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# The associations between body dissatisfaction, body figure, self-esteem, and depressed mood in adolescents in the United States and Korea: A moderated mediation analysis

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## ABSTRACT

The perception of one's body image becomes particularly important in adolescence. Body dissatisfaction has been associated with negative psychological functioning, such as self-esteem and depression. Previous findings showed that the decreased self-esteem due to body dissatisfaction explained the association between negative attitude toward body and psychological well-being in different cultural contexts. The present study examined adolescents from the US ( $N = 1002$ ) and Korea ( $N = 3993$ ) and replicated and extended the previous findings regarding body dissatisfaction and associated psychological outcomes. The results showed that body dissatisfaction predicted higher depressed mood and that self-esteem mediated this association for both American and Korean adolescents. Notably, the indirect effect of body dissatisfaction and perceived body image on depressed mood via self-esteem was greater for American adolescents than for Korean adolescents. The implications of the cultural difference in the significance of self-esteem in mediating the body dissatisfaction and depressed mood are discussed.

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Having a negative attitude toward one's body has been linked to a wide array of psychological issues (Cafri et al., 2005; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006). Individuals in much of the world are indeed at risk of feeling negative about their body image regardless of gender. There is a strong cultural norm, particularly in the West, that only women who are slender and delicate are considered beautiful (Freeman, 1975). This ideal of thinness for women in Western cultural contexts comes from a sociocultural perspective that emphasizes the risk of culturally transmitted standards, most notably through the mass media (see Levine & Harrison, 2009 for a review). These norms have become so prevalent in the United States that according to Polivy and Herman (1987), normal eating for women in America is equivalent to the typical activity of dieting. Men are no exception to this modern pressure to have a culturally supported ideal body type (Frederick et al., 2007). In the U.S., the media portrays attractive men as being lean and muscular, which puts men under the

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pressure of achieving an unrealistic body ideal (Cafri et al., 2005; Pope, Phillips, & Olivardia, 2000). In a recent survey of men in the United States, 48% of respondents were indeed dissatisfied with their weight (Holsen, Kraft, & Roysamb, 2001).

Body dissatisfaction may be particularly detrimental to adolescents who are already going through dramatic physical changes (Levine & Smolak, 2002, pp. 74–82; Smolak & Levine, 2001; Stice & Bearman, 2001). It has been reliably determined that body dissatisfaction is a risk factor not only for adolescents' unhealthy dieting behavior (Neumark-Sztainer et al., 2006), but also for poor psychological functioning indicated by diminished levels of self-esteem (Murray, Rieger, & Byrne, 2015; van den Berg, Mond, Eisenberg, Ackard, & Neumark-Sztainer, 2011; Wichstrøm & Soest, 2016) and heightened levels of depressed mood (Grabe, Ward, & Hyde, 2008; Johnson & Wardle, 2005; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006). Particularly, the recent studies have shown that self-esteem is one of the critical mediators of the link between body dissatisfaction and psychological well-being (Duchesne et al., 2016; Koronczai et al., 2013). Numerous studies have also found that physical self-concept is an important component of self-identity for adolescents, and body dissatisfaction is detrimental to adolescents' self-esteem (Grabe et al., 2008; Keery, van den Berg, & Thompson, 2004; van den Berg et al., 2007). Considering that adolescence is a time when individuals begin to develop a coherent sense of their own identity, a positive sense of self-worth is particularly important, even vital (Erikson, 1968), as indicated by the reliably strong association that has been confirmed to connect self-esteem and psychological well-being (Furnham & Cheng, 2000; Çivitci & Çivitci, 2009).

The heightened concerns for one's body image and appearances are not limited to the Western cultural contexts, as some earlier scholars believed due to the lower incidence of eating disorders and lower rates of obesity in non-Western cultural contexts (Lee, Lee, & Chen, 1989; Khandelwal & Saxena, 1990). In fact, South Korea, a country that has gone through a dramatic socio-cultural change and westernization in a short span of time, puts great emphasis on appearance-management in the society (Park & Choi, 2008), and shows alarmingly high levels of body dissatisfaction (Kim & Yoon, 2000; Jung & Lee, 2006; Jung, Forbes, & Lee, 2009). In a recent survey by Organization for Economic Development and Cooperation (OECD), South Korea was the most diet-conscious country among thirteen Asian countries (Oh, 2004). A more recent cross-cultural study conducted by Jung and Lee (2006) between American and Korean college women revealed that Korean women were more critical of their appearance and less satisfied with their body compared to their American counterpart. These researchers suggested that Korean women, under the influence of Western media and culture, now strive to meet the Western ideal of thin body figure and that the collective nature of the society may have exacerbated the pressure to conform to this ideal. As in American adolescents, heightened body dissatisfaction was associated with lower levels of self-esteem and higher levels of depression (Kim & Kim, 2001). The present study aims to examine adolescents' attitudes regarding their body image and associated psychological outcomes, while taking cultural contexts into account. Specifically, adolescents living in the United States and in Korea, the two societies where the thin-ideal is dominant but that differ in cultural orientations were examined.

