

EPIDEMIOLOGY & RISK FACTORS

Appearance Satisfaction as a Predictor of Specific Sexual Problems and Associated Distress

Camilla S. Øverup, PhD,¹ Jenna Marie Strizzi, PhD,¹ Ana Cipric, MA,¹ Bente Træen, PhD,² and Gert Martin Hald, PhD¹

ABSTRACT

Introduction: Appearance dissatisfaction is a sensitive issue and has been tied to depression, dissatisfaction in romantic relationships, and reduced sexual satisfaction.

Aim: This study sought to examine associations between appearance satisfaction and specific sexual problems and related distress, testing also the moderating role of relationship satisfaction.

Methods: A large web-sample of Norwegians in romantic relationships (N = 2,903) completed a one-time survey.

Outcomes: Participants reported on their experience of five different sexual problems and associated level of distress.

Results: We found that appearance satisfaction was associated with reporting fewer sexual problems, and specifically, with a smaller likelihood of experiencing problems with lack of enjoyment, lack of excitement, and lack of climax. Furthermore, appearance satisfaction was unrelated to overall sexual problem-related distress, but was associated with feeling less distress about lack of excitement and lack of climax. Relationship satisfaction did not serve as a moderator of the associations.

Clinical Translation: These findings suggest the importance of attending to appearance satisfaction when working with clients with multiple sexual problems, particularly those related to excitement and enjoyment.

Strengths and Limitations: Strengths of the study include a large sample of partnered adults and assessment of specific sexual problems and associated distress. A limitation is that outcomes were assessed using single items, rather than multi-item scales.

Conclusion: The study highlights the importance of examining the presence of sexual problems and associated distress separately, and to consider appearance satisfaction as a predictor of sexual functioning. **Øverup CS, Strizzi JM, Cipric A, et al. Appearance Satisfaction as a Predictor of Specific Sexual Problems and Associated Distress. J Sex Med 2021;XX:XXX–XXX.**

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Key Words: Appearance satisfaction; Body satisfaction; BMI; Sexual problems; Sexual dysfunction; Sexual distress; Relationship satisfaction

Body image is a sensitive issue for many individuals, as contemporary Western culture places a strong emphasis on physical appearance.¹ As such, both men and women may feel pressure to

look the “right” way, but perceive that they do not.² Perceptions that one’s appearance is discordant with some norm or ideal may lead to feelings of body and appearance dissatisfaction.² Evaluations of body image are multi-faceted, and often have a particular focus on feelings about, or satisfaction with, one’s physical appearance.³ By some, such evaluations are termed body (dis)satisfaction.⁴ while others refer to appearance evaluations, or appearance satisfaction.³ Thus, below, we use body (dis)satisfaction and appearance (dis)satisfaction interchangeably.

Such dissatisfaction is associated with various psychological, social, and physical health outcomes. For instance, a negative body image has been associated with poor self-esteem,^{5,6} lower

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¹University of Copenhagen, Department of Public Health, København K, Denmark;

²University of Oslo, Department of Psychology, Harald Schjelderups hus, Oslo, Norway

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subjective well-being,⁷ depression,⁸ social anxiety,⁹ dissatisfaction in romantic relationships,¹⁰ disordered eating,^{11,12} and generally diminished quality of life.¹³ Importantly, appearance dissatisfaction has also been associated with reduced sexual satisfaction.¹⁴

Beyond sexual satisfaction, research also suggests that appearance dissatisfaction has implications for sexual problems. In the current manuscript, we sought to examine associations between appearance satisfaction and sexual functioning (interest/desire, enjoyment, anxiety, excitement and arousal, and climax) in a large web-sample of Norwegians in romantic relationships. In addition, we examined whether appearance satisfaction was related to the distress associated with experiencing sexual dysfunction. Lastly, we examined whether these associations differed by level of relationship satisfaction.

APPEARANCE SATISFACTION AND SEXUAL FUNCTIONING

Much research has examined whether body satisfaction is associated with sexual functioning, particularly among women. For instance, research suggests that women who are more dissatisfied with their appearance also experience decreased interest in or desire for sexual activity, particularly post-partum¹⁵ and post-menopause.¹⁶ Moreover, in a study of elderly women, those who expressed less acceptance of their aging body, were more likely to report less sexual interest, less sexual pleasure, and less sexual enjoyment than the women who expressed acceptance of their body.¹⁷ Feeling negative about one's own body and appearance, as well as perceiving that others evaluate one's body negatively, has also been associated with decrements in arousal and orgasm,^{18,19} and these decrements in arousal and orgasm were associated with decreased pleasure for both men and women.¹⁹ Conversely, perceiving that one is attractive, as well as being satisfied with one's body image, has been found to be associated with an increase in orgasms and orgasming more easily.^{20,16}

It is noteworthy that associations between body image variables and sexuality variables have been found after controlling for the effects of actual body size.²¹ This suggests that perceptions and cognitions about the body, rather than actual body size, have a unique influence on people's sexual experiences.²² Moreover, the research into the associations between body mass index (BMI) and sexual functioning and satisfaction have yielded mixed results; some have found that increased BMI, particularly obesity, is associated with poorer sexual functioning and/or lower sexual satisfaction,²³⁻²⁵ while others have found no association.^{21,26,27}

DISTRESS ABOUT SEXUAL PROBLEMS AND APPEARANCE SATISFACTION

When studying sexual functioning, it is important to consider distress; many of those who experience physiological symptoms

of sexual problems may not report experiencing associated distress.²⁸⁻³⁷ This may particularly be true for older individuals.³⁰ Distress is an important element for determining the clinical relevance of these symptoms. Since 1994, the distress associated with sexual problems has been a key diagnostic criterion for sexual dysfunctions in the Diagnostic and Statistical Manual of Mental Disorders (DSM)³⁸. However, surprisingly, the topic of distress associated with sexual problems has received little scrutiny in the literature, especially among men^{29,30}.

