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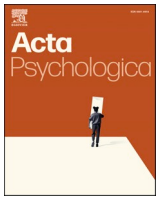

Short-video platform use and adolescent body dissatisfaction: The mediating role of body image comparison and the moderating role of sex

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ABSTRACT

With the rising popularity of short-video platforms as a new form of media, an increasing number of adolescents are using these platforms. Unlike traditional social media, short-video platforms rely heavily on visual communication. Although social media is known to contribute to heightened body dissatisfaction, and while these highly visual media platforms may further exacerbate body dissatisfaction, particularly among adolescents, empirical research on this issue has not kept pace with their rapid adoption. Given the importance of body awareness in adolescent development, this study investigated the mechanisms underlying the relationship between short-video platform use and body dissatisfaction among adolescents. It also examined the moderating effect of sex in this relationship. A total of 795 adolescents (mean age = 14.66 ± 1.39 years, 451 girls) from China participated in a questionnaire survey. The findings revealed that (1) there was a significant positive correlation between short-video platform use, body image comparison, and body dissatisfaction; (2) body image comparison mediated the relationship between short-video platform use and body dissatisfaction; and (3) the mediating effect of body image comparison was moderated by sex, with the effect being more pronounced for girls than for boys. These findings not only contribute to existing theoretical frameworks but also provide empirical insights to support interventions aimed at improving body satisfaction among adolescents.

1. Introduction

Body dissatisfaction refers to an individual's negative attitude toward their physical appearance (Thompson & Schaefer, 2019). Studies have shown that body dissatisfaction is the root cause of many psychological and behavioral disorders as well as physical and mental illnesses. It is associated with individual negative concepts of self, poor cognition, eating disorders, and other undesirable behaviors (Howe et al., 2017; Uchôa et al., 2019; van den Berg et al., 2010), as well as internalized psychological problems such as depression and low self-esteem (Marengo et al., 2018). Adolescence constitutes a critical developmental period for the formation of physical self, during which individuals undergo profound biological and psychological transformations. As the "physical self" emerges as the primary dimension of self in this period, adolescents exhibit heightened sensitivity to bodily changes and external appearance evaluations. Notably, multiple problems caused by physical dissatisfaction can pose a significant threat to adolescents' physical and mental health (Lewis-Smith et al., 2020).

Many studies have analyzed the factors contributing to adolescents' body dissatisfaction, including physiological (e.g., body mass index), psychological (e.g., mood, anxiety), and social (e.g., culture, family) (De Vries et al., 2019; Levinson et al., 2017). Among these factors, the influence of media on adolescents is the most prevalent and widespread; it is even considered the most potent factor contributing to body dissatisfaction (Roberts et al., 2022).

Although the body positivity movement in the West has recently challenged the narrow ideal of thinness and promoted body acceptance and appreciation (Cohen et al., 2019), in China, the "thin culture" is still a major aesthetic trend that causes appearance anxiety among adolescents (Jackson et al., 2020). One reason for this cultural contrast is the difference between individualism and collectivism. Under the influence of individual-centered ideologies, Western society has gradually transitioned from focusing on body imagery issues to exploring positive body imagery (Cohen et al., 2019). However, in the context of traditional Chinese collectivism, greater emphasis is placed on integration and obedience to society and social culture (Oyserman et al., 2002);

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thus, Chinese adolescents are more likely to be influenced by media that promotes negative body imagery.

Short-video platforms, which represent a prevalent emerging medium, have reached 934 million registered users in China, including >16 % of adolescent users totaling 150 million people (China Internet Network Information Center, 2022). Compared with traditional social networking sites that focus on text and pictures (i.e., Facebook), short-video platforms are highly dynamic social media sites that focus on visual communication and can change people's body image attitudes (Kim & Chock, 2015) and impact personal body image. Most current empirical studies on adolescent body dissatisfaction have examined traditional social networking sites (such as Facebook), but few have focused on the highly visual emerging media, such as Instagram, Snapchat, and TikTok. The existing literature has limited scope for improving adolescents' body image problems. Therefore, exploring the mechanisms and conditions associated with the effects of short-video platform use (SVPU) on body dissatisfaction among adolescents is crucial for promoting healthy adolescent development.