## 1. Body dissatisfaction and psychological wellbeing in cultural context

The majority of the studies that have examined the link between body dissatisfaction and psychological well-being and the potential mediating role of self-esteem have been done in Western countries, most notably in the United States. There have been only a few studies conducted with Korean adolescents, but even fewer studies that have examined these two cultural contexts at the same time. Despite considerable amount of evidence documenting the differences in the levels of body dissatisfaction (Jung & Lee, 2006; Jung et al., 2009; Lee, Lee, Choi, Kim, & Han, 2014), self-esteem (Farruggia, 2004), and depressed mood (Kwon, Yoon, Joormann, & Kwon, 2013) in the United States and in Korea, these variables were examined in isolation. For instance, Jung and Lee (2006) showed that there is a negative association between body dissatisfaction and self-esteem for both Americans and Koreans, but these authors did not examine the moderating effect of the cultural group. Therefore, we know very little about the relative impact that body dissatisfaction has on one's self-esteem and the subsequent effects of dissatisfaction on psychological distress in different cultural contexts.

Based on the self-concept theories (Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Rodin, Silberstein, & Striegel-Moore, 1985), to the extent that one's body image is meaningful to one's identity, a global evaluation of one's self-worth is influenced by beliefs about one's own body image. The few existing pieces of literature on the relative importance of body satisfaction on psychological well-being in different cultural contexts are inconsistent. Some of that research suggests that Caucasians not only report higher body dissatisfaction when compared to the minority in America such as Latinos (Ceballos & Czyniewska, 2010), they are also more susceptible to the negative impact of body dissatisfaction compared to the minority in the United States of African American and Indian American background, (e.g., Story, French, Resnick, & Blum, 1995); however, other studies do not find such a difference (Henrique & Calhoun, 1999). The present study thus sets out to fill this gap in the literature by understanding the role of cultural contexts when explaining the relationships between one's own evaluation of body image and psychological well-being. First, we tested whether the degree to which body dissatisfaction harms one's self-esteem varies for American and Korean adolescents. Although Korean adolescents may be more dissatisfied with their body image than their American counterpart, body dissatisfaction may not be necessarily as detrimental to Korean adolescents' self-esteem as Americans adolescents'. Self-esteem may be determined by multiple factors (Gentile et al., 2009), and the relative importance of body image to one's identity as it relates to other factors may differ depending on one's cultural background. To our knowledge, no study has as yet examined the strengths in the association between body dissatisfaction and self-esteem for American and Korean adolescents simultaneously.

Furthermore, previous research that examined the role of self-esteem as the key mediating factor in the relationship between body dissatisfaction and well-being has not adequately taken cultural context into account (Duchesne et al., 2016; Koronczi et al., 2013). Although, Lee et al. (2014) looked into the samples from the United States ( $n = 502$ ) and Korea ( $n = 518$ ) and tested the mediating effect of self-esteem in the relationship between body image and psychological well-being, they did not employ a moderated mediation analyses, limiting the ability to detect a potential moderating effect of the cultural background of the participants. There are reasons to believe that the decreased self-esteem due to body dissatisfaction may be particularly troubling for adolescents from Western cultural context where holding a positive self-regard is considered to be a crucial element to one's mental health (Heine, Lehman, Markus, & Kitayama, 1999; Maslow, 1943). It is well established that there are significant differences in how individuals view the construct of self across cultures (Markus & Kitayama, 1991; Triandis, 1989). In the Western culture, where independent construal of self prevails, the inherent attributes and qualities of an individual play a pivotal role in one's cognitive and behavioral processes. In this cultural context, it is important that individuals' internal and distinctive qualities be positively evaluated (Heine et al., 1999; Kitayama & Markus, 2000). An enormous body of research conducted in the Western culture documents that positive self-regard indeed does have a marked influence on one's life satisfaction and mental health (Campbell et al., 1996; Diener, Diener, & Diener, 1995; Lucas, Diener, & Suh, 1996). In contrast, self-esteem in East Asian cultural contexts is not as important for one's well-being as it is in the Western cultural context. In East Asian culture, an interdependent self view is endorsed whereby self is considered not as an independent entity, but instead a relational entity. Self-criticism, discipline, and improvement, rather than just having a high self-esteem, are emphasized and are encouraged to be practiced (Heine et al., 1999; Kitayama, Markus, & Lieberman, 1995). In the present study, we focus on self-esteem as a central psychological factor to explain the impact of body dissatisfaction on depressed mood, which is a negative indicator of well-being (Lewinsohn, Redner, & Seeley, 1991). Moreover, overcoming the limitations of the previous research, potential cultural differences in the relationship between body dissatisfaction and self-esteem and in the indirect effect between these two variables via self-esteem are examined by sampling adolescents from both the United States and Korea.

### 1.1. Present research

The present study examined adolescents from the United States, a culture that is known to be the most individualistic in the world (Henrich, Heine, & Norenzayan, 2010), and adolescents from Korea, who typically will have collectivistic characteristics (Cheah & Park, 2006; Park & Cheah, 2005). The study addresses the following two primary research questions. (1) Is there a difference in the association between body dissatisfaction and self-esteem for American and Korean adolescents? Given the lack of previous empirical research examining differences in the effects of body dissatisfaction and self-esteem across cultural groups, the question of whether there is a moderating effect of cultural group is an exploratory one. (2) Does the mediating effect of self-esteem in the relationship between body dissatisfaction and depressed mood differ in degree for American and Korean adolescents? Based on the previous research, which suggests that body dissatisfaction is tightly associated with one's self-esteem and self-esteem predicts depressed mood, we expected self-esteem to mediate the relationship between body dissatisfaction and depressed mood across both cultural groups. More importantly, we hypothesized that culture will moderate the strength of the link between self-esteem and depressed mood. Specifically, given the critical function that self-esteem has on individuals' psychological functioning in Western cultural contexts, we predicted that the indirect effect of self-esteem on the relationship between body dissatisfaction and depressed mood would be stronger for American adolescents than for Korean adolescents. The conceptual model for the proposed moderated mediation is illustrated in Fig. 1.