Little research has been done regarding the associations between body dissatisfaction, BMI, and distress about sexual problems. In fact, to our knowledge, only one study has examined associations between appearance (dis)satisfaction and sexual distress. This study found that lower appearance dissatisfaction was associated with lower sexuality-related distress³⁹. Thus, this is a greatly understudied area.

THE ROLE OF RELATIONSHIP SATISFACTION

Sexuality and sexual functioning are important aspects of human life, and may be particularly important in partnered relationships. Sexual satisfaction and sexual functioning have been associated with relationship satisfaction, particularly among women;^{25,40-43} that is, when people feel greater relationship satisfaction, they also tend to report greater sexual satisfaction and better sexual functioning. Relatedly, greater relationship satisfaction has been associated with larger gains in sexual satisfaction and greater reductions in distress for women in treatment for sexual dysfunction.⁴⁴ In general, increased emotional closeness during sex, and longer duration relationships has been associated with less distress,^{35,45-47} while low relationship satisfaction and low satisfaction with a sexual relationship have been associated with greater sexual distress,^{49,48} though not all studies have found that association.⁵⁰ Further, studies have found the associated sexual distress, more than the experience of a sexual problem, to be a determinant of sexual satisfaction levels.⁵¹

With respect to relationship satisfaction, it is associated with greater body image satisfaction.^{52,53} However, some research suggests that relationship factors, such as intimacy and satisfaction, are more important in predicting sexual satisfaction and functioning than are body image variables.⁵³ Indeed, among younger women, after controlling for relationship satisfaction, body image variables no longer predicted sexual satisfaction or sexual functioning.^{53,54} This is echoed in an interview study of 20 Australian women aged 50-79, in which participants stated that feeling loved and accepted by their long-term partners, regardless of their appearance, was important for positive sexual experiences.⁵⁵

Given that it appears that relationship satisfaction is associated with both body satisfaction and sexual functioning and distress, it may be that relationship satisfaction moderates the association between body satisfaction and sexual functioning and distress. That is, findings by Steer and Tiggemann,⁵⁴ and Træen and

colleagues,⁵³ suggest that at high levels of relationship satisfaction, the association between body dissatisfaction and sexual functioning and distress is minimal. Conversely, it may be that body dissatisfaction is related to poorer sexual functioning and sexual distress for those with lower relationship satisfaction, as the lower relationship satisfaction may exacerbate insecurities about one's body in sexual situations, though research is needed to explore these possible associations.

CURRENT STUDY

The current research seeks to fill this gap in the literature, using a large web-sample of Norwegian partnered adults. Specifically, we sought to address the following hypotheses and research questions:

H1: Greater appearance satisfaction is associated with a smaller likelihood of reporting any sexual problems.

H2: Greater appearance satisfaction is associated with reporting fewer sexual problems.

H3: Greater appearance satisfaction is associated with a smaller likelihood of reporting specific sexual problems (lack of interest, lack of enjoyment, feeling anxious during sex, not feeling excitement, and not reaching orgasm).

RQ1: Is greater appearance satisfaction associated with less overall sexual distress?

RQ2: Is greater appearance satisfaction associated with less distress related to each sexual problem?

RQ3a: Is the association between appearance satisfaction and sexual problems moderated by relationship satisfaction?

RQ3b: Is the association between appearance satisfaction and distress related to sexual problems moderated by relationship satisfaction?

METHODS

Participants

Data comes from a larger study of sexuality in Norway (N = 4,160 people). For this publication, we elected to focus on men and women who had sexual experience (i.e., responded yes to the question: "Have you ever had sexual intercourse (incl. vaginal, anal or oral sex)") and were in partnered relationships (whether married or dating).

The final sample consisted of 2,903 people (men = 54%; women = 45%), who were on average 47 years old (SD = 16.42; range = 18–87). The majority of participants reported being heterosexual (96%; 2% gay/lesbian and 2% bi/pansexual), and married (86%). Participants reported having been with their romantic partners for an average of 17 years (SD = 15.9; range = 0–63 years). The majority of the participants were overweight (39.1%) and normal weight (38.2%); 18.5% of the sample were obese, while 4.2% were underweight, according to their BMI.

Procedure

Approximately 46,000 Norwegians are members of Kantar's Gallup Panel.⁶⁴ These members are randomly recruited based on questionnaire surveys conducted by phone using probability samples. Self-recruitment is not possible. Members of the Gallup Panel are representative of Norway's Internet population, that is, the 98% of the population with access to the Internet.⁵⁶ People included in the Panel are not exposed to sale or marketing communication, are guaranteed anonymity, and all participation in surveys is voluntary.