1.1. Short video platform use and body dissatisfaction

Sociocultural theory suggests that social pressures related to appearance play an important role in body dissatisfaction. The tripartite influence model suggests that increasing pressure in relation to appearance from mass media, parents, and peers contributes directly or indirectly to body dissatisfaction through social comparisons and the internalization of unrealistic societal ideals of appearance (e.g., extremely thin women, overly muscular men; Thompson et al., 1999). Among these, the media has a significant sociocultural impact in communicating ideals regarding appearance, making it a key factor influencing individual body imagery (Tiggemann & Slater, 2014).

In real life, people are more influenced by thin culture, which is reflected in social networking sites' tendency to portray idealized images (Marengo et al., 2018). The idealized standard, although generally accepted by the public, is almost unattainable (Tiggemann & Miller, 2010). Therefore, the use of social networking sites can cause physical dissatisfaction among the general public (Fardouly et al., 2015; Kleemans et al., 2018). Furthermore, short-video platforms, as highly visual social media, feature basic functions that traditional social networking sites lack and can enhance and embellish dynamic visual information according to users' needs. Thus, they focus on eye orientation when sharing visual information and present more idealized body images, which subsequently have a greater negative impact on people's own body imagery (Marengo et al., 2018). Accordingly, we hypothesized the following:

H1: A positive correlation exists between SVPU and body dissatisfaction among adolescents.

1.2. The mediating role of body image comparison

The tripartite influence model suggests that the influence of media on an individual's body image can be achieved by inducing a body image comparison. According to social comparison theory (Festinger, 1954), the purpose of body image comparison is to obtain an accurate body self-evaluation; specifically, when individuals compare themselves with bodies presented in media images, they will shift their perceptions of themselves, which impacts body satisfaction. This view is confirmed by previous studies that found that people acquire abundant body image information as they present themselves and interact via social networking sites. This provides an information base and platform that inevitably enables body image comparisons (Fardouly et al., 2015; Kim & Chock, 2015); these mostly comprise upward comparisons drawn with the media (Fardouly & Vartanian, 2015) and negative body imagery (Holland & Tiggemann, 2016). Consequently, individuals may develop a sense of body shame, dissatisfaction, and other negative experiences (van den Berg & Thompson, 2007), with body image comparison mediating the relationship between media use and body imagery (Fardouly et al., 2015; Tiggemann & Slater, 2014). The tripartite influence model also proposes ideal internalization as a mediating variable; however, studies have shown that ideal internalization's mediating role is weaker than that of social comparison (Jarman et al., 2021). Therefore, we prioritized social comparison as the mediating variable and hypothesized the following:

H2: Body image comparison mediates the relationship between SVPU and adolescents' body dissatisfaction.

1.3. The moderating effect of sex

While some research suggests a similar correlation between social media use and body imagery for boys and girls in adolescence (Holland & Tiggemann, 2016), most studies have found that adolescent girls generally report greater attention to and higher investment in their appearance, highlighting girls' body image and mental health issues associated with social media use, as well as other aspects of unique vulnerability (Choukas-Bradley et al., 2020; Fardouly et al., 2020). Regarding the ideal body image portrayed by the media, Chinese women generally agree that “thinness is beautiful” (Ipsos, 2019), whereas men have shifted from the traditional sheer muscularity to dual empasis on leaness and muscular (Shi et al., 2017). This reveals that gender differences may influence how media use affects body dissatisfaction. First, research indicates that sex plays an important role in how mass media impacts adolescents' social comparisons (Nesi & Prinstein, 2015). Adolescent girls are more likely to evaluate their appearance and attractiveness by comparing themselves to online photos (Haferkamp & Krämer, 2011), whereas boys are less likely to engage in such comparisons (Stefanone et al., 2011). This is related to stronger sense of objectification in girls (Manago et al., 2015). Girls tend to place higher importance on appearance evaluation and use comparisons for body image self-assessment more often than boys, leading them to engage in body image comparisons more frequently (Lim & You, 2017; Murn & Steele, 2020; Watson et al., 2019). Second, research on the relationship between SVPU and body dissatisfaction highlights sex differences in their underlying mechanisms. Girls tend to post body image-related information (e.g., selfies) on social networking sites, which exposes them to additional idealized body image information. This causes them to think more about their actual and ideal selves, which, in turn, exacerbates differences in perceived body image and induces a negative body image (Jarman et al., 2021). Some studies have found that the impact of using social networking sites on body image satisfaction is more significant for female students than for male ones (Knauss et al., 2007; Mellor et al., 2009; Uchôa et al., 2019). Finally, considering the effect of sex on the relationship between body image comparison and body dissatisfaction, female students' body image comparison facilitates severe body image dissatisfaction; however, this correlation is not significant in the male population. The intensity of female students' use of social networking sites can not only predict body image satisfaction directly and negatively but also impact body image satisfaction through body image comparison (Pedalino & Camerini, 2022). This also relates to differences in self-objectification awareness and body image information. As short-video platforms gain popularity, boys have become increasingly focused on their own appearance and report greater body dissatisfaction (O'Gorman et al., 2020). Does this suggest that male adolescents develop higher levels of body dissatisfaction, similar to female adolescents, when exposed to short-video platforms? To assess this question, we proposed the following hypothesis:

