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Attachment Insecurities and Women's Sexual Function and Satisfaction: The Mediating Roles of Sexual Self-Esteem, Sexual Anxiety, and Sexual Assertiveness

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We examined the potential role of three mediators—sexual self-esteem, sexual anxiety, and sexual assertiveness—of the association between romantic attachment insecurities (anxiety and avoidance) and two aspects of women's sexual functioning: sexual function and sexual satisfaction. A sample of 556 women aged 18 to 30 agreed to complete an online series of validated questionnaires assessing attachment insecurities and several aspects of sexual functioning. Lower sexual self-esteem and higher sexual anxiety mediated the associations between attachment anxiety and lower sexual function and satisfaction. Lower sexual self-esteem and higher sexual anxiety also partially mediated the links between attachment-related avoidance and the two sexual functioning variables. Sexual assertiveness, however, did not mediate these associations. A significant interaction between attachment anxiety and avoidance was also found to predict sexual satisfaction, with women high in avoidance and low in anxiety being the least satisfied. Results are discussed in terms of theoretical and clinical implications.

Sexual satisfaction is a strong predictor of relationship satisfaction (e.g., Butzer & Campbell, 2008) and of general personal well-being (Davison, Bell, LaChina, Holden, & Davis, 2009). Lack of affection and the presence of sexual difficulties are among the most common reasons for seeking couple therapy (Doss, Simpson, & Christensen, 2004) and for separating or breaking up (De Graaf & Kalmijn, 2006). According to studies by Laumann and colleagues, close to 50% of adults report being dissatisfied with sexual aspects of their lives (Laumann, Gagnon, Michael, & Michaels, 1994), whereas 31% of men and 43% of women report having experienced some form of sexual difficulty during the previous year (Laumann, Paik, & Rosen, 1999). It is therefore important to understand potential determinants of both sexual satisfaction, a subjective variable, and sexual function, a more objective marker of sexual functioning. A growing body of research has used adult attachment theory (Hazan & Shaver, 1987; Mikulincer & Shaver, 2007) as a framework for studying the

relational dynamics associated with functional and dysfunctional sexual interactions (for reviews, see Birnbaum, 2010; Dewitte, 2012; Mikulincer & Shaver, 2007).

More recently, some authors have recommended that researchers identify specific mechanisms that mediate (or explain) the association between attachment insecurities and sexual dissatisfaction (e.g., Butzer & Campbell, 2008; Dewitte, 2012). Such efforts should also include measures of sexual function (Brassard, Péloquin, Dupuy, Wright, & Shaver, 2012). The present study enlarges the literature on women's sexual relationships by examining the possible role of three mediators of the link between attachment insecurities (anxiety and avoidance), on one hand, and sexual function and satisfaction, on the other. These three proposed mediators are sexual self-esteem, sexual anxiety, and sexual assertiveness.

Attachment Theory

For 25 years, adult attachment theory has provided a framework for studying the development and maintenance of affectional bonds in various phases of a

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person's life (Hazan & Shaver, 1987; Mikulincer & Shaver, 2007). The theory is based on previous work by Bowlby (1982) and Ainsworth, Blehar, Waters, and Wall (1978), who focused on young children's emotional attachments to their parents and other caregivers. According to the theory, these early attachment relationships are the foundations of a person's internal working models, scripts, or schemas of self and relationship partners, which in turn influence feelings and behavior within close relationships (Ainsworth et al., 1978; Bowlby, 1982; Cassidy & Shaver, 2008).

According to many researchers (e.g., Grossmann, Grossmann, & Waters, 2005; Simpson, Collins, Tran, & Haydon, 2007), children's measurable attachment orientations tend to persist and become more elaborated throughout childhood, adolescence, and adulthood unless circumstances (e.g., traumas; painful relationship experiences; new attachment figures, whether supportive or not) modify these orientations. Of special interest here, in adulthood, individuals may become emotionally attached to romantic partners and rely on them as major sources of safety, security, and support.

