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"I (Don't) Respect My Body": Investigating the Role of Mass Media Use and Self-Objectification on Adolescents' Positive Body Image in a Cross-National Study

Kathrin Karsay [a,b,c], Jolien Trekels[c,d], Steven Eggermont[d], and Laura Vandenbosch[d]

aDepartment of Communication, University of Vienna, Vienna, Austria; bFaculty of Social Sciences Research, KU Leuven, Leuven, Belgium; cResearch Foundation Flanders, (FWO-Vlaanderen), Brussels, Belgium; dSchool for Mass Communication Research, Faculty of Social Sciences, KU Leuven, Leuven, Belgium

ABSTRACT

This cross-national survey among Austrian, Belgian, Spanish, and South Korean boys and girls (N = 1,983; M_{age} = 14.41, SD = 1.08) investigated the association between mass media use, self-objectification, and positive body image. In doing so, we (a) extended existing research on the link between media use and positive body image by including different media genres that are known to be part of adolescents' media diets, (b) introduced self-objectification as a potential mediator, (c) differentiated between boys and girls, and (d) tested these assumptions across diverse cultural settings. Overall, our findings suggest that the use of different types of media that emphasize physical beauty and (sexual) appearance relate both negatively as well as positively to adolescents' appreciation of their own body. Self-objectification (i.e., valuing one's appearance characteristics over competence/functionality characteristics) is negatively related to adolescents' positive body image, indicating a mediating mechanism. Our results highlight the need for further research on the content of mass media and a positive body image.

Introduction

Given the dominant presence of the smartphone and mass media in adolescents' lives, understanding how adolescents' media use may

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contribute to adolescents' body image merits further research. The question of the mass media's role affecting individuals' body image presents a long-standing debate in the field. Some researchers have questioned the importance of media effects on body image (e.g., Holmstrom, 2004). Other researchers, however, proposed that media promoting unrealistic and narrowly defined beauty ideals have a small to moderate negative effect on individual's body image (Barlett et al., 2008; Frederick et al., 2017; Grabe et al., 2008).

Commonly, a negative body image, also referred to as body dissatisfaction, is defined by dissatisfaction with one's physical appearance, which describes a multifaceted concept, including affective and cognitive aspects (Frederick et al., 2012). Adolescents with poor body image are more likely to have an overall poor self-concept, low self-esteem, and an increased likelihood of dieting and problematic eating behavior (O'Dea, 2012). Most researchers studied predominantly the role of media use affecting negative body image while there is also a *positive* side to body image.

Individuals with a positive body image indicate love, care, and respect for their bodies and accept bodily imperfections of themselves and others (Tylka, 2012). A positive body image further includes a broad understanding of the types of appearances considered being beautiful, resistance toward narrowly defined beauty ideals (e.g., filtering of information in a body protective manner), and a positive focus toward the inner self (Tylka, 2012; Wood-Barcalow et al., 2010). Among women in the US and Australia, researchers have repeatedly linked body appreciation to several aspects of well-being such as increased self-esteem, optimism, and feelings of happiness, even when controlling for body dissatisfaction (Andrew et al., 2016b; Avalos & Tylka, 2006; Avalos et al., 2005). Such findings highlight the distinctiveness and relevance of the construct. Positive body image merits further research because it will help us to understand not only how to protect adolescents from potential detrimental media effects, but also on how a positive body image can be improved. The current cross-sectional study among adolescents in Austria, Belgium, Spain, and South Korea aimed to address this demand. Specifically, the present study contributes to the literature in at least four ways.

First, we extended existing research on the link between media use and positive body image by including different media genres that are known to be part of adolescents' media diets (Rideout & Robb, 2019). Thus far, only a few studies have investigated the relations between adolescents' media use and positive body image. Second, we introduced self-objectification as a potential mediator of the relations between media use and positive body image. We expected that media use would relate to higher levels of self-objectification, and self-objectification, in turn, would be related to lower levels of positive body image among adolescents. Third, we included girls and boys. Although

studies showed that men also suffer from body image problems, research among male samples is still lacking (Barlett et al., 2008). Finally, we investigated the postulated relationships in a cross-national survey design with adolescents from Austria, Belgium, Spain, and South Korea. The cultural context represents a critical factor in evaluating, interpreting, and selecting media content (e.g., Steele & Brown, 1995). Despite the increasing internationalization of research on positive body image and self-objectification in recent years, research from Asian countries and other parts of the world is mostly lacking. Cross-national comparisons are quasi non-existing.

Mass media use and positive body image

According to social cognitive theory, mass media can serve as important reference points to inform adolescents about behaviors and appearances. The theory posits that frequent exposure to (idealized images of men and women in) mass media may affect users' perceptions about what is desirable and normal (Bussey & Bandura, 1999). The literature on body image further posits that adolescents learn about prevailing body ideals from mass media, such as the thin-ideal for women or the muscular-ideal for men (Diedrichs, 2012; Frederick et al., 2005). Girls and boys likely internalize such presentations in their understanding of their bodies. Moreover, social comparisons (Festinger, 1954) with media models can contribute to less appreciation for the own (imperfect) body due to the ideal-self-discrepancy.

From a positive body image theory perspective, the use of popular media may result in processes that reduce a positive body image (Menzel & Levine, 2011; Piran & Teall, 2012). A central part of a positive body image is a *broad* conceptualization of beauty, which is mostly neglected by the mainstream media. Sociocultural messages in which appearance-related attributes of the self (e.g., sex appeal) are valued above competence- or personality-based attributes (e.g., physical fitness; Avalos & Tylka, 2006; Menzel & Levine, 2011) challenge a positive body image. Given that mass media typically promote only a few types of (idealized) appearances, media users may be discouraged in developing a positive body image.

Initial findings have shown that media use correlated negatively to positive body image in samples of adults from the US and Australia. However, past research either focused on the general use of appearance-focused media (i.e., a composite score of fashion magazines, fashion websites, social media, soaps, music television, reality television) (Andrew et al., 2016b); or examined single media types (e.g., pornography) (Tylka, 2015). Furthermore, studies with Australian and Swedish girls yielded inconsistent results (Andrew et al., 2016c; Lunde, 2013). Thus, more research is needed to draw a definite conclusion about the role of adolescents' media use in developing or inhibiting a positive body image.

