexual attractiveness subscale ( $\alpha = .83$  for women,  $\alpha = .80$  for men) assessed feelings of sexual appeal and desirability. The 4-item sexual conduct subscale ( $\alpha = .83$  for women,  $\alpha = .83$  for men) assessed feelings of adequacy of one's behavior in sexual situations and with a partner. The body perception subscale ( $\alpha = .78$  for women,  $\alpha = .77$  men) assessed individuals' body satisfaction; seven items remained after two were removed for poor fit as per Cronbach's alpha-if-deleted.

*Sexual self-efficacy.* This scale contained 20 items assessing confidence in ability to engage in activities relating to sexual behavior. Items were rated in two ways. First, individuals rated if they were able to perform a specific behavior using a binary yes/no measure. Participants then rated their perceived confidence of performing the specific endorsed behaviors on a 5-point scale ranging from 1 (*Very uncertain*) to 5 (*Very certain*). The two question types were merged during data analysis such that reporting a "no" on the binary "can/cannot do" items was made into a score of 0 on the perceived confidence scale. Therefore, for the present study, each of the 20 items had a 6-point scale from 0 (*Cannot do at all*) to 5 (*Very certain can do*).

The sexual self-efficacy scale had three subscales: resistive, assertive, and precautions. The resistive subscale ( $\alpha = .86$  for women,  $\alpha = .85$  for men) assessed perceived ability to be responsible for, take initiative for, and say no to unwanted sexual activity. This subscale had eight items after two were removed for poor fit as per Cronbach's alpha-if-deleted. The assertive subscale

had five items ( $\alpha = .68$  for women,  $\alpha = .67$  for men) and assessed confidence in ability to be assertive in achieving sexual satisfaction. The 5-item precautions subscale ( $\alpha = .69$  for women,  $\alpha = .62$  for men) assessed self-efficacy regarding purchase and use of condoms.

*Sexual self attitudes.* This measure was originally developed by Goggin (1989). There were 38 items with four subscales: arousal, exploration, anxiety, and commitment. The original study scored items on a 4-point scale; however, the current study expanded this to a 5-point scale to increase variability. Items were rated from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

The arousal subscale ( $\alpha = .90$  for women,  $\alpha = .78$  for men) reflected feelings of sexual energy, frustration, and desire, with higher scores indicating higher arousal. There were nine items after one was removed for poor fit as indicated by the Cronbach's alpha analyses. The exploration subscale ( $\alpha = .84$  for women,  $\alpha = .86$  for men) reflected sexual adventurousness and willingness to explore sexual options, with higher scores indicating higher exploration. There were nine items after one was eliminated for poor fit as indicated by the Cronbach's alpha analyses. The anxiety subscale ( $\alpha = .84$  for women,  $\alpha = .78$  for men) evaluated anxiety, in sexual situations or when considering sexual issues. These items were reverse-coded such that a higher score indicated less anxiety to ensure that a positive factor score was equivalent to a positive sexual self-concept. There were ten items after one was removed due to poor conceptual fit with the other items. The nine-item commitment subscale ( $\alpha = .84$  for women,  $\alpha = .82$  for men) assessed interest in a monogamous sexual relationship, sex as pleasure, and sexual fidelity, with higher scores indicating more interest in a committed relationship.

## Procedure

The sample for this study was recruited from the survey pool from StudyResponse.net, an online volunteer survey panel that uses an open recruitment method allowing for interactive panelist registration (see Stanton, 2006; Stanton & Weiss, 2002, for details about recruitment and survey panel demographics). An online survey pool was used to obtain a potentially broader demographic sample than sampling methods that focus on more regional populations (e.g., college student survey pools). A sampling frame of 260 English-speaking participants from the United States, ages 18 to 25, was specified. Previous SSC studies used a limited age range for their samples, focusing on either adolescent (e.g., Hensel et al., 2011; O'Sullivan et al., 2006) or emerging adulthood (e.g., Aubrey 2007; Vickberg & Deaux, 2005) participants. A late adolescence/emerging adulthood sample allowed for comparisons between previous studies and the current results.

