



Attachment insecurities and body image self-consciousness among women: The mediating role of pornography use

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ABSTRACT

The present study examined the mediating role of pornography use between attachment insecurities and body image self-consciousness in a large sample of women. We hypothesized that pornography use would mediate the relationship between insecure attachment orientations and body image self-consciousness. We recruited a convenient sample of 1001 Israeli women who completed measures assessing attachment orientation, body self-consciousness, and pornography use frequency. We employed structural equation modeling with maximum likelihood estimation method to examine the direct pathways between attachment and body image self-consciousness, as well as the indirect, or mediational, pathways through pornography use. Results found a direct effect of anxious and avoidant attachment on body image self-consciousness in women regardless of their relationship status. However, we only found a mediating role of pornography use between anxious attachment and body-image self-consciousness in women currently in a romantic relationship. In conclusion, our results suggest women may be more susceptible to the influence of pornography use on their body image self-consciousness when they are anxiously attached to a romantic partner. Implications for clinical practice and future directions are discussed.

1. Introduction

Previous studies examining the association between attachment orientation and body image are scarce and inconclusive. In addition, despite pornography use being associated with attachment insecurities and body image, the mediating role of pornography use between attachment and body image has also not yet been assessed. In the current study we sought to examine the mediating role of pornography use between attachment insecurities and body image self-consciousness.

1.1. Body image self-consciousness

Body image self-consciousness during sexual activity is defined as people's awareness of their bodily appearance during physical intimacy with a partner, and how concerned they are about their bodies being unattractive or fat (Wiederman, 2000). Body image self-consciousness is negatively related to overall body satisfaction, sexual self-esteem,

satisfaction with bodily appearance and functioning, self-evaluated body attractiveness, and evaluation of oneself as a sexual partner (Szymańska-Pytleńska, 2019). High body image self-consciousness during sexual activity can also negatively affect sexual functioning (Dove & Wiederman, 2000; Faith & Schare, 1993; Træen et al., 2016; van Kolthoorn, 2018; Woertman & Van Den Brink, 2012). The notion of body image self-consciousness during sexual activity was first explored in depth by Masters and Johnson (Masters & Johnson, 1970) when they coined the term "spectatoring" – a cognitive fixation on one's body and/or performance from a third-person perspective during sexual encounters. Body self-consciousness has been found to be associated with engagement in a lower diversity of types of sexual activity (Szymańska-Pytleńska, 2019) and lower levels of sexual functioning, pleasure, and satisfaction (Sanchez & Kiefer, 2007; Spivak-Lavi & Gewirtz-Meydan, in press; Ting & Zheng, 2021). In addition, because sexual intimacy typically involves bodily exploration, individuals with high body self-consciousness and poor body image may associate

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sexuality with negative feelings such as shame, anxiety, or fear, resulting in a disruption of positive sexual functioning (Sanchez & Kiefer, 2007; Ting & Zheng, 2021). Although body image self-consciousness refers to individuals' perceptions and attitudes about their own bodies, the experience can be understood from an interpersonal context. Interpersonal experiences, and specifically early attachment bonds between child and caregiver, can ultimately affect levels of body image self-consciousness during intimate situations (Cheng & Mallinckrodt, 2009; McKinley & Randa, 2005; Troisi et al., 2006).

1.2. Attachment insecurities and body image self-consciousness

Bowlby's attachment theory (Bowlby, 1969) provides a valuable theoretical framework to understand the effect of early relational experiences on future relationships. Attachment theory (Bowlby, 1969, 1973, 1982) proposes that people are motivated to seek proximity to significant others (attachment figures), especially when they need protection from physical or emotional threats. Attachment theory was initially perceived as explaining early interactions with significant others. Over time, the understanding of these early attachment bonds expanded to include affectional bonds formed between adult lovers (Hazan & Shaver, 1987). Currently, the structure of adult attachment is understood in terms of two continuous dimensions: avoidance and anxiety, which represent different methods of regulating distress, discomfort, and insecurity in close relationships (Brennan et al., 1998).

According to the attachment theory, early interactions with significant others are internalized in the form of mental representations of the self and others (internal working models; Bowlby, 1969, 1973), which shape close relationships and affect emotion-regulation strategies throughout life (Mikulincer & Shaver, 2007). When attachment figures regularly respond to infants' needs with sensitivity, a sense of attachment security is acquired. However, when attachment figures are unavailable, unreliable, or rejecting of the infant, a sense of insecurity and low self-esteem can develop with respect to close relationships. Insecure attachment can be measured in terms of two orthogonal dimensions (Brennan et al., 1998; Mikulincer & Shaver, 2007). The first, attachment anxiety, reflects an individual's fear of abandonment by a significant other, or the significant other's lack of availability (Brennan et al., 1998; Mikulincer & Shaver, 2007). Individuals with strong attachment anxiety often use hyperactivating strategies to obtain affirmation and a sense of security from their partners in order to relieve stress and fear of abandonment (Mikulincer et al., 2003). The second dimension, attachment avoidance, reflects an individual's desire to maintain behavioral independence and emotional distance within a relationship (Mikulincer & Shaver, 2007). Individuals with high levels of attachment avoidance often use deactivating strategies, such as denying attachment needs and suppressing attachment-related thoughts and emotions (Mikulincer & Shaver, 2007).

