

A moderated mediation model for body-positive online content and body image among adolescents



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ABSTRACT

Body-positive online content (BPOC) has recently become widespread, yet the factors that explain its association with body satisfaction have scarcely been studied. The current study investigates the indirect association between the self-reported frequency of viewing BPOC and body satisfaction through body appreciation and the moderating roles of body-ideal internalization, self-esteem, intentional searching, and gender. Utilizing survey data from 1530 Czech adolescents aged 13–18 ($M=15.4$, $SD=1.7$, 50 % girls), the present study found limited support for an indirect connection between the frequency of viewing BPOC and body satisfaction through body appreciation. Nonetheless, an indirect association appeared among adolescents with average and above-average frequencies for intentional searching for BPOC. Other investigated moderating factors were not significant. The present findings suggest that BPOC may be positively associated with body image, but only for those who deliberately search for it. The study highlights the importance of individual moderating factors in the context of BPOC and the remaining research gaps, such as the examination of its various types and aspects and their relationship with body image.

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1. Introduction

According to the Tripartite Influence Model and extensive research evidence (Saiphoo & Vahedi, 2019; Thompson et al., 1999), the media propagate attractiveness and induce negative body image. In reaction, body-positive online content (BPOC) displays "imperfect" bodies and intends to challenge narrow appearance ideals, and redirect the focus from physical appearance to body-related health and functionality (Cohen et al., 2019a). So far, research has mostly focused on the adverse media effects on body image. Yet, BPOC may play a significant role in the body image of adolescents, the age group targeted in this study, who are in a susceptible phase of body-image development and often exposed to BPOC (Markey, 2010; Stevens & Griffiths, 2020).

Among adolescents, the frequency of viewing BPOC may be associated with higher body appreciation and body satisfaction (Cohen et al., 2019a). Body appreciation consists of gratitude for the body despite its "imperfections" and for its health and functionality, and so-called body-protective processing, which is the acceptance of positive and the rejection of negative body-related information

(Halliwell, 2013). Both body appreciation and body satisfaction increased after viewing BPOC (Cohen et al., 2019a; Ogden et al., 2020; Stevens & Griffiths, 2020) or engaging in body-positive interventions (O'Hara et al., 2021; Rodgers et al., 2018).

The present study investigates the proposition made by Stevens and Griffiths (2020) that asserts that the association between the frequency of viewing BPOC and body satisfaction could be indirect through body appreciation. Adolescents are frequently exposed to appearance cues that may harm their body image (Markey, 2010), yet, because of the body-protective processing involved in body appreciation, they can cope with these threats (e.g., rejecting the negative information, focusing on body functionality) and be more body-satisfied (Webb et al., 2014). Accordingly, in the prior qualitative research, adolescents reported that body appreciation helped them be satisfied with their appearance (Frisén & Holmqvist, 2010; Holmqvist & Frisén, 2012). The protective role of body appreciation against the impact of thin-ideal cues on body image (Halliwell, 2013; Tobin et al., 2019) and a positive association between body appreciation and body satisfaction was also supported by previous studies (e.g., Tylka & Wood-Barcalow, 2015; Webb, 2015).

According to the Differential Susceptibility to Media Effects Model (Valkenburg & Peter, 2013), media effects are moderated by individual susceptibility variables. This study examines the moderating role of four selected characteristics in the proposed indirect association among the frequency of viewing BPOC, body