H3: Sex plays a moderating role in the relationship between SVPU, body image comparison, and body dissatisfaction, and SVPU predicts body image comparison and body dissatisfaction more strongly in girls than in boys.

In summary, this study constructed a moderated mediation model framework to explore the mediating effect of body image comparison for different genders, with short-video platforms as the independent

variable and body dissatisfaction as the dependent variable (Fig. 1).

2. Materials and methods

2.1. Participants

Several middle schools and high schools in Henan province, China were selected as participants, and classes were randomly selected using whole-group sampling. After consent was obtained from the school and students, a total of 835 questionnaires were distributed and 795 valid questionnaires were returned (effective rate = 95.2 %). The respondents included 451 girls (56.7 %) and 344 boys (43.3 %), aged 10–18 years (mean age = 14.66 years, standard deviation [SD] = 1.39), with 107 in seventh grade (13.5 %), 124 in eighth grade (15.6 %), 169 in ninth grade (21.3 %), 190 in tenth grade (23.9 %), and 205 in eleventh grade (25.8 %). The participants' body mass index (BMI) values were 264 (33.2 %) in the lean range (BMI $<$ 18), 448 (56.4 %) in the standard range (18 $\leq$ BMI $<$ 24), 66 (8.3 %) in the obese range (24 $\leq$ BMI $<$ 28), and 17 (2.1 %) in the severely obese range (BMI $\leq$ 28). BMI was calculated using the following formula: BMI = weight (kg)/height^2 (m^2).

The study was approved by institutional review board of XXX (protocol code HUIRB2021–201). All students and their parents signed an informed consent form prior to completing the questionnaire.

2.2. Materials

2.2.1. SVPU

We adapted the scope of use items from Ellison et al.'s (2007) Social Network Sites Engagement Questionnaire, restricting it to "short-video platforms." The questionnaire consists of six items scored on a five-point scale. Individuals' scores on these questions are converted into standardized scores and averaged, with higher scores representing a higher SVPU intensity. A confirmatory factor analysis was conducted for the revised items (χ2/df = 3.59, root mean square error of approximation [RMSEA] = 0.06, normed fit index [NFI] = 0.98, incremental fit index [IFI] = 0.98, Tucker-Lewis index [TLI] = 0.97, comparative fit index [CFI] = 0.98). The factor loadings of the items ranged from 0.49 to 0.71, indicating that the revised questionnaire had good structural validity. The Cronbach's alpha coefficient in this study was 0.79.

2.2.2. Body image comparison

We modified the Body Image Comparison Scale for Social Networking Sites developed by Fardouly and Vartanian (2015). The scale consists of three items rated on a five-point scale. A total score is calculated, with higher scores indicating higher levels of body image comparison on social networking sites. In this study, the social networking sites in the questionnaire were revised as "short-video platforms." The confirmatory factor analysis found the factor loadings of the items ranged from 0.85 to 0.88, indicating that the revised questionnaire had good structural validity. The Cronbach's alpha coefficient in this study was 0.90.