We also tested the same model with the perceived body image as the predictor. In both American and Korean cultural contexts, adolescents are likely to have internalized the thin-ideal (Levine & Harrison, 2009; Smolak & Murnen, 2001), leading them to be dissatisfied with their body when they perceive their body image to be fat rather than skinny or thin (Hargreaves & Tiggemann, 2003). Thus, the negative association observed between body dissatisfaction and psychological well-being and the mediating role of self-esteem will also apply to the model with the perceived body image as a predictor. Specifically, the more adolescents perceived their body to be fat, the lower their self-esteem is, which subsequently increase the level of depressed mood. In all of the analyses, gender was taken into account. It has been well established that females

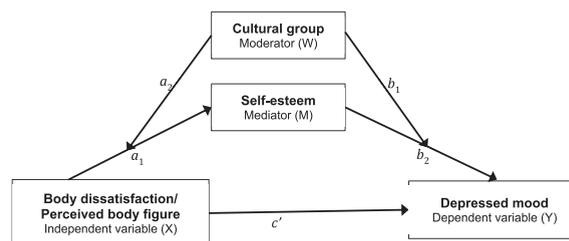


Fig. 1. Proposed model for moderated mediation.

report greater body dissatisfaction than males in general (Lawler & Nixon, 2011). However, the importance of physical self-concept to psychological well-being does not seem to differ for males and females (Abell & Richards, 1996; Furnham, Badmin, & Sneade, 2002; P. A. van den Berg et al., 2011). Therefore, we expected that the overall moderated mediation model would not be affected by gender. Finally, the objective measure of self-reported body mass index (BMI) was taken into consideration in addition to the subjective perception of their own body image. The analyses were conducted with and without adjusting for BMI to examine whether or not the hypothesized moderated mediation existed independent of BMI.

## 2. Method

### 2.1. Sampling

The participants of the United States were recruited between September and October of 2010. American data were collected from 13 schools across 12 cities (11 states) including Durham, North Carolina; DeWitt, New York; Kansas City, Kansas; Chicago, Illinois; Agoura Hills, California; Indianapolis, Indiana; Charlotte, North Carolina; Idaho Falls, Idaho; Liberty, Missouri; Eugene, Oregon; Gallup, New Mexico; and Tulsa, Oklahoma. The Korean sample was recruited from 24 high schools across 5 cities and 7 provinces in South Korea, between June and July of 2010. The sampling was based on the database from the Statistical Yearbook of Education published in 2009 by the Department of Education of Korea. The 5 cities of Korea include Seoul, Incheon, Daejeon, Gwangju, Daegu, Ulsan, and Busan and the 7 provinces include Gyeonggi, Chungcheong, Jeolla, Gangwon, and Gyeongsang. The sampling unit was based on the size of the cities. The target schools of these sampling units were randomly selected from the list of high schools in these regions.

### 2.2. Participants

Participants were 1,002 Americans (452 boys, 550 girls), Koreans (2,004 boys, 1,929 girls). There were relatively comparable proportions of students in different grades across the countries. The American sample consisted of 299 (29.8%) 10th graders (15–16 years of age), 334 (33.3%) 11th graders (16–17 years of age), and 369 (36.8%) 12th graders (17–18 years of age). Among Koreans, there were 1374 (34.9%) high school students in the 1st grade (15 years of age), 1301 (33.%) in the 2nd grade (16 years of age), and 1258 (32.0%) in the 3rd grade (17 years of age).<sup>2</sup>

### 2.3. Measures

The original materials in Korean were translated into English by researchers with doctoral degrees who are fluent in Korean and English. The original questionnaire and the back-translated questionnaire were compared and reviewed. The self-esteem and depression were measured with the scales developed by Choi et al. (2010). The validity of the scales used in this study were reported in the final report submitted by the Korean National Youth Policy Institute (Choi et al., 2010).

#### 2.3.1. Self-esteem

Self-esteem was measured with 5 items. Participants evaluated the degree to which they agree with the statements such as “I am a valuable person” and “I evaluate myself positively” using 4-point Likert scales (1 = disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = agree). The average scores of the items were used. To examine the internal structure of the self-esteem measure in the current samples, we performed a series of confirmatory factor analysis (CFAs) with American and Korean samples separately. All the analyses were performed using lavaan, an R Package for structural equation modeling (Rosseel, 2012). The model fit was examined with the chi-square and the standardized root mean square residual (SRMR), the root mean squared error of approximation (RMSEA), the comparative fit Index (CFI), and the non-normed fit index (NNFI). According to Hu and Bentler (1999), SRMR value that is close to 0.08 or below, RMSEA value of 0.06 or below, and values greater than 0.95 for CFI and NNFI indicate acceptable model fit. The CFA results showed a good fit for the measurement model to the data of American sample,  $\chi^2(5) = 17.81, p < 0.01, SRMR = 0.022, CFI = 0.982, TLI = 0.964, RMSEA = 0.050$  [90% CI: 0.026–0.077], and for Korean sample,  $\chi^2(5) = 50.163, p < 0.001, SRMR = 0.018, CFI = 0.983, TLI = 0.966, RMSEA = 0.048$  [90% CI: 0.036–0.060]. Cronbach’s alphas for the two samples were high: USA,  $\alpha = 0.82$ , Korea  $\alpha = 0.85$ .