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appreciation, and body satisfaction: Body-ideal internalization, self-esteem, intentional searching for BPOC, and gender. *Body-ideal internalization* is the tendency to cognitively accept media standards for body-appearance (Tiggemann et al., 2020). When encountering BPOC, those who have strongly internalized body-ideals may resist body-positive messages, which may reduce the associations among the frequency of viewing BPOC, body appreciation, and body satisfaction (Tiggemann et al., 2020). *Self-esteem* refers to the feelings and cognitions about our worth, importance, and ourselves as a whole (Moksnes & Espnes, 2013). Because of the desire to maintain and maximize self-esteem, people with high self-esteem engage in fewer appearance comparisons, think critically about body-ideals, and consider appearance to be less important (Aubrey, 2006). Therefore, for adolescents with higher self-esteem who may be more sensitive to BPOC, the association between the frequency of viewing BPOC, body appreciation, and body satisfaction may be stronger. Previous research also suggested that the appearance-related media may affect body image only when individuals identify with their content (Bell & Dittmar, 2011). The identification with BPOC may be accentuated among adolescents who engage in *intentional searching for BPOC* and for whom the association between the frequency of viewing BPOC, body appreciation, and body satisfaction may intensify. The association between the frequency of viewing BPOC, body appreciation, and body satisfaction may also depend on *gender*. Because most BPOC targets girls and women (Cohen et al., 2019b), adolescent girls may be more influenced by BPOC, since it depicts others who are similar and provides relevant comparison targets.

Besides the mediating and moderating factors, the current study also controlled for gender, age, BMI, depression-happiness, the frequency of viewing body-ideal content, and the time spent on Instagram. These covariates were included because of their association to body appreciation and body satisfaction among adolescents (Brausch & Decker, 2014; He et al., 2020; Holsen et al., 2012).

Although evidence for the role of BPOC in body satisfaction has been growing (Cohen et al., 2019a; Stevens & Griffiths, 2020), previous research has not substantially elaborated on the factors that explain this association, nor on the individual moderating characteristics, nor on its role in adolescent boys' body image. The current study aims to fill this gap and investigates Stevens and Griffiths (2020) unexamined proposal for the indirect association between the frequency of viewing BPOC and body satisfaction through body appreciation among adolescents, and the moderating factors (Fig. 1).

2. Method

2.1. Participants and procedure

The data from 1530 Czech adolescents (50 % girls) aged 13–18 ($M=15.4, SD=1.7$) were collected in November 2020 from within a larger online survey (project *Modeling the future: Understanding the impact of technology on adolescent's well-being*). The quota sampling assured equal distributions for gender and age; income, regions, and the municipality's size were distributed to represent Czech households. The study was approved by the Research Ethics Committee of

the Masaryk University. Written informed consent from adolescents and their parents/legal guardians was obtained. Adolescents filled out the questionnaire via Computer-Assisted Web Interviewing (CAWI), and they were assured of anonymity. They could also refuse to participate or choose not to answer any question. The comprehension of items not previously validated in the Czech context was tested via cognitive interviews. A power analysis was performed and the study was preregistered at the Open Science Framework (osf.io/pv53r). The exploratory analyses were also performed beyond the preregistered model, specifically those investigating the moderating roles of intentional searching for BPOC and gender.

2.2. Measures

2.2.1. Viewing BPOC

Six items were developed according to the content analysis of the body-positive social media content (Cohen et al., 2019b). The initial description was: "On Instagram and elsewhere on the internet, you can find so-called body-positive posts that encourage self-acceptance and a positive attitude toward the body. In such posts, people usually show that their bodies that are not consistent with the so-called 'ideal of beauty' (e.g., they are overweight). In the past few months, how often have you seen posts that." Six items, each of them answered on the scale 1=Never, 2=A few times at most, 3=Several times a month, 4=Several times a week, 5=Every day, and 6=Several times a day, were: (1) Encourage people to value the unique characteristics of their bodies (e.g., that they are healthy and functional); (2) Encourage people to accept their bodies as they are, even though they do not necessarily conform to the ideal of beauty; (3) Show that people with a different appearance, body shape, or weight are all beautiful; (4) Encourage people to respect their bodies and care about them; (5) Encourage people to feel good about themselves and their bodies; and (6) Show that pictures of women and men with ideal appearance and figure do not correspond to reality. The internal consistency was satisfactory, $\omega = 0.94$, and the CFA showed acceptable loadings (> 0.68) and model fit, $CFI= 0.98, TLI= 0.97, RMSEA= 0.06, 95CI [0.06;0.08]$.

2.2.2. Searching for BPOC

The question "When you see such posts, how often is it because you have searched for them yourself?" was answered on a scale from 1=Never to 5=Very often. Because of the low frequency of answers, responses of 3=Sometimes, 4=Often, and 5=Very often were merged.