Power analyses estimated using the MONTECARLO procedure in Mplus Version 6 (Muthén & Muthén, 2007–2010) indicated that a sample of 220 participants was needed to achieve 80% power for analyzing lower-level factors structures. Individuals from the survey pool in the specified sampling frame were sent an e-mail asking them to complete the questionnaire and receive a \$5 dollar Amazon.com gift card. The e-mail informed potential participants that they would be asked questions about “your sexual behaviors and how you think and feel about your own sexuality.” Participants were given a link to the study online through <http://www.qualtrics.com>. The survey took approximately 25 minutes to complete. All procedures and measures in the study were approved by an institutional review board.

## Results

### Lower-Order Factor SSC Latent Factors

*Single-group lower-order latent factors.* Lower-order factors of the six-factor higher-order SSC model were first estimated using confirmatory factor analysis (CFA) with robust maximum likelihood estimation (MLR). Model fit was assessed by chi-square tests (where nonsignificance indicates perfect model fit). CFI values (.95 or higher) and RMSEA values (.06 or lower) were also used as indicators of good fit (Hu & Bentler, 1995), and CFI values of .90 or higher and RMSEA values of .10 or lower were used as indicators of acceptable fit (Barrett, 2006). Each lower-order factor was first tested for unidimensionality and reliability using the combined sample (both genders). Table 2 provides fit statistics for single-group latent factors for each of the lower-order factors. The fit of each subscale factor for the multidimensional sexual self-esteem and sexual self-efficacy factors was assessed individually before estimating a higher-order latent factor. As seen in Table 2, all factors had acceptable fit after adding error correlations, indicating high reliability and unidimensionality. Error correlations were added only if the items were highly conceptually related. For example, anxiety factor items “I would worry about physical pain while having sex” and “I would worry about showing fear or discomfort while having sex” were correlated given their similar subject matter (anxiety regarding discomfort during sex). However, even though modification indices suggested an error correlation between the items “I often feel pressured into having sex” and “I worry about enjoying having sex,” this was not added given the dissimilarity of these items.

All items loaded significantly onto their respective factors, except for the sexual self-esteem body perception factor, which did not load highly onto the sexual self-esteem factor. When the four sexual self-esteem

**Table 2.** Model Fit Statistics for Sexual Self-Concept Lower-Order Model Factors for Full Sample

Factor	Number					
	of Items	DF	Chi Square	CFI	RMSEA	SRMR
Anxiety	10	33	67.24**	.93	.07	.05
Exploration	9	24	57.19**	.94	.08	.05
Arousal	9	26	65.52**	.94	.08	.05
Commitment	9	26	50.27**	.95	.06	.05
Sexual self-esteem						
Attractive	6	9	34.62**	.93	.11	.04
Body perception	7	13	26.41	.95	.05	.07
Sexual conduct	4	2	1.27	1.00	.01	.01
Sexual behavior	5	5	4.75	1.00	.01	.02
Sexual self-efficacy						
Assertive	5	5	15.69**	.93	.10	.04
Precaution	5	4	11.17*	.94	.09	.04
Resistive	8	19	41.80**	.96	.07	.04
Sexual self-esteem, four-factor	22	205	613.27**	.78	.09	.10
Sexual self-esteem, three-factor	15	84	212.81**	.90	.08	.06
Sexual self-efficacy	18	127	247.25**	.90	.07	.08

\* $p < .05$ . \*\* $p < .01$ .

factors were estimated as contributing to a higher-order sexual self-esteem factor, sexual conduct, sexual behavior, and sexual attractiveness all had high standardized factor loadings (.76, .98, and .95, respectively), while the body perception factor loading was much lower (.47). When the body perception factor was removed, model fit was adequate after adding three error correlations (i.e., correlations of residual errors—indicating that these items are more alike than the model accounts for),  $\chi^2 = 212.81$ ,  $p < .05$ , CFI = .90, RMSEA = .08, SRMR = .06. The complete set of factor loadings of all items for lower-order factors are available upon request from the author. Taken together, these analyses indicated that the lower-order SSC factors were unidimensional, in that the individual items were all measuring the same latent construct. Furthermore, all three sexual self-efficacy factors were individual dimensions of a higher-order sexual self-efficacy factor, while three of the sexual self-esteem factors also related to one another, indicating a higher-order factor.