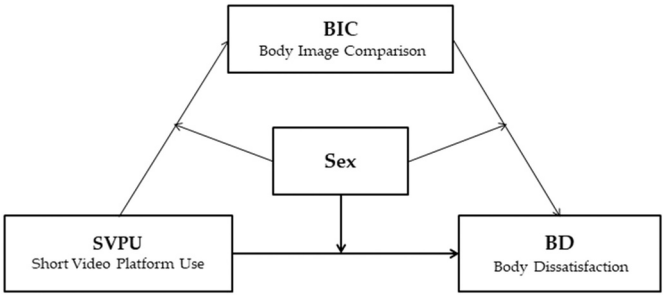

Fig. 1. Moderated mediation model.

2.2.3. Body dissatisfaction

A nine-item Body Part Satisfaction Scale, developed by Stice (2001), was used to assess participants' dissatisfaction with nine parts of their bodies. The items are rated on a five-point scale and total scores are summed, with higher scores representing greater dissatisfaction with one's body. The scale has good validity (Stice, 2001) and has also shown good reliability when used for Chinese samples (Chen & Jackson, 2012). The Cronbach's alpha coefficient in this study was 0.89.

2.3. Analytic strategy

Data analysis consisted of four steps. First, the common method bias of the questionnaire data was examined using validation factor analysis. Second, descriptive statistics were calculated, and correlation analysis was performed using SPSS software version 26.0 to test the relationship between the variables. Third, Model 4 in the SPSS macro program PROCESS was used to test the mediating model of this study, with SVPU as the independent variable, body dissatisfaction as the dependent variable, body image comparison as the mediating variable, sex as the covariate, and grade and BMI as the control variables. The data were first standardized, and then the total sample was tested with the mediating effect model. Next, the mediating model with moderation was tested using Model 59 in the SPSS macro program PROCESS. This was done specifically by building two models. Model 1 tested the moderating effect of sex between SVPU and body image comparison by constructing an interaction term between sex and SVPU, and analyzing the use of the short video platform, sex, and the interaction term as independent variables; body image comparison as the dependent variable; and grade and BMI as control variables. Model 2 examined the moderating effect of sex between SVPU and body dissatisfaction, and between body image comparison and body dissatisfaction. Interaction terms involving sex with body image comparison and SVPU were constructed and analyzed, with body image comparison and SVPU as independent variables, body dissatisfaction as the dependent variable, and grade and BMI as control variables.

We chose the bootstrap method to test the significance of conditional direct, indirect, and moderating effects by generating 95 % bias-corrected confidence intervals (CIs) from a sample of 5000 random data. The effect was considered significant if the CI did not contain zero.

3. Results

3.1. Common method Bias

As this study used questionnaire-derived data, the relationship between variables could result in a common method bias effect. To test for the presence of common method bias, we used Amos 28.0 for validation factor analysis (χ^2/df = 21.44, CFI = 0.60, RMSEA = 0.16, NFI = 0.59). Regarding fit, the findings indicated there was no serious common method bias in this study.

3.2. Descriptive statistics

Table 1 shows the means, standard deviations, and correlation coefficients of the variables. The results showed that the items' mean score for body dissatisfaction among adolescents was 3.08, which is close to the middle score (3) in relation to the items on the five-point scale. Analysis of variance for sex differences revealed a significant difference between the two groups ($t(793) = -8.69$, $p < .001$), as evidenced by the fact that body dissatisfaction was significantly higher in girls than in boys. The results also showed that the intensity of SVPU was significantly and positively correlated with body image comparison and body dissatisfaction, and body image comparison was significantly and positively correlated with body dissatisfaction. Among these elements, body image comparison and body dissatisfaction were higher in girls than in boys ($t = -6.19$, $p < .001$; $t = -8.69$, $p < .001$, respectively). There was

Table 1
Descriptive statistics and correlations of each variable.