Furthermore, the equivalence of measurement for self-esteem across Americans and Koreans was done by performing a multi-group CFA and testing a series of nested models following the recommendations by Little (2013). For this purpose, configural invariance and factorial (weak) invariance were examined across the two groups. First, acceptable model fits were obtained for the configural invariance,  $\chi^2(10) = 67.97, p < 0.001, SRMR = 0.019, CFI = 0.983, TLI = 0.965, RMSEA = 0.048$  [90% CI: 0.038–0.060], and factorial invariance,  $\chi^2(10) = 102.81, p < 0.001, SRMR = 0.028, CFI = 0.974, TLI = 0.965, RMSEA = 0.049$

<sup>2</sup> The cities in Korea from which the sample was selected were all metropolitan cities with the average population of 3,325,647 (2010, Statistics Korea). The US areas from which the sample was pooled included 7 urban areas (as defined by the 2010 U. S. Census Bureau), with the average population of 328,956, and 7 suburban areas, with the average population of 24,081. Overall, the racial makeup of these cities was approximately 66% White, 13% Hispanics, 11% African Americans, and 3% Asians (2010 U. S. Census Bureau). All 14 American schools were public high schools, including a public boarding school and public secondary military school.

[90% CI: 0.040–0.058]. The CFI difference between the configural and factorial invariance was  $\Delta\text{CFI} = 0.009$ . According to a recommendation by Cheung and Rensvold (2002),  $\Delta\text{CFI}$  values less or around the 0.01 level indicate model invariance. Thus, it can be concluded that with the same pattern of factor loadings the self-esteem was measured equivalently across the two groups.

### 2.3.2. Depressed mood

Depressed mood was measured with 3 items. Participants were asked to respond to the question “Did you ever experience the following feelings during the past week?” and indicated the extent to which they were “gloomy”, “lonely”, and “empty”. All items were measured using 4-point Likert scales (1 = never, 2 = sometimes, 3 = occasionally, 4 = often). Cronbach’s alphas for the two samples were high: USA,  $\alpha = 0.87$ ; Korea,  $\alpha = 0.83$ . The average scores were used.

### 2.3.3. Body dissatisfaction

Participants were asked to indicate the degree to which they were satisfied with their body from the following responses on a 4-point scale ranging from 1 (very satisfied) to 4 (not satisfied at all). Higher scores indicated individuals were more dissatisfied with their body.

### 2.3.4. Perceived body image

Participants indicated the perception of their own body image among the responses, on a 5-point scale (1 = “skinny”, 2 = “slim”, 3 = “just right”, 4 = “heavy”, 5 = “fat”). Higher scores indicated individuals perceived their body image to be fat.

### 2.3.5. Body mass index (BMI)

Self-reported measure of height (cm) and weight (kg) of the participants were used. From these two indices, Body Mass Index (BMI) was calculated as the ratio of weight (kg) to height squared ( $\text{m}^2$ ) (Garrow & Webster, 1985).

## 3. Results

### 3.1. Analysis plan

We planned moderated mediation analyses to address the two primary questions introduced earlier. First, the potential moderating effect of cultural group in the association between body dissatisfaction (perceived body image) and self-esteem was tested. Second, in the same model, we tested whether the mediating effect of self-esteem in the relationship between body dissatisfaction (perceived body image) and depressed mood varies as a function of culture. These analyses were conducted using bootstrapping techniques based on recommendations by Hayes and Preacher (2014) using the PROCESS macro for SPSS version 22.0 developed by Hayes (2013). Researchers agree that this approach does not assume the normally distributed indirect effects and allows for more accurate in testing mediation effect compared to the traditional approach using Sobel test (Hayes & Preacher, 2014; Preacher & Hayes, 2008; Preacher, Rucker, & Hayes, 2007; Zhao, Lynch Jr., & Chen, 2010).

The moderated mediation analyses (model 58 in PROCESS; Hayes, 2013) tested the moderating effect of cultural group on paths  $a$  and  $b$ , as well as the conditional indirect effect of self-esteem on the association between body dissatisfaction (perceived body image) and depressed mood at two different levels of the moderator (i.e., US vs. Korea). If the confidence interval for an effect does not include zero, the moderation of the mediator is significant. The mathematical index of moderated mediation is  $[a_{1i}b_{2i} + a_{2i}b_{2i}(2W + \delta)] \delta$ , where  $W$  refers to the dichotomous moderator (Korea = 0, US = 1) and  $\delta$  represents the difference between the two cultural groups. See Fig. 1 for the proposed moderated mediation model that is tested in this study.

### 3.2. Sample characteristics

The intercorrelations among the measures of body dissatisfaction, perceived body image, BMI, self-esteem, and depressed mood are presented in Table 1. As expected, for both cultural groups, body dissatisfaction was positively correlated with perceived body image, ( $r_s > 0.34$ ,  $p_s < 0.001$ ) and BMI ( $r_s > 0.20$ ,  $p_s < 0.001$ ). Consistent with the previous literature, body

**Table 1**

Means, standard deviations, and zero-order correlation coefficients of body dissatisfaction, perceived body image, BMI, self-esteem, and depressed mood, for American adolescents (above the diagonal) and Korean adolescents (below the diagonal).