*Gender group measurement and structural invariance for lower-order factors.* Next, each lower-order factor was tested for measurement and structural invariance between genders using a rescaled  $-2\Delta LL$  test for nested model comparisons. Measurement invariance was first tested; if there was at least partial measurement invariance (i.e., at least half of all items were invariant), structural invariance was then tested. All lower-order factors had at least partial measurement invariance (these results are available upon request from the author), indicating that all factor concepts were measured similarly for men and women. However, not all factors had full

structural invariance. Specifically, women had higher factor mean scores for sexual self-esteem sexual conduct, sexual self-efficacy resistive, and commitment factors, while men had a higher factor mean score for arousal and exploration factors. Therefore, men and women were able to be analyzed together regarding the higher-order latent model and compared for higher-order factor invariance.

**Higher-Order Latent SSC Model**

To examine hypothesis 1, a higher-order latent factor was then estimated to account for the relationships among the six lower-order SSC factors. As the higher-order model was fairly complex, plausible factor score values (Asparouhov & Muthén, 2010; Wu, 2005) were used as the lower-order observed variables to accommodate for small sample size and properly represent the uncertainty inherent in each person’s factor score. Plausible factor score values were created by using the best-fitting measurement invariance model parameter estimates for each factor in men and women to generate a range of potential scores for each individual using a Bayes estimator. The Bayes estimator uses a Markov Chain Monte Carlo algorithm to generate data based on a prior distribution, which, combined with the data likelihood, will form a posterior distribution for the factor score of each participant (Muthén, 2010). A total of 50 data sets of plausible values for each factor for each participant were created. Then, the six-factor SSC model was tested through an imputation method (Asparouhov & Muthén, 2010) that averaged model fit and model estimates over all 50 data sets.

When the six-factor model was estimated using the factor scores, the model did not have good fit,  $\chi^2(33) = 141.42, p < .05, CFI = .76, RMSEA = .12, SRMR = .11$ . As seen in Figure 1, the commitment factor was particularly problematic, as it had the lowest

factor loading score, indicating a poor relationship with the other factors. When the commitment factor was removed, the resulting model had better fit with an improved RMSEA,  $\chi^2(25) = 88.90, p < .05, CFI = .84, RMSEA = .10, SRMR = .08$ , although fit was still inadequate. Another potential area of misfit was the sexual self-efficacy resistive lower-order factor: while this factor did relate positively with the other sexual self-efficacy factors precaution ( $r = .51$ ) and assertion ( $r = .31$ ), it did not have strong relationships with any other factor besides commitment. Therefore, the sexual self-efficacy resistive lower-order factor was also removed, resulting in improved but still inadequate model fit,  $\chi^2(19) = 57.92, p < .05, CFI = .89, RMSEA = .10, SRMR = .06$ . After adding an error correlation between (lack of) anxiety and sexual self-esteem sexual conduct, the resulting five-factor model shown in Figure 2 had acceptable model fit,  $\chi^2(18) = 37.70, p < .05, CFI = .94, RMSEA = .07, SRMR = .06$ .