Building on work by Bartholomew and Horowitz (1991), Brennan, Clark, and Shaver (1998) conceptualized individual differences in adult attachment in terms of two relatively independent dimensions of attachment insecurity: anxiety and avoidance. Attachment anxiety is characterized by fear of being rejected and abandoned by one's partner; attachment-related avoidance, by discomfort with emotional closeness and interdependence with a partner. Lower levels of attachment anxiety and avoidance are indications of attachment security (i.e., sense of self as lovable and sense of others as trustworthy). In the most recent models of adult attachment (Mikulincer & Shaver, 2003, 2007), strategies for regulating emotions have become an important feature of individual differences in adult attachment patterns. Attachment security is characterized by effective regulation of emotions, whereas attachment insecurities are thought to interfere with optimal emotion-regulation: anxiety by heightening rumination, negative emotional expression, and avoidance by encouraging emotional suppression and failure to self-disclose feelings to a partner. More specifically, attachment anxiety is characterized by "strategic hyperactivation" of what Bowlby (1973) called the attachment behavioral system, which involves extreme vigilance concerning a partner's availability, love, and commitment, as well as an excessive need for proximity and reassurance. In contrast, attachment-related avoidance is characterized by "strategic deactivation" of the attachment system, which reduces a person's conscious feelings of vulnerability to rejection and the normal wish to rely on others for safety and security (Mikulincer & Shaver, 2003, 2007). These emotion-regulation strategies have been shown to affect people's experiences in intimate relationships (for a review, see Feeney, 2008), including sexual experiences.

Attachment and Sexuality

Shaver, Hazan, and Bradshaw (1988) conceptualized love relationships in terms of three behavioral systems mentioned by Bowlby (1982): attachment, caregiving, and sex. These systems are theorized to influence one another and to influence feelings and behaviors in relationships (Gillath & Schachner, 2006). Typically, a romantic partner serves as an attachment figure (i.e., caregiver) and as a sexual partner (Hazan & Zeifman, 1994). The physical proximity and intimacy involved in sexual interactions contribute to the formation and maintenance of attachment bonds and to the quality of romantic relationships (e.g., Birnbaum, 2010; Johnson & Zuccarini, 2010; Hazan & Zeifman, 1994). Sexuality may also be used in attempts to satisfy attachment needs (e.g., seeking a feeling of safety, reducing anxiety, boosting self-esteem); hence the two forms of attachment insecurity (anxiety and avoidance) are related to different patterns of sexual motivation and behavior (e.g., Davis, Shaver, & Vernon, 2004; Dewitte, 2012).

According to attachment theory and research, attachment-anxious individuals are particularly vigilant for signs of a partner's availability, commitment, and continuing interest (Fraley & Shaver, 1997), making them especially vulnerable to feelings of rejection during sexual interactions. Their intense desire to feel valued sexually can lead them to agree to otherwise unwanted sexual acts (Gentzler & Kerns, 2004; Tracy, Shaver, Albino, & Cooper, 2003) or to have sex just to retain their partner's interest in the relationship (Schachner & Shaver, 2004; Tracy et al., 2003). Research has shown that anxious adolescents and adults have both subjective and objective problems with sexual functioning: They report relatively low sexual satisfaction (Birnbaum, 2007; Brassard et al., 2012; Butzer & Campbell, 2008; Stephenson & Meston, 2010), low sexual arousal and orgasmic responsivity (Birnbaum, 2007), and painful intercourse (Granot, Zisman-Ilani, Goldstick, & Yovell, 2011).

In contrast, avoidant individuals attempt to retain a sense of distance and lack of vulnerability in the sexual realm, because of their discomfort with intimacy and their general wish to remain self-reliant (Dewitte, 2012; Mikulincer & Shaver, 2007). In previous studies, attachment-related avoidance has been associated with two strategies for maintaining psychological distance: (a) more attempts to avoid sex with one's primary, long-term partner (Brassard, Shaver, & Lussier, 2007) and (b) greater acceptance of and engagement in casual sex (Brennan & Shaver, 1995; Gentzler & Kerns, 2004). More avoidant individuals also report relatively low sexual satisfaction (Brassard et al., 2012; Butzer & Campbell, 2008), a relatively low self-perceived sex drive, and low enjoyment of particular sexual interactions (Tracy et al., 2003). In studies of women, avoidance is also related to low levels of

sexual excitement (Birnbaum, 2007), low orgasm frequency (Cohen & Belsky, 2008), and sexual pain (Granot et al., 2011).

Although many studies have found associations between attachment orientations and aspects of sexuality, the mechanisms responsible for these associations are largely unknown (e.g., Butzer & Campbell, 2008; Dewitte, 2012). Some authors have suggested various aspects of emotion regulation as possible mediators (Dewitte, 2012, Mikulincer & Shaver, 2007). Indeed, the attachment system has been described as an “emotion regulation device” that is oriented toward distress alleviation and uses different strategies to regulate negative emotional experiences (Dewitte, 2012; Mikulincer & Shaver, 2008). Attachment insecurities may interfere with comfortable and rewarding sexuality by causing a person to filter sexual feelings and interactions through a negative lens, shaped, for example, by low sexual self-esteem, sexual anxiety, and lack of communication with one’s partner, including inadequate sexual assertiveness (i.e., difficulty expressing emotions and needs to one’s partner). In the present study, these are the three proposed mediators. According to Baron and Kenny (1986, p. 1176), “a given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and the criterion.” In this case, the proposed mediators address how or why there are empirical links between attachment insecurities and sexual function and satisfaction.