Research suggests that if children experience responsive and attuned caregiving, they are more likely to view themselves in a positive manner and to have a better body image and body appreciation (Laporta-Herrero et al., 2020). As a result, the caregiver's attunement and responsiveness allow the child to develop a sense of security and trust, both of which likely foster feelings of confidence about one's body. Unresponsive care, characterized by disapproval by caregivers may, by contrast, foster low body image in children as they internalize significant others' disapproval and develop a negative view of the self (Cheng & Mallinckrodt, 2009; McKinley & Randa, 2005; Troisi et al., 2006).

1.3. Attachment orientation and body image self-consciousness

Despite the theoretical connection, to the best of our knowledge attachment orientation has not been examined in relation to body image self-consciousness. As such, in the current study we sought to examine the relationship between attachment insecurities and body image self-consciousness during sexual activity. Attachment can be especially

relevant to body image self-consciousness for two reasons. First, attachment orientation is activated in adulthood with individuals' current partners (who are perceived as attachment figures), and attachment orientation is most highly activated in perceived times of threat (Hazan & Shaver, 1987). Sexual intimacy is considered an especially vulnerable time for individuals with an insecure attachment orientation because it can elicit feelings unguarded and uneasiness and requires one to reveal oneself to and trust another. Sexual situations are also highly triggering for emotions and other attachment fears, such as being rejected or abandoned. This situation can therefore easily activate the attachment system and intensify attachment needs and fears related to relationships (e.g., independence, intimacy, vulnerability, security, reassurance) or to the self (e.g., being unattractive, rejected, abandoned). During dyadic sexual activity, individuals with an insecure attachment are often occupied with their own attachment needs, fears, and insecurities, all of which may be reflected through body image self-consciousness (Maas et al., 2018). Second, body image self-consciousness during sexual situations integrates internal working models about the self (e.g., feeling unattractive, unlovable) as well as about others (e.g., as judgmental, rejecting), and reflects attachment fears such as the fear of being negatively evaluated by one's partner. Although prior studies have explored the relationships between attachment styles and dyadic sexual activity (Birnbaum & Reis, 2019), less is known about another common sexual behavior, the viewing of pornography, which is usually occurs more often in males as a solitary sexuality activity (Kraus & Rosenberg, 2014).

1.4. The mediating role of pornography use

The association between attachment insecurities and pornography use has also received little empirical attention. There is a tremendous variability in conceptual definitions of pornography among academics, as it is difficult to articulate an explicit definition of that captures all of the components of this construct (McKee et al., 2020). Recently, Pornography was defined as 'any sexually explicit texts intended to arouse' (McKee et al., 2020), and as 'any material deemed sexual, given the context, that has the primary intention of sexually arousing the consumer and is produced and distributed with the consent of all persons involved.' (Ashton et al., 2019). Recent studies have indicated that pornography is used to regulate emotions, to reduce stress, and to cope with difficult emotions such as sadness (Bothe et al., 2020; Esplin et al., 2020). Therefore, it is reasonable to suggest that individuals might sometimes use pornography to fulfill their attachment needs or reduce attachment fears (Tylka, 2015). Pornography can help individuals regulate attachment needs and fears by repressing them or replacing them. When a relationship is perceived as dangerous, pornography can be appealing, as it offers the "perks" of sexual activity while avoiding the stressful aspects of relationships and emotions. According to Szymanski and Stewart-Richardson (2014), anxious individuals are likely to use pornography because they feel vulnerable in their relationships. According to Efrati and Amichai-Hamburger (Efrati & Amichai-Hamburger, 2018), anxiously attached individuals use more pornography regardless of the extent of their loneliness. Yet, loneliness was found to increase the use of online sexual activities and pornography among secure and anxiously avoidant individuals. Pornography provides anxious individuals with a virtual emotional and sexual experience, which may temporarily satisfy their need for love (Ferron et al., 2017). In other words, anxious individuals may use pornography to regulate their anxiety or to gain a sense of intimacy and security, regardless of how false that sense is (e.g., the "partner" in pornography is not real, and cannot hurt or leave them). Avoidant individuals, for their part, are less likely to be sexually intimate with a romantic partner, and pornography may provide a *safe-zone* to satisfy sexual needs with no emotional connection (Szymanski & Stewart-Richardson, 2014).

