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The Relationship Between Body Image Perceptions and Condom Use Outcomes in a Sample of South African Emerging Adults

Rosalie Corona[1] · Kristina B. Hood[1] · Firoza Haffejee[2]

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Abstract
HIV continues to be a health priority in South Africa. Consistent condom use helps prevent HIV, yet less than half of South African emerging adults use condoms consistently. Cultural beliefs about illnesses (e.g., being thin is perceived to be a sign of HIV infection) suggest that body image perceptions may play a role in emerging adults' condom use outcomes. We explored the relationships between body image perceptions (i.e., body dissatisfaction, body consciousness) and condom use outcomes (e.g., attitudes, negotiation efficacy, past use) in a sample of South African emerging adults. Participants ($n = 379$) recruited from university residences completed an anonymous survey. Participants' mean age was 21.79 years, 54.6% were female, 96.1% identified as Black African, and 73.5% reported primarily speaking IsiZulu. For women, the relationship between body dissatisfaction and condom negotiation efficacy was mediated by body consciousness and condom use attitudes after controlling for BMI, relationship status, and mental health symptoms. Further, the relationship between body dissatisfaction and past condom use was mediated by body consciousness. These results were not significant for men. Findings from this study suggest that integrating messages about body image perceptions into HIV prevention efforts targeting South African emerging adult women may be warranted.

Keywords Body image perceptions · Condom use · South Africa

The prevalence of HIV among South African adolescents and emerging adults continues to be a public health concern. In 2012, the estimated prevalence rate of HIV in South Africa was 12.2%, an increase from the 2008 rate of 10.6% (Zuma et al. 2016). The prevalence of HIV varies by province with the highest rate of HIV infection (16.9%) being reported in the province of KwaZulu-Natal (Zuma et al. 2016). Despite the fact that consistent condom use is one of the most effective means of preventing HIV infection, the rate of condom use in South Africa remains low with only 36.2% of individuals reporting that they used a condom the last time they had sexual intercourse (Zuma et al. 2016). Although condom use at last intercourse was higher among sexually active 15–24-year-olds compared to other age groups, consistent condom use in this age group was 45.7% (Zuma et al. 2016) leaving them at risk of contracting HIV.

Factors that contribute to low or inconsistent condom use among South African adolescents and emerging adults include having an older partner, younger age at sexual debut, condom availability, negative attitudes towards condoms (e.g., decreased pleasure, association with infidelity), and low levels of condom negotiation efficacy (Devine-Wright et al. 2015; Evans et al. 2016; Haffejee et al. 2018; Ngidi et al. 2016; Zhang et al. 2017). Moreover, Zuma et al. (2016) reported that between 2005 and 2012 there was a notable increase in relationships between South African adolescent females (15–19 years) and older males. These age-disparate relationships are sometimes associated with relationship power dynamics that make it harder for South African adolescent and emerging adult females to negotiate condom use with their older male partners and that can increase their risk of HIV infection (Evans et al. 2016; Maughan-Brown et al. 2018; Schaefer et al. 2017). These relationship patterns and attitudes (that are often established at young ages) may carry over into emerging adulthood. Accordingly, identifying

✉ Rosalie Corona
racorona@vcu.edu

[1] Department of Psychology, Virginia Commonwealth University, 806 W. Franklin Street, Richmond, VA 23284-2018, USA

[2] Department of Basic Medical Sciences, Durban University of Technology, Durban, South Africa

factors that may promote condom use self-efficacy, and in turn condom use among South African emerging adults could provide a new target for intervention efforts.

Body Image Perceptions and Condom Use Outcomes

An understudied factor that may be related to South African emerging adults' condom use outcomes is how individuals feel about their bodies (i.e., their body image perceptions). Body image perceptions are comprised of an individual's self-perceptions and attitudes (both positive and negative) about their body and include individual's feelings, thoughts, and behaviors (Cash and Pruzinsky 1990; Cash 2004). Body dissatisfaction occurs when an individual holds negative feelings or attitudes towards their body and/or there is a discrepancy between the individual's perception of an "ideal" body and their body (Cash and Pruzinsky 1990; Cash 2004). For example, body dissatisfaction occurs when an individual negatively self-evaluates their physical body, including (but not limited to) their figure, shape, stomach, and hips. Research conducted with racial/ethnic minorities in the USA also highlight the importance of non-weight related factors (such as skin tone, hair) in contributing to an individuals' body image perceptions (Pope et al. 2014; Roberts et al. 2006).