Finally, two comparisons were made to assess whether the five-factor model was the best way to account for the correlations among the SSC constructs. First, the fit of a model in which all eight lower-order factors were correlated with one another was compared to the nested five-factor model. The fit of the correlated factors model was good,  $\chi^2(14) = 30.50, p < .05, CFI = .95, RMSEA = .07, SRMR = .04$ , and was not significantly different from the nested five-factor model,  $\chi^2(4) = 7.20, p > .05$ , indicating that the five-factor model adequately described the relationships among the latent constructs. Second, a one-factor SSC model was estimated in which all eight lower-order factors loaded directly onto a single SSC factor to examine whether the hierarchical factor structure was really necessary. This model had poor fit,  $\chi^2(19) = 78.45, p < .05, CFI = .83, RMSEA = .12, SRMR = .07$ , indicating that the sexual self-esteem and sexual self-efficacy lower-order factors were in fact more related to each

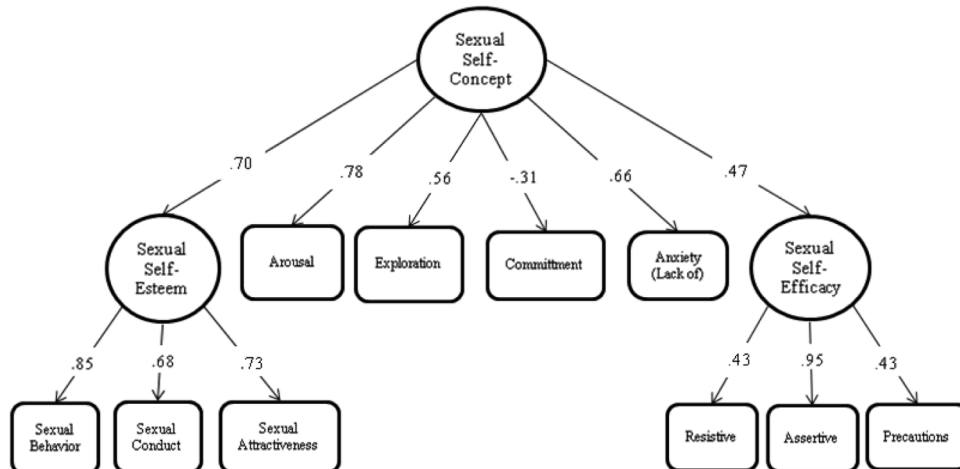


Figure 1. Standardized factor loadings for hypothesized six-factor sexual self-concept model.



SEXUAL SELF-CONCEPT: HYPOTHETICAL MODEL

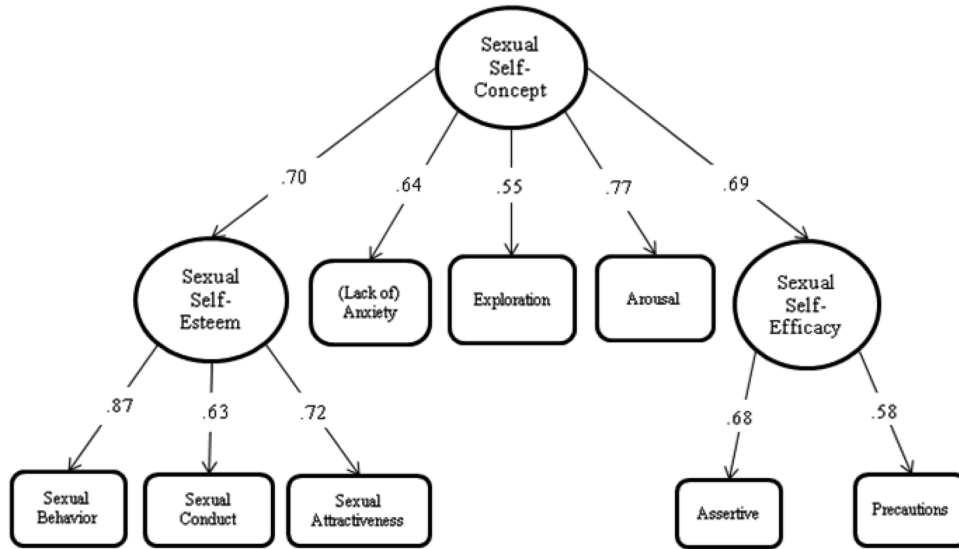


Figure 2. Standardized factor loadings for final five-factor sexual self-concept model.

other than would be predicted by a single, more general SSC factor. Taken together, these results indicate that a five-factor higher-order model, with two multidimensional lower-order factors, was empirically supported.