Although pornography use to date has not been examined in relation to body image self-consciousness, it has, however, been examined in

relation to other body image constructs. A recent systematic review presented compelling evidence for the association between pornography use and negative body image and sexual body image (Paslakis et al., 2020). According to this review, both men and women appear to be affected, but the direction of the association between pornography use and negative body image remains unclear. On the one hand, it could be that individuals with low body image turn to pornography as a means of avoiding engagement in real-life sexual relations. On the other hand, it could be that the body representations shown in pornography create a normative ideal of how men and women should look (Mattebo et al., 2012), thus producing more body dissatisfaction. As it is generally agreed upon that most people do not naturally have attributes like the ones featured in pornography, porn-watchers may end up feeling frustrated/bad about themselves and/or may seek cosmetic surgery as a result (Paslakis et al., 2020).

Frequency of pornography use also predicted body-related cognitive distractions during sexual activity, increased performance anxiety (Goldsmith et al., 2017), and more critical-ness about the body (Albright, 2008). However, research indicates that the relationship between pornography use and body image is complex. In a study conducted among 949 women, the frequency of pornography use was unrelated to body image, but viewing pornography to escape negative emotions significantly predicted lower body image (Borgogna et al., 2018). Tylka (2015) found that pornography had a negative effect on men's body image only if they reported anxious or avoidant attachment in relation to significant others. In a study conducted among 171 women, women's body image was affected only by the pornography use of their partners, and only if they themselves had internalized cultural beauty standards (Tylka & Kroon Van Diest, 2015). In other words, how a woman thinks she is perceived by her partner seems to be what affects her body image. Thus, examining body image self-consciousness in the context of attachment orientation can be especially relevant, as it refers to the interpersonal aspect of body image during physical intimacy with a romantic partner.

1.5. The present study

Previous studies examining the association between attachment orientation and body image are scarce and inconclusive. Currently, the relationship between attachment and body image self-consciousness which emerges in moments of sexual intimacy with a significant other has not yet been assessed. In addition, despite pornography use being associated with attachment insecurities and body image, the mediating role of pornography use between attachment and body image has also not yet been assessed. In the current study we examined the mediating role of pornography use between attachment insecurities and body image self-consciousness. Based on the attachment theory perspective outlined above, we predicted that: (1) Insecure attachment would be associated with higher body image self-consciousness. This assumption is predicated on the understanding that insecure attachment is characterized by internalized negative views about the self. (2) Insecure attachment would be associated with higher pornography use. This assumption is predicated on previous research indicating that individuals may engage in various sexual behaviors to fulfill attachment needs or avoid attachment fears. (3) Pornography use would be associated with higher levels of body image self-consciousness. This assumption is predicated on previous research that provides evidence for negative associations between frequency of pornography use and body image and sexual body image. Finally, we assumed that (4) pornography use would mediate the relationship between insecure attachment orientations and body image self-consciousness. According to attachment theory, the use of pornography can bypass core attachment fears and falsely fulfill attachment needs such as sense of intimacy and security. However, we assumed that if pornography is viewed by women with an insecure attachment orientation, it would have a negative effect on their body image self-consciousness.

2. Methods

2.1. Participants and procedure

We conducted an online survey among a convenience sample of women in Israel. The survey was accessible through Qualtrics, a secure web-based survey data collection system. The survey took an average of 20 min to complete, was open from December 2019 through February 2020, and was anonymous; no data were collected that linked participants to recruitment sources. The [masked for review] institutional review board approved all procedures and instruments. Clicking on the link to the survey guided potential respondents to a page that provided information about the purpose of the study, the nature of the questions, and a consent form (stating that the survey was voluntary, respondents could stop participating at any time, and responses would be anonymous). The first page also offered researcher contact information. Each participant was given the opportunity to take part in a lottery that included five \$85 gift vouchers.

A total of 1001 women participated. Their ages ranged from 18 to 56 years ($M = 27.7$, $SD = 9.0$) (Table 1). Most of the sample defined themselves as heterosexual (80.7%) and secular (79.5%). About half (48.5%) reported having a high school degree or under, another 13.1% had some degree of post-high school education, and 38.5% had a bachelor's degree or higher. More than half (66.3%) were working full or part-time, and earned an average (20.9%) or below-average income (48.1%). Among the respondents, 42.0% reported being in a romantic relationship, 20.1% were married, 31.9% were single, and 6.1% were divorced, separated, or widowed. Those in a romantic relationship reported having been in their current relationship from <1 to 37 years ($M = 6.1$, $SD = 7.3$). Finally, 23.1% reported having children. Women currently in a relationship were significantly older, reported living in households with higher incomes, were more likely to have a post high school education, and have children.

2.2. Measures

2.2.1. Background variables

Participants completed a brief demographic questionnaire that assessed age, religiosity, education, income, and relationship status.