A related construct is body consciousness. Objectification theory suggests that individuals, especially women, have been socialized to construct their perceptions of their body from the perspective of an outsider by considering their body as an "object" to be evaluated (Spitzack 1990). McKinley and Hyde (1996) describe three components of body consciousness including body surveillance (i.e., monitoring one's body from an observer's perspective), body shame (i.e., experiencing shame when individual's fall short of internalized cultural standards), and control beliefs (i.e., individuals can control how they look with enough effort so that they can meet cultural standards). Body consciousness has important implications for health behaviors such as body esteem, eating/dieting behaviors, and depressive symptoms (Jackson et al. 2016; Tiggemann 2013; Tiggemann and Slater 2015). While objectification theory was initially proposed as a framework for understanding women's body perceptions within cultures that sexualize their bodies, men's bodies are also becoming increasingly "objectified" through media portrayals of muscularity (Leit et al. 2001; Pope et al. 2001) and men are increasingly reporting body dissatisfaction (Edwards et al. 2016; Fallon et al. 2014).

While the majority of research on body image perceptions and body consciousness has been conducted in the USA, there is some literature demonstrating that South African adolescents and emerging adults express dissatisfaction with their bodies (e.g., Mchiza et al. 2015; Prioreschi et al. 2017). Studies have also found differences among racial groups with Black South Africans reporting less body dissatisfaction than White South Africans, which may be the result of differences in cultural standards and/or societal factors (Caradas et al. 2001; Mchiza et al. 2011; Puoane et al. 2010). In fact, among Black South Africans, being thin is perceived to be associated with health problems such as being infected with HIV, whereas being overweight is perceived as a sign of wealth, beauty, and happiness (Mchiza et al. 2011; Puoane et al. 2010). These cultural perceptions between body size and HIV suggest that body image perceptions such as body dissatisfaction may be associated with condom use and self-efficacy to use condoms among South African emerging adults.

Studies of adolescents and emerging adults in the USA have found that adolescents and emerging adults who are dissatisfied with their body are more likely than others to engage in sexual risk behaviors such as being younger at first intercourse, having multiple sexual partners, and not using condoms when sexually active (Gillen et al. 2006; Schooler 2013; Wingood et al. 2002). Blashill and Safren (2015) noted that despite the importance of condom use self-efficacy in predicting actual condom use, relatively few studies have identified predictors of condom use self-efficacy. In a meta-analysis that included 11 studies (2495 participants), Blashill and Safren (2015) found a moderate effect size (Cohen's $d = .52$) for the relationship between body dissatisfaction and condom use self-efficacy. Specifically, as an individual's dissatisfaction with their body increases, their self-efficacy to use condoms decreases.

Relatively fewer studies have explored the relationship between body image perceptions and sexual outcomes in South African adolescents and emerging adults. In a sample of South African adolescents, Wild et al. (2004) found that female adolescents with a negative body image were less likely to use barrier contraception and more likely to have multiple partners than female adolescents with a positive body image. South African male adolescents reported no relation between body image and these same sexual risk behaviors.

Accordingly, we sought to determine whether body image perceptions (i.e., body dissatisfaction, body consciousness) are negatively associated with condom use outcomes (i.e., past condom use, condom use efficacy, condom negotiation efficacy) in a sample of South African emerging adults. We also explored whether body consciousness and attitude towards condoms mediated the relationship between body image dissatisfaction and condom use outcomes. Understanding the relationship between body image perceptions and condom use outcomes, and identifying potential mediators could provide a newer focus to HIV prevention programs and efforts for South African emerging adults.

Method

Procedures

Participants included South African students living in the residences of a university in the province of KwaZulu-Natal, South Africa. We randomly identified 7 (of 15) residences to target for study recruitment. Once residences were identified, we randomly selected students from a particular year of study to target in each residence. Participation was voluntary and all students were provided with verbal and written information about the study. Those who agreed to participate signed a consent form prior to completing the self-administered questionnaire. The questionnaire was adapted for the local context from previously established measures. Prior to administration of the questionnaire, it was piloted with five university students, who met the inclusion criteria. The data from students who completed the measures as part of the pilot administration were not included in the data analyses. Minor language changes were made based on the pilot participants' feedback to ensure understanding of all terminology by students at the local level. In addition, the response categories for two scales were modified from seven-point scales to five-point scales. These modifications were done to facilitate participants' understanding of the response categories. It must be noted that although the participants were attending an English medium university, English is a second language for most of them. The ethics committee of the university, where data were collected, approved this study (IREC 084/16).