Relying on previous research on this topic (Andrew et al., 2016c, 2016a; Lunde, 2013), we investigated the influence of mass media on adolescents' positive body image. Specifically, we examined mass media that lay a strong focus on appearance by testing the media variables individually. Appearance-focused media typically coincide with adolescents' preference for entertainment-orientated media types and genres (Rideout & Robb, 2019). More importantly, as explained above, exposure to this kind of media has been shown to play a valuable role in shaping adolescent's body image (Ward, 2016).

Media genres can differ in the extent to which they include and *how* they emphasize appearance-related messages. Some media messages might promote self-care and body type diversity, whereas other messages might promote narrowly-defined perspectives on the body. Vandenbosch and Eggermont (2012) explained these distinctions by referring to the narrative structure of messages on prime time television, the fast pace of music videos, the interactive nature and presence of peers in social media, and the sexually explicit character of pornography. Such differences were relevant in their research on media and body image. They received further support from the findings of a recent meta-analysis indicating that the use of social media had stronger effects on self-objectification than television use (Karsay et al., 2018). As such, we investigated the role of media in a positive body image by testing different media variables separately. The literature suggests five media types of media that strongly emphasize appearance messages, although in different ways.

Social media, such as Facebook and Instagram, are likely to influence adolescents' self-objectification and positive body image (Karsay et al., 2018; Kiefner-Burmeister & Musher-Eizenman, 2018). The apparent focus on visual representations of the self, peers, and other (famous) individuals lends adolescents well to engage in appearance comparisons (Fardouly & Vartanian, 2016). Such negative comparisons can induce the feeling that others are better off and might influence a positive body image negatively (Fardouly & Vartanian, 2016).

With the advent of music video streaming services and the popularity of YouTube for watching videos (Rideout & Robb, 2019), music videos represent a relevant media type in our study. Findings from content analyses have repeatedly shown that music videos portray women and men with a strong focus on (sexual) appearance (Aubrey & Frisby, 2011; Karsay et al., 2019) and thus might affect adolescents' self-objectification and positive body image.

Television use during prime time, which remains—even in a digital age —an important media activity among adolescents (Rideout & Robb, 2019), is also a key media use predictor. Content analyses have indicated that television shows that are popular among children and adolescents typically

promote a thin beauty ideal (Robinson et al., 2008). Robinson et al. (2008) revealed in their study that characters in sitcoms targeted at children are rarely overweight, but these numbers paralleled US figures.

Finally, the role of pornography use needs to be considered because 1) researchers found that pornography use is associated with lower levels of positive body image (Tylka, 2015, p. 2) content analyses provide evidence for the emphasis on objectifying presentations in pornography (Klaassen & Peter, 2015). Based on the explanation of our media variables, our first research question asked:

RQ1: How does using Facebook (a), using Instagram (b), watching music videos (c), watching prime time television (d), and using pornography (e) relate to positive body image among adolescents?

The mediating role of self-objectification

Objectification theory (Fredrickson & Roberts, 1997) posits that experiences on the sociocultural level (e.g., use of mass media) may affect psychological risk factors that can promote a negative body image. In this theoretical framework, self-objectification serves as the key explanatory process through which media relate to body image problems. Self-objectification is characterized by valuing one's own body merely in terms of how it complies with idealized physical standards and adopting a third-person perspective of the body (Fredrickson & Roberts, 1997). Researchers have often equated self-objectification with the tendency of valuing appearance characteristics over competence characteristics when assessing one's self-concept (Aubrey, 2007; Karsay et al., 2018). Objectification theory further states that appreciating the functionality of one's own body, thus valuing its competence instead of its appearance, might be beneficial for one's body image (Fredrickson & Roberts, 1997).

Empirical findings showed that so-called appearance-focused and sexualized mass media, which emphasize physical beauty, sexual appearance, and sexual appeal to others, play an essential role in developing self-objectification (Aubrey, 2007; Karsay et al., 2018). Empirical evidence corroborates a positive influence of a functional view of the body on a positive body image. For instance, findings from quantitative studies showed that intervention programs that asked women to focus on their body functionality (i.e., writing task) lead to increased body appreciation and decreased self-objectification (Alleva et al., 2015). Similarly, in their qualitative study Frisén and Holmqvist (2010) identified that adolescents with a positive body image displayed a functional view on their body. More germane to the present study, Andrew et al. (2016a) showed that self-objectification served as a mediator linking media use and positive body image in a sample of adult women. Appearance media and nonappearance media use was related to respectively higher levels and lower levels of

appearance processing (i.e., self-objectification, social comparison, and internalization of appearance ideals). Appearance processing, in turn, was negatively related to body appreciation.

Drawing on the outlined theoretical framework and the preliminary empirical findings, we assumed that a functional perspective is beneficial for one's positive body image. In contrast, individuals who internalize the view that how the body looks (= appearance focus) is more important than what the body can (= competence or functionality focus) have lower levels of positive body image. We further hypothesized that a self-objectifying perspective on how one's body "appears" to others might prevent media users in developing a positive body image. While self-objectifying, individuals typically evaluate their physical appearance based on sociocultural standards of beauty (Fredrickson & Roberts, 1997). However, monitoring bodily "flaws" instead of embracing physical competence or bodily functionality might thus lead to a decrease of positive body image.

H1: Self-objectification serves as a mediator in the relationship between media use and positive body image. We expect that using Facebook (a), using Instagram (b), watching music videos (c), watching television at prime time (d), and using pornography (e) relates to higher levels of self-objectification. Self-objectification, in turn, is negatively associated with positive body image among adolescents.