	Variables	M	SD	Kurtosis	Skewness	SVPU	BIC
SVPU	Total	3.06	0.68	−0.439	0.272	1	
	Male	3.02	0.70	−0.558	0.270	1	
	Female	3.09	0.66	−0.332	0.293	1	
BIC	Total	2.44	1.03	−0.376	0.348	0.57**	1
	Male	2.19	0.93	0.040	0.555	0.51**	1
	Female	2.63	1.69	−0.494	0.150	0.62**	1
BD	Total	3.03	0.92	0.041	−0.115	0.45**	0.56**
	Male	2.72	0.92	−0.029	0.059	0.42**	0.49**
	Female	3.72	0.84	0,352	−0.141	0.50**	0.57**

Note: SVPU = Short Video Platform Use; BIC = Body Image Comparison; BD = Body Dissatisfaction; LLCI: lower limit of the confidence interval; ULCI: upper limit of the confidence interval.
** $p < .01$.

no difference based on sex in SVPU ($t = -1.43$, $p > .05$). The intensity of SVPU was significantly and positively correlated with body dissatisfaction ($p < .001$) and body image comparison ($p < .01$). Additionally, body image comparison was significantly and positively correlated with body dissatisfaction ($p < .01$) in participants of different sexes.

3.3. Testing the mediation model

The results showed a significant positive association between SVPU and adolescent body dissatisfaction after controlling for grade, BMI, and sex; therefore, Hypothesis 1 was supported (Table 2). There was a significant positive correlation between body image comparison and body dissatisfaction, between SVPU and adolescent body dissatisfaction, and between SVPU and body image comparison. The bootstrap test showed a significant mediating effect of body image comparison, with an indirect effect value of 0.28 (95 % CI [0.22, 0.34]) and a mediating effect of 45.16 % of the total effect (0.62). Therefore, body image comparison played a partially mediating role between SVPU and body dissatisfaction. Hence, Hypothesis 2 was also supported.

3.4. Testing the moderated mediation model

The results of the three regression equations with moderated mediation models are shown in Table 3. The interaction term between SVPU and sex was significant only when the dependent variable was body image comparison; none of the other interaction terms were significant. This indicates that only sex played a moderating role in the relationship between SVPU and body image comparison.

To further understand the specific differences in the interaction effects of SVPU and sex, the male and female participants were analyzed separately, and the mediated effect values and 95 % bootstrap CIs between body image comparison on SVPU and body dissatisfaction for both groups are shown in Table 4. Furthermore, a simple slope analysis showed that the girls' SVPU had a significant positive predictive effect on body image comparison (simple slope = 0.92, $t = 17.40$, $p < .001$) (Fig. 2). While the boys' SVPU also had a significant positive predictive effect on body image comparison, the strength of the predictive effect was weaker than that of girls' use (simple slope = 0.65, $t = 11.32$, $p < .001$). SVPU had a greater effect on the level of body image comparison for girls than for boys. The specific differences by sex are shown in Fig. 3a (for boys) and 3b (for girls).

Furthermore, sex moderated the indirect effect of SVPU on body dissatisfaction through body image comparison, with a moderated mediation index of 0.11, boot standard error (SE) = 0.04, and 95 % CI [0.04, 0.19]. The indirect effect had an index of 0.27, boot SE = 0.03, and 95 % CI [0.21, 0.34] for boys, and an index of 0.38, boot SE = 0.04, and 95 % CI [0.30, 0.47] for girls.

In summary, the mediated model with moderation proposed in this study (H3) was partially supported. Body image comparison mediated the relationship between SVPU and body dissatisfaction, and the first half of this mediating effect was moderated by sex. The mediating effect of body image comparison was more significant for girls than for boys.

4. Discussion

To understand the relationship between SVPU and adolescent body dissatisfaction based on the tripartite influence model and social comparison theory, this study explored the relationship and mechanism of

Table 2
Regression analysis of the Mediation Model for teenagers.