Participants

South African university students ($n = 441$) from the province of KwaZulu-Natal participated in a study on relationships and health outcomes. Data from students who reported an age younger than 18 ($n = 5$) and older than 29 ($n = 38$), who had ever been married ($n = 14$), and who did not complete the mental health measure ($n = 5$) were excluded from analyses resulting in a sample of 379 emerging adults (200 women and 179 men). Participants' mean age was 21.85 years (SD = 2.71); 54.0% were female; and 65.5% were currently in a relationship. The majority of participants self-identified as Black African (96.1%) and 73.5% reported primarily speaking IsiZulu. Additional participant characteristics are presented in Table 1.

Table 1 Socio-demographic sample characteristics

Participant characteristic	*N* (%)
Gender	
Male	175 (46)
Female	204 (54)
Race	
Black African	364 (95)
Indian	9 (2)
Colored	3 (1)
White	1 (.3)
Other	2 (.5)
Primary language	
isiZulu	281 (74)
English	42 (11)
isiXhosa	22 (6)
Other	34 (9)
Level of study	
First year	101 (27)
Second year	71 (19)
Third year	113 (30)
Fourth year/B tech	30 (8)
Masters	53 (14)
Doctoral	11 (3)
Religion	
Protestant or other Christian	264 (69)
Catholic	55 (14)
Shembe	25 (7)
Hindu	7 (2)
Jewish	2 (.5)
No religious background	8 (2)
Other	18 (5)

Measures

Demographic Information Participants answered demographic questions including (1) date of birth ("What is your date of birth?" Entered in MM/DD/YY format), (2) sex ("Are you…"Male; Female"), (3) race ("What is your race?" Responses included "Black African; White; Indian; Coloured; Other"), (4) primary language ("What is the primary language you speak? Responses included "English; IsiZulu; IsiXhosa; Other"), (5) relationship status ("Are you currently in a romantic relationship or dating someone?" Responses included "yes, no"), (6) education level ("What level of study are you currently enrolled at university?" Responses included "First year; Second year; Third year; Fourth year / Honours / B Tech; Masters; PhD; Professional; Non-degree seeking student; Other"), (7) place of residence ("Where do you live?" Responses included "A house/apartment/etc in the city; A house/apartment/etc in a suburb; Residence; In an informal settlement in the city; In a township house; In an informal settlement in the township; Other"), and (8) religious affiliation ("Which best describes your religious background?" Responses included "Protestant or Other Christian; Catholic; Shembe; Jewish; Hindu; Muslim; No religious background; Other").

Body Image Dissatisfaction Participants completed the *Eating Disorder Examination Questionnaire* (EDEQ; Fairburn and Beglin 1994). The EDEQ consists of four subscales: restraint (five items; "Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?"); eating concern (five items; "Have you had a definite fear of losing control over eating?"); shape concern (eight items; "Have you felt fat?"); and weight concern (five items; "Have you had a strong desire to lose weight?"). We used the shape and weight concern subscales in analyses. For each subscale, items are averaged and higher scores indicate more weight and shape concerns. Internal reliability for the combined measure of weight and shape concerns in this sample was .82.

Body Consciousness Participants completed the *Objectified Body Consciousness* scale (OBC; McKinley and Hyde 1996). The OBC consists of three subscales: body surveillance (eight items; "During the day, I think about how I look many times"); body shame (eight items; "I feel like I must be a bad person when I don't look as good as I can"); and control beliefs (eight items; "I think a person is pretty much stuck with the looks they are born with"). Items are rated on a seven-point scale that ranges from strongly disagree to strongly agree with a midpoint of neither agree nor disagree and a NA option (treated as missing data). The scale was modified to a five-point scale for the current study. Items were summed to create a total score with higher scores indicating greater body consciousness. Internal reliability in the current sample was .79.

Condom Use Efficacy Participants completed the *Condom Use Efficacy* scale (DiClemente and Wingood 1995). The scale consists of nine items that assess participants' knowledge of the appropriate steps to use a condom. Sample items include "Unroll a condom down correctly on the first try" and "Squeeze air from the tip of a condom." Items are rated on a three-point scale from not confident to very confident. Items were averaged such that higher numbers reflect more confidence in using condoms. Internal reliability in this sample was .88.