2.2.2. Attachment orientation

The Experiences in Close Relationships Scale-Short form (ECR-S) (Wei et al., 2007) is a 12-item scale designed to measure adult attachment insecurities in close relationships. The measure has two subscales: attachment anxiety, representing a person's need for approval and anxiety about rejection by others (e.g., "I need a lot of reassurance that I am loved by my partner"), and attachment avoidance, indicating an individual's fear of intimacy with others and hesitance to self-disclose (e.g., "I want to get close to my partner, but I keep pulling back"). Respondents use a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) to indicate their level of agreement with statements about their romantic relationships. The score for each subscale is calculated as an average of the score of each statement. An individual with low levels of attachment anxiety and attachment avoidance is considered to have secure attachment. Wei et al. (2007) reported that the ECR-S possesses a stable factor structure and acceptable internal consistency (ranging from 0.77 to 0.86 for the anxiety subscale and from 0.78 to 0.88 for the avoidance subscale). Test-retest reliability and construct validity across six studies were evaluated. In the current sample, Cronbach's alpha for the attachment anxiety subscale was 0.78, and for the attachment avoidance subscale, 0.65. In general, a Cronbach's alpha of .60 or higher is considered the minimum acceptable level for brief instruments used for screening purposes (e.g. (Murphy & Davidshofer, 1998), p. 142–143), although some methodologists apply a stronger standard of at least 0.70 (Nunnally, 1978). The current alpha is consistent with prior studies (Gewirtz-Meydan &

Table 1
Sample demographic characteristics by current relationship status.

Characteristic	All participants (N = 1001) % (n)	Not currently in relationship (n = 380)	Currently in a relationship (n = 621)	X ²
Age				
18-25	56.6 (567)	64.5 (245)	51.9 (322)	15.3***
26-45	35.5 (355)	29.2 (111)	39.3 (244)	
46+	7.9 (79)	6.3 (24)	8.9 (55)	
Marital status				
Married	20.1 (201)	0	32.4 (201)	-
In a relationship	42.0 (420)	0	67.6 (420)	
Divorced	4.4 (44)	11.6 (44)	0	
Widowed	0.1 (1)	0.3 (1)	0	
Separated	1.6 (16)	4.2 (16)	0	
Single	31.9 (319)	83.9 (319)	0	
Sexual minority				
No	80.7 (808)	76.8 (292)	83.1 (516)	.01
Yes	19.3 (193)	23.2 (88)	16.9 (105)	
Duration of relationship (M years) (n = 584)				
Average income				
A lot above average	9.1 (91)	8.2 (31)	9.7 (60)	16.6*
A bit above average	21.9 (219)	16.8 (64)	25.0 (155)	
Average	20.9 (209)	19.5 (74)	21.7 (135)	
A bit under average	18.8 (188)	20.0 (76)	18.0 (112)	
A lot under average	29.4 (294)	35.5 (135)	25.6 (159)	
Employment				
Full-time	46.7 (468)	45.8 (174)	47.3 (294)	9.7
Part-time	19.6 (196)	17.9 (68)	20.6 (128)	
Occasional	5.7 (57)	6.6 (25)	5.1 (32)	
Unemployed	6.9 (69)	8.7 (33)	5.8 (36)	
Student	20.1 (201)	20.8 (79)	19.7 (122)	
Maternity leave	1.0 (10)	0.3 (1)	1.5 (9)	
Religiosity				
Non-religious	79.5 (796)	81.3 (309)	78.4 (487)	1.2
Traditional	14.8 (148)	13.4 (51)	15.6 (97)	
Religious	4.8 (48)	4.5 (17)	5.0 (31)	
Ultraorthodox	0.9 (9)	0.8 (3)	1.0 (6)	
Religion				
Jewish	97.0 (971)	97.9 (372)	96.5 (599)	4.6
Christian	2.7 (27)	1.6 (6)	3.4 (21)	
Muslim	0.2 (2)	0.3 (1)	0.2 (1)	
Druse	0.1 (1)	0.3 (1)	0	
Education				
Completed high school	48.5 (485)	54.5 (207)	44.8 (278)	15.8*
Bachelor's degree	29.8 (298)	26.8 (102)	31.6 (196)	
Master's degree	7.6 (76)	4.2 (16)	9.7 (60)	
PhD	1.1 (11)	1.3 (5)	1.0 (6)	
Vocational school	13.1 (131)	13.2 (50)	13.0 (81)	
Has children	23.1 (231)	13.4 (51)	29.0 (180)	

* $p \leq .01$; *** $p \leq .001$.

Finzi-Dottan, 2018; Hellemans et al., 2015; Kuijpers et al., 2012; Richman et al., 2015; Rodriguez et al., 2019).

2.2.3. Pornography use

The frequency of pornography use was assessed by asking participants how often they had consumed pornography in the last six months. Single-item assessments of pornography use have consistently yielded theoretically expected results (Braithwaite et al., 2015; Braun-courville et al., 2009; Wright & Stulhofer, 2019). Pornography for this study was defined as any material which openly (i.e., in an uncensored manner)

depicted sexual activity. Material that showed naked bodies, but not sexual intercourse or other sexual activity did not belong to pornography as defined in this study. Response options were (using a six-month recall period): 1 = *not ever*, 2 = *several times*, 3 = *once a month*, 4 = *2-3 times a month*, 5 = *once a week*, 6 = *several times a week*, 7 = *every day or almost every day*, 8 = *several times a day*. These response options are similar to those used in prior research (Bridges et al., 2016; Sun et al., 2017; Wright & Stulhofer, 2019).