The moderating role of gender and cultural context

In our study, we investigated gender as a possible moderator in the postulated relationship because boys and girls have different media habits and media also present differences with regard to gendered appearance ideals. So far, the association between media use and positive body image has only been examined among women and girls, although research on body image has shown that media also affect men's body image (Barlett et al., 2008). Thus, it is essential to investigate the potential correlations of media use on boys' self-objectification and positive body image. Although prior studies identified no gender difference about the link between media use and self-objectification between boys and girls (e.g., Vandenbosch & Eggermont, 2016), we cannot rule out gender as a possible moderator in the relations of media use, self-objectification, and positive body image. Therefore, we posed the following research question by asking

RQ2: Does the hypothesized model differ between boys and girls?

We also expected that cultural context might explain differences within the relationship between media use, self-objectification, and positive body image. Prieler and Choi (2014) have argued that individuals from collectivistic cultures might be more likely to engage in media-based social comparisons as

compared to individuals from individualistic countries who focus on unique qualities. In one of the rare studies on this topic, Kim and Aubrey (2015) identified cultural differences in the relationship between media use, perception about normative thinness, and body image disturbance. They found that the postulated mediated effect was stronger for Korean women compared to women from the US. Researchers also found differences in the relation of media use and body image within individualist cultures. For example, reading fashion magazines was a unique predictor for Australian women's internalization of thin ideals and body dissatisfaction, but not for Italian women (Tiggemann et al., 2005).

Given that differences might occur between collectivistic and individualistic cultures as well as within individualistic cultures, we investigated adolescents from one collectivistic country (i.e., South Korea) and three individualistic countries (i.e., Austria, Belgium, and Spain; Hofstede, 2011). However, we also acknowledge that the utility of the individualism and collectivism dimension in cross-cultural research has been criticized (Voronov & Singer, 2002). As such, the four countries in our study also differ in other aspects, such as languages spoken, media use preferences, social pressure to meet prevailing beauty standards or cultural beliefs.

However, empirical research that applies a cross-national perspective on media use and body image is scarce. Hence, in light of the exploratory nature of cross-national body image research in general and the absence of cross-national research on media use and positive body image in particular, we refrained from formulating a hypothesis and postulated a second research question instead:

RQ3: Are there cross-national differences concerning the examined relations between media use, self-objectification, and positive body image?

Figure 1 presents an overview of the hypothesized model.

Method

Data collection

The study used data from a large-scale cross-sectional survey named the Intercultural Study Project (ISP).[1] Together with our research partners from the University of Vienna, KU Leuven, Universitat Pompeu Fabra, Hallym University, we conducted a survey in Austria, Belgium, Spain, and

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[1]The current paper uses data that is part of an intercultural study project that examined links between media usage and well-being among adolescents in four different countries. Further information can be obtained upon sending an e-mail to the first author.
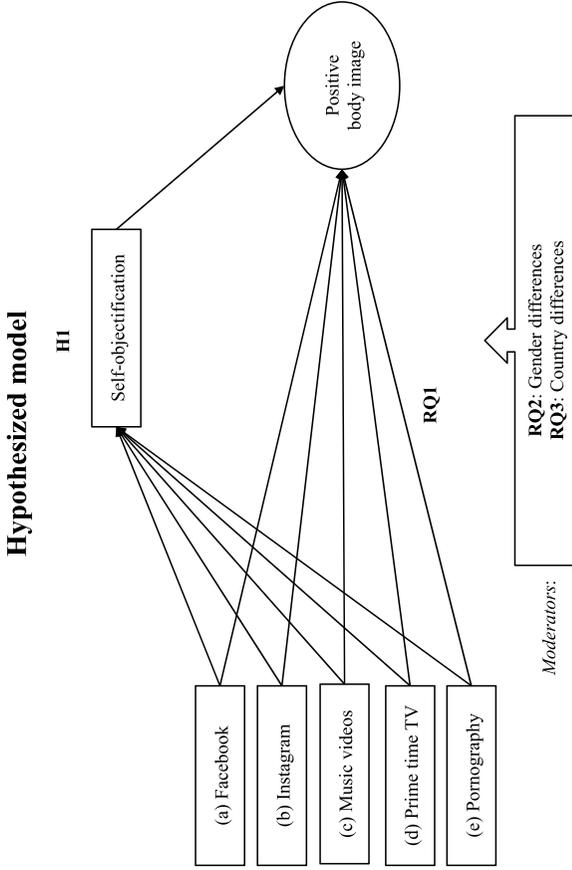
Hypothesized model

Figure 1. Hypothesized SEM for the relations of media use variables, self-objectification, and positive body image.
Note. Control variables, measurement errors, and correlations between all exogenous variables were omitted from depiction for clarity reasons. Rectangles represent manifest variables; ovals present latent variables.

South Korea between February and May 2017. The data collection gained ethical approval from the institutional board of each host university. We conducted the study in 27 schools (seven schools in Austria, 11 schools in Belgium, four schools in South Korea, five schools in Spain). We targeted at early and middle adolescents (12 to 16 years old). All students who had received parental consent were allowed to participate in the study. Before filling in the paper-pencil questionnaire, the researchers informed the students about the general study goals and asked them for active consent. The original sample consisted of 1,983 participants. Only participants indicating a gender value (i.e., boy or girl) were included in the following analyses. The analytical sample consisted of 1,975 adolescents.

Participants

Among the 1,975 adolescents, the mean age was 14.40 years ($SD = 1.08$) and 49.7% identified as girls and 50.3% as boys. The country distribution was as follows: Austria: $n = 368$, 18.6% (54.1% girls); Belgium: $n = 672$, 34.0% (43.6% girls); Spain: $n = 560$, 28.4% (54.6% girls); South Korea: $n = 375$, 19.0% (49.1% girls).

Analytical approach

We conducted a confirmatory factor analysis (CFA) on the self-objectification items and the items of positive body image. We conducted the CFA with Full Information Maximum Likelihood Estimation in R using the software package lavaan (Rosseel, 2012). The chi-squared to degrees of freedom ratio ($\chi2$/df), the comparative fit index (CFI), the Tucker-Lewis-Index (TLI), and the root mean square error of approximation (RMSEA) served as indices to determine the model fit (Byrne, 2010). According to Byrne (2010) cutoff criteria, values of RMSEA < .05, CFI > .95, and TLI > .95 indicate a good model fit. RMSEA values between .05 and .08 and CFI/ TLI values between .90 and .95 indicate acceptable model fit.