Condom Use Negotiation Efficacy Participants answered seven questions that assessed their self-efficacy in negotiating condom use with their partners (DiClemente and Wingood 1995). Sample items include "Can you insist upon condom use if your partner does not want to use one?" and "Can you insist on condom use every time you have sex, even when your main partner is under the influence of alcohol and/or drugs?" Items were rated on a four-point scale from definitely no to definitely yes. Items were averaged with higher scores indicating greater self-efficacy in negotiating condom use with partners. Internal reliability in this sample was .80.

Condom Attitudes Participants completed the *Condom Attitude Scale* (CAS; Hood and Shook 2013). The CAS consists of 25 items that assess participants' cognitive and affective attitudes towards condoms. Sample items include "The thought of using a condom is disgusting" and "The proper use of a condom could enhance sexual pleasure." Items are rated on a seven-point likert scale from strongly disagree to strongly agree. For the purposes of this study, the response scale was modified from a seven-point scale to five-point scale. After some items were reverse coded, items were averaged such that higher numbers reflect more positive attitudes towards using condoms. Internal reliability in the current sample was .88.

Condom Use Past condom use was measured using the following question, "Did you use a condom the last time you had sexual intercourse?" Response options include yes or no.

Body Mass Index Participants reported their weight in kilograms, and height in meters. Body mass index (BMI) was calculated by dividing each participant's report of weight in kilograms by their report of height in meters squared.

Mental Health Symptoms Participants reported their symptoms of anxiety, depression, and psychological stress using the *Depression, Anxiety, Stress Scale* (DASS; Lovibond and Lovibond 1995). Participants were asked to think about the past week and indicate their response using a four-point scale ranging from 0 "Did not apply to me at all" to 3 "Applied to me very much, or most of the time." Sample items include "I couldn't seem to experience any positive feelings at all (depression)," "I found it hard to wind down (stress)," and "I felt I was close to panic (anxiety)." Subscale items were summed and higher scores indicate more mental health symptoms. Internal reliability in the current sample was .94.

Data Analysis Plan

All analyses were conducted using IBM SPSS Version 24 software (IBM Corp 2013). Descriptive statistics including means, standard deviations, and correlations among variables were run. Separate bootstrapping analyses with bias-corrected 95% confidence intervals were conducted to examine the indirect effects of body dissatisfaction on condom use outcomes via body consciousness using PROCESS (Hayes 2012) with 5000 bootstrapped samples. Confidence intervals that do not contain zero indicate a significant indirect effect. Both paths between (a) the predictor (i.e., body dissatisfaction) and the mediator (i.e., body consciousness, condom attitudes), and (b) the mediator and outcomes (i.e., condom use efficacy, condom negotiation efficacy, past condom use) needed to be significant in order to test mediation hypotheses (MacKinnon 2008). Covariates included age, BMI, relationship status, and mental health symptoms. Analyses were conducted separately for males and females.

Table 2 Bivariate associations and variable means and standard deviations for women and men

Women	Age ($M = 21.72$, $SD = 3.33$)	BMI ($M = 29.91$, $SD = 10.66$)	DASS ($M = .78$, $SD = .62$)	Body Diss. ($M = 2.10$, $SD = 1.52$)	OBCS ($M = 95.92$, $SD = 13.52$)	CA ($M = 3.31$, $SD = .56$)	CNEM ($M = 3.21$, $SD = .66$)	CUE ($M = 1.93$, $SD = .55$)	Condom use ($M = .54$, $SD = .50$)
Men	*1*	− .09	− .136*	− .157*	− .042	− .047	− .048	.021	− .055
Age ($M = 23.74$, $SD = 4.91$)									
BMI ($M = 29.00$, $SD = 10.40$)	− .003	*1*	.063	.172**	.051	.033	.016	.000	− .096
DASS ($M = .59$, $SD = .53$)	− .233**	.074	*1*	.259**	.162**	.003	.040	.010	− .030
Body Diss. ($M = 1.13$, $SD = 1.18$)	.015	.070	.304**	*1*	.364**	.030	.025	.062	.020
OBCS ($M = 92.58$, $SD = 12.06$)	.022	.185*	.068	.268**	*1*	− .158*	− .184*	.005	.111
CA ($M = 3.17$, $SD = .63$)	.043	− .119	− .141*	− .123	− .110	*1*	.461**	.122	.364**
CNEM ($M = 3.08$, $SD = .60$)	.152*	− .044	− .032	.004	− .029	.329**	*1*	.224**	.181*
CUE ($M = 2.40$, $SD = .49$)	.191**	.028	− .145*	− .022	− .123	.097	.450**	*1*	− .039
Condom Use *(*$M = .64$, $SD = .48$)	.096	.053	− .059	− .095	− .008	.316**	.172*	.031	*1*