Participants were initially recruited in March 2020 by e-mail; the recruitment e-mail was sent to a randomly selected sample of 11,685 Norwegians registered in Kantar's Gallup Panel. A total of 4,160 individuals completed the survey, yielding a response rate of 35.6%. Nearly half of the participants (51%) completed the survey on a mobile device.

The type of topics covered in the questionnaire were determined and constructed by researchers at the University of Oslo. The questionnaire was designed to study several different topics; in addition to the questions about sexuality, the questionnaire contained several questions about social background (gender, age, marital status, place of residence, level of education). It took an average of 15 minutes to complete the survey. Prior to launching the survey, it was piloted to a self-selected sample recruited on Facebook. The study was approved by Internal Ethical Committee at the Department of Psychology, University of Oslo.

Measures

Physical Appearance. To assess appearance satisfaction, participants were asked "How dissatisfied or satisfied are you with your physical appearance?" Responses were provided on a 7-point scale (1 = "Very dissatisfied"; 4 = "Neutral/Neither nor"; 7 = "Very satisfied"). Thus, higher scores indicate greater appearance satisfaction.

Sexual Problems and Distress Related to Sexual Problems.

To assess for the presence of sexual problems, participants were asked whether, during the past 12 months, they had experienced any of the following problems over a period of 3 months or longer⁴⁶: (1) Lacked interest in having sex, (2) Lacked enjoyment in sex, (3) Felt anxious during sex, (4) Felt no excitement or arousal during sex, and (5) Did not reach a climax (experience an orgasm) or took a long time to reach a climax despite feeling excited/aroused. Participants indicated their answer with a "yes" (1) or a "no" (0).

For each endorsed sexual problem, participants were presented with a follow-up question that asked "How distressful was this experience for you?" Participants responses on a 4-point scale with the following response options: 1 = "No distress", 2 = "Mild distress", 3 = "Moderate distress", and 4 = "Severe distress". Thus, higher scores indicate greater distress.

Covariates. Several relevant covariates were assessed. *Sexual dissatisfaction* was assessed with the question: "All things considered – how satisfied are you with your sexual life?", to which participants responded with the following options: 1 = "Dissatisfied", 2 = "A little dissatisfied", 3 = "Neither satisfied nor dissatisfied", 4 = "Quite satisfied", and 5 = "Very satisfied". Higher scores indicate greater satisfaction.

Relationship satisfaction was assessed with the question "All things considered, how satisfied are you with your current relationship?" Participants responded on a 7-point scale (1 = "Not satisfied at all"; 7 = "Completely satisfied"). Higher scores indicate greater satisfaction with the romantic relationship.

Additionally, participants reported their *gender* (male/female), *age* (in years), and *length of relationship* (in years). Participants also reported on their height (in centimeters) and weight (in kilograms); these measurements were converted into a BMI score and subsequently categorized according to established guidelines from the CDC and the WHO.^{57,58} The categorical variable is used for descriptive purposes, while the BMI score variable was used in the analyses as a covariate.

Plan of Analysis

Three sets of analyses were conducted. One analysis examined whether appearance satisfaction predicted the number of sexual problems people endorsed (H1 and H2). To that end, a zero-inflated negative binomial regression was conducted. The zero-inflated negative binomial regression yields two sets of estimates: (1) one set predicting the occurrence of zero sexual problems (H1), using a logistic regression, and (2) one set of estimates for predicting the number of sexual problems (H2), using a negative binomial regression. This analysis was followed up by an examination of whether appearance satisfaction predicted overall sexual-problem related distress (RQ1). Here, sexual-problem related distress was calculated by multiplying the distress related to specific sexual problems with the presence of the problem, and then summing these scores across all problems. A log-transformation was then applied to this summed score³⁰ (please see Hald et al., 2019 for more explanation).

Then, a set of analyses concerned the prediction of the presence of each of the sexual problems (H3), using logistic regression. Finally, a set of analyses focused on predicting the level of distress with each of the sexual problems (RQ2), employing ordinary least squares regressions. It should be noted that these analyses focused on the subset of participants who endorsed experiencing the corresponding sexual problem.

In all analyses, we examined the main effect of appearance satisfaction in a first step and included BMI, sexual satisfaction, gender, age, relationship satisfaction, and relationship length as covariate. In a second step, we examined whether the effect of appearance satisfaction differed as a function of relationship satisfaction (RQ3a and RQ3b). All continuous predictors were grand-mean-centered prior to

inclusion in the analyses, and gender was dummy coded, with men serving as the reference group. All analyses were conducted in SAS, version 9.4.

RESULTS

Correlations and Descriptive Data

Over half of the participants (54.3%, N = 1577) reported no sexual problems, while 45.7% of people (N = 1326) reported experiencing one or more problems (one problem = 28.0%; two problems = 9.3%; three problems = 5.1%; four problems = 2.5%; five problems = 0.8%). Correlations and descriptive data can be found in [Table 1](#). Overall, less satisfaction with one's appearance was associated with expressing sexual lack of interest, lack of enjoyment, feeling anxious, lack of excitement, and lack of climax, and the distress associated with sexual lack of interest, enjoyment, excitement, and climax. Moreover, appearance satisfaction was associated with greater feelings of satisfaction with the romantic relationship. BMI was negatively associated with satisfaction with appearance, sexual satisfaction, feelings of anxiety during sex, lack of excitement, and relationship satisfaction, but positively associated with age and relationship length.