2.2.4. Body image

Women's body image was assessed by the Body Image Self-Consciousness Scale (BISC; Wiederman, 2000). The BISC is a 15-item self-report questionnaire that assesses a woman's concerns about the appearance of her body during sexual encounters. This scale is used as a measurement of behavioral body image because it assesses individuals' desire to avoid certain sexual or intimate behaviors out of concern over the appearance of their bodies during those encounters (Wiederman, 2000). Participants responded to statements such as, "While having sex I am concerned that my hips and thighs will spread out and appear larger than they actually are," on a six-point Likert scale ranging from 1 (*never*) to 6 (*always*). Total scores range from 0 to 75; higher scores indicate greater body image self-consciousness. The BISC has shown strong internal consistency ($\alpha = 0.93$) and strong discriminant and convergent validity (Wiederman, 2000). The Cronbach's alpha in the current study was 0.95.

2.3. Data analysis

Data analysis consisted of a combination of bivariate statistics and structural equation modeling (SEM) using StataSE 15. First, sample demographic characteristics were compared between participants who said they were currently in a relationship versus those who were currently not in a relationship. Then, bivariate pairwise correlations were conducted between the main study constructs – anxious attachment, avoidant attachment, body image self-consciousness, and pornography use. Descriptive statistics were also analyzed for these constructs. SEM with maximum likelihood estimation method was conducted to examine the direct pathways between attachment and body image self-consciousness, as well as the indirect, or mediational, pathways through pornography use. Model fit was assessed using the X² fit statistic, the Comparative Fit Index (CFI), the Standardized Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA), and the Coefficient of Determination (CD) which measures the overall effect size and variance explained in the endogenous construct for the structural model and is a measure of the model's predictive accuracy. Nonsignificant X² values indicate model fit; CFI values ≥ 0.95 , SRMR values ≤ 0.08 , and RMSEA values ≤ 0.06 suggest good fit (Hu & Bentler, 1999; Kline, 2015). Group comparisons were conducted between participants who currently were and currently were not in a relationship (at the time of the survey).

3. Results

3.1. Descriptive statistics and correlations

Means and standard deviations of all main study constructs are detailed in Table 2. Mean score differences were noted between participants currently in a relationship vs. those who were not, for all main study constructs. Participants who were currently in a relationship had lower overall mean scores on anxious attachment ($M = 3.63$ vs. $M = 3.97$; $p < .001$) and avoidant attachment ($M = 3.15$ vs. $M = 3.52$; $p < .001$). Participants currently in a relationship also reported significantly lower scores on body image self-consciousness ($M = 16.6^\circ$ vs. $M = 23.83$; $p < .001$) and pornography use ($M = 2.26$ vs. $M = 2.81$; $p < .001$) than participants who were not in a relationship.

Pairwise correlations indicated that all the main study constructs

Table 2
Descriptive statistics for main study constructs by current relationship status.

Construct	N	All participants M (SD)	Not currently in relationship (n = 380) M (SD)	Currently in a relationship (n = 621) M (SD)	t statistic	P value	Cohen's d
Anxious attachment	1001	3.76 (.1.37)	3.97 (1.38)	3.63 (1.35)	3.78	<.001	.25
Avoidant attachment	1001	3.29 (1.10)	3.52 (1.11)	3.15 (1.08)	5.17	<.001	.34
Body image self-consciousness	976	19.3 (19.48)	23.83 (21.56)	16.60 (17.60)	5.70	<.001	.38
Pornography use	1001	2.47 (1.74)	2.81 (1.88)	2.26 (1.61)	4.91	<.001	.32

M = mean; SD = standard deviation.

were significantly correlated with one another, with one exception noted below (see Table 3). Body image self-consciousness was positively correlated with anxious attachment ($r = 0.35, p < .001$), avoidant attachment ($r = 0.27, p < .001$) and pornography use ($r = 0.13, p < .001$). Pornography use was positively correlated with anxious attachment ($r = 0.10, p < .01$), but not with avoidant attachment ($r = 0.05$). Avoidant and anxious attachment were significantly correlated with each other ($r = 0.14, p < .001$).

3.2. Pornography use as a mediator between attachment and body image self-consciousness

Next, we conducted a full SEM to explore the mediating role of pornography use in the relationship between attachment and body image self-consciousness, using a group analysis to compare the model between women currently in a relationship versus those who were not. We also included direct paths between anxious attachment and body image self-consciousness, as well as avoidant attachment and body image self-consciousness. The full group model had an acceptable fit, $X^2(9) = 12.7, p = .12$; CFI = 0.97; SRMR = 0.03; CD = 0.17; RMSEA [90% CI] = 0.03 [0.00, 0.007]. Group-level fit statistics indicated a slightly better model fit for women currently in a relationship: $X^2(4) = 5.1, p = .28$; SRMR = 0.02; CD = 0.13. Model fit for women not currently in a relationship was also acceptable: $X^2(4) = 7.6, p = .11$; SRMR = 0.04; CD = 0.21. Direct and indirect effects across groups are displayed in Table 4 and Figs. 1 and 2.