	1.	2.	3.	4.	5.
1. Body dissatisfaction		0.37***	0.26***	−0.46**	0.24***
2. Perceived body image	0.34***		0.56***	−0.21***	0.12***
3. BMI	0.20***	0.62***		−0.04	0.01
4. Self-esteem	−0.20***	−0.10***	−0.03*		−0.45***
5. Depressed mood	0.19***	0.12***	−0.03	−0.30***	

Note. \* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$ .

dissatisfaction negatively predicted self-esteem ( $r_s < -0.20, p_s < 0.001$ ) and positively predicted depressed mood ( $r_s > 0.19, p_s < 0.001$ ) for both American and Korean adolescents (see Table 1). As for the mean levels of body perception, Korean adolescents reported higher body dissatisfaction ( $F(1, 4905) = 1267.52, \eta_p^2 = 0.205, p < 0.001$ ) and perceived their body image to be fatter compared to American adolescents ( $F(1, 4830) = 111.84, \eta_p^2 = 0.023, p < 0.001$ ). Meanwhile, Korean adolescents ( $M = 20.98, SD = 3.14$ ) scored lower BMI than American adolescents ( $M = 22.84, SD = 4.86$ ),  $F(1, 4926) = 208.11, \eta_p^2 = 0.042, p < 0.001$ . As for the level of self-esteem, American adolescents reported higher levels of self-esteem compared to Korean adolescents,  $F(1, 4926) = 575.43, \eta_p^2 = 0.105, p < 0.001$ . There was no difference in the levels of depressed mood across two cultural groups,  $F(1, 4926) = 0.273, \eta_p^2 = 0.000, p = 0.60$ . Overall, for both cultural groups, there were gender differences in all of these measures as indicated in Table 2,  $F_s > 2.65, p_s < 0.001$ .

3.3. Body dissatisfaction, self-esteem, and depressed mood in cultural contexts

Table 3 presents the results for the moderated mediation analyses (model 58 in PROCESS; Hayes, 2013) with body dissatisfaction as a predictor, self-esteem as a mediator, and cultural group as a moderator, controlling for gender. Body dissatisfaction was negatively associated with self-esteem,  $b = -0.17, SE = 0.01, t = -11.74, p < 0.001$ . This path ( $a_1$ ) was moderated by the cultural group, as indicated by the significant interaction effect between body dissatisfaction and the cultural group,  $b = -0.22, SE = 0.03, t = -7.63, p < 0.001$ . Specifically, the association between body dissatisfaction and self-esteem was stronger for American adolescents than for Korean adolescents. As for the first research question, we confirmed that the strength of the association between body dissatisfaction and self-esteem was different depending on the adolescent's cultural background.

Next, the results showed that the conditional indirect effects of self-esteem at different levels of cultural group (Korea = 0, US = 1) were significant as indicated by the index of moderated mediation,  $0.16, SE = 0.02, CI = [0.11, 0.20]$ . Probing further, self-esteem mediated the relationship between body dissatisfaction and depressed mood to a greater degree for American adolescents than for Korean adolescents. The indirect effect of self-esteem was significant for Americans,  $b = 0.21, SE = 0.02, CI = [0.17, 0.25]$ , and the association between body dissatisfaction and depressed mood was no longer significant ( $b = 0.05, SE = 0.04, CI = [-0.02, 0.12], p = 0.196$ ) when the effect of self-esteem was controlled for. The indirect effect of self-esteem was also significant for Korean adolescents,  $b = 0.05, SE = 0.05, CI = [0.04, 0.06]$ ; the association between body dissatisfaction and

Table 2

Means and standard deviations of body dissatisfaction, perceived body image, BMI, self-esteem, and depressed mood.

	US		Korea		US	Korea
	Male	Female	Male	Female	Total	Total
Body dissatisfaction	1.83 (0.79)	2.03 (0.80)	2.69 (0.71)	3.04 (0.69)	3.06 (0.80)	2.14 (0.72)
Perceived body image	2.72 (0.99)	3.03 (0.99)	2.97 (0.98)	3.54 (0.82)	3.11 (0.10)	2.75 (0.95)
BMI	23.01 (4.85)	22.68 (4.85)	21.52 (3.42)	20.40 (2.68)	22.84 (3.23)	20.98 (3.14)
Self-esteem	3.35 (0.67)	3.17 (0.72)	2.87 (0.67)	2.78 (0.65)	3.26 (0.70)	2.83 (0.66)
Depressed mood	1.80 (0.83)	2.07 (0.93)	1.76 (0.69)	2.11 (0.71)	1.95 (0.90)	1.93 (0.72)

Note.

Table 3

Results of the moderated mediation analysis between body dissatisfaction and depressed mood via self-esteem, moderated by cultural group.

Path a, body dissatisfaction (X) to self-esteem (M)					
Predictor	b	SE	95% CI <sub>lower</sub>	95% CI <sub>upper</sub>	
gender	-0.05*	0.02	-0.09	-0.01	
Body dissatisfaction (X)	-0.17***	0.01	-0.20	-0.14	
Cultural group (W)	0.70***	0.03	0.57	0.84	
Body dissatisfaction (X) x Cultural group (W)	-0.22***	0.03	-0.28	-0.17	
Path b, from self-esteem (M) to depressed mood (Y)					
Predictor	b	SE	95% CI <sub>lower</sub>	95% CI <sub>upper</sub>	
gender	0.26***	0.02	0.22	0.30	
Self-esteem (M)	-0.29***	0.02	-0.32	-0.25	
Cultural group (W)	0.27***	0.03	0.22	0.33	
Self-esteem (M) x Cultural group (W)	-0.23***	0.04	-0.30	-0.16	
Condition indirect effect of self-esteem (M) at level of cultural group (W)					
Moderator level	Effect	SE	95% CI <sub>lower</sub>	95% CI <sub>upper</sub>	
US	0.21	0.02	0.17	0.25	
Korea	0.05	0.01	0.04	0.06	

Note. X = Independent variable; Y = Dependent variable; M = Mediating Variable; W = Moderating variable; b = Unstandardized coefficient. \* $p < 0.05$ . \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Bootstrap sample size = 10,000.

depressed mood remained significant,  $b = 0.13$ ,  $SE = 0.02$ ,  $CI = [0.10, 0.16]$ ,  $p < 0.001$ , after controlling for self-esteem, indicating a partial mediation in the Korean sample. The index of moderated mediation was still significant after holding gender and the BMI constant; the index of moderated mediation was  $0.15$ ,  $SE = 0.02$ ,  $CI = [0.11, 0.20]$ . This confirmed our hypothesis of the second research question stating that the mediating effect of self-esteem in the association between body dissatisfaction and depressed mood would be greater for Americans than for Koreans.