Measures

We initially designed the questionnaire in English. The researchers involved in this project translated the questionnaire into their native language (i.e., German, Dutch, Spanish, and Korean). The research partners of each country took measures to provide an accurate translation that is correct and understandable for adolescents. In Spain, two researchers conducted a two-step translation procedure. First, each of the researchers translated half of the questionnaire, and afterward, they revised, and if necessary, corrected the translated questionnaire to standardize terms further. In

Austria, Belgium, and South Korea, the researchers applied a translation-backward translation process.

Socio-demographic variables

In the present study, we included the respondent's country of residence (Austria, Belgium, Spain, South Korea), gender (boy, girl), and age as socio-demographic variables.

Mass media use

Like in previous studies (e.g., Pea et al., 2012), the respondents indicated how much time per day they spent on average for the following media variables: watching music videos, watching television during prime time (defined as between 6 pm and 11 pm), using Facebook, using Instagram, and using pornographic media. Respondents indicated their response on the following Likert scale ranging from: (1) *never use it to less than 10 min*, (2) *10–30 minutes*, (3) *31–60 minutes*, (4) *1–2 hours*, (5) *3–4 hours*, (6) *5–6 hours*, (7) *more than 6 hours*.

Self-objectification

We used the Self-Objectification Questionnaire to assess self-objectification (Noll & Fredrickson, 1998). The respondents evaluated the importance of 12 body attributes on a 10-point scale ranging from (1) = *not at all important* to (10) = *very important* (Vandenbosch & Eggermont, 2012). We calculated self-objectification by submitting the attributes to a principal axis factoring to check whether the items for appearance-based attributes and competence-based loaded on the respective factor. In line with previous research (Vandenbosch & Eggermont, 2012, 2013, 2016), we conducted this analysis for boys and girls separately. Given that different sociocultural standards apply for girls and boys, we accounted for these differences in our self-objectification measure.

Based on the factor analysis, we tested in a measurement model the newly proposed appearance and competence factors for boys and girls. For this purpose, we conducted a CFA. For boys, the final model included three items for appearance (i.e., physical attractiveness, muscle tone, and strength) and four items for competence (i.e., physical energy level, physical fitness, stamina, and physical coordination). This model indicated an acceptable fit of the data: $\chi^2/df = 8.60$, $p < .001$; CFI = .97; TLI = .95; RMSEA = .09, CI [.07, .10]. For girls, the model included two items for appearance (i.e., physical attractiveness and sex appeal) and three items for competence (i.e., physical energy level, physical fitness, and stamina). The

model fit was good: $\chi2$/df = 3.50, p = .007; CFI = .99; TLI = .98; RMSEA = .05 CI [.02, .08].

Finally, we computed a difference score by subtracting the mean values from the competence-based attributes from the mean values from the appearance-based attributes for boys and girls separately. The difference score values could range from −9 to 9, with higher scores indicating higher levels of self-objectification.

Positive body image

We measured positive body image with the Body Appreciation Scale (Avalos et al., 2005). We designed a shortened version of the scale for the questionnaire, which also included several other scales unrelated to this study. As such, the shortened scale was intended to avoid respondent fatigue. Respondents indicated their agreement with 11 items on a 7-point-Likert-type scale (1) = *disagree very strongly*, (2) = *disagree strongly*, (3) = *disagree*, (4) = *neither agree nor disagree*, (5) = *agree*, (6) = *agree strongly*, (7) = *agree very strongly*. A CFA was conducted on the Body Appreciation items. The final model had an acceptable fit and consisted of eight items: χ^2/df = 13.25, p = .001; CFI = .98; TLI = .97; RMSEA = .08 CI [.07, .09].

Results

Data analysis

The current study was the first to measure positive body image among adolescents in different countries. Therefore, before conducting the main analyses, we tested measurement invariance for self-objectification and positive body image across gender and countries. Subsequently, we tested the overall model examining RQ1 and H1. Next, we tested the moderating role of gender to examine RQ2 and the moderating role of country differences to examine RQ3. For gender, we performed a multiple-group analysis by comparing two groups (i.e., girls [N = 982], boys [N = 993]). For country, we compared four groups (i.e., Austrian [N = 368], Belgian [N = 672], Spanish [N = 560], and South-Korean [N = 375] adolescents). For all multiple-group analyses, we adjusted for the p values with Holm's correction method. We tested for measurement invariance by performing multigroup analyses using the lavaan package in R (Rosseel, 2012).

Measurement invariance

We conducted the invariance tests in the following hierarchical ordering of three nested models: configural invariance (model 1), metric invariance (model 2), and scalar invariance (model 3). In the configural model, all parameters were allowed to vary across groups. In the metric invariant model, we fixed all factor loadings to be equal across groups and to establish scalar invariance, and we constrained all intercepts as equal across groups. Rutkowski and Svetina (2014) proposed that in large sample sizes, a change of CFI ≤ 0.20 and RMSEA ≤ 0.30 in the fit indices between two models indicate metric and scalar measurement invariance.

Self-objectification

In the measurement model, we modeled appearance attributes and competence attributes in two factors. We established metric invariance across countries, for self-objectification among girls (ΔCFI = .017, ΔRMSEA = .001) and boys (ΔCFI = .001, ΔRMSEA = .014). The scalar invariant models did not meet invariance (girls: ΔCFI = .064, ΔRMSEA = .036; boys: ΔCFI = .035, ΔRMSEA = .015). In the hypothesized model, however, we entered self-objectification as a manifest variable because we measured self-objectification as a difference score between appearance attributes and competence attributes (see explanation in the Measures section above).

Positive body image

We first tested measurement invariance for positive body image between boys and girls. The metric invariant model did meet the proposed criteria (ΔCFI = .002, ΔRMSEA = .004) and so did the scalar invariant model (ΔCFI = .004, ΔRMSEA = .000). Next, we tested for measurement invariance across countries, which revealed metric invariance for positive body image between countries (ΔCFI = .014, ΔRMSEA = .002), but not scalar invariance (ΔCFI = .027, ΔRMSEA = .013).