2.2.3. Body satisfaction

Four items of the Body Dissatisfaction Scale of Eating Disorder Inventory-3 (Garner, 2004), positively phrased to inquire about satisfaction with the body, were answered on a scale from 1=Very untrue of me to 5=Very true of me. The internal consistency was adequate, $\omega = 0.83$, and the model showed acceptable loadings (> 0.57) and model fit, $CFI= 1, TLI= 1, RMSEA= 0.00, 95CI [0.00;0.06]$.

2.2.4. Body appreciation

Ten items of the Body Appreciation Scale-2 (Tylka & Wood-Barcalow, 2015) were answered on a scale from 1=Never to 5=Always. The internal consistency was satisfactory, $\omega = 0.93$, and the CFA showed high loadings (> 0.56) and satisfactory model fit, $CFI= 0.96, TLI= 0.95, RMSEA= 0.07, 95CI [0.06;0.08]$.

2.2.5. Body-ideal internalization

Four items of the Internalization subscale of the Multidimensional Media Influence Scale (Cusumano & Thompson, 2001) were answered on a scale from 1=Very untrue of me to 5=Very true of me. Adolescents were asked to answer in regards to thin (girls) and muscular (boys) ideals on Instagram and other internet sources. The scale ranged from 1=Very untrue of me to 5=Very true of

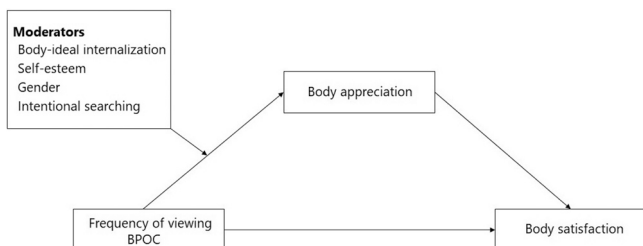


Fig. 1. The conceptual model. Note. BPOC=body-positive online content.

me. The internal consistency was satisfactory, $\omega = 0.88$, the CFA showed acceptable loadings (> 0.76) and model fit, $CFI = 0.99$, $TLI = 0.99$, $RMSEA = 0.05$, $95CI [0.02; 0.07]$.

2.2.6. Self-esteem

Five positively phrased items of the Rosenberg Self-esteem Scale (Rosenberg et al., 1995) were answered on a scale from 1 = Completely untrue to 4 = Completely true. The internal consistency was satisfactory, $\omega = 0.87$, and the CFA showed high loadings (> 0.66) and acceptable model fit, $CFI = 0.99$, $TLI = 0.99$, $RMSEA = 0.04$, $95CI [0.02; 0.07]$.

2.2.7. Covariates

BMI (kg/m^2) was computed from the reported height (cm) and weight (kg). Depression-happiness was measured with six items of the Short Depression-Happiness Scale (Joseph et al., 2004) that were answered on a scale from 1 = Never to 4 = Often. The internal consistency was satisfactory, $\omega = 0.81$, and the CFA showed acceptable loadings (> 0.58) and model fit, $CFI = 0.99$, $TLI = 0.97$, $RMSEA = 0.05$, $95CI [0.04; 0.07]$. Frequency of viewing body-ideal content was assessed with one item: "How often do you come across photos or videos of: [(a) the version for girls] girls/women that portray so-called 'feminine beauty ideal' (i.e., a very thin figure) on Instagram or elsewhere on the internet?" [or (b) the version for boys] boys/men that portray the so-called 'masculine beauty ideal' (i.e., a muscular and toned figure) on Instagram or elsewhere on the internet?" Answers ranged from 1 = Never to 6 = Several times a day. Time spent on Instagram was measured by asking "How often have you visited Instagram in the past few months?" Answers ranged from 1 = Never to 7 = Several times a day. Finally, gender was assessed by asking "You are:" with the response categories of 1 = Boy, 2 = Girl; age was inquired with "How old are you?" and an open response.