Sexual Self-Esteem

According to Snell, Fisher, and Walters (1993), sexual self-esteem includes positive regard for and confidence in one’s capacity to experience sexuality in a satisfying way. Sexual self-esteem contributes both to interpersonal functioning and to the development of a healthy sex life (Giordano & Rush, 2010; Mayers, Heller, & Heller, 2003). So far, only one study (Gentzler & Kerns, 2004) has shown that global self-esteem partially mediates the association between attachment insecurities (anxiety and avoidance) and sex-related negative affect, but those authors did not specifically measure *sexual* self-esteem. Many authors claim that sexual self-esteem, because of its specificity, is a better construct to assess in the context of sexual relationships (Oattes & Offman, 2007; Zeanah & Schwarz, 1996). Sexual self-esteem is related to sexual satisfaction (Ménard & Offman, 2009) and (negatively) to sexual difficulties, such as sexual pain (Gates & Galask, 2001). Within the attachment literature there have been many studies showing that both kinds of attachment insecurity, but especially attachment anxiety, are negatively related to global self-esteem (Gentzler & Kerns, 2004; for a review, see Mikulincer & Shaver, 2007). Both anxious and avoidant individuals are relatively uncertain of their ability to gratify their sexual needs (Tracy et al., 2003), have negative

sexual self-schemas (Shafer, 2001), and hold less positive views of their own physical attractiveness (Bogaert & Sadava, 2002).

Sexual Anxiety

Sexual anxiety is defined as the tendency to experience tension, discomfort, and anxiety about the sexual aspects of one’s life (Snell et al., 1993). One might expect anxiety to interfere with normal sexual arousal and enjoyment, but the results of experimental studies are mixed (van den Hout & Barlow, 2000). Some have shown that experimentally induced anxiety interferes with women’s sexual arousal (but only when paired with distracting tasks; Elliott & O’Donohue, 1997). One study found an increase in women’s physiological sexual arousal and a decrease in subjective sexual arousal under anxiety-enhancing conditions (Palace & Gorzalka, 1990). Using self-report measures, however, sexual anxiety has been associated with lower sexual pleasure (Birnbaum & Gillath, 2006). With regard to attachment orientations, research has found that attachment-anxious individuals report more sexual anxiety (Davis et al., 2006) and more sexual guilt and distractions (Birnbaum, 2007). Although avoidant individuals tend to deactivate their attachment systems and minimize or deny negative feelings (Mikulincer & Shaver, 2007), both attachment anxiety and avoidance have been associated with negative feelings, disappointment, and interfering thoughts (Birnbaum, Reis, Mikulincer, Gillath, & Orpaz, 2006). We therefore expected both attachment anxiety and avoidance to be associated with greater sexual anxiety.

Sexual Assertiveness

Sexual assertiveness can be defined as the ability to communicate sexual needs and to initiate desired sexual behavior with a partner (Shafer, 1977; Snell et al., 1993). Greater sexual assertiveness is associated with greater sexual satisfaction in studies of women (Bridges, Lease, & Ellison, 2004; Haavio-Mannila & Kontula, 1997; Ménard & Offman, 2009). Sexual assertiveness is also associated with better sexual functioning (Hurlbert, 1991). According to Ménard and Offman (2009), sexual assertiveness involves being able to go beyond disclosing a sexual preference to a partner to actively making requests and initiating behaviors, acts that entail greater interpersonal risks (e.g., rejection) than disclosure alone.

Research has shown that attachment-anxious individuals have problems with sexual assertiveness (Davis et al., 2006) as well as a greater likelihood of being involved in unwanted sexual activity (Impett & Peplau, 2002; Tracy et al., 2003). According to Impett and Peplau (2002), attachment-anxious women often engage in sex because of fear that their partner will lose interest in them or out of a sense of obligation (the latter is true for avoidant women as well). Avoidant individuals’

negative models of others are likely to limit their inclination to disclose intimate preferences to their partner, although they seem open to discussing contraception (Feeney, Peterson, Gallois, & Terry, 2000). Davis and colleagues (2006) have shown that both attachment anxiety and avoidance are associated with inhibited expression of sexual needs. We therefore expected that both anxious and avoidant women would report lower sexual assertiveness.