Predicting the Number of Sexual Problems and Overall Sexual-Problem Related Distress

First, we sought to examine whether appearance satisfaction predicted the number of sexual problems people reported (H1 and H2); to that end, a zero-inflated negative binomial regression was specified ([Table 2](#)). Results suggested that with regard to the logistic regression (predicting 0 problems; H1), neither appearance satisfaction nor BMI predicted the absence/presence of a sexual problem. However, with respect to the count portion of the regression (H2), both appearance satisfaction and BMI significantly predicted the number of problems, such that higher scores was associated with fewer sexual problems.

Then, we sought to examine whether appearance satisfaction predicted overall sexual problem related distress (RQ1), using a general linear regression model and controlling for the number of sexual problems. These results appear in [Table 3](#). The analyses showed that appearance satisfaction and BMI were unrelated to overall sexual problem related distress.

Predicting the Presence of Specific Sexual Problems

[Table 4](#) presents the results of the logistic regressions focused on predicting the presence of each sexual problem (lack of interest, lack of enjoyment, feeling anxious during sex, lack of excitement, or lack of climax; H3). Appearance satisfaction was negatively associated with three of the sexual problems. That is, reporting lower levels of appearance satisfaction were associated with a greater likelihood of endorsing sexual lack of enjoyment,

Table 1. Correlations, means and standard deviations for all study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1 Appearance Satisfaction	–																			
2 BMI	-0.29***	–																		
3 Sexual dis-satisfaction	0.23***	-0.15***	–																	
4 Number of sex problems	-0.14***	-0.06**	-0.20***	–																
5 Overall Distress	-0.16***	-0.03	-0.30***	0.56***	–															
6 Lack of Interest	-0.11***	-0.02	-0.26***	0.68***	0.24***	–														
7 Distress: interest	-0.09**	-0.02	-0.21***	0.27***	0.86***	NA	–													
8 Lack of enjoyment	-0.11***	-0.02	-0.15***	0.69***	0.37***	0.29***	0.22***	–												
9 Distress: enjoyment	-0.15**	0.01	-0.26***	0.30***	0.86***	0.28***	0.66***	NA	–											
10 Anxious	-0.06***	-0.05*	-0.11***	0.44***	0.33***	0.15***	0.16***	0.23***	0.20***	–										
11 Distress: anxious	-0.09	-0.10	-0.34***	0.15	0.76***	0.16	0.50***	0.10	0.61***	NA	–									
12 Lack of excitement	-0.08***	-0.09***	-0.13***	0.68***	0.39***	0.31***	0.24***	0.46***	0.17**	0.21***	0.16	–								
13 Distress: excitement	-0.17**	0.00	-0.32***	0.34***	0.89***	0.23***	0.70***	0.19***	0.80***	0.25***	0.62***	NA	–							
14 Lack of climax	-0.07***	-0.03	0.02	0.60***	0.04	0.12***	0.12***	0.27***	0.10	0.17***	-0.01	0.21***	0.16**	–						
15 Distress: climax	-0.17***	0.02	-0.31***	0.23***	0.71***	0.14***	0.38***	0.15***	0.45***	0.21***	0.15	0.17***	0.45***	NA	–					
16 Relationship satisfaction	0.15***	-0.07***	0.48***	-0.15***	-0.13***	-0.15***	-0.09**	-0.13***	-0.18**	-0.04*	-0.04	-0.11***	-0.03	-0.03	-0.12**	–				
17 Gender	-0.06**	-0.15***	0.09***	0.19***	0.11***	0.19***	0.10**	0.12***	0.07	0.05**	0.14	0.11***	0.04	0.08***	-0.05	0.05**	–			
18 Age	0.02	0.15***	-0.13***	-0.21***	-0.13***	-0.07***	-0.07*	-0.16***	-0.10	-0.16***	0.09	-0.19***	-0.03	-0.13***	0.02	0.03	-0.18***	–		
19 Relationship length	-0.02	0.11***	-0.15***	-0.17***	-0.12***	-0.02	-0.10**	-0.13***	-0.12*	-0.12	0.11	-0.16***	0.01	-0.14***	0.01	0.05**	-0.11***	0.78***	–	
Mean	4.73	26.33	3.51	0.76	1.84	0.30	2.43	0.11	2.65	0.04	2.94	0.11	2.69	0.20	2.04	5.91	0.46	47.43	17.14	
SD	1.12	4.62	1.15	1.06	1.62	0.46	0.89	0.31	0.87	0.20	0.75	0.32	0.91	0.40	0.90	1.21	0.50	16.42	15.90	
Range	1 to 7	16 to 61	1 to 5	0 to 5	0 to 6.22	0 or 1	0 to 4	1 to 7	0 or 1	18 to 87	0 to 63									

Note. Gender (men = 0; women = 1), Relationship length is in years. The N for the correlations vary as a function of missing data.