Upper correlation matrix = women, lower correlation matrix = men, horizontal study variable means = Women, vertical study variable means = men

BMI body mass index, *DASS* Depression Anxiety Stress Scale, *Body Diss* Weight and Shape Subscale of the Eating Disorder Examination Questionnaire, *OBCS* Objectification Body Consciousness Scale, *CA* Condom Attitudes Scale, *CNEM* Condom Negotiation Efficacy Measure, *CUE* Condom Use Efficacy

*$p < .05$; **$p < .01$

Results

Bivariate Relationships

In general, bivariate correlations (see Table 2) were consistent with previous literature. For women, those who were more dissatisfied with their bodies were younger in age ($r(194) = -.16$, $p < .05$), reported more mental health symptoms ($r(194) = .26$, $p < .001$), reported higher BMIs ($r(194) = .17$, $p < .01$), and greater body consciousness ($r(194) = .36$, $p < .001$). Those who reported being more conscious of their body reported more mental health symptoms ($r(194) = .16$, $p < .01$), more negative attitudes towards using condoms ($r(194) = -.16$, $p < .05$), and less ability to negotiation condoms ($r(194) = -.18$, $p < .01$).

Men who were more dissatisfied with their bodies were younger in age ($r(177) = -.22$, $p < .01$), reported more mental health symptoms ($r(177) = .30$, $p < .001$), and reported greater body consciousness ($r(177) = .27$, $p < .001$). Moreover, those who reported more mental health symptoms were more likely to have more negative attitudes towards using condoms ($r(177) = -.14$, $p < .05$), and were less likely to feel confident negotiating condoms ($r(177) = -.15$, $p < .05$). Men with greater body consciousness also reported higher BMIs ($r(177) = .17$, $p < .01$).

Condom Negotiation Efficacy

The relationship between body dissatisfaction and condom negotiation efficacy was mediated by body consciousness and attitudes towards condoms for women. The indirect effects are reported in Table 3. After controlling for BMI, relationship status, and mental health symptoms, there was a significant positive direct effect of body dissatisfaction on body consciousness ($b = 2.95$, $SE = .77$, $t(194) = 3.86$, $p < .001$) and attitudes towards condoms ($b = .07$, $SE = .04$, $t(194) = 2.03$, $p = .04$) such that those with higher body dissatisfaction and those with more positive attitudes towards condoms use reported higher confidence in negotiating condoms with a partner. There was also a significant negative direct effect of body consciousness on condom negotiation efficacy ($b = -.01$, $SE = .004$, $t(194) = -2.48$, $p = .02$), those who reported lower levels of body consciousness felt more confident to negotiate using condoms. Conversely, there was a significant positive direct effect of condom attitudes on condom negotiation efficacy ($b = .55$, $SE = .09$, $t(194) = 5.77$, $p < .001$), those with more positive condom attitudes felt more confident negotiating condom use. We tested the significance of this indirect effect using bootstrapping procedures. Unstandardized indirect effects were computed for each of 5000 bootstrapped samples. The indirect effect of body consciousness on the relationship between body dissatisfaction and condom negotiation efficacy was significant, ($b = -.07$, $SE = .04$, 95% BCa CI = [−.16 to −.01]). However, the indirect relationship of attitudes towards condoms on the relationship between body dissatisfaction and condom negotiation efficacy was not significant ($b = .09$, $SE = .05$, 95% BCa CI = [−.002 to .19]). Furthermore, the multi mediator analyses indicated that body consciousness and attitudes towards condoms ($b = -.03$, $SE = .02$, 95% BCa CI = [−.07 to −.002]) account for associations between body dissatisfaction and condom negotiation efficacy (see Fig. 1). BMI, mental health symptoms, and relationship status were not significantly related to condom use negotiation efficacy. In summary, model 1

Table 3 Multi mediation analyses for the relationship between body dissatisfaction and condom use outcomes for women and men