### 3.4. Perceived body image, self-esteem, and depressed mood

Table 4 presents the moderated mediation analyses (model 58 in PROCESS; Hayes, 2013) with perceived body image as a predictor, self-esteem as a mediator, and cultural group as a moderator, controlling for gender. Perceived body image was negatively associated with self-esteem,  $b = -0.05$ ,  $SE = 0.01$ ,  $t = -4.37$ ,  $p < 0.001$ . This path ( $a_1$ ) was moderated by the cultural group, as indicated by the significant interaction between perceived body image and the cultural group,  $b = -0.09$ ,  $SE = 0.02$ ,  $t = -3.63$ ,  $p = 0.000$ . Specifically, the association between perceived body image and self-esteem was stronger for American adolescents than for Korean adolescents. As for the first research question, we confirmed that the strength of the association between the negative perception of body image and self-esteem was different depending on the adolescent's cultural background.

Next, the results showed that the conditional indirect effects of self-esteem at different levels of cultural group (Korea = 0, US = 1) were significant as indicated by the index of moderated mediation,  $0.06$ ,  $SE = 0.02$ ,  $CI = [0.03, 0.09]$ . Probing further, self-esteem mediated the relationship between perceived body image and depressed mood to a greater degree for American adolescents than for Korean adolescents. The indirect effect of self-esteem was significant for Americans,  $b = 0.08$ ,  $SE = 0.01$ ,  $CI = [0.05, 0.11]$ , and the association between perceived body image and depressed mood was no longer significant ( $b = -0.01$ ,  $SE = 0.02$ ,  $CI = [-0.05, 0.04]$ ,  $p = 0.812$ ), when the effect of self-esteem was controlled for. The indirect effect of self-esteem was also significant for Koreans,  $b = 0.02$ ,  $SE = 0.02$ ,  $CI = [0.01, 0.02]$ ; the association between body dissatisfaction and depressed mood remained significant,  $b = 0.05$ ,  $SE = 0.01$ ,  $CI = [0.02, 0.06]$ ,  $p < 0.001$ , after controlling for self-esteem, indicating a partial mediation in the Korean sample. The index of moderated mediation was still significant after holding gender and the BMI constant; the index of moderated mediation was  $0.05$ ,  $SE = 0.01$ ,  $CI = [0.02, -0.09]$ . Again, this confirmed our hypothesis stating that the mediating effect of self-esteem in the association between the negative perception of body image and depressed mood would be greater for Americans than for Koreans.

### 3.5. General discussion

The current study examines the role of self-esteem for explaining the negative impact that attitude toward one's body has on depressed mood among adolescents in Korea and the United States. We believe our results contribute to the literature by both replicating and extending the prior findings on this topic. Past research has been limited in that cultural context was not considered in an integrative manner when examining the relationship between perception of body image, psychological well-being, and self-esteem. The present research was the first to focus on the moderating effect of cultural group and demonstrated that the pivotal cultural difference was found in the strength of the associations between attitude toward body and one's self-esteem, which subsequently impacted depressed mood to a different degree for American and Korean adolescents.

**Table 4**

Results of the moderated mediation analysis between perceived body image and depressed mood via self-esteem, moderated by cultural group.

Path a, perceived body image (X) to self-esteem (M)				
Predictor	<i>b</i>	<i>SE</i>	95% <i>CI</i> <sub>lower</sub>	95% <i>CI</i> <sub>upper</sub>
gender	-0.08*	0.02	-0.11	-0.04
Perceived body image (X)	-0.05***	0.02	-0.08	-0.03
Cultural group (W)	0.66	0.08	0.52	0.81
Perceived body image (X) x Cultural group (W)	-0.09***	0.02	-0.13	-0.04
Path b, from self-esteem (M) to depressed mood (Y)				
Predictor	<i>b</i>	<i>SE</i>	95% <i>CI</i> <sub>lower</sub>	95% <i>CI</i> <sub>upper</sub>
gender	0.27***	0.02	0.23	0.31
Self-esteem (M)	-0.30***	0.02	-0.34	-0.27
Cultural group (W)	0.22***	0.03	0.17	0.28
Self-esteem (M) x Cultural group (W)	-0.25***	0.04	-0.32	-0.18
Condition indirect effect of self-esteem (M) at level of cultural group (W)				
Moderator level	Effect	<i>SE</i>	95% <i>CI</i> <sub>lower</sub>	95% <i>CI</i> <sub>upper</sub>
US	0.08	0.02	0.05	0.11
Korea	0.02	0.00	0.01	0.02

Note. X = Independent variable; Y = Dependent variable; M = Mediating Variable; W = Moderating variable; *b* = Unstandardized coefficient. \* $p < 0.05$ . \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Bootstrap sample size = 10,000.