Descriptive statistics

Table 1 displays the descriptive statistics and zero-order correlations. A MANOVA analysis revealed that there were significant differences between the relevant variables based on participants' gender, $F(7, 1773) = 59.22$, $p < .001$, $\eta p2 = .19$, *Pillai's Trace* = .19, and participants' country, $F(27, 5223) = 38.93$, $p < .001$, $\eta p2 = .17$, *Pillai's Trace* = .50. Girls indicated watching music videos, $F(1, 1779) = 50.91$, $p < .001$, and using

Table 1. Descriptive statistics and zero-order-correlations, $N = 1975$.

	M (SD)	range	1.	2.	3.	4.	5.	6.	7.
1. Prime time TV use	2.98 (1.53)	1–7	1						
2. Music videos use	2.19 (1.40)	1–7	.238***	1					
3. Facebook use	2.32 (1.69)	1–7	.207***	.217***	1				
4. Instagram use	3.06 (1.92)	1–7	.135***	.250***	126***	1			
5. Pornography use	1.37 (0.91)	1–7	.133***	.129***	.116**	103.***	1		
6. Self-objectification	−1.15 (2.10)	−9.00–6.17	.042	.012	−.021	.150***	.136***	1	
7. Positive body image	5.21 (1.09)	1–7	−.033	−.100***	−.053*	.027	.021	−.037	1

* $p < .05$; ** $p < .01$; *** $p < .001$;

Instagram $F(1, 1779) = 59.55$, $p < .001$, more often than boys. Boys indicated using pornographic content more often compared to girls, $F(1, 1779) = 122.72$, $p < .001$. We found no such differences for prime-time television use or Facebook use. Girls indicated higher levels of self-objectification, $F(1, 1779) = 64.87$, $p < .001$, and lower levels of positive body image, $F(1, 1779) = 38.74$, $p < .001$, compared to boys. Country differences occurred for all media types, for self-objectification and positive body image. A table of the descriptive variables by country can be found in Trekels et al. (2018).

Testing the overall model

We tested the proposed model with structural equation modeling in R using the full information maximum likelihood method. We estimated a 95% bias-corrected confidence interval for all values of interest (200 bootstrap samples). We defined Facebook use, Instagram use, music videos use, prime time television use, and pornography use as the independent variables, self-objectification as the mediating variable, and positive body image as the dependent variable. We modeled media use and self-objectification (= difference score) as manifest variables. We added positive body image as a latent variable. For the overall model, we included gender and country (dummy-coded) as controls. The overall model (see Figure 2) indicated an acceptable fit of the data: $\chi^2/df = 8.45$, $p < .001$; CFI = .93; TLI = 0.91; RMSEA = .06, CI [.06, .07].

Answering RQ1, we found that use of music videos ($b = -.06$, $SE = .02$, CI [−.10, −.02], $p = .005$) was negatively associated with positive body image. Instagram use was positively associated to positive body image ($b = .04$, $SE = .02$, CI [.01, .07], $p = .018$). The analysis revealed that Instagram use ($b = .17$, $SE = .03$, CI [.12, .22], $p < .001$) and pornography use ($b = .30$, $SE = .05$, CI [.19, .39], $p < .001$) were positively related to self-objectification, whereas Facebook use was negative related to self-objectification ($b = -.07$, $SE = .03$, CI [−.13, −.01], $p = .017$). Self-objectification was negatively related to positive body image ($b = -.04$ $SE = .01$, CI [−.07, −.02], $p < .001$). Looking at the indirect associations, we found that Instagram use ($b = -.01$, $SE = .00$, CI [−.01, −.00], $p = .004$) and pornography use ($b = -.01$, $SE = .00$, CI [−.02, −.01], $p = .001$) were significantly related to lower levels of positive body image via self-objectification. Therefore, H1 was partially confirmed.

Testing gender differences

We explored gender differences by running a multiple group analysis to answer RQ2. We estimated a model that allowed the hypothesized relations to vary between boys and girls (configural model). Next, we compared the
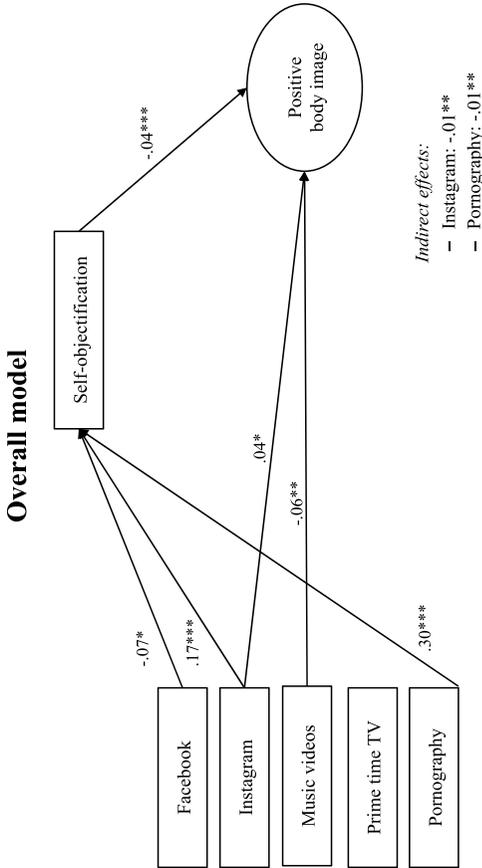
Overall model

Indirect effects:
- Instagram: -.01**
- Pornography: -.01**

Self-objectification

Positive body image

Facebook

Instagram

Music videos

Prime time TV

Pornography

-.07*

.17***

.04*

-.06**

.30***

-.04***

Figure 2. SEM for the relations of media use, self-objectification, and positive body image across gender and countries.

Note. Control variables, measurement errors, and correlations between all exogenous variables were omitted from depiction for clarity reasons. Rectangles represent manifest variables, ovals present latent variables. Only significant paths (* *p* <.05; ** *p* <.01; *** *p* <.001) are displayed. Values represent unstandardized coefficients.

fit of a model where we set the structural paths equal between boys and girls (constrained model). The χ^2 model comparison test was significant ($\Delta\chi^2$ = 18.34, Δdf = 6, $p < .010$), indicating that gender did moderate the examined relations. For clarity reasons, we report significant relations only. Figure 3 displays the significant estimates for girls and boys.