	Women				Men			
Model	Indirect effect (*b*)	*SE*	BCa 95% CI		Indirect effect (*b*)	*SE*	BCa 95% CI	
Model 1								
BD → OBSC → CNEM	−.07	.04	−.16	−.01	−.03	.04	−.13	.04
BD → OBSC → CA	.09	.05	−.002	.19	−.02	.03	−.10	.04
BD → OBSC → CA → CNEM	−.03	.02	−.08	−.002	−.01	.02	−.05	.008
Model 2								
BD → OBSC → CUE	−.04	.04	−.13	.03	−.05	.04	−.14	.02
BD → OBSC → CA	.02	.03	−.009	.09	−.01	.02	−.06	.02
BD → OBSC → CA → CUE	−.007	.01	−.04	.003	−.006	.01	−.03	.005
Model 3								
BD → OBSC → PCU	.11	.07	.008	.27	−.05	.09	−.24	.13
BD → OBSC → CA	−.03	.03	−.13	.01	−.02	.02	−.12	.01
BD → OBSC → CA → PCU	.10	.11	−.11	.32	−.04	.06	−.20	.05

BD Weight and Shape Subscale of the Eating Disorder Examination Questionnaire, *OBCS* Objectification Body Consciousness Scale, *CA* Condom Attitudes Scale, *CNEM* Condom Negotiation Efficacy Measure, *CUE* Condom Use Efficacy, *PCU* past condom use

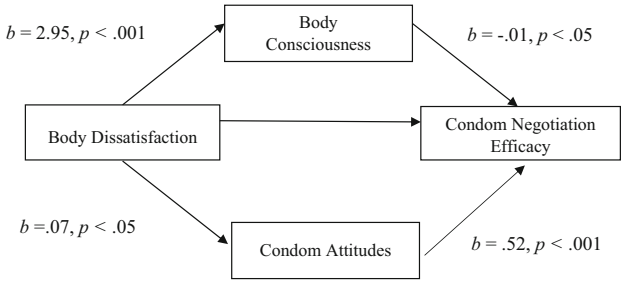

Fig. 1 Mediation model examining body dissatisfaction, body consciousness, and condom negotiation efficacy for women

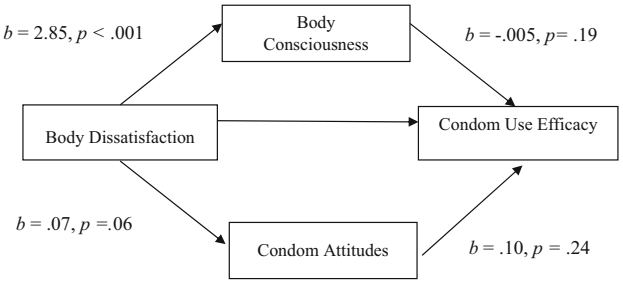

Fig. 2 Mediation model examining body dissatisfaction, body consciousness, and condom use efficacy for women

explained 31% of the variance in condom negotiation efficacy ($F(6, 188) = 8.52$, $R^2 = .31$, $p < .001$). Body consciousness and attitudes towards condoms did not mediate the relationship between body dissatisfaction and condom negotiation efficacy among men (see Table 3).

Condom Use Efficacy

It was also predicted that the relationship between body dissatisfaction and condom use efficacy would be mediated by body consciousness and attitudes towards condoms for women. After controlling for BMI, relationship status, and mental health symptoms, there was a significant positive direct effect of body dissatisfaction on body consciousness ($b = 2.85$, $SE = .80$, $t(194) = 3.58$, $p < .001$) and attitudes towards condoms ($b = .07$, $SE = .04$, $t(194) = 1.96$, $p = .05$) such that those with higher body dissatisfaction and those with more positive attitudes towards condoms reported higher confidence in negotiating condoms with a partner. There was a negative direct effect of body dissatisfaction on condom use efficacy and a positive relationship between condom attitudes and condom use efficacy; however, both relationships were not significant ($b = -.005$, $SE = .004$, $t(194) = -1.33$, $p = .19$) and ($b = .10$, $SE = .09$, $t(194) = 1.16$, $p = .25$), respectively. We tested the significance of this indirect effect using bootstrapping procedures. Unstandardized indirect effects were computed for each of 5000 bootstrapped samples. However, neither the indirect relationship of body consciousness on body dissatisfaction and condom use efficacy ($b = -.04$, $SE = .04$, 95% BCa CI = [−.13 to .03]) nor the relationship between condom attitudes on the relationship between body dissatisfaction and condom use efficacy was significant ($b = .02$, $SE = .03$, 95% BCa CI = [−.01 to .09]). Furthermore, the multi mediator analyses was also not significant ($b = -.01$, $SE = .01$, 95% BCa CI = [−.04 to .003]) (see Fig. 2). BMI, mental health symptoms, and relationship status were not significantly related to condom use efficacy. The fit for model 2 was also not significant ($F(6, 188) = 1.16$, $R^2 = .04$, $p = .32$). Body consciousness and attitudes towards condoms also did not mediate the relationship between body dissatisfaction and condom use efficacy among men (see Table 3).