2.3. Data analysis

The data were analyzed via SEM with an MLR estimator and FIML in Mplus8th. All variables, except the single-item ones, were treated as latent factors indicated by the relevant items in the analysis. First, correlations between the studied variables were computed, and then the structural regression model was estimated. Gender, age, BMI, depression-happiness, the frequency of viewing body-ideal content, and the time spent on Instagram were included as covariates. The model fit was evaluated with $RMSEA$, CFI , and TLI fit indices. We standardized all variables except gender, fixed latent variables to $M = 0$ and $SD = 1$, and examined the indirect association for low (i.e., 1 SD below mean), average (i.e., the mean), and high (i.e., 1 SD above mean) moderator levels.

Table 1
Descriptive statistics and correlations.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1 Viewing BPOC	2.9	1.2	1											
2 Body satisfaction	3.3	1	-0.12*	1										
3 Body appreciation	3.6	0.8	-0.02	.75*	1									
4 Internalization	2.8	1.1	.34*	-0.32*	-0.30*	1								
5 Self-esteem	2.9	0.7	-0.04	.52*	.73*	-0.23*	1							
6 Searching BPOC	2	0.9	.44*	-0.05	-0.03	.29*	-0.06	1						
7 Happiness ^a	3.1	0.6	-0.07	.54*	.69*	-0.30*	.68*	-0.09*	1					
8 BMI	21.1	3.8	.10*	-0.39*	-0.19*	.04	-0.07*	.06*	.05	1				
9 Body-ideal content ^b	2.8	1.1	.34*	-0.14*	-0.09*	.44*	-0.04	.09*	-0.01	-0.03	1			
10 Instagram use	4.6	1.9	.38*	-0.12*	-0.08*	.22*	-0.04	-0.04	.02	-0.02	.13*	1		
11 Gender (girls)	-	-	-0.20*	.17*	.12*	-0.12*	.12*	-0.10*	-0.05	.10*	-0.16*	-0.03	1	
12 Age	15.4	1.7	.10*	.07*	.05	-0.02	-0.03	.06*	-0.06	.22*	.07*	.11*	.05*	1

^a Depression-happiness scale, coded to indicate the level of happiness.
^b Frequency of viewing body-ideal content on the internet.

3. Results

Table 1 displays descriptive statistics and correlations. Sixty percent of adolescents (71 % girls, 50 % boys) reported viewing at least one of the types of BPOC several times a month or more frequently, 40 % (51 % girls, 29 % boys) at least several times a week, and 18 % (26 % girls, 13 % boys) every day or more frequently.

The model (Fig. 2) had an adequate fit with the data; $RMSEA = 0.04$, $95CI [0.04; 0.05]$, $CFI = 0.93$, $TLI = 0.92$. Table 2 displays the results for the mediational model between the frequency of viewing BPOC, body appreciation, and body satisfaction. The association between the frequency of viewing BPOC and body satisfaction was not significant ($\beta = 0.02$, $p = .62$). The frequency of viewing BPOC was positively associated with body appreciation ($\beta = 0.09$, $p = .02$) and body appreciation was positively associated with body satisfaction ($\beta = 0.64$, $p < .001$), resulting in a statistically significant indirect connection for the frequency of viewing BPOC on body satisfaction via body appreciation ($\beta = 0.06$, $p = .03$). However, given the negligible effect size, the presumed indirect association was not supported. Both direct ($\beta = -0.04$, $p = .17$) and total ($\beta = 0.02$, $p = .62$) effects were not significant.

The moderating roles of body-ideal internalization ($b = -0.01$, $p = .84$), self-esteem ($b = 0.02$, $p = .56$), and gender ($b = -0.002$, $p = .98$) were not statistically significant. Nonetheless, the moderating role of intentional searching was significant ($b = 0.07$, $p = .03$). The simple slope analysis showed that the indirect association between the frequency of viewing BPOC and body satisfaction through body appreciation was significant only among adolescents with an average ($b = 0.15$, $p = .002$) and above-average ($b = 0.22$, $p < .001$) frequency of intentional searching, and not among adolescents with a below-average frequency ($b = 0.08$, $p = .09$). Intentional searching thus strengthened the associations among the frequency of viewing BPOC, body appreciation, and body satisfaction.