Girls

For girls, watching music videos ($b = -.07$, $SE = .03$, CI [$-.12, -.01$], $p = .012$) predicted lower levels of positive body image. We found no other significant direct or indirect associations to positive body image.

Regarding self-objectification, we found a positive relation of Instagram use ($b = .31$, $SE = .04$, CI [.24, .40], $p < .001$) and pornography use ($b = .32$, $SE = .15$, CI [.09, .72], $p = .033$) on girls' self-objectification. We also found a negative association between Facebook use and self-objectification ($b = -.20$, $SE = .05$, CI [$-.30, -.10$], $p < .001$).

Boys

For boys, we found a positive association between Instagram use and positive body image ($b = .08$, $SE = .02$, [CI .04, .11], $p < .001$). We also found an indirect association of pornography use on lower levels of positive body image via self-objectification ($b = -.01$, $SE = .01$, CI [$-.02, -.00$], $p = .044$).

Instagram use ($b = .08$, $SE = .03$, CI [.01, .15], $p = .013$) and pornography use ($b = .14$, $SE = .05$, CI [.05, .24], $p = .010$) predicted higher levels of self-objectification. Self-objectification was negatively related to boys' positive body image ($b = -.07$, $SE = .02$, CI [$-.12, -.03$], $p = .001$).

Testing country differences

To examine RQ3, we tested the proposed model across the countries investigated. Again, we computed two models, a configural model and a constrained model, to test for country differences. The model comparison test was significant ($\Delta\chi^2$ = 125.72, Δdf = 18, $p < .001$), suggesting that processes differed across countries. Figure 4 reports the estimates per country. We report significant relations only.

Austria

We found a positive association of Facebook use ($b = .22$, $SE = .08$, CI [.06, .39], $p = .006$) and pornography use ($b = .33$, $SE = .11$, CI [.11, .54], $p = .003$) on self-objectification.
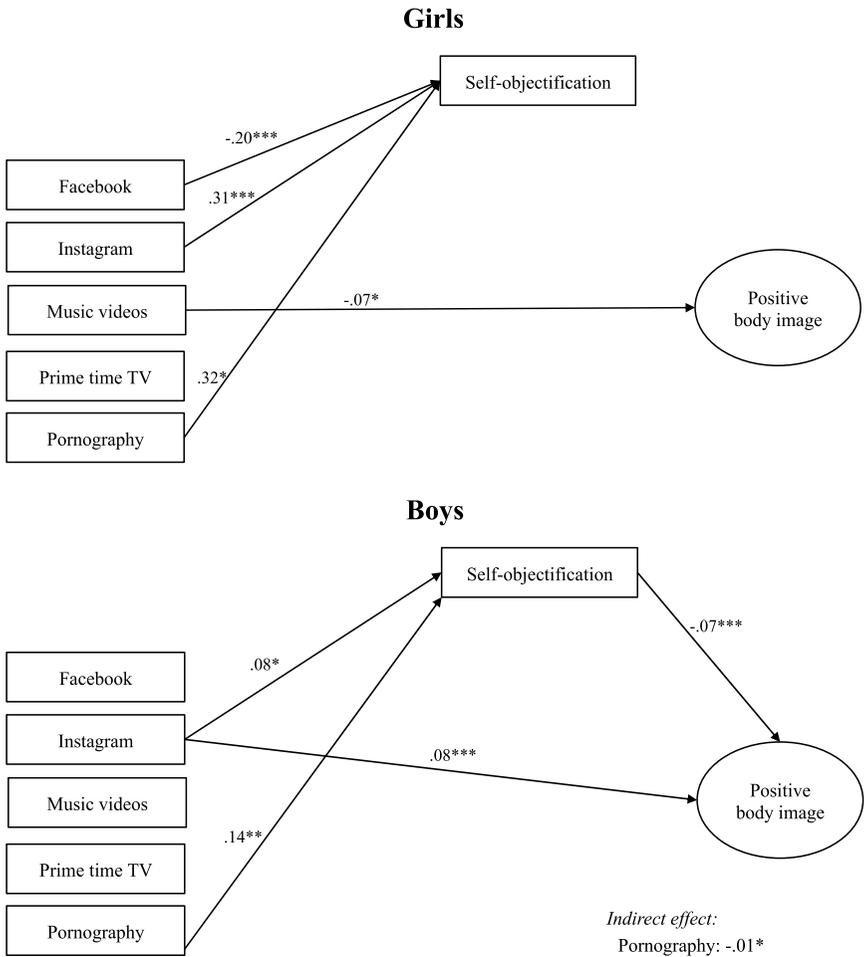
Girls

Boys

Indirect effect:
Pornography: -.01*

Figure 3. SEM for the relations of media use, self-objectification, and positive body image for girls and boys.

Note. Control variables, measurement errors, and correlations between all exogenous variables were omitted from depiction for clarity reasons. Rectangles represent manifest variables, ovals present latent variables. Only significant paths (* $p <.05$; ** $p <.01$; *** $p <.001$) are displayed. Values represent unstandardized coefficients.