The Present Study

The present study is part of a larger project on “emerging adults” (Arnett, 2000, 2004)—individuals who are progressing through late adolescence and early adulthood. Arnett has explained that, in modern industrial societies, the transition to full adulthood is becoming more extended than in the past. This is a time when many people are engaged in the exploration of intimacy and sexuality, and when many will form and dissolve close relationships, some of which will involve emotional attachment (Hazan & Zeifman, 1994).

The goal of the present study was to examine the potential role of three mediators—sexual self-esteem, sexual anxiety, and sexual assertiveness—in explaining associations between attachment insecurities (anxiety, avoidance) and two key aspects of sexual functioning: sexual function and satisfaction. Using a large sample of Canadian young adult women, we hypothesized that attachment anxiety and avoidance would be related to lower sexual self-esteem, higher sexual anxiety, and lower sexual assertiveness. These variables, in turn, would be related to lower sexual function and satisfaction. Despite the similarity of the hypotheses formulated for attachment anxiety and avoidance, we examined the two forms of attachment insecurity separately, because the sexual experiences of avoidant and anxious women may be driven by different motives and different strategies (Dewitte, 2012). However, we considered both the correlation between the two dimensions, as recommended by Cameron, Finnegan, and Morry (2012) and the possible interaction between the two dimensions.

Method

Participants

The participants were 556 French Canadian women aged between 18 and 30 years ($M = 22.91$, $SD = 3.01$) who had engaged in sexual intercourse at least once. The majority of them were college students (77%); 23% were drawn from the community (most of whom were working full time or part time, or were on maternity leave). On average, participants reported 16 years of education ($SD = 2.55$). Their average income was CAN \$15,950 ($SD = 13,579$); the median was CAN

\$12,000. The vast majority were heterosexual (95.7%), and 5.0% were married, 45.1% were cohabiting, 45.3% were dating an exclusive partner, 2.2% were dating nonexclusively, and 2.3% were separated or divorced but had been in a romantic relationship during the previous year. The average duration of the participants' relationships was 2.79 years ($SD = 2.48$), and 9.9% of them had children. The majority (91.7%) were born in the province of Quebec, but 2.0% were born in another Canadian province, 3.8% in France, and 2.5% in another country.

Procedure and Measures

Most participants were recruited through their college or university. They received an e-mail message from their professors or lecturers inviting them to complete an online survey on a secure Web site. (All communications and measures were presented in French.) To reach young adults from the community, we advertised the study on various social network platforms (e.g., Facebook, Twitter) and displayed posters in cafés and restaurants in the Montreal area inviting people to visit the study's secure Web site. Those who voluntarily agreed to participate were asked to anonymously complete a 45-minute series of questionnaires, including ones relevant to the present study. No monetary compensation was offered. This research was approved by the institutional review board (IRB) of our institution.

Romantic attachment. The Experiences in Close Relationships measure (ECR; Brennan et al., 1998; Lafontaine & Lussier, 2003) assesses attachment anxiety and avoidance. It includes 36 items rated on a 7-point scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Higher scores on either anxiety (e.g., “I worry about being abandoned”; “I need a lot of reassurance that I am loved by my partner”) or avoidance (e.g., “I prefer not to show a partner how I feel deep down”; “I prefer not to be too close to my romantic partner”) indicate greater attachment insecurity. The French translation of the ECR has good internal consistency for both the anxiety ($\alpha = .86$ to $.89$) and the avoidance ($\alpha = .85$ to $.89$) subscales in community samples, as well as good factorial validity (Lafontaine & Lussier, 2003). Alpha coefficients from the present study are shown in Table 1.