Past Condom Use

Consistent with previous findings, it was predicted that the relationship between body dissatisfaction and past condom use among women would be mediated by body consciousness and attitudes towards condoms. After controlling for BMI, relationship status, and mental health symptoms, there was a significant direct effect between body dissatisfaction and condom use at last sexual encounter ($b = 2.86$, $SE = .86$, $t(175) = -3.33$, $p = .001$). However, the relationship between body dissatisfaction and attitudes towards condoms was not significant ($b = .05$, $SE = .04$, $t(175) = 1.13$, $p = .26$). There was a significant positive direct effect of body consciousness on condom use at last sexual encounter ($b = .04$, $SE = .02$, $t(175) = 1.97$, $p < .05$), and for condom attitudes on condom use at last sexual encounter ($b = 2.01$, $SE = .50$, $t(175) = 4.03$, $p < .001$) such that those who reported higher levels of body consciousness and more positive condom attitudes were more likely to use a condom at last sexual encounter. We tested the significance of this indirect effect using bootstrapping procedures. Unstandardized indirect effects were computed for each of 5000 bootstrapped samples. The indirect effect of body consciousness on the relationship between body dissatisfaction and condom use at last sexual encounter was significant, ($b = .09$, $SE = .06$, 95% BCa CI = [.09 to .005]), while the indirect effects of condom attitudes and the multi mediation model were not significant ($b = -.03$, $SE = .03$, 95% BCa CI = [−.13 to .01]) and ($b = .09$, $SE = .11$, 95% BCa CI = [−.11 to .32]), respectively (see Fig. 3). Model 3 explained between 24 and 32% of the variance in past condom use ($\chi 2(6) = 27.83$, $p < .001$). The Nagelkerke pseudo R^2 suggested that the model accounted for approximately 32% of the total variance in past condom use. BMI, mental health symptoms, and relationship status were not significantly related to past condom use nor were the body consciousness and attitudes towards condoms significant mediators of the

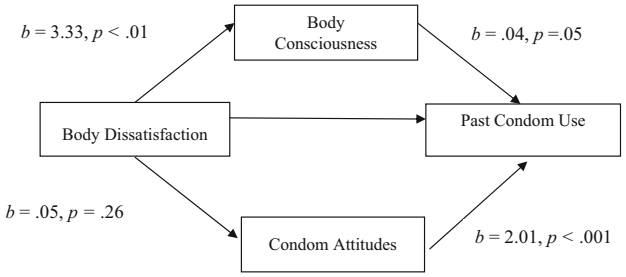

Fig. 3 Mediation model examining body dissatisfaction, body consciousness, and condom use at last intercourse for women

relationship between body dissatisfaction and condom use among men (see Table 3).

Discussion

While prior literature conducted in the USA suggests that body dissatisfaction is positively associated with sexual risk behaviors (Gillen et al. 2006; Schooler 2013; Wingood et al. 2002), relatively few studies have explored these relationships among South African adolescents and emerging adults (Wild et al. 2004). It is possible that cultural perceptions of body image in South Africa may result in a different pattern of results. For example, among Black South Africans, being thin is perceived as a sign of having health problems and possibly being infected with HIV (Mchiza et al. 2011; Puoane et al. 2010). Accordingly, one aim of the current study was to examine the relationship between body image perceptions and condom use outcomes in a sample of South African emerging adults.