4. Discussion

The current study examined the indirect association between the self-reported frequency of viewing body-positive online content (BPOC) and body satisfaction via body appreciation among adolescents. Both the direct and indirect connections were negligible. One explanation for the lack of indirect association could be that the effect of BPOC is diminished by constant strong endorsement of unrealistic appearance ideals in the media and social interactions (Saiphoo & Vahedi, 2019). Moreover, BPOC maintains a focus on appearance, or even endorses weight-loss and the thin-ideal (Lazuka et al., 2020). In fact, viewing BPOC was positively correlated with thin- and muscular-ideal internalization in our data. Therefore, contrary to its aim, some BPOC might induce self-objectification and negative body image. Future studies should disentangle which aspects of BPOC may enhance, or by contrast, worsen body image.

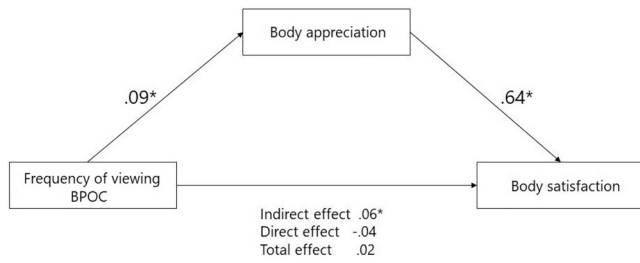


Fig. 2. The standardized regression coefficients for the indirect association of the frequency of viewing BPOC on body satisfaction through body appreciation.

However, we also suggest another explanation. Following the Tripartite Model (Thompson et al., 1999), appearance comparisons and the internalization of body-positive attitudes may be the essential mediating factors without which the frequency of viewing BPOC does not substantially relate to body image. Our proposed model included the internalization of the media-propagated appearance standards as a moderator, but future studies should investigate the mediating effects of lateral or downward comparison and internalization between the BPOC and body image.

In prior research, the association between the exposure to BPOC and body image was also weak (e.g., Rodgers et al., 2018; Stevens & Griffiths, 2020) or showed only when compared to thin-ideal content (Cohen et al., 2019a). Yet, overall, the previous findings have supported the enhancing role of BPOC in body image, and this could be due to different methodological approaches. While the prior research has mostly utilized experimental designs, we examined the self-reported frequency of viewing BPOC. It is possible that the specific types of BPOC promote body image in the controlled experimental settings but the experience with BPOC in adolescents' daily lives does not, or at least not in a long term.

We also examined the moderating roles of the individual factors. Only intentional searching had a significant moderating role: the indirect association between the frequency of viewing BPOC and body satisfaction via body appreciation emerged only among adolescents with average and above-average levels of intentional searching. This finding supported the idea that adolescents who search for BPOC on purpose may have internalized body-positive attitudes. The association between the frequency of viewing BPOC and body image was, therefore, strengthened, which is consistent with the Differential Susceptibility to Media Effects Model (Valkenburg & Peter, 2013). That being said, active engagement with BPOC may be the factor that produces the effect on body image. Future research needs to explore the role of different modes of interaction with BPOC (e.g., searching, posting, commenting) and the motivations for such behaviors in body image, as posited by Rodgers (2016) integrated theoretical model of internet use and body image concerns.

Body-ideal internalization, self-esteem, and gender did not substantially moderate the indirect association between the frequency of viewing BPOC, body appreciation, and body satisfaction. For body-

ideal internalization, we did not support the presumption that the role of BPOC as an advocate for the acceptance of all bodies is weaker for adolescents who tend to internalize body ideals (Tiggemann et al., 2020). Yet, acceptance of all bodies as beautiful presents only one component of BPOC, and the role of others, such as appreciating the body's functionality or mindful body care, may not depend significantly on body-ideal internalization. Also, BPOC may play different roles in body image, depending on the characteristics of the depicted person that the present study did not capture; for instance, thin-ideal internalization decreased body appreciation experienced after the exposure to body-positive content when the depicted person was thin, but increased it when the person was average-sized (Tiggemann et al., 2020).