**Measurement and Structural Invariance of Latent SSC Factor**

To test hypothesis 2, the higher-order five-factor latent model was tested for measurement and structural invariance between genders using the same steps as the lower-order factor analyses. As these models were estimated using maximum likelihood (ML), chi-square difference tests were used to test for measurement invariance. Table 3 displays correlations between all eight lower-order factors for men and women. The configural model for the two gender groups had good model fit,  $\chi^2(34) = 42.75, p < .05, CFI = .97, RMSEA = .05, SRMR = .05$ , indicating the factor structure of the model operated similarly for men and women.

First, to examine metric invariance, the loadings for lower-order values for sexual self-esteem and sexual

self-efficacy were constrained to be equal across groups. For lower-order factors, one loading on each factor was constrained to a value of one across groups, while the higher-order factor variance was constrained to one in the reference group (men). The model did not fit significantly worse, indicating full metric invariance (the lower-order factor loadings related similarly to the higher order factor) between groups,  $\Delta\chi^2(7) = 4.34, p > .05$ . Second, to examine scalar invariance, when intercepts were constrained between groups, the model fit significantly worse,  $\Delta\chi^2(7) = 13.38, p > .05$ . After testing each intercept, results indicated that the sexual self-efficacy factor was the source of the misfit; when freed, either intercept for precaution or assertion improved fit such that the partial scalar and full metric models were equivalent,  $\Delta\chi^2(6) = 3.08, p > .05$ . Third, residual variances were constrained between groups; model fit was significantly worse,  $\Delta\chi^2(7) = 13.58, p > .05$ . When the arousal factor residual variance was freed, the fit of the partial scalar and residual models was equivalent,  $\Delta\chi^2(6) = 4.48, p > .05$ . Finally, the residual covariance was constrained between groups,

Table 3. Correlations between Five-Factor Sexual Self-Concept Plausible Value Factor Scores for Men and Women

	1	2	3	4	5	6	7	8
1. Sexual self-esteem: Sexual attractiveness	—	.63**	.51**	.24**	.23*	.38**	.35**	.23*
2. Sexual self-esteem: Sexual behavior	.65**	—	.56**	.49**	.36**	.48**	.51**	.32**
3. Sexual self-esteem: Sexual conduct	.55**	.53**	—	.37**	.33**	.63**	.40**	.24*
4. Arousal	.29**	.36**	.39**	—	.56**	.53**	.41**	.26**
5. Exploration	.04	.13	.17	.45**	—	.28**	.29**	.31**
6. Anxiety (lack of)	.34**	.40**	.53	.45**	.13	—	.40**	.24*
7. Sexual self-efficacy assertive	.22	.24*	.27*	.24*	.15	.36**	—	.44**
8. Sexual self-efficacy precaution	.12	.23*	.25*	.19	.24*	.22	.39*	—

Note. Correlations for women are on the upper diagonal; correlations for men are on the lower diagonal. \* $p < .05$ . \*\* $p < .01$ .

which resulted in equivalent fit,  $\Delta\chi^2(1) = 1.17$ ,  $p > .05$ . Therefore, there was partial measurement invariance between groups, such that the five-factor model operated similarly for men and women.

Structural invariance was then tested by constraining each factor variance to one in the comparison group (women). The model became significantly worse when the variances for the sexual self-esteem factor,  $\Delta\chi^2(1) = 8.53$ ,  $p > .05$ , sexual self-efficacy,  $\Delta\chi^2(1) = 15.39$ ,  $p > .05$ , and the SSC factor,  $\Delta\chi^2(1) = 5.04$ ,  $p > .05$ , were constrained between groups; women had more factor variability for all three factors. In addition, on average women scored 0.89 lower than men for the overall factor mean. Therefore, while the five-factor model demonstrated partial measurement invariance, it did not demonstrate structural invariance.