Bivariate analyses revealed that increased feelings of body consciousness were associated with decreased self-efficacy in negotiating condom use with partners for women. These findings are consistent with prior literature that demonstrates an inverse relationship between how women feel about their bodies and their condom use and sexual health outcomes (Blashill and Safren 2015; Gillen et al. 2006). Although previous research has indicated that among Black African women thinness may be perceived to be an indication of disease, in our sample of predominately Black African emerging adults, a leaner body (based on BMI) was associated with less body dissatisfaction for women. It is possible that for South African emerging adult women, the relationship between body mass index and body dissatisfaction is related to media portrayals despite cultural beliefs about BMI. For example, Swami et al. (2010) found that exposure to Western media is related to body dissatisfaction for women in all regions of the world. They also found that in South Africa and Malaysia, people from higher SES settings and from urban settings reported a higher drive for thinness compared to people in lower SES settings and in rural settings. In light of these findings, further investigation into Western media exposure, socioeconomic differences, and body dissatisfaction and BMI are warranted.

Relatively few studies have identified mediators of the relationship between body dissatisfaction and condom use outcomes among South African emerging adults. Yet, the identification of mediators could have potential implications for intervention programming. In this sample, multi mediation models showed that body consciousness and attitudes towards condoms mediated the relationship between body dissatisfaction and condom negotiation efficacy for women, after controlling for BMI, relationship status, and mental health symptoms. It was also found that body consciousness and condom use attitudes mediated the relationship between body dissatisfaction and condom use efficacy for women, after controlling for BMI, sex, relationship status, and mental health symptoms. These results were not significant for men in our sample. Driving the relationship between body dissatisfaction and condom related outcomes, those who reported higher levels of body consciousness were less likely to use condoms at last sexual encounter and were less likely to negotiate condoms with a partner prior to having sex. Additionally, condom attitudes further explains the relationship between body consciousness and condom negotiation efficacy whereby those who have more positive attitudes towards using condoms were more likely to feel confident negotiating condoms. These findings highlight the importance of further investigating how body dissatisfaction and body consciousness relate to condom use outcomes. Although our study did not replicate previous findings that body dissatisfaction was related to condom use efficacy for both women and men (Blashill and Safren 2015), our study provides preliminary evidence that body consciousness may be one of the mechanisms that drives the relationship between body dissatisfaction and condom use negotiation and body dissatisfaction and condom use at last intercourse for South African emerging adult women. These results should be replicated and extended using a longitudinal design to aid in identifying potential moderators that influence the relationship between body dissatisfaction, body consciousness, and condom-related outcomes.

Finally, although it was not a main focus of the study, our bivariate analyses indicated a positive relationship between BMI and body dissatisfaction and mental health symptoms. This finding is consistent with prior literature conducted in the USA that has shown that increased body dissatisfaction is related to mental health problems including depression and anxiety (Paxton et al. 2006; Stice et al. 2000). Research conducted with adolescents and emerging adults in the USA suggest that drive for thinness and body dissatisfaction may drive the relationship between BMI and mental health symptoms (Mond et al. 2011). What factors may be driving this relationship for South African emerging adults is less known yet cultural differences in conceptualizations of beauty and illness

may suggest that different factors may be relevant for South African emerging adults.

Limitations and Conclusions

This study is not without limitations. The cross-sectional design makes it difficult to imply causation. More work that explores these relationships longitudinally is warranted. In addition, we cannot generalize the findings to South African emerging adults who are not enrolled in college. In addition, the majority of South African participants in our study identified racially as Black South Africans, making it difficult to explore racial differences in these relationships. Finally, while condom use is an important method of preventing HIV and other STIs, newer biomedical HIV prevention methods exist. We did not include measures to assess participants use of or attitudes towards these newer prevention methods. Given these newer technologies, it will be important to consider condom use within this new context. Despite these limitations, the results from this study highlight a potentially new area to consider integrating into HIV prevention efforts for South African emerging adult women.

Evidence-based behavioral interventions that emphasize consistent condom use have demonstrated efficacy in reducing HIV risk. Most of these interventions lack focus on critical elements like body image perceptions that can affect HIV-related outcomes such as consistent condom use, condom use efficacy, and condom negotiation efficacy. Future intervention work should explore integrating evidenced-based HIV prevention interventions with body image interventions to assess whether explicitly addressing body image perceptions in the context of HIV risk reduction behaviors could improve safer sex outcomes.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional ethics committee from the Durban University of Technology, Durban, South Africa. Ethical clearance was obtained prior to data collection (IREC 084/16).

Informed Consent Informed consent was obtained from all participants in the study.

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