Sexual satisfaction. The Index of Sexual Satisfaction (ISS; Hudson, Harrison, & Crosscup, 1981; translated into French by Comeau & Boisvert, 1985) is a 25-item questionnaire assessing global sexual satisfaction in one's relationship (e.g., “My sex life is very exciting”). Items are rated on a 5-point scale ranging from 1 (*Never*) to 5 (*Most of the time*). Higher scores are indicative of sexual satisfaction. Hudson and colleagues (1981) reported good internal consistency ($\alpha > .90$) and

Table 1. Descriptive Statistics, Cronbach Alpha Coefficients, and Correlation Matrix ($N = 556$)

	<i>M</i>	<i>SD</i>	α	1	2	3	4	5	6
1. Anxiety	3.48	1.05	.90						
2. Avoidance	1.95	.81	.89	.27***					
3. Sexual self-esteem	17.37	3.92	.84	-.18***	-.22***				
4. Sexual anxiety	10.23	3.83	.77	.33***	.29***	-.36***			
5. Sexual assertiveness	15.04	2.30	.79	-.03	-.07	.25***	.02		
6. Sexual satisfaction	54.05	13.92	.94	-.23***	-.35***	.44***	-.52***	.13**	
7. Sexual function	3.34	.69	.73	-.15***	-.22***	.45***	-.40***	.12**	.53***

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

discriminant validity (contrasting sexually satisfied individuals with adults presenting with sexual dysfunctions).

Sexual function. The Arizona Sexual Experiences Scale (ASEX; McGahuey et al., 2000) assesses the experience of five sexual difficulties with the sexual response cycle during the previous week (i.e., sex drive, arousal, vaginal lubrication, ability to reach orgasm, and satisfaction from orgasm). Brassard and Bourassa (2012) translated the scale into French, adding an item pertaining to sexual pain. The six items (e.g., “How strong is your sex drive?”; “How easily can you reach orgasm?”) are rated on a 6-point scale ranging from 1 (*Low functioning*) to 6 (*High functioning*) and are summed to form a total score, with a higher score indicating better functioning. According to McGahuey and colleagues (2000), the ASEX has high internal consistency ($\alpha = .91$) and good stability over a two-week period for patients ($r = .80$) and nonpatient controls ($r = .89$). The scale significantly discriminates between clinical and nonclinical populations. This measure was chosen because of its brevity and validity in different samples (McGahuey et al., 2000).

Mediators. We used three subscales of the Multidimensional Sexuality Questionnaire (MSQ; Snell et al., 1993; translated into French by Ravart, Trudel, & Turgeon, 2000) to assess sexual self-esteem (e.g., “I am confident about myself as a sexual partner”), sexual anxiety (e.g., “I feel anxious when I think about the sexual aspects of my life”), and sexual assertiveness (e.g., “I do not hesitate to ask for what I want in a sexual relationship”). Each subscale is composed of five items, each rated on a 5-point scale ranging from 0 (*Not at all characteristic of me*) to 4 (*Very characteristic of me*). The items within each subscale are summed, with higher scores indicating greater sexual self-esteem ($\alpha = .87$), anxiety ($\alpha = .83$), and assertiveness ($\alpha = .77$), respectively. Snell and colleagues (1993) demonstrated the factorial validity of the MSQ subscales and found them not to be contaminated by social desirability biases.

Data Analysis Strategy

To test the mediational hypotheses, we used Baron and Kenny’s (1986) three-step procedure and criteria,

after finding that the independent variables—attachment anxiety and avoidance—significantly predicted sexual function and satisfaction. According to Baron and Kenny, in step A, an independent variable is used to predict a presumed mediator, and if the association is not statistically significant the proposed mediator is discarded. In step B, the mediator is examined as a predictor of the dependent variable, and if the association is not statistically significant the mediator is discarded. In step C, when the effects assessed and found significant in steps A and B are statistically controlled, the previously significant association between the independent and dependent variables is either no longer significant (indicating full mediation) or is reduced (and the indirect path through the mediator is significant; see Preacher & Hayes, 2008). If the direct link is still significant, it indicates that there are more mediators to be considered in future studies (Baron & Kenny, 1986).

Results

Preliminary Analyses

Table 1 displays descriptive statistics, alpha coefficients, and correlations among the main variables. Most of the correlations in Table 1 support our hypotheses. As expected, attachment anxiety and avoidance were correlated with all variables in the expected directions, except for the nonsignificant associations between the attachment variables and sexual assertiveness, which indicate that sexual assertiveness is not a mediator. Baron and Kenny’s (1986) step A was achieved for sexual self-esteem and sexual anxiety. Sexual self-esteem, anxiety, and assertiveness were all significantly correlated with sexual function and satisfaction in the expected directions, therefore meeting the requirement for Baron and Kenny’s (1986) step B.