Belgium

Among the measured media variables, only watching music videos and a positive body image ($b = -.13$, $SE = .04$, CI $[-.22, -.05]$, $p = .002$) were negatively related. Furthermore, pornography use predicted higher levels of self-objectification ($b = .50$, $SE = .11$, CI $[.31, .72]$, $p < .001$).
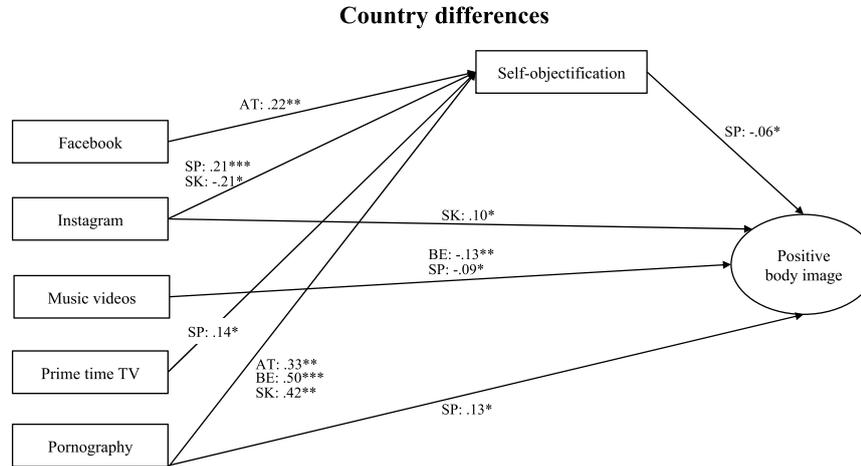
Figure 4. SEM for the relations of media use, self-objectification, and positive body image for Austrian, Belgian, Spanish, and South Korean adolescents.

Note. Control variables, measurement errors, and correlations between all exogenous variables were omitted from depiction for clarity reasons. Rectangles represent manifest variables, ovals present latent variables. Only significant paths (* *p* <.05; ** *p* <.01; *** *p* <.001) are displayed. Values represent unstandardized coefficients. AT = Austria; BE = Belgium; SP = Spain; SK = South Korea.

Spain

Among Spanish adolescents, we found that watching music videos was negatively related to a positive body image (b = −.09, SE = .04, CI [−.16, .-03], p = .019). Using pornography was associated to higher levels of positive body image (b = .13, SE = .06, CI [.00, .25], p = .041). Furthermore, watching prime time television (b = .14, SE = .06, CI [.01, .27], p = .022) and using Instagram (b = .21, SE = .05, CI [.12, .32], p < .001) predicted higher levels of self-objectification. Self-objectification, in turn, was negatively associated to a positive body image (b = −.06, SE = .03, CI [−.12, −.02], p = .017).

South Korea

Instagram use was related to higher levels of positive body image (b = .10, SE = .05, CI [.00, .20], p = .035) among South Korean adolescents. We found a negative association between using Instagram and self-objectification (b = −.21, SE = .10, CI [−.42, −.02], p = .036) and a positive association between using pornography and self-objectification (b = .42, SE = .14, CI [.13, .65], p = .002).

Discussion

Love, care, and respect for one's own body are considered essential predictors of different aspects of well-being, such as self-esteem, optimism, and perceived happiness (Andrew et al., 2016b; Avalos & Tylka, 2006; Avalos et al., 2005). The development of a positive body image is thus key for healthy well-being among adolescents. This study was the first to test the association between using five different mass media (i.e., prime time TV, music videos, Facebook, Instagram, and pornography) and adolescents' positive body image. More specifically, we investigated self-objectification as a potential mediator in a sample of adolescent boys and girls and across four cultural settings (i.e., among Austrian, Belgian, Spanish, and South Korean adolescents).

The overall model

We found that using Instagram was positively associated with positive body image. This relationship was surprising, as it is inconsistent with previous research suggesting that Instagram use negatively affects (women's) body image. However, when looking at the gender differences, which are discussed in more detail below, we found that Instagram use was uniquely associated with positive body image among boys. Given that research on

the associations between boys' Instagram use and positive body image is virtually non-existent, we can only speculate about possible reasons for this relationship. For example, nonappearance focused media use (i.e., nonfashion magazines) has been associated with higher levels of body appreciation among girls (Andrew et al., 2016c). Thus, the content seen on Instagram might be one explanation for why boys, compared to girls, experience an increase in body appreciation. It might be that boys spent more time with nonappearance focused content on Instagram, which, in turn, positively influenced their body appreciation.

Moreover, qualitative research suggests that for girls, it is particularly important to appear attractive when posting pictures on Instagram (Yau & Reich, 2019). Boys, however, do not attribute as much importance to look attractive. Instead, boys' self-presentation on Instagram is marked by masculinity, via pictures of playing sports or flexing muscles (Yau & Reich, 2019). Thus, exposure to such images might increase boys' appreciation of their bodies. More research is needed to substantiate these assumptions.

Our results also showed that watching music videos was negatively related to adolescents' positive body image. Typically, in music videos, artists are shown performing while singing or dancing. Thus, the viewers' focus inevitably lies in the artists' appearance. Viewing such content might lead to an internalization of prevailing body ideals and promote negative social comparisons, which deteriorates a positive relationship toward one's body. More research is needed to test these assumptions empirically.

Apart from the direct associations, we also found empirical evidence for a mediating mechanism of self-objectification. Using Instagram and using pornographic content fueled adolescents' tendency to define themselves by their appearance over their competence. Increased self-objectification, in turn, predicted lower levels of positive body image. Thus, in line with objectification theory, we provided further evidence that different types of appearance-focused and sexualized mass media lead to adolescents' self-objectification.

Based on our findings, we could show that Instagram use seems to work as a double-edged sword. On the one hand, Instagram might promote a positive body image, particularly among boys. Preliminary findings from experimental research also suggest that exposure to body positivity posts on Instagram might be beneficial for women's positive body image (Cohen et al., 2019). The body positivity movement aims to challenge narrow concepts of beauty and advocates a broad range of body types and appearances (Cohen et al., 2019)

On the other hand, however, if the content stimulates users to apply a self-objectifying perspective toward their bodies, it might be harmful to positive body image. In essence, Instagram represents a multifaceted platform that does not provide one typical content only but instead consists of

a broad range of different posts, such as about food, travel, family life, fitspiration, selfies, and appearance. Therefore, further research on how these different topics affect adolescents' body image is needed.

We did not find an association between prime time tv use and adolescents' self-objectification or positive body image. This null-finding is surprising, as previous research did find such relations (e.g., Vandenbosch & Eggermont, 2016). Having that said, we must acknowledge that "watching prime time tv" encompasses now many different things (Rideout & Robb, 2019). Television use is not limited to one stationary tv set with live programming anymore. It could mean using various (mobile) devices to watch time-shifted content or using on-demand streaming services. Thus, our measure of prime time tv consumption might be too broad to find a meaningful relation to our dependent variables. Therefore, we suggest that future research focuses on the content of television instead of the time frame of use.