* $P < .05$

** $P < .01$

*** $P < .001$

Table 2. Zero-inflated negative binomial regression predicting the number of sexual problems

Parameter	Estimate	St. Error	Wald χ^2	P-value	OR/IRR
No problem vs. any problem					
Intercept	-8.004	2.096	14.57	<.001	
Appearance Satisfaction	0.025	0.119	0.04	0.834	1.025
BMI	-0.001	0.032	0.00	0.969	0.999
Sexual satisfaction	0.979	0.224	19.05	<.001	2.662
Relationship Satisfaction	0.456	0.174	6.92	0.009	1.578
Gender	0.156	0.372	0.18	0.676	1.169
Age	-0.000	0.015	0.00	0.981	1.000
Relationship length	-0.016	0.016	0.94	0.333	0.984
Appearance satisfaction* relationship satisfaction	-0.157	0.141	1.23	0.267	0.855
Appearance satisfaction* Gender	0.208	0.241	0.74	0.389	1.231
Number of problems					
Intercept	1.783	0.295	36.54	<0.001	
Appearance Satisfaction	-0.080	0.028	8.08	0.005	0.923
BMI	-0.019	0.007	7.65	0.006	0.981
Sexual satisfaction	-0.137	0.030	21.39	<0.001	0.872
Relationship Satisfaction	-0.010	0.023	0.17	0.679	0.990
Gender	0.501	0.070	50.50	<0.001	1.650
Age	-0.014	0.003	16.58	<0.001	0.986
Relationship length	-0.007	0.004	4.27	0.039	0.993
Appearance satisfaction* relationship satisfaction	-0.029	0.017	2.86	0.091	0.971
Appearance satisfaction* Gender	0.046	0.053	0.76	0.384	1.047
Dispersion	0.087	0.054			

Note. For the logistic regression, the outcome being modeled is no problems. The dispersion factor is from the main effects model. OR = Odds ratio. IRR = Incidence rate ratio, or, relative risk. The OR is presented for the logistic regression (top half of table), while the IRR is presented for the count regression (lower half of table). Gender (men = 0; women = 1), Relationship length is in years.

lack of excitement, and lack of climax. BMI was negatively associated with two outcomes, such that reporting lower BMIs were associated with a greater likelihood of endorsing feeling anxious during sex and sexual lack of excitement.

Moreover, results revealed that greater sexual satisfaction was associated with a smaller likelihood of feeling anxious during sex and experiencing sexual lack of interest, lack of enjoyment, and lack of excitement. Greater relationship length was associated with a smaller likelihood of reporting sexual lack of excitement and lack of climax.

Predicting Severity of Distress Related to Specific Sexual Problems

Table 5 provides the results of the regression predicting the severity of distress related to sexual problems (RQ2). Less appearance satisfaction was associated with greater distress related to lack of excitement and greater distress related to lack of climax, while BMI was unrelated to distress. Only greater sexual satisfaction was consistently associated with less distress related to all sexual problems.

The Role of Relationship Satisfaction

A key component of the analyses was the examination of relationship satisfaction as a predictor of endorsement of sexual problems and associated distress. We found that relationship satisfaction was associated with a smaller likelihood of reporting the presence of sexual problems (Table 2, top), but was unrelated to any specific problem (Table 4). Interestingly, though, relationship satisfaction was unrelated to the number of sexual problems (Table 2, bottom). With respect to sexual distress, relationship satisfaction was only related to more distress related to sexual lack of excitement (Table 5), but unrelated to overall distress (Table 3). Moreover, there were no significant interactions between appearance satisfaction and relationship satisfaction in any of the analyses (RQ3a and RQ3b).

Ancillary Analyses: The Role of Gender

We also elected to examine the role of gender in these analyses. Specifically, in all analyses, we examined whether the effect of appearance satisfaction differed as a function of gender. All interactions were non-significant, suggesting that associations between appearance satisfaction and the outcome (number of problems, endorsement of specific problems, or distress over

Table 3. Regression predicting overall sexual-problem related distress

Parameter	Estimate	St. Error	t-value	P-value
Intercept	1.732	0.410	4.23	<0.001
Appearance Satisfaction	-0.067	0.037	-1.78	0.075
BMI	-0.009	0.009	-1.05	0.295
Sexual satisfaction	-0.348	0.038	-9.06	<0.001
Number of sexual problems	0.846	0.041	20.44	<0.001
Relationship Satisfaction	0.028	0.033	0.85	0.396
Gender	0.095	0.081	1.18	0.239
Age	0.005	0.004	1.23	0.219
Relationship length	-0.004	0.004	-0.96	0.337
Appearance satisfaction* relationship satisfaction	-0.017	0.026	-0.64	0.520
Appearance satisfaction* Gender	-0.015	0.070	-0.21	0.831

Note. Gender (men = 0; women = 1), Relationship length is in years.