Because demographic variables are sometimes related to sexual variables (e.g., Brassard et al., 2007), preliminary correlational analyses involving the demographic variables (i.e., age, education, income, relationship duration) and the sexuality variables were conducted, revealing only a few small associations. Participants were less sexually satisfied the older they were

($r(554) = -.11, p = .009$), the longer they had been involved in a romantic relationship ($r(554) = -.25, p < .001$), and the higher was their annual income ($r(470) = -.09, p = .043$). Participants involved in longer relationships also reported poorer sexual functioning ($r(532) = -.16, p < .001$). The small magnitude of these correlations, however, did not warrant statistical control in subsequent analyses (see Cohen, 1988).

To test the possible interaction of attachment anxiety and avoidance in predicting the sexuality variables, hierarchical multiple regression analyses were conducted. In step 1, anxiety and avoidance were centered (Aiken & West, 1991) and entered into the equation. In step 2, the interaction term (anxiety \times avoidance) was entered into the equation. We found one significant anxiety \times avoidance interaction effect on sexual satisfaction ($\beta = .08, p = .046$), which we will consider in subsequent analyses. Following Aiken and West's (1991) instructions, the significant interaction was decomposed into simple slopes: When attachment anxiety was high (1 *SD* above the mean), avoidance was less strongly (although still significantly) negatively related to sexual satisfaction ($\beta = -.25, p < .001$) than when anxiety was low (1 *SD* below the mean; $\beta = -.42, p < .001$). Thus, avoidance is associated with lower satisfaction, but especially so when anxiety is low.

Mediation Model

Using AMOS software, a path analysis was conducted to test the mediating role of sexual self-esteem and sexual anxiety in the association between attachment insecurities (anxiety, avoidance) and both sexual function and satisfaction. We tested a single model including the two potential mediators and evaluated model fit using several indices: We required a χ^2/df ratio below 3, a comparative fit index (CFI) equal to or greater than .95, and a root mean square error approximation (RMSEA) lower than .06 (Hu & Bentler, 1999). To determine whether the indirect paths through each mediator were significant, we computed 90% confidence intervals (CIs) around the estimates using 500 bootstrap samples (Preacher & Hayes, 2008). Table 2 shows the indirect-effect path coefficients and their significance levels.

Figure 1 displays the results of the path analysis when sexual self-esteem and sexual anxiety were simultaneously considered as mediators, a model that yielded an adequate fit to the data. This model explained 38% of the variance in sexual satisfaction and 28% of the variance in sexual function. As found in the preliminary regression analyses, the interaction of anxiety \times avoidance weakly predicted sexual satisfaction (i.e., avoidance was more strongly associated with lower sexual satisfaction when attachment anxiety was low). Both mediators were significantly related to the two sexual functioning variables, confirming step B of the mediation process.

Attachment anxiety was related to lower sexual satisfaction through lower sexual self-esteem and higher sexual anxiety. When those two mechanisms were considered, the direct link from attachment anxiety to sexual satisfaction (step C in the Baron and Kenny process) became nonsignificant ($p = .853$), suggesting full mediation. The indirect effect through sexual self-esteem and sexual anxiety was significant (see Table 2). In other words, more attachment-anxious women tend to be less sexually confident and more anxious about their sexuality, which in turn is associated with them being less sexually satisfied. Sexual self-esteem and sexual anxiety also fully mediated the association between attachment anxiety and lower sexual function (in step C of the mediation analysis process), as demonstrated by the remaining nonsignificant direct link ($p = .659$). The indirect effect through sexual self-esteem and sexual anxiety was significant, supporting the mediating role of both mechanisms.

For attachment-related avoidance, sexual self-esteem and sexual anxiety only partially mediated the association between avoidance and the sexual variables (also in Figure 1). That is, after considering the indirect effects through the mediators, the direct paths from avoidance to lower sexual satisfaction (direct link, $p < .001$) and sexual function (direct link, $p = .049$) still remained significant. The indirect effect of avoidance on sexual satisfaction through low sexual self-esteem and high sexual anxiety was significant (see Table 2), supporting partial mediation. There were also significant indirect paths from avoidance to lower sexual function through low sexual self-esteem and high sexual anxiety,

Table 2. Indirect Effects of Attachment Insecurities (Anxiety and Avoidance) on Sexual Functioning Variables

Attachment	Outcome	Sexual Self-Esteem B	Sexual Anxiety B	Total Indirect Effect			
				B	SE	90% CI	p
Anxiety	Sexual satisfaction	-.456	-1.299	-1.756	.289	[-2.248; -1.247]	.004
Anxiety	Sexual function	-.029	-.045	-.075	.016	[-.104; -.049]	.004
Avoidance	Sexual satisfaction	-.838	-1.381	-2.220	.490	[-3.009; -1.424]	.004
Avoidance	Sexual function	-.054	-.048	-.102	.022	[-.138; -.067]	.004

Note. B = unstandardized regression coefficient; SE = standard error; CI = confidence interval.