Among women not currently in a relationship (Fig. 1), the association between attachment and body image self-consciousness was not mediated by pornography use. Neither avoidant attachment ($\beta = 0.27, p < .001$) nor anxious attachment ($\beta = 0.29, p < .001$) were significantly related to pornography use. Pornography use, in turn, was not significantly related to body image self-consciousness. Direct paths between both anxious ($\beta = 0.37, p < .001$) and avoidant ($\beta = 0.23, p < .001$) attachment and body image self-consciousness were also significant.

For women currently in a relationship (Fig. 2), a full model with significant direct and indirect effects was revealed. Avoidant attachment ($\beta = 0.03$) was not significantly related to pornography use, but anxious attachment ($\beta = 0.09, p = .02$) was significantly related to pornography use. Pornography use was significantly related to body image self-consciousness ($\beta = 0.07, p = .05$). In this model there were also significant direct pathways from avoidant ($\beta = 0.23, p < .001$) and anxious ($\beta = 0.37, p < .001$) attachment to body image self-consciousness.

4. Discussion

The present study assessed the association between attachment,

body image self-consciousness, and pornography use in an Israeli sample of women. The model confirmed a direct effect of anxious and avoidant attachment on body image self-consciousness in women regardless of their relationship status. However, the mediating role of pornography use was only found between anxious attachment and body-image self-consciousness in women currently in a romantic relationship.

As to the direct effect between anxious and avoidant attachment and body image self-consciousness, this effect was found regardless of the woman's romantic relationship status. This finding replicates previous research and suggests that attachment orientation plays a significant role in how a woman views her body (Cash et al., 2004; Iannantuono & Tylka, 2012; McKinley & Randa, 2005; Troisi et al., 2006; van den Brink et al., 2016). It appears that when a woman is anxiously attached, she may be afraid of both intimacy and rejection and believe herself to be worthy of rejection (Collins & Read, 1990). These attachment fears seem to be manifested in a woman's body image during intimate situations, in which she may become more critical towards her body and more conscious of her bodily imperfections. Attachment anxiety may also be demonstrated in a woman's strong dependence on her partner for approval and self-worth while at the same time perceiving the partner as rejecting and dismissing. The effect that attachment orientation has on body image self-consciousness found in the current study is in line with findings from previous studies suggesting that women who perceived their early caregivers as accepting and responsive reported more acceptance towards their body shape and weight (Cheng & Mallinckrodt, 2009) and a more positive sense of body image in general (Avalos & Tylka, 2006).

As for the mediating model, two interesting findings were revealed. First, pornography use was found to mediate only the relationship between anxious (and not avoidant) attachment and body image self-consciousness, and second, this mediation was only significant for women currently in a relationship. The implications of these findings may be that girls with parents/caregivers who were not sufficiently emotionally available during childhood grew up to be women with basic insecurities about their bodies and selves. These insecurities may in turn have made them more vulnerable to the effects of pornography on their body image self-consciousness. In other words, pornography use seems to activate attachment fears and anxiety and be less relevant for those who are avoidantly attached. This finding is in line with previous studies that found that anxious but not avoidant attachment affects body image, the drive for thinness, body dissatisfaction (Lev-Ari et al., 2014) and body appreciation (van den Brink et al., 2016). Pornography viewing may also intensify women's basic attachment fears and insecurities, which are eventually reflected in high body image self-consciousness during intimate situations. One explanation for this finding relies on an understanding of anxiously attached individuals' fears. As adults,

Table 3
Pearson correlations between main study constructs.

Construct	Anxious attachment	Avoidant attachment	Body image self-consciousness	Pornography use
Anxious attachment	1.0	–	–	–
Avoidant attachment	0.14***	1.0	–	–
Body image self-consciousness	0.35***	0.27***	1.0	–
Pornography use	0.10**	0.05	0.13***	1.0

*** $p < .001$.

Table 4
Structural equation model of the relations between attachment, pornography use, and body image self-consciousness among women by current relationship status.