Table 4. Logistic regressions predicting presence of sexual problems

	Lack of interest (71.9 %)		Lack of enjoyment (73.3 %)		Feeling anxious during sex (78.4 %)		Lack of excitement (74.7 %)		Lack of climax (63.2 %)	
	b	OR	b	OR	b	OR	b	OR	b	OR
Intercept	2.799		2.360		2.934		3.697		0.498	
Appearance Satisfaction	-0.065	0.937	-0.150*	0.861	-0.161	0.851	-0.162**	0.851	-0.171***	0.843
BMI	-0.020	0.980	-0.013	0.987	-0.051*	0.950	-0.066***	0.936	-0.012	0.988
Sexual satisfaction	-0.556***	0.573	-0.431***	0.650	-0.614***	0.541	-0.449***	0.638	0.054	1.055
Relationship Satisfaction	-0.053	0.948	-0.102	0.903	0.087	1.091	-0.078	0.925	-0.066	0.936
Gender	0.484***	2.631	0.363***	2.067	0.144	1.335	0.305***	1.839	0.161**	1.381
Age	-0.016***	0.984	-0.031***	0.970	-0.061***	0.941	-0.023***	0.978	-0.007	0.993
Relationship length	0.008	1.008	-0.009	0.991	-0.009	0.991	-0.027**	0.973	-0.016**	0.984
Appearance satisfaction* relationship satisfaction	-0.051	0.950	-0.039	0.962	-0.075	0.928	-0.023	0.977	-0.048	0.953
Appearance satisfaction* Gender	-0.04	0.96	-0.01	0.99	-0.04	0.97	0.04	1.04	-0.02	0.98

Note. Gender (men = 0; women = 1), Relationship length is in years. Concordance is provided in parentheses below the outcome and is based on main effects.

* $P < .05$.

** $P < .01$.

*** $P < .001$.

Table 5. OLS Regressions, with distress related to sexual problems as outcomes

	Lack of interest N = 747		Lack of enjoyment N = 269		Feeling anxious during sex N = 103		Lack of excitement N = 292		Lack of climax N = 510	
	b	B	b	B	b	B	b	B	b	B
Intercept	3.237	0	3.806	0	3.499	0	3.883	0	3.461	0
Appearance Satisfaction	-0.029	-0.037	-0.079	-0.104	-0.014	-0.021	-0.100*	-0.133	-0.087*	-0.106
BMI	-0.005	-0.029	-0.000	-0.001	-0.022	-0.136	-0.014	-0.065	-0.011	-0.057
Sexual satisfaction	-0.200***	-0.254	-0.185***	-0.245	-0.227***	-0.391	-0.268***	-0.342	-0.233***	-0.293
Relationship Satisfaction	0.006	0.008	-0.041	-0.059	0.085	0.143	0.092*	0.131	0.021	0.027
Gender	0.212**	0.118	0.116	0.065	0.137	0.090	0.017	0.009	-0.122	-0.068
Age	0.001	0.023	-0.001	-0.015	0.005	0.085	-0.003	-0.037	0.001	0.022
Relationship length	-0.007*	-0.128	-0.008	-0.103	0.001	0.012	0.003	0.035	-0.002	-0.032
Appearance satisfaction* relationship satisfaction	-0.021	-0.228	-0.020	-0.204	-0.107	-1.251	-0.014	-0.143	-0.005	-0.046
Appearance satisfaction* Gender	-0.10	-0.26	0.08	0.20	0.09	0.26	0.08	0.22	0.02	0.06

Note. Gender (men = 0; women = 1), Relationship length is in years. The N for each analysis is provided below the outcome.

* $P < .05$.

** $P < .01$.

*** $P < .001$.

problems) did not differ for men and women. Moreover, in the context of the remaining variables, there were no gender differences (i.e., main effect of gender) in terms of absence /presence of any problem (Table 2), overall sexual-problem related distress (Table 3), lack of climax (Table 4), or in terms of distress related to lack of enjoyment, feeling anxious during sex, lack of excitement or lack of climax (Table 5). However, women reported more problems (Table 2), and they were more likely to report problems with lack of interest, lack of enjoyment, feeling anxious during sex, and lack of excitement (Table 4). Lastly, women reported greater distress over lack of interest than did men (Table 5).¹

DISCUSSION

The current study is among the first to examine associations between appearance satisfaction and specific sexual problems and associated distress, as well as the cumulative number of sexual problems and overall distress related to any/multiple sexual problems, in a large sample of partnered Norwegian adults. A particular strength of the current study is the ability to look at the presence of specific sexual problems and the associated distress, as opposed to only general assessments of sexual functioning. Indeed, research highlights the distinction between sexual satisfaction and sexual difficulties,^{59,60} and that people who experience sexual problems may not necessarily experience distress related to those problems, especially at older age.^{28–37} Moreover, much existing research has examined physiological predictors of sexual functioning, with a lesser focus on psychosocial factors. However, burgeoning research has begun to examine relational predictors of functioning and associated distress, putting sexual functioning squarely in the domain of relational functioning. The current research adds to this burgeoning field of study, by examining both psychological (appearance satisfaction) and social (relationship satisfaction) factors. In sum, it is important to examine the presence of sexual problems and the level of distress related to sexual problems separately, to understand the potentially disparate predictive ability of various factors, including psychosocial factors.