In our sample of adolescents, consistent with the existing findings (e.g., Tiggemann, 2005), both American and Korean adolescents who were dissatisfied with their body showed higher BMI scores. However, despite their higher average BMI, the American adolescents were more satisfied with their body and perceived their body image to be less fat than Korean adolescents. This suggests that there are different standards of body ideal to which adolescents compare themselves across cultures and that Korea is subject to a thinner body ideal than that of the United States. This result is consistent with the overwhelming concern over weight among Korean people. An international study that examined university students in 22 nations showed that Korea was the country that had the largest percentage of females who are trying to lose weight (77%) compared to other countries such as the United States (56%), despite the fact that the BMI of Korean females was much lower (19.3) than that of American females (22.6) (Wardle Haase, & Steptoe, 2006). Moreover, Korea was the most diet-conscious country among 13 Asian countries in the Organization for Economic Development and Cooperation (OECD) (Oh, 2004).

Interestingly, although Korean adolescents were more dissatisfied and negative about their body image, the impact of body dissatisfaction and the negative perception of one's body image on self-esteem was greater for the American adolescents than for the Korean adolescents. This finding suggests that the cultural background could be a protective factor against the harmful effects of the negative attitude toward one's own body on self-esteem. One possible cultural variation that can explain this differential effect of body image on self-esteem is self-construal. Individuals with independent self-construal assume that the attributes of self are relatively fixed and consistent across situations, whereas those with interdependent self-construal view the self as fluid and constantly changing through time or situations (Markus & Kitayama, 1991). For American adolescents, one's body image may be a relatively permanent and definite aspect of self and, hence, one's self-esteem is closely associated with it. In contrast, one's body image for Korean adolescents may be considered as changing over time and situations, and thus, may not be an essential element for one's self-esteem. Investigating into the effects of perceiving one's body as a fluid entity vs. a fixed entity may be beneficial for future research on these topics.

As for psychological well-being, consistent with the previous literature, those adolescents who were more dissatisfied with their body reported higher levels of depressed mood in both cultural groups, and the strength of the relationship between body dissatisfaction and psychological well-being was not different for American and Korean adolescents. Consistent with the previous research (Duchesne et al., 2016; Koronczai et al., 2013), the relationship between body dissatisfaction and depressed mood was reliably mediated by one's self-esteem in the case for both the Korean and the American adolescents. The mediating role of self-esteem also held true for the relationship between perceiving one's body as fatter and levels of depressed mood. This result suggests that subjectively perceiving one is overweight, and not underweight, negatively affects adolescents' psychological functioning, further reflecting the thin ideal found in both cultural contexts. It is also important to note that these mediation effects via self-esteem held even after controlling for the BMI score of adolescents. Thus, it is an adolescent's subjective evaluation of his or her body image and not the objective index of body measurement that matters.

Although the overall association between the negative attitude toward body and depressed mood was the same across the two cultural groups, the mediating effects of self-esteem for both the relationship between body dissatisfaction and depressed mood and the relationship between perceived body image and depressed mood were greater for American adolescents than for Korean adolescents. For American adolescents, the impact that a negative attitude toward body has on psychological distress seems to be primarily due to a damaged self-esteem, as was indicated by a full mediation via self-esteem on the effect of body dissatisfaction and depressed mood. For Korean adolescents, however, self-esteem only partially mediated the effect of their negative attitude toward body and depressed mood. This result has important clinical implications. It would be particularly beneficial for adolescents in the American cultural context if clinicians develop ways in which one's self-worth is protected from the negative perception of one's body. However, focusing on decreasing the impact of perception of body image on self-esteem may not be as effective for Korean adolescents. For instance, being as interdependent as Koreans, body image may be more related to peer acceptance (Jackson & Chen, 2007), rather than to what they think about themselves.

### 3.6. Limitations and future research

The findings from the present study should be interpreted with caution, given the limitations of the study. First of all, although every effort was made to obtain representative samples of high school students in the United States and in Korea by sampling experts, there was a lack of demographic information about adolescents, such as their family background, income level, parents' education level, and ethnicity (for the American sample). Given that Hispanic culture also has a "relational" or "collectivistic" culture as East Asian culture does, Hispanic Americans as well as Asian Americans in the United States may have shown a similar pattern as that of the Korean participants. Future efforts are necessary to not only consider ethnicity but also socio economic status of parents, family structure, and geographic area (e.g., rural versus urban) so as to more confidently generalize the current findings to adolescents in other regions and classes of the respective countries under study. This limitation notwithstanding, we believe that the current samples are superior to the convenience samples used in most previous studies in terms of size and the regional areas from which the participants were recruited.

Another important limitation is that the present study used unique measurements for body dissatisfaction and perceived body image specifically because the study was conducted on a large scale, with nearly 5,000 participants across the United States and Korea. The single-item measurement asking adolescents' dissatisfaction with their body and perception of body image fell short of capturing the multidimensional nature of body image, which involves features like height, weight, body shape, or muscularity. Moreover, the use of unique measurements makes generalization of the results and integration into the

existing literature difficult. Furthermore, the measure of perceived body image may have obscured sex differences; while “skinny” or “slim” are almost unanimously considered desirable for girls, they may not be so for boys (Furnham et al., 2002). Future research is needed to replicate the current findings while integrating multiple measures of body dissatisfaction.