Constructs		B	SE	P value	95% CI	
					Lower	Upper
Not currently in a relationship (n = 363)						
Direct and indirect effects						
Outcome						
Pornography use	Anxious attachment	.08	.05	.15	-.03	.18
	Avoidant attachment	-.02	.05	.69	-.12	.08
Body image self-consciousness	Pornography use	.07	.05	.13	-.02	.16
	Anxious attachment	.37	.04	<.001	.29	.46
	Avoidant attachment	.23	.05	<.001	.14	.32
Covariates						
Anxious attachment	Avoidant attachment	.07	.05	.16	-.03	.18
Anxious attachment	Age	-.27	.05	<.001	-.36	-.17
Anxious attachment	Kids	.15	.05	.003	.05	.25
Avoidant attachment	Age	-.06	.05	.25	-.16	.04
Avoidant attachment	Kids	.01	.05	.80	-.09	.11
Age	Kids	-.66	.03	<.001	-.72	-.60
Currently in a relationship (n = 608)						
Direct and indirect effects						
Outcome						
Pornography use	Anxious attachment	.09	.04	.02	.01	.17
	Avoidant attachment	.03	.04	.38	-.04	.11
Body image self-consciousness	Pornography use	.07	.04	.05	.001	.15
	Anxious attachment	.25	.04	<.001	.18	.33
	Avoidant attachment	.20	.04	<.001	.13	.27
Covariates						
Anxious attachment	Avoidant attachment	.15	.04	<.001	.07	.23
Anxious attachment	Age	-.35	.03	<.001	-.42	-.28
Anxious attachment	Kids	.25	.04	<.001	.17	.32
Avoidant attachment	Age	-.09	.04	.02	-.17	-.01
Avoidant attachment	Kids	.07	.04	.07	-.01	.15
Age	Kids	-.77	.02	<.001	-.80	-.74

Chi2 (8) = 12.7, p = .12; RMSEA = 0.03, CFI = 0.97, SRMR = 0.03; CD = 0.17. Group-level fit statistics.

Not currently in a relationship: SRMR = 0.04; CD = 0.21; chi2 = 7.6 (4), p = .11. Currently in a relationship: SRMR = 0.02, CD = 0.13, chi2 = 5.1 (4), p = .28.

anxiously attached individuals tend to fear being abandoned and rejected by their partner (Hazan & Shaver, 1994), may feel jealous of other people or activities that divert the partner's attention, and may feel that the relationship is threatened by other people or activities (Mikulincer & Shaver, 2007). It is therefore reasonable to suggest that when anxiously attached women view pornography, they internalize the body representations that they see there, and their deepest attachment fears of being rejected and unworthy maybe amplified. A previous study, which found that attachment anxiety was positively associated with the internalization of media influence and that media influence was positively associated with body image dissatisfaction (Cheng &

Mallinckrodt, 2009), supports this notion. If a woman is avoidantly attached, viewing pornography may also activate her attachment fears, but these are suppressed as other emotional threats.

Second, we found that pornography use played a mediating role between anxious attachment and body image self-consciousness but only among women who were currently in a relationship. This finding is consistent with attachment theory, which emphasizes that early attachment relationships with caregivers provide the prototype for later social relations and are reactivated within adult romantic relationships. It is also possible that the interpersonal nature of body image self-consciousness (Cash et al., 2004), and due to the reciprocal effects of attachment orientation within the dyad (Johnson et al., 2001), the mediating model was significant for those in a relationship. According to the attachment theory, one's attachment orientation formed in childhood is activated within a current relationship (Hazan & Shaver, 1987). This finding is in line with a previous study conducted in the United States which showed that women's perceptions of their own bodies can be negatively affected as a result of viewing pornography, with less frequent sexual activity as one outcome (Albright, 2008). While watching pornography was associated with negative feelings towards the body, it seems that the insecurity women felt towards their body was activated within the dyad – with women feeling increased pressure to perform acts seen in pornographic films, and the feeling that their partners were more critical of their bodies.

4.1. Limitations and future research

Before discussing the practical implications of these findings, we must acknowledge several important methodological limitations of the current study. First, participants were recruited through social media as a convenience sample – a method that limits generalizability. Second, as the design was cross-sectional, causal relations between the study variables therefore cannot be inferred. Longitudinal or experimental studies are necessary to confirm the mediating effect of pornography use between attachment anxiety and the development of body image self-consciousness. We also used a specific measure of body image self-consciousness designed specifically for women (BISC; Wiederman, 2000). Future research should use other measures that can be tested among both men and women, so that gender can be accounted for in the model. As body image self-consciousness is viewed in the current study from an interpersonal perspective (Cash et al., 2004), further analysis of couples (a dyadic analysis) might allow for an evaluation of the extent to which body-image self-consciousness can be attributed to characteristics of the partner (e.g., criticism, low responsiveness). It is also interesting to further examine if the how different types of porn (e.g., different categories, and "real porn" which is not about professional actresses and actors) in the context of attachment and body image. In addition, whereas we focused on the negative aspects of consciousness (i.e., self-consciousness), future studies might examine the positive aspects of consciousness (i.e., sexual consciousness). The latter reflects self-focused attention to physical sensations, thoughts, and feelings (van Lankveld et al., 2008) and is positively correlated with sexual functioning (Meston, 2006). The current study did not also assess women's acceptance toward pornography viewing (for themselves or for a romantic partner), nor did it measure the environment or context where pornography viewing occurred (e.g., alone, with romantic partner). Prior research (Maas et al., 2018) suggests a complex relationship between attachment and pornography use for women and men, particularly since factors such as frequency, acceptance (i.e., religious/moral disapproval), perceived problems with use, and relationship satisfaction could also potentially impact these associations.