### Post Hoc Analysis

While the commitment factor was not part of the final model, and this model operated similarly for men and women, there was a possibility that the commitment factor would be part of a model that fit only for women, as suggested by an emphasis on commitment in women's sexual scripts (e.g., Gagnon & Simon, 1973). Therefore, a six-factor model in which commitment was included was estimated for a women-only sample. This model did not have good fit,  $\chi^2(25) = 59.23$ ,  $p < .05$ , CFI = .87, .87, RMSEA = .10, SRMR = .08. Therefore, it was concluded that, even for women, the commitment factor was not part of the higher-order latent SSC model.

### Discussion

The purposes of this study were to (a) test a hypothesized multidimensional model of SSC based on Buzwell and Rosenthal's (1996) sexual self model and (b) examine applicability of the best-fitting SSC model for men and women. We hypothesized that a six-factor SSC model would have the best fit but that this model would not be measured similarly for men and women. Although neither hypothesis was supported, results of this study give important insights into SSC as a multidimensional factor and its applicability across genders.

While the hypothesized six-factor SSC model was not supported when tested, a five-factor solution was found to be the best-fitting model. Eight constructs were represented in this final model. There were two multidimensional factors, sexual self-esteem and sexual self-efficacy, which had three and two lower-order factors, respectively. There were also three unidimensional factors: arousal, exploration, and anxiety. While this model does not fully support Buzwell and Rosenthal's model of the sexual self, it does support the theory that sexual self-concept is a multidimensional construct composed of affective and cognitive evaluations regarding how

individuals feel about themselves as sexual beings. These results also support previous SSC models that have included these factors in their models, as each one of the five factors was present in at least two previous SSC models. Therefore, a link among previous disconnected models has been provided in this study, indicating that when the common factors within these previous models are taken together, there is an underlying comprehensive model of SSC. The five-factor higher-order SSC model is also supported by self-concept theory and research. Self-concept is a broader, more abstract concept that can be deconstructed into more specific descriptive and evaluative categories, particularly by late adolescence (e.g., Marsh & Shavelson, 1985). This indicates that the different aspects of SSC independently contributing to an overall model should neither be overlooked nor clustered together.

The two factors that were not retained—commitment and the resistive sexual self-efficacy factor—also provide insight into the multidimensional nature of SSC. The commitment factor—which measured interest in a monogamous sexual relationship, sex as pleasure, and sexual fidelity—did not relate highly with the other SSC factors. Only one previous SSC model featured a commitment factor (Breakwell & Millward, 1997), and only for the women in the sample, thus having the least amount of support within previous SSC models. While it is possible that the commitment factor is truly not an aspect of sexual self-concept, it may also be possible that the present study was not adequate in capturing the relationship between SSC and commitment. Comparisons were not made between individuals who were and were not in committed relationships. While it is possible that overall SSC is more global than situation specific (i.e., a construct that applies to the general self rather than the self within different types of sexual relationships), it is also possible that sex and sexuality take on different meanings when individuals become part of a committed couple. For individuals within committed relationships, commitment may be more important to one's SSC.

Another possible explanation lies with the commitment measure itself, as well as how commitment relates to broader sexuality. The commitment measure was the only one to emphasize the importance of the sexual partner; the other measures of sexual self-concept focused on the individual's own sexual thoughts, feelings, and conduct. Commitment items focused not on how individuals may think and feel about themselves as sexual but rather if they prefer a specific relationship context within which sex can occur. SSC may be a more abstract understanding of one's sexuality across various interpersonal contexts. Thoughts and feelings about the sexual self may be distinct from thoughts and feelings about the sexual self in a specific context of a relationship.