Number of Sexual Problems and the Presence of Specific Sexual Problems

Results demonstrated that appearance satisfaction was associated with reporting fewer sexual problems (H2), and specifically, with a smaller likelihood of reporting problems with sexual lack of enjoyment, excitement, and climax (H3). These findings are consistent with past research that has found that acceptance of one's body is associated with more sexual enjoyment,¹⁷ and that feeling negative about one's body is associated with decrements in orgasm,^{18,19} and

overall sexual functioning⁶¹. Interestingly, and contrary to past research,¹⁷ we did not find an association between appearance satisfaction and lack of sexual interest (H3). It is unclear why we did not find this association; however, in the present sample, lack of interest was relatively common, with 30% of people endorsing this problem. Thus, it may be that other factors play a larger role than does appearance satisfaction in predicting whether people experience a lack of sexual interest. Factors may include age or sample population. Fookien used a sample of elderly women, while our study included both men and women of all ages.¹⁷

We also did not find that appearance satisfaction was associated with feeling anxious during sex (H3). It is noteworthy that only 4% of the sample endorsed this problem, and thus, there may have been too little variability in this sample to examine the association. Conversely, it may be that people experience less anxiety during sex, when the sex is with a committed romantic partner. Future research may wish to examine within a sample of people who all report issues with sexual anxiety whether body and appearance satisfaction predicts the level of sexual anxiety. Indeed, past research suggests that one reason for feeling anxious during sex may be body self-consciousness and an anxious attentional focus on the body.^{19,20,21,62}

Distress Related to Sexual Problems

Results also suggested that appearance satisfaction was unrelated to overall sexual problem-related distress (RQ1) and distress related to sexual lack of interest and enjoyment, and feeling anxious during sex (RQ2). Appearance satisfaction was related to feeling less distress about sexual lack of excitement and climax (RQ2). It may be that the link between appearance dissatisfaction, cognitive distractions, and sexual problems and related distress provides an explanation. Previous research has found that body dissatisfaction is associated with cognitive distractions⁶³ and that body dissatisfaction is associated with distress related to sexual problems. In fact, Pascoal and colleagues⁶⁴ found that the association between body dissatisfaction and sexual functioning was mediated by cognitive distractions. In contrast to this study⁶⁴, Pascoal et al. measured overall distress for all/any sexual problems. It could be that lower levels of appearance satisfaction lead to higher levels of cognitive distraction and these are more influential during the arousal and orgasm phases of the sexual response cycle and consequently be associated with higher levels of distress associated with lack of excitement and climax. Future research should examine whether there is a differential effect of body satisfaction and cognitive distractions on the diverse sexual problems and their associated distress. Although these associations are small in magnitude, they represent a first examination of the associations between appearance satisfaction and distress over specific sexual problems. Past research has found that lower appearance dissatisfaction was associated with less sexual problem-related distress;^{39,64} this research, however, examined general distress and not problem-specific distress.

¹Please see the supplemental materials for *t*-test comparing men and women on all variables, as well as correlations and results of analyses stratified by gender.

The Role of Relationship Satisfaction

It is noteworthy that as people reported higher relationship satisfaction, they were less likely to endorse having a sexual problem, but felt more distress over lack of excitement. This is consistent with past research, which has found that relationship satisfaction is associated with better sexual functioning.^{25,40–43} However, in committed relationships, people may feel that sexual interactions are normative, and thus, they may feel more distressed about lack of excitement for a partner for whom they otherwise care and love. Future research should seek to examine the role of perceptions of sexual norms and expectations in romantic relationships, and their importance in predicting distress associated with sexual problems, particularly problems related to arousal.

Relationship satisfaction was unrelated to the presence of all five specific sexual problems, and unrelated to overall distress and distress related to all other problems (except for distress over lack of excitement). This is inconsistent with past research, which has found that lower relationship satisfaction was associated with greater distress^{48,65} and greater emotional closeness during sex was associated with less distress^{35,45–47}. However, one reason for this lack of associations may be the relatively high levels of relationship satisfaction in the sample. Indeed, the average level of relationship satisfaction was 5.91 out of 7 (see Table 1); thus, there may have been a ceiling effect that restricted the range in scores, leading to reduced variability. Consequently, we did not find indications of moderation by relationship satisfaction (RQ3a and RQ3b).

The Role of Gender

Much extant research in both sexuality and appearance satisfaction has focused on gender, often examining these constructs separately for men and women. Indeed, sexual problems may vary by sex (i.e., men may have issues with erection and ejaculation, while women may have issues with vaginal lubrication and pain during intercourse). Similarly, appearance ideals may vary by gender, as women may strive for thinness and men may strive for muscularity.⁶⁶ However, it is recognized that, while ideals may vary, both genders experience dissatisfaction with their appearance,² though research suggests that women experience higher levels of dissatisfaction than do men. One might therefore expect that the association between appearance satisfaction and sexual problems, and associated distress, may be stronger for women, as they may internalize the importance that society places on ideal women's body shapes and appearances.⁶⁷ However, in the current study, we found that the association did not vary by gender. That is, the associations between appearance satisfaction and the presence of sexual problems, and their associated distress, were not stronger for women than for men, as one might expect. However, we did find general gender differences, such that women were more likely to report sexual problems (though, not consistently higher distress than

men). These findings suggest that when appearance satisfaction and sexual problems are assessed in general, men's and women's experiences are similar. Especially considering that recent theory and research suggests that men and women are more similar than they are different across most psychological variables,^{68,69} this may be relevant in the context to experiences with sexual problems and appearance satisfaction. However, it may be that this pattern of results would be different, if sexual problems and appearance evaluations were assessed in gender-specific ways.