Dependent	Predictors	R	R^2	F	Boot LLCI	Boot ULCI	β	t
BD		0.58	0.34	98.69***				
	Grade				−0.03	0.06	0.01	0.59
	BMI				0.05	0.09	0.07	7.39***
	Sex				0.46	0.69	0.57	9.72***
	SVPU				0.54	0.70	0.62	15.03***
BIC		0.64	0.41	137.33***				
	Grade				0.07	0.15	0.11	5.13***
	BMI				0.02	0.05	0.04	4.29***
	Sex				0.28	0.49	0.39	6.98***
	SVPU				0.72	0.87	0.79	20.35***
BD		0.64	0.41	107.91***				
	Grade				−0.07	0.02	−0.02	−1.15
	BMI				0.04	0.07	0.06	6.25***
	Sex				0.32	0.55	0.44	7.62***
	SVPU				0.25	0.44	0.34	7.12***
	BIC				0.28	0.42	0.35	9.84***

Note: SVPU = Short Video Platform Use; BIC = Body Image Comparison; BD = Body Dissatisfaction; BMI = Body Mass Index; LLCI: lower limit of the confidence interval; ULCI: upper limit of the confidence interval.
*** $p < .001$.

Table 3
Regression analysis of the moderated mediation model.

Dependent	Predictors	R	R^2	F	Boot LLCI	Boot ULCI	β	t
BIC		0.65	0.42	113.76***				
	Grade				0.06	0.14	0.10	4.91***
	BMI				0.02	0.05	0.04	4.30***
	SVPU				0.54	0.76	0.65	11.32***
	Sex				0.28	0.50	0.39	7.07***
	SVPU×Sex				0.12	0.42	0.27	3.45***
BD		0.64	0.41	76.91***				
	Grade				−0.07	0.02	−0.02	−1.10
	BMI				0.04	0.07	0.06	6.19***
	SVPU				0.21	0.47	0.34	5.00***
	BIC				0.26	0.47	0.37	6.61***
	Sex				0.32	0.55	0.43	7.55***
	SVPU×Sex				−0.18	0.20	0.01	0.09
	BIC × Sex				−0.16	0.12	−0.02	−0.31

Note: SVPU = Short Video Platform Use; BIC = Body Image Comparison; BD = Body Dissatisfaction; BMI = Body Mass Index; LLCI: Lower Limit of the Confidence Interval; ULCI: Upper Limit of the Confidence Interval.
*** $p < .001$.

Table 4
Effect values and bootstrap 95 % confidence intervals for mediated pathways by sex.

Mediator	Sex	Indirect effect	Boot SE	Boot LLCI	Boot ULCI
BIC	Female	0.38	0.04	0.31	0.47
	Male	0.27	0.03	0.21	0.34

Note: BIC = Body Image Comparison; SE: Standard error; LLCI: Lower Limit of the Confidence Interval; ULCI: Upper Limit of the Confidence Interval.

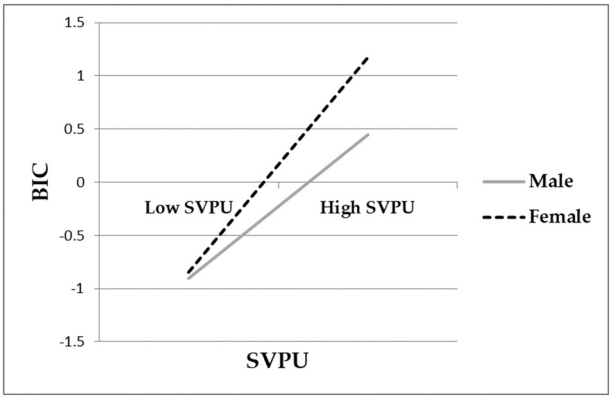

Fig. 2. The moderation effect of sex on short video platform use (SVPU) and body dissatisfaction (BD).

action of SVPU on adolescents' body dissatisfaction and analyzed the mediating role of body image comparison and the moderating role of sex.

The results of this study partially supported the three hypotheses. SVPU positively predicted adolescents' body dissatisfaction (i.e., the higher the intensity of the adolescents' SVPU, the higher their level of body dissatisfaction), validating the crucial role of media in forming body image (Holland & Tiggemann, 2016; Thompson et al., 1999). Modern social networking sites, such as short-video platforms, are integrated media with highly visualized information that focus on sharing beautiful, embellished imagery. These sites are widely used among adolescents. Previous studies have shown that adolescents who use social networking sites at high intensity are exposed to more online body image information, feel more sociocultural pressure, and have higher body image concerns (Tiggemann & Slater, 2014) than those who use them at lower intensities. This shows that SVPU can increase adolescents' susceptibility to body dissatisfaction (Marengo et al., 2018; Tiggemann & Miller, 2010).