The five-factor model also did not feature the resistive sexual self-efficacy factor. This factor assessed perceived ability to be responsible for, take initiative for, and be

resistive to unwanted sexual activity. This factor is different from the others in that while all other factors focus on topics pertaining to the *engagement* of sexual activity; this factor focuses on *lack* of engagement. Self-efficacies, broadly defined, are beliefs about ability to “organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3). Believing you can refuse sexual advances may relate more to power in relationships and susceptibility/influence of others than beliefs about one’s ability to engage in sexual behavior. In contrast, the assertive and precaution sexual self-efficacy factors include situations/behaviors that relate to actually engaging in sexual behavior, such as the belief that you can efficiently protect yourself from negative sexual consequences, or that you can initiate sex, rather than waiting for someone else to initiate it. While sexual self-efficacy was a part of overall SSC, the relationship between sexual self-efficacy and other SSC factors seemed to be task specific, a point other researchers have noted regarding relationships between self-concept and self-efficacy within specific domains (e.g., Bong & Skaalvik, 2003).

While both resistive self-efficacy and commitment were not part of the final model, this does not mean that they are not important aspects of one’s sexuality but rather that they may be related more to specific contexts (e.g., refusal of sex as a specific task; a committed or casual relationship as a specific relational setting). Rather, their exclusion seems to indicate that the SSC model captured here may be a higher-level abstraction of how individuals see themselves as sexual beings, an accomplishment in self-concept formation typically achieved by late adolescence (Harter, Bresnick, Bouchey, & Whitesell, 1997). However, this does not mean that commitment attitudes, resistive self-efficacy, or other aspects of sexuality will not be influential in shaping SSC within specific contexts or over time. As sexuality is a culmination of biological, cognitive, emotional, social, and interpersonal qualities (e.g., DeLamater & Hyde, 1998), there will be a variety of contexts, tasks, situations, and physiological mechanisms that impact the way individuals think about themselves as sexual persons. In turn, SSC can be seen as one of many constructs within the whole of human sexuality that interacts with other aspects of sexuality such as behavior and expectations.

Age is an important context to consider when evaluating this model and interpreting the present results. The current study used a late adolescent/emerging adult population to be comparable to previous research. However, the developmental nature of self-concepts must also be taken into account, given that both sexuality and self-concepts develop during adolescence. SSC is strongly influenced by sexual experience and with more sexual experiences over adolescence and young adulthood, and individuals will be able to cultivate a more sophisticated SSC. Furthermore, self-concepts

become less context dependent and more integrated into a higher-level abstraction over adolescence (Harter et al., 1997; Harter, 1999), while at the same time becoming more differentiated (i.e., more multidimensional). It is possible that in early to middle adolescence, due to both a potentially lower amount of personal sexual experiences as well as less mature cognitive skills, SSC has fewer lower-level factors (less differentiation) and is more dependent on specific contexts. Younger adolescents may have multiple representations of themselves as sexual beings depending on the situational or social context they are in, as they do for other domain-specific self-concepts. Therefore the full five-factor model of SSC may be fully actualized only by late adolescence. It is also unknown whether SSC factor structure continues to change beyond early adolescence, based on changes that may happen in later adulthood (e.g., physiological changes). As both sexuality and self-concept are dynamic and developmental in nature, it is important to extend these qualities to SSC as well. Therefore, it cannot be assumed that the five-factor model obtained in the current study is applicable to all age ranges.