Limitations and Future Directions

There are strengths to the current study, including a large sample of partnered adults and assessment of specific sexual problems along with associated distress. However, the current study should also be viewed in terms of its limitations.

For one, while it is a benefit that we were able to examine individual and specific sexual problems, they were assessed using single items, and not an established scale. This may be a limitation, as sexual problems were addressed generally and not with respect to gender-specific problems, such as problems with erection, ejaculation, vaginal lubrication, or pain during sex. Moreover, single-item measures of sexual satisfaction have the disadvantage of being unidimensional and may have low test-retest reliability.⁷⁰ Relatedly, appearance satisfaction was assessed using a single item that asked about satisfaction with physical appearance ("fysisk utseende"), and did not use existing scales of body or appearance dissatisfaction⁷¹. However, single items (rather than scales) were employed in an effort to maximize response rates and reduce participant burden, and is generally accepted and widely used in the field, as they may capture the construct to a satisfactory degree.⁷² Moreover, the generality of the items allowed us to assess sexual problems and feelings about appearance that may be relevant to all, regardless of gender.

Moreover, due to the general population sample and concerns about participant burden in responding to survey questions, we did not collect any data regarding any general health concerns, medications (specifically those with possible sexual side effects or appearance-related side effects such as weight gain), sexual pathologies or related therapies. Future research should consider collecting such data, as these can interfere with sexual activity or with body image. Similarly, future research may wish to include extended (and validated) measurement of gender-specific sexual problems, as well as gender-specific appearance evaluations, as such measurements may provide useful information regarding the link between body appearance and sexuality. Some research suggests that evaluation regarding specific body parts may be uniquely associated with sexual functioning⁷³. Future research may also wish to examine potential mediators of the association between appearance satisfaction and sexual functioning. One such mediator may be inhibition/

excitation. It has been demonstrated that, in women, self-perceived sexual attractiveness influence sexual responses by acting on the excitation and inhibition response pathways.⁷⁴

Norwegian Sexual Behavior surveys have been conducted in previous years, yielding responses of 23% in 2008, 34% in 2002, 38% in 1997, 48% in 1992, and 63% in 1987⁷⁵. Thus, a low response rate seems to be a common finding in Norwegian questionnaire surveys. However, the response rate in this survey was higher than that in the 2008 survey. It has been demonstrated that dropout from the survey was unrelated to sexual behaviour, and random rather than systematic.⁷⁶ As this study had a similar response rate to previous iterations of the survey, there is reason to believe that dropout in this survey also was random rather than systematic.

The data is cross-sectional in nature and therefore, we are precluded from making conclusions about causality. Future research may wish to examine these associations using more naturalistic methods, such as event-contingent diary methods or ecological momentary assessments. Such methods are relatively rare in sex research, though much knowledge is to be gained. That is, such methods allow for an examination of associations between constructs as they occurred in daily life, reducing retrospective bias. Currently, much work focus on general reports of sexual functions and memory of feelings of distress, which may be skewed by recency effects.⁷⁷ Moreover, as sexual interactions and sexual functioning may be impacted by mood, and many daily and relational events may influence mood, future daily diary research may wish to include a measure of mood, to examine its predictive association with daily sexual functioning and associated distress. Indeed, it may be that mood serves as a mediator of the association between daily relational events and daily sexual functioning and associated distress.

Lastly, consistent with past research,^{43,78} the current research examined relationship satisfaction as a predictor of sexual problems or sexual functioning. However, it may be that relationship satisfaction may serve as the outcome, such that sexual functioning predicts relationship satisfaction. Likely, there is a bidirectional association between the two, and future research should seek to disentangle the mechanisms underlying this association. Indeed, it may be that the association between appearance satisfaction and relationship satisfaction is moderated by sexual problems, rather than the reverse, as we examined here. Relatedly, situating sexual problems and associated distress in a relational context, it may be interesting to examine the appearance satisfaction and BMI of both partners in a couple. Much research in the relationship sciences has demonstrated the presence of contagion effects⁷⁹, and such a dynamic may be at play with appearance satisfaction, relationship satisfaction, and sexual problems/distress as well. That is, it may be that individuals who are dissatisfied with their appearance foster appearance dissatisfaction in their partners, and that jointly, this dissatisfaction influence their sexual behavior in negative ways.

CONCLUSIONS

Previous research suggests that appearance satisfaction is associated with better sexual functioning and greater relationship satisfaction. The current study examined whether appearance satisfaction was associated with the presence of specific sexual problems and associated distress. Results indicated that appearance satisfaction was associated with reporting fewer sexual problems, and specifically, with a smaller likelihood of experiencing problems with lack of enjoyment, lack of excitement, and lack of climax. Furthermore, appearance satisfaction was unrelated to overall sexual problem-related distress, but was associated with feeling less distress about lack of excitement and lack of climax. These findings suggest the importance of attending to appearance satisfaction when working with clients with multiple sexual problems, particularly those related to excitement and enjoyment.

Corresponding Author: Camilla S. Øverup, PhD, Department of Public Health, University of Copenhagen, Øster Farimagsgade 5, 1014 København K, Denmark; E-mail: Camilla.oeverup@sund.ku.dk

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SUPPLEMENTARY MATERIALS

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