Although self-esteem significantly moderated the effect of sexually objectifying media images on body image (Aubrey, 2006), it did not moderate the association between the frequency of viewing BPOC, body appreciation, and body satisfaction in our study. Individuals with high self-esteem make fewer appearance comparisons, yet comparisons to "imperfect" appearances within BPOC may be associated with improved body image (Stevens & Griffiths, 2020). Despite the speculative nature of this explanation, the opposing roles of self-esteem might have mixed and resulted in a non-significant finding. The results also contradicted the presumed moderating role of gender, indicating that BPOC, though mostly depicting women, may be similarly associated with body image for adolescent girls and boys.

Several limitations must be acknowledged. The self-constructed scale that assessed the frequency of viewing BPOC was developed following the theoretical work on BPOC but it has not been properly validated. The scale also did not distinguish between the various aspects of body-positivity (e.g., body size, facial vs. whole body appearance), nor did it distinguish between the platforms on which adolescents viewed BPOC. Several additional measures (i.e., a scale of body satisfaction and self-esteem) were not used in their entire length due to the need to lower 'participants' load. Furthermore, the scale that measured body satisfaction did not include some essential facets of boys' body image, such as content with arms and overall muscularity. Finally, the cross-sectional design substantially limits causal interpretation and we need to consider potential reciprocal effects. Body image may also motivate people to search for BPOC. Plus, the reverse pathway in which body satisfaction mediates the association between the frequency of viewing BPOC and body appreciation is also plausible; the model with body satisfaction as a mediator fit the current data as well (see the Supplementary materials), though it also showed only a negligible indirect association. Applying a longitudinal perspective in subsequent research would enable the study of these complex associations. Also, the important mediating processes (e.g., appearance comparison, the internalization of body-positive attitudes) and the adverse outcomes (e.g., self-objectification) should be investigated in the future to understand the circumstances under which BPOC relates to body image.

Despite these limitations, the present study contributed to the under-researched topic of BPOC and shed light on the factors that

Table 2
The roles of predictors for body satisfaction and body appreciation.

	Body Satisfaction				Body Appreciation			
	β	<i>b</i>	95CI β	<i>p</i>	β	<i>b</i>	95CI β	<i>p</i>
Viewing BPOC	-0.04	-0.04	-0.08;0.01	.17	.09	0.06	.03;0.16	.02
Body appreciation	.64	0.86	.54;0.74	< 0.001				
Happiness	.05	0.14	-0.05;0.16	.44	.84	1.8	.80;0.87	< 0.001
BMI	-0.26	-0.07	-0.30;-0.22	< 0.001	-0.11	-0.02	-0.16;-0.06	.001
Body-ideal content	-0.05	-0.04	-0.10;-0.01	.05	-0.04	-0.002	-0.06;0.07	.91
Instagram use	-0.02	-0.01	-0.06;0.02	.44	-0.05	-0.01	-0.09;0.02	.25
Gender (girls)	.06	0.12	.02;0.09	.01	.05	0.08	.02;0.11	.01
Age	.06	0.04	.03;0.10	.002	.10	0.04	.05;0.14	.001

may mediate and moderate its association with body satisfaction. It utilized a robust sample of adolescent girls and boys and offered descriptive data for a new measure for the frequency of viewing BPOC. The current study did not support the mediating role of body appreciation in the association between the frequency of viewing BPOC and body satisfaction, nor for the individual moderating characteristics, except for intentional searching. The different aspects of body-positive online content thus need to be further studied, as well as their effects on the various domains of body image and overall well-being.

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Informed consent

A written informed consent was obtained from a child and a parent/other legal guardian prior to the data collection.

CRedit authorship contribution statement

Nikol Kvardova: Conceptualization; Formal analysis; Writing – original draft; Writing – review & editing. **Hana Machackova:** Conceptualization; Formal analysis; Funding acquisition; Methodology; Supervision; Writing – review & editing. **David Smahel:** Funding acquisition; Methodology; Supervision; Writing – review & editing.

Conflict of interest

The authors declare no competing interests.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.bodyim.2022.07.002](https://doi.org/10.1016/j.bodyim.2022.07.002).

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