Further, mediation analysis showed that body image comparison mediated the relationship between SVPU and adolescents' body dissatisfaction (i.e., SVPU positively predicted adolescents' body dissatisfaction) but also indirectly influenced body dissatisfaction. This finding was consistent with the theoretical predictions of the tripartite influence model. The model suggests that individuals' frequent media use and exposure to large amounts of body image information provide them with more opportunities for body image comparisons., This is more likely to produce cognitive biases and unconscious elevating comparisons that will ultimately result in them becoming excessively concerned about and dissatisfied with themselves (Tiggemann et al., 2018). This study further explored the applicability of the "media-body imagery →

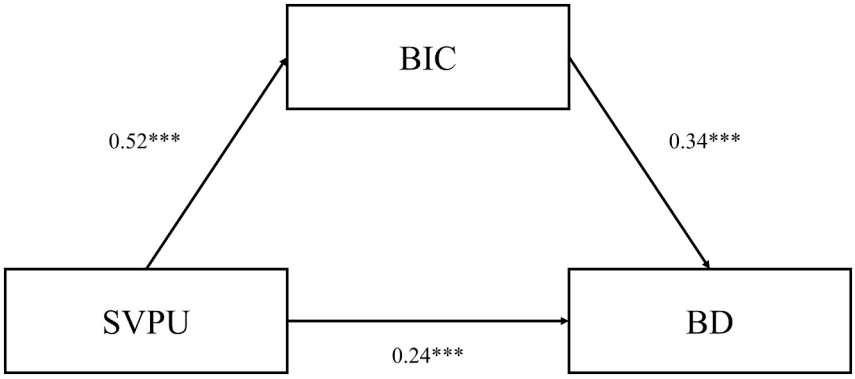

Fig. 3a. Mediated model of short-video platform use (SVPU) and body dissatisfaction (BD) for boys.

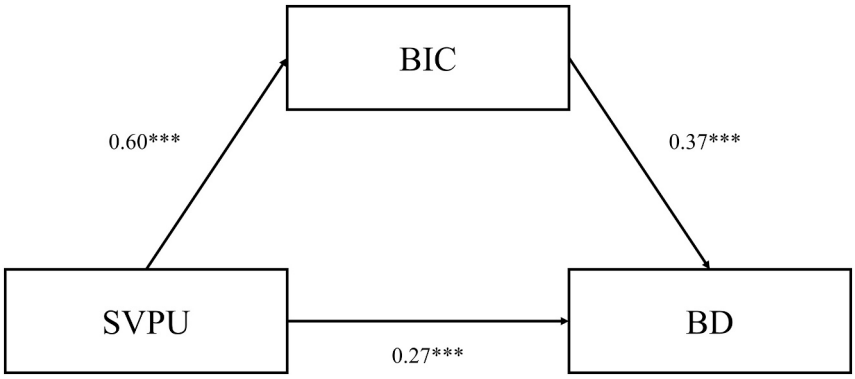

Fig. 3b. Mediated model of short-video platform use (SVPU) and body dissatisfaction (BD) for girls.

comparison-body imagery" path to emerging short-video platforms based on the extended tripartite influence model and targeted the influencing group as adolescents. In addition, in terms of the findings, the idealized highly visual content presented on short-video platforms makes it difficult for adolescents to recognize the "positive bias" in images (Coyne et al., 2017) and correctly identify the content of short videos to resist the "contrast difference" with others' body images (i.e., the inability to reduce feelings of inferiority and shame associated with body image comparison; van den Berg & Thompson, 2007). The direct and indirect relationship found between SVPU and adolescent body dissatisfaction provides empirical information to better understand the relationship between SVP and adolescent development.