While the second hypothesis proposed that men and women would have different lower-order structures for the higher-order SSC latent factor (i.e., no higher-order measurement invariance), this was not the case. There was at least partial measurement invariance between groups for all lower-order factors, as well as the higher-order SSC factor. These findings highlight that men and women have many similarities regarding how they feel as sexual individuals. While male and female sociocultural environments may define male and female sexual roles in different ways, the more personal the area of sexuality, the more similarities there may be. For example, a qualitative study by Masters, Case, Wells, and Morrison (2013) examined how young men and women endorse or eschew traditional sexual scripts. While all participants in the study noted existence of the traditional hegemonic sexual scripts on a cultural level, endorsement of these scripts at either individual or dyadic levels varied. The authors noted that while some individuals generally adopted traditional sexual scripts into their own sex lives, others constructed their own sexual scripts, transforming the traditional scripts. While the sample in the study by Masters and colleagues (2013) was small, other studies (e.g., Dworkin & O’Sullivan, 2005; McCabe, Tanner, & Heiman, 2010) have also highlighted discrepancies between societal and personal sexual scripts. As SSC is a personal area of sexuality, the present results support the idea that personal sexual beliefs may not always conform to societal sex roles and norms.

While SSC had the same underlying factors for men and women, traditional hegemonies may be influential at a structural level (e.g., mean and variance). While the present SSC model had partial measurement

invariance between genders, it did not have structural invariance. Men had more positive overall sexual self-concept factor scores on average compared to women, as well as higher factor scores of arousal and exploration, parallel to traditional sex roles. While the lower-order factors are equally important contributors of SSC for men and women, the levels of specific lower-order SSC factors may be influenced by predominant sex roles within society.

### Limitations and Implications of the Study

There were several limitations within this study. First, results may not be generalizable to other cultures or other ages, especially because the age range of the current study sample was fairly narrow and self-concept is a developmental construct that may change with experience, socialization, and physiological change. Furthermore, the sample was composed of mostly heterosexual individuals; future studies will need to examine whether this model also applies to lesbian, gay, bisexual, and transgender (LGBT) individuals. As with most studies on sexuality, self-selection bias was also a potential limitation, given that those who agree to participate may be more open to talk about their sexuality (e.g., Wideman, 1999). Finally, complex statistical procedures such as the one used in this study often need large sample sizes. Although this need was minimized by using plausible factor score values, it is possible some analyses were underpowered and unable to detect significant differences when testing for invariance.

As with all initial investigations, replication of this model—and its extension to different populations—will be important for establishing evidence for its validity. Future research should also focus on examining potential relationships with other areas of sexuality, particularly those that may influence SSC, such as sexual behavior and socialization. In addition, SSC also has potential applications for the study of sexual development. As self-concepts tend to differentiate over time (e.g., Harter, 1999), the potential for SSC to differentiate (i.e., from a model with few factors to five factors) with age should also be examined.

The current results also have implications for practice. Theoretically, a cohesive SSC model also helps contribute to a holistic view of sexuality (e.g., Graber, Brooks-Gunn, & Galen, 1998; Halpern, 2006) and sexual well-being (e.g., World Health Organization, 2010), in which mind, body, and environment are all important components contributing to positive sexual development and health. A positive perception of oneself as a sexual individual should also be an aspect of healthy sexuality. Finally, SSC can be important for policy interventions such as sexual education. Youth report that they desire more information about emotional and cognitive aspects of sex in sex education courses (e.g., Allen, 2008). Using

SSC as a guide, educators would be able to enhance current sexual education curricula to focus on aspects of cognitive and emotional aspects of sexual health. Students could reflect on their own perceptions of themselves as sexual individuals and receive feedback designed to promote a more positive SSC through increasing efficacy and esteem, decreasing anxiety, and discussing appropriate ways to channel arousal and exploration.

As research on sexuality continues to expand, researchers are starting to investigate areas that have previously been neglected in sexual science. Like other domains of human experience, self-concept is an important component of sexuality. SSC research is still a burgeoning field, and much more needs to be understood about how SSC develops and interacts with other aspects of sexuality. While this study is the first to examine a cohesive model of SSC, there is still much more research needed in order to establish a definitive model. However, a more cohesive model of SSC can help unify previous literature, not only allowing for a more complete understanding of SSC itself but also helping pave the way for a greater, more comprehensive understanding of human sexuality.

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