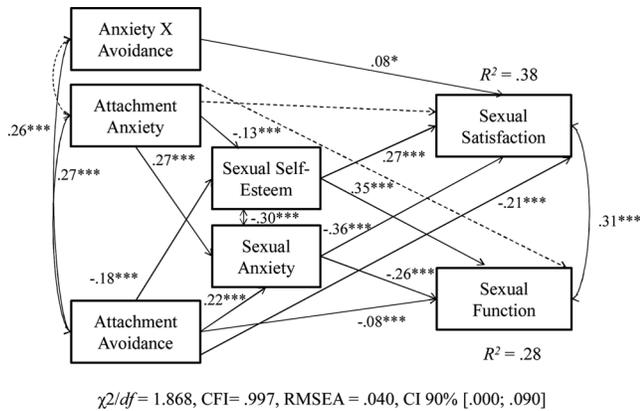


Figure 1. Sexual self-esteem and sexual anxiety as mediators of the relationships between the attachment variables and the two sexual functioning variables. Standardized path coefficients are shown. Dashed lines indicate nonsignificant links; * $p < .05$; ** $p < .01$; *** $p < .001$.

again supporting partial mediation. In sum, more avoidant women appear to be less sexually confident and more anxious regarding sexual aspects of their lives, which in turn is associated with their lower sexual function and satisfaction. However, the remaining direct associations between avoidance and both sexual variables suggest that additional mediators are necessary to explain these associations.

Discussion

The goal of the present study was to examine the contribution of three variables, namely sexual self-esteem, sexual anxiety, and sexual assertiveness, as mediators of the associations between women's attachment insecurities and their sexual function and satisfaction. Results showed that two of the proposed mediators—sexual self-esteem and sexual anxiety—each contributed uniquely to explaining the associations between participants' attachment insecurities and sexual functioning.

Before discussing the mediation effects, one preliminary result warrants mention. The significant interaction between anxiety and avoidance indicates that women low on anxiety and high on avoidance (i.e., those with a dismissing attachment style, in the terminology proposed by Bartholomew & Horowitz, 1991) reported the lowest sexual satisfaction. This interaction was not significant in Butzer and Campbell's (2008) study of married Canadian couples or in Birnbaum's (2007) community sample of Israeli women (mostly married). Although we might have expected fearfully avoidant young women (i.e., those high on both anxiety and avoidance) to be less sexually satisfied, it seems that dismissing young women are in fact even less satisfied with their sex lives. The difference between our results and those from early studies might have been due, at least in part, to the fact that most women in our sample were

not married, and thus may have been in less committed relationships.

A possible difference between fearful and dismissing women, which might help to explain the observed interaction, is that fearful women may value closeness and intimacy but fear it, whereas dismissively avoidant women, at least consciously, desire less intimacy with a partner (Bartholomew & Horowitz, 1991). Research has shown, for example, that dismissing individuals are less likely to use touch to demonstrate affection (Brennan et al., 1998) and are more likely to use short-term sex to avoid the emotional aspects of a long-term relationship (Schachner & Shaver, 2004). This possible difference between fearfully and dismissively avoidant women should be explored in more detail in future research.

Our mediation analyses indicate that the associations between women's attachment anxiety and their lower sexual function and satisfaction are fully explained (or mediated) by lower sexual self-esteem and higher sexual anxiety. That is, the more anxious about losing their partner the women are, the more anxious and less confident they feel about their sexual interactions, which in turn is associated with their poorer sexual functioning and satisfaction with their sex lives. As found in previous research, attachment-anxious individuals see themselves as less capable of negotiating sexual encounters (Feeney et al., 2000) and tend to worry about their sexual performance (Birnbaum, 2007). They also worry more about the possibility of their partner engaging in short-term affairs with other partners (Schachner & Shaver, 2002). It is likely that anxious women get caught up in these negative perceptions and feelings, and their inability to regulate these negative emotions interferes with their sexual desire and arousal, thus potentially limiting their ability to enjoy sex and reach orgasm (e.g., Birnbaum, 2007; Dewitte, 2012).