Additionally, sex moderated the first half of body image comparison's mediating effect. Specifically, the mediating effect of body image comparison was more pronounced in female participants; consequently, the indirect effect of body dissatisfaction was stronger. This finding enriches the tripartite influence model and social comparison theory in terms of sex differences. Girls' earlier physical and mental development and bodily changes due to changing hormone levels make them more aware of their physical appearance than boys and cause more self-objectification (Manago et al., 2015). Accordingly, greater awareness of their physical appearance implies a higher valuation of an "appearance schema." This indicates that they consider appearance to be an important part of their personal life and an indicator of their self-worth (Ahadzadeh et al., 2017; Sinton & Birch, 2006). Studies have shown that female appearance comparisons are a fully automatic process (Liu et al., 2015). Therefore, adolescent girls tend to be more attentive to media messages related to thin culture (Haferkamp & Krämer, 2011) and are more attracted to appearance-related comparisons (Stefanone et al., 2011). In addition, this study found that SVPU had a positive predictive effect on boys' body dissatisfaction, which is consistent with previous studies (Uchòa et al., 2019). This may be explained by the fact that boys' level of objectification is also increasing; boys feel the same social pressure as girls to look "good," and the ideal body shape tends to be the adult body, and it is social media-oriented (Shi et al., 2017). These findings suggest that the current state of body image among boys remains sub-optimal. Therefore, future research should focus on male adolescents separately. Although this study's results demonstrate the significance of SVPU on body dissatisfaction in boys, for girls, the use of these platforms has a more significant effect on body dissatisfaction and is mediated more strongly by body image comparison. This again demonstrates girls' unique vulnerability in this regard (Choukas-Bradley et al., 2020), highlighting further the importance of this aspect within this field.

This study explored the mechanism of the specific source of influence (short-video platform) on body imagery based on the tripartite influence model and elaborated the differences from the perspective of sex. The study underscores the need to pay attention to both female and male adolescent groups. This is because the results not only indicate the presence of body image issues in male adolescents but also emphasize the need to focus on female adolescents given their greater vulnerability. A follow-up inquiry into SVPU and body dissatisfaction should be conducted to provide an empirical basis and new avenues for research. This study's results revealed how SVPU influenced adolescents' body dissatisfaction. These findings contribute to the research on the relationship between social networking site use and body image in adolescents by demonstrating the relevance of social comparison theory in online environments and the applicability of the tripartite influence model to emerging media. Furthermore, they offer valuable insights for guiding secondary school students in the mindful use of social networking sites and the cultivation of a positive body image, offering both theoretical and practical implications.

Despite its strengths, this study has some limitations. First, it focused only on the intensity of SVPU and did not consider whether other factors (e.g., different content of short videos) would have a greater impact on body dissatisfaction. Second, this study was limited to a cross-sectional research design and could not determine a causal relationship between the variables. Finally, the variables in this study were all measured by self-report, which creates limitations in terms of reliability and accuracy. Future research should adopt more precise data collection measures and investigate the effects of other dimensions of SVPU on adolescents and their mechanisms of action. Longitudinal studies should be conducted to explore the developmental process to enrich the findings.

5. Conclusions

SVPU can increase adolescents' body dissatisfaction, prompting them to make more body image comparisons and become more dissatisfied with their own bodies. Developing a body image comparison intervention is important for reducing SVPU's impact on adolescents' daily body dissatisfaction. Educators should pay particular attention to female adolescents who engage in high-intensity SVPU and are more likely to have body dissatisfaction owing to increased levels of body image comparison.

CRediT authorship contribution statement

Liheng Fan: Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Yanan Zuo:** Visualization, Software. **Ke Yang:** Data curation.

Author contributions

L. F.: conceptualization, methodology, first draft, review, editing; Y. Z.: tables, figures; K.Y.: data collection. All authors have read and agreed to the published version of the manuscript.

Informed consent

Informed consent was obtained from all adolescents and their parents involved in the study.

Ethical approval

All procedures performed in studies involving human participants aligned with the ethical standards of the Institutional Review Board (or Ethics Committee) of Henan University (protocol code HUSOM2021-201) and the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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Declaration of competing interest

None.

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Data availability

Data will be made available on request.

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