Finally, the current study only examined pornography use frequency, and did not assess the content or type of pornography viewed. Studies addressing the characteristics of viewing pornography – for example, whether viewing it is accompanied by feelings of guilt, how realistic the pornography is perceived to be (Floyd et al., 2020; Vogels, 2019) –

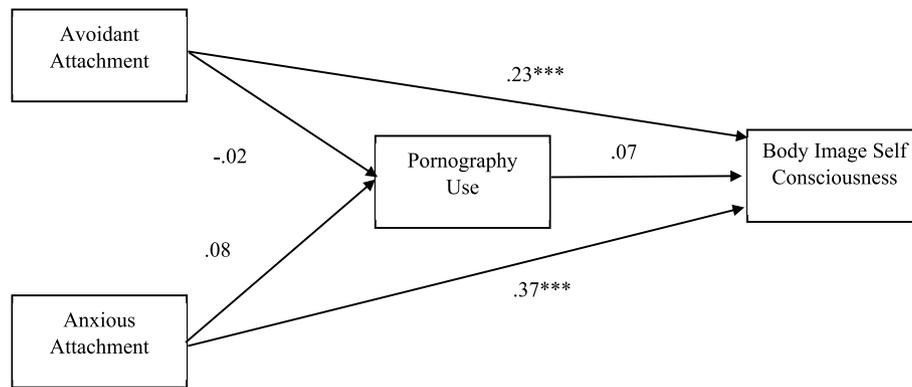


Fig. 1. Structural equation model for associations between attachment, pornography use, and body image self-consciousness among women not currently in a relationship (n = 363). Path coefficients are standardized. ***p < .001.

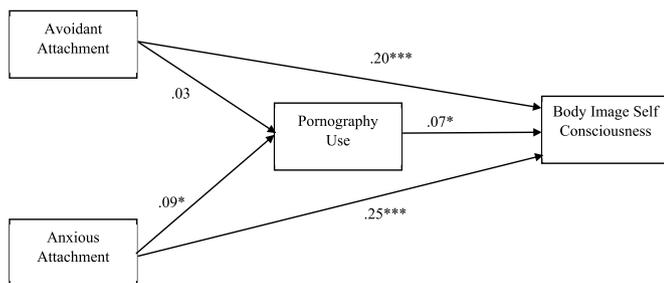


Fig. 2. Structural equation model for associations between attachment, pornography use, and body image self-consciousness among women currently in a relationship (n = 608). Path coefficients are standardized. ***p < .001; *p < .05.

suggest that pornography use should be measured in a more nuanced manner. Furthermore, the current study did not assess problematic pornography use among women, which has been shown to be related to body image relationship satisfaction (Borgogna et al., 2018). Given that mean scores for pornography were attenuated (i.e., most women viewed pornography less than monthly), further work should reexamine the relationships between attachment orientation, and body image self-consciousness among women reporting frequent pornography use (at least weekly or greater).

4.2. Clinical implications

Despite the limitations mentioned above, the present study may have several implications for prevention and clinical practice. Findings suggest that women who recall their parents as warm, accepting, and responsive tend to have less body image self-consciousness during intimate situations. Thus, developing a secure adult attachment may prevent women from being self-conscious about their bodies in a negative way. The study also implies that women with a secure attachment (i.e., low levels of attachment anxiety) and a more positive view of themselves are more resistant to pornography use. By contrast, women who are anxiously attached seem to be more prone to internalizing images viewed in pornography (e.g., beauty ideals, sexual acts) and to feel pressured and threatened by them. Therapists working with women whose presenting problem such as body image concerns and self-consciousness may benefit from assessing the women’s attachment history and current attachment style as well as their working models about the self (e.g., unlovable) and about others (e.g., rejecting). Therapists can directly assess a woman’s attachment anxiety to treat issues around body image but may also choose to address pornography use as a means of decreasing body image self-consciousness. Viewpoints, beliefs, and emotions about pornography should also be assessed within

therapy, and explored in relation to the woman’s attachment fears, and views towards her body. Study results suggests that pornography use among women may only have a harmful impact given certain specific conditions, such as among women with preexisting vulnerabilities (e.g., attachment anxiety) and women who are in a romantic relationship.

5. Conclusion

The findings of the present study extend the literature by utilizing attachment theory to gain a better understanding of how women develop body image self-consciousness during intimate relations. Specifically, the findings suggest that women may be more susceptible to the influence of pornography use on their body image self-consciousness when they are anxiously attached and in a romantic relationship.

Credit author statement

Ateret Gewirtz-Meydan: Conceptualization; Methodology; Software; Validation; Investigation; Resources; Data curation; Writing – original draft; Funding acquisition. Kim J. Mitchell: Formal analysis; Writing – review & editing. Zohar Spivak-Lavi: Conceptualization; Methodology; Software; Validation; Investigation; Resources; Data curation; Writing – review & editing; Funding acquisition. Shane W. Kraus: Writing – review & editing.

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Declaration of competing interest

None.

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