With regard to attachment-related avoidance, lower sexual self-esteem and higher sexual anxiety only partially mediated the associations between avoidance and lower sexual function and satisfaction. Previous studies have shown that avoidant individuals are uncomfortable with the intimate nature of sexual interactions with a primary partner (Shaver & Hazan, 1988), which can lead them to avoid sex with that partner (Brassard et al., 2007; Dewitte, 2012; Mikulincer & Shaver, 2007). When they do engage in sex with a primary partner—perhaps out of obligation (Impett & Peplau, 2002)—they may feel nervous, uncomfortable with the implied level of affection, and sexually inadequate (Birnbaum et al., 2006; Shafer, 2001). In other words, the avoidant women's inability to regulate the negative emotions evoked by these intimate interactions may interfere with sexual arousal and potentially reduce their sexual satisfaction.

Even with these two mediators—sexual anxiety and sexual self-esteem—taken into account, the direct link

between avoidance and the two outcome variables remained significant, suggesting that other mediators need to be considered, such as specific kinds of cognitive processes (e.g., distractions, fantasies), specific kinds of feelings (both positive and negative), and types of sexual behavior (Butzer & Campbell, 2008). As suggested by Mikulincer and Shaver (2007), avoidant individuals may sacrifice possible rewards in their primary relationships in favor of having sex outside that relationship or by enjoying the solitary experience of pornography and masturbation. This is another important area for future research.

Contrary to our expectations and previous findings (e.g., Davis et al., 2006), attachment anxiety and avoidance were not significantly related to sexual assertiveness in this sample. This may have been a result of the measure we used. There is evidence from other studies that anxious individuals are sometimes sexually compliant because they fear rejection by a sexual partner (Impett & Peplau, 2002) and have difficulty negotiating safe-sex practices (Feeney et al., 2000), and, in some cases, resort to repetitive requests for intimate sexual contacts or even engage in sexual coercion (Davis, 2006). Avoidant individuals also seem to be unskilled in communicating openly with a sexual partner (Tracy et al., 2003), although they are apparently able to discuss the use of condoms to avoid sexually transmitted diseases (Feeney et al., 2000). Hence, future studies should assess multiple aspects of sexual communication (e.g., self-disclosure of preferences, sexual initiation and refusal, and sexual negotiation regarding contraception) instead of assertiveness considered more abstractly.

Limitations

Although the present study makes an important contribution to the literature on attachment and sexuality, it has limitations. One is the study's cross-sectional, correlational design, which precludes conclusions about causal links between the studied variables. It is therefore important to consider that attachment anxiety, for example, may contribute to the women's lower sexual self-esteem and sexual difficulties, but also that women could become more insecure as a result of sexual difficulties and lower sexual self-esteem. Longitudinal studies are needed with at least three time points to confirm the temporal sequence implied by the models we tested. Second, our data are based on the participants' self-reports; thus, shared method variance and social desirability biases may have affected the results. Third, sexuality is obviously a dyadic phenomenon, so it will be important in future studies to collect data independently from both members of the couples being studied. Fourth, the generalizability of the results is affected by the composition of our sample, which included young Canadian women aged 18 to 30, most of them in college and involved in heterosexual

relationships. Still, our sample was fairly representative, according to the 2011 Canadian Census (Statistics Canada, 2012), which found that 30.8% of adults in their twenties were living with a partner and 4.3% were married. Fifth, future studies should also examine men. Finally, although our model explained a fair amount of variance in sexual function (28%) and sexual dissatisfaction (38%), this leaves a large amount of unexplained variance, opening the way for a search for additional explanatory variables.

Implications

Despite these limitations, the results of this study have important implications for understanding young women's sexual satisfaction as well as their experience of sexual difficulties. Theoretically, our findings show that attachment anxiety and avoidance are related to lower sexual function and satisfaction in a large sample of Canadian young women, and that some of the connections could be attributable to the regulation of sexual anxiety and low sexual self-esteem. These results allow researchers to further their understanding of the links between attachment insecurities and both subjective (satisfaction) and relatively objective (function) markers of sexual functioning. Clinically, this study emphasizes the importance of considering attachment insecurities (both anxiety and avoidance) when working with women presenting with sexual difficulties and/or sexual dissatisfaction. Sexual therapists should take into account attachment insecurities in their assessment and treatment plan when working to reduce young women's sexual difficulties. Emotionally focused therapy (Johnson & Zuccarini, 2010) might be especially useful in this respect, because it suggests that dysfunctional relational patterns, including their sexual aspects, are explained by underlying attachment issues and unmet attachment needs. The therapist may also target the regulation of anxiety and negative self-evaluations during sexual interactions, as a way to help clients regulate the negative emotions arising from attachment insecurities, which can interfere with women's sexual functioning.

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