Gender differences

Regarding gender differences, we showed that the postulated associations significantly differ between girls and boys. We found a direct negative association between watching music videos and lower levels of positive body image for girls, but not for boys. This finding is in line with content analytical research, which has repeatedly shown that music videos focus much more on women's appearance and sexual attractiveness than on men's physical appearance (Aubrey & Frisby, 2011; Karsay et al., 2019). Thus, it is not surprising to find a positive relationship between music video use and decreased positive body image among adolescent girls.

Moreover, among adolescent girls and boys, pornography use was positively associated with self-objectification. These findings corroborate earlier research on pornography use among adult women (Maas & Dewey, 2018) and adolescent boys (Vandenbosch & Eggermont, 2013). Among boys, we also found evidence for a mediated relationship. That is, using pornographic content was associated with higher levels of self-objectification, and, in turn, increased self-objectification was related to lower levels of positive body image.

In addition to previous findings in adult women (Fardouly et al., 2018), we could show that the use of Instagram predicted an increased self-objectification in adolescent girls. In contrast, we also found that Facebook use predicted reduced self-objectification among girls. An explanation could be that adolescents spend more time looking at images of people on the highly visual platform Instagram compared to Facebook, as proposed by the findings of a recent experimental study (Engeln et al., 2020). What is more, Facebook has become less and less popular among youth in recent years (Rideout &

Robb, 2018), and adolescents indicate to use the platform primarily to communicate with family members or (Rideout & Robb, 2018). Thus, such nonappearance focused use seems to be beneficial for girls' self-concept. Given these diverse findings across boys and girls, further research taking developmental stages and gendered appearance ideals is needed.

Country differences

When looking at the results from adolescents in each country, we found rather disparate findings. Except for the direct association of music videos and body positive image, we found no other significant associations in more than one country. Thus, we cannot directly compare effect sizes between countries. However, we want to discuss one particular finding in more detail. In South Korea, Instagram use appears to have an overall positive effect on adolescents' body-related concepts: Instagram use was uniquely associated with lower levels of self-objectification and to higher levels of positive body image. This result is surprising, as researchers argued that individuals from collectivistic societies might be more likely to engage in body-related social comparisons processes and to internalize prevalent appearance ideals compared to individuals from individualistic societies (Kim & Aubrey, 2015; Prieler & Choi, 2014).

Drawing on Hofstede (2011) individualism/collectivism dimension, it might be speculated that Korean adolescents use Instagram differently than adolescents from the other individualistic countries investigated. Past research has shown that Croatian (= collectivistic) Instagram users preferred social interaction over self-promotional activities when compared to American (= individualistic) Instagram users (Sheldon et al., 2017). Perhaps Korean adolescents also have a more we-focused type of use than adolescents from Austria, Belgium, and Spain. This social focus might lead the attention away from appearance-related content. In turn, using Instagram for other purposes than for appearance might have a positive outcome on self-objectification and positive body image. However, as we did not measure the specific content adolescents were using, more research is needed to substantiate this speculation.

From a theoretical perspective, our findings support the assumption that exposure to certain mass media reduces positive body image by promoting adolescents' self-objectification across four countries (Menzel & Levine, 2011; Piran & Teall, 2012). Thus, our study extends the theoretical framework of objectification theory (Fredrickson & Roberts, 1997) by showing that (decreased) positive body image is an additional negative consequence related to self-objectification. From a practical perspective, social workers, counselors, and educators can benefit from our results when developing programs to improve a positive body image.

Limitations and future research

As with all studies, our study has some limitations that need to be considered when interpreting our results. First, a mediation analysis in cross-sectional data does not allow causal inference. However, the mediating role of self-objectification between media use and psychological consequences has been theoretically deduced (Fredrickson & Roberts, 1997; Menzel & Levine, 2011) and empirically tested in longitudinal survey studies and experimental studies (e.g., Vandenbosch & Eggermont, 2012). Furthermore, a meta-analysis has supported the causal effect of mass media use on self-objectification (Karsay et al., 2018). Thus, it is likely that self-objectification serves as a mediator between media use and positive body image. That said, experimental studies remain needed to draw definite causal conclusions regarding the postulated relationship of media use, self-objectification, and positive body image.

Second, we focused on mass media that were popular among adolescents and that have been identified in playing a role in shaping adolescents' body image (i.e., appearance-focused media). Future research could specifically investigate the role of media promoting diversity about body appearances on adolescents' positive body image. Literature suggests that being presented with a broad spectrum of body types and shapes might lead individuals to more acceptance toward their bodies (Cohen et al., 2019).

Third, we included different mass media genres (i.e., traditional media and social media) that have––evidenced by content analytical research––a relatively strong appearance-focus to our study. We believe that this approach provided a unique and novel contribution to the field. However, future research is needed that uses even more nuanced measures for media use. Measures that map the specific content adolescents are watching would provide even more insightful results.

Moreover, although video games represent a major part of the South Korean media diet, we did not include video game use in our questionnaire. Video game characters often have idealized, unnatural body shapes, and playing video games has been related to increased self-objectification among adolescents (Karsay et al., 2018). We recommend investigating the role of video game use on positive body image in future research.

Finally, we used items of the Body Appreciation Scale (Avalos et al., 2005) to measure positive body image. However, we recommend that researchers use the refined BAS-2 scale (BAS-2, Tylka & Wood-Barcalow, 2015).

Conclusion

In conclusion, the findings from the present cross-national study suggest for the first time that different types of mass can be both beneficial and

harmful for adolescents' positive body image. In our sample of Austrian, Belgian, Spanish, and South Korean adolescents, we also found evidence for a mediating mechanism, as media-induced self-objectification negatively related to adolescents' positive body image. Together, the findings underscore the potential sociocultural influence of media use on boys' and girls' positive body image. Moreover, the results highlight the need for further research, including different types of media genres and media messages in cross-national contexts.

Acknowledgments

ORCID

Kathrin Karsay 🔟 http://orcid.org/0000-0002-0230-9664

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