Finally, this study did not directly measure cultural factors that might contribute to the differential relationships between body dissatisfaction/perception and self-esteem. It will thus be important to identify any culturally specific factors that can help explain the relatively weaker relationship between body dissatisfaction and self-esteem and between self-esteem and depressed mood for the Korean adolescents compared to the American adolescents. Identifying such factors can be utilized in developing preventive interventions that can reduce the negative impact of body dissatisfaction on one's self-worth. For instance, teachers or clinicians at schools would gain from the knowledge that possessing negative attitude toward one's body is harmful to one's depressed mood, and that the central mediating factor is self-esteem particularly for American adolescents. The findings of the current study invite future studies to identify possible psychological factors that are culturally shaped to influence the role of one's own body image in their psychological well-being.

The current study confirmed that across American and Korean adolescent groups, having a negative attitude and perception of one's body image were detrimental to psychological well-being and were crucially associated with decreased self-esteem. The unique contribution of the current study is how it shows that the mediating effect of self-esteem linking the relationship between body dissatisfaction and depressed mood differed for Americans and Koreans. These nuanced findings of the differential impact of body dissatisfaction on one's self-esteem and depressed mood depending on the individual's cultural context may shed light on how to better manage adolescent body dissatisfaction.

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## References

- Abell, S. C., & Richards, M. H. (1996). The relationship between body shape satisfaction and self-esteem: An investigation of gender and class differences. *Journal of Youth and Adolescence*, 25(5), 691–703.
- van den Berg, P. A., Mond, M., Eisenberg, M., Ackard, D., & Neumark-Stainer, D. (2011). The link between body dissatisfaction and self-esteem in adolescents: Similarities across gender, age, weight status, race/ethnicity, and socioeconomic status. *Journal of Adolescent Health*, 47(2), 575–600. <http://dx.doi.org/10.1016/j.jadohealth.2010.02.004>.
- van den Berg, P. A., Paxton, S. J., Keery, H., Wall, M., Guo, J., & Neumark-Stainer, D. (2007). Body dissatisfaction and body comparison with media images in males and females. *Body Image*, 4(3), 257–268. <http://dx.doi.org/10.1016/j.bodyim.2007.04.003>.
- Cafri, G., Thompson, J. K., Ricciardelli, L., McCabe, M., Smolak, L., & Yesalis, C. (2005). Pursuit of the muscular ideal: Physical and psychological consequences and putative risk factors. *Clinical Psychology Review*, 25(2), 215–239. <http://dx.doi.org/10.1016/j.cpr.2004.09.003>.
- Campbell, J. D., Trapnell, P. D., Heine, S. J., Katz, I. M., Lavallee, L. F., & Lehman, D. R. (1996). Self-concept clarity: Measurement, personality correlates, and cultural boundaries. *Journal of Personality and Social Psychology*, 70(1), 141–156.
- Ceballo, N., & Czyzewska, M. (2010). Body image in Hispanic/Latino vs. European American adolescents: Implications for treatment and prevention of obesity in undeserved populations. *Journal of Health Care for the Poor and Underserved*, 21, 823–838.
- Cheah, C. S. L., & Park, S.-Y. (2006). South Korean mothers' beliefs regarding aggression and social withdrawal in preschoolers. *Early Childhood Research Quarterly*, 21, 61–75.
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, 9, 233–255.
- Choi, I. J., Lee, K. B., Kim, H. J., Park, K. O., Lee, M. S., & Lee, E. (2010). *Korean youth indicator survey V: Health and safety (protection)*. Seoul: National Youth Policy Institute.
- Çivitci, N., & Çivitci, A. (2009). Self-esteem as mediator and moderator of the relationship between loneliness and life satisfaction in adolescents. *Personality and Individual Differences*, 47(8), 954–958. <http://dx.doi.org/10.1016/j.paid.2009.07.022>.
- Crocker, J., Luhtanen, R. K., Cooper, M. L., & Bouvrette, A. (2003). Contingencies of self-worth in college students: Theory and measurement. *Journal of Personality and Social Psychology*, 85, 894–908. <http://dx.doi.org/10.1037/0022-3514.85.5.894>.
- Diener, E., Diener, M., & Diener, C. (1995). Factors predicting the subjective well-being of nations. *Journal of Personality and Social Psychology*, 69(5), 581–864.
- Duchesne, A. P., Dion, J., Lalonde, D., Bégin, C., Émond, C., Lalonde, G., & McDuff, P. (2016). Body dissatisfaction and psychological distress in adolescents: Is self-esteem a mediator? *Journal of Health Psychology*, 1359105316631196.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. Oxford, England: Norton & Co.
- Farruggia, S. P. (2004). Adolescent self-esteem in cross-cultural Perspective: Testing measurement equivalence and a mediation model. *Journal of Cross-Cultural Psychology*, 35(6), 719–733. <http://dx.doi.org/10.1177/0022022104270114>.
- Frederick, D. A., Buchanan, G. M., Sadehgi-azar, L., Peplau, L. A., Haselton, M. G., Berezovskaya, A., et al. (2007). Desiring the muscular ideal. *Men's Body Satisfaction in the United*, 8(2), 103–117. <http://dx.doi.org/10.1037/1524-9220.8.2.103>.
- Freeman, J. (1975). *Women, a feminist perspective*. Palo Alto, CA: Mayfield.
- Furnham, A., Badmin, N., & Sneade, I. (2002). Body image dissatisfaction: Gender differences in eating attitudes, self-esteem, and reasons for exercise. *The Journal of Psychology*, 136(6), 581–596. <http://dx.doi.org/10.1080/00223980209604820>.
- Furnham, A., & Cheng, H. (2000). Lay theories of happiness. *Journal of Happiness Studies*, 1, 227–246.
- Garrow, J. S., & Webster, J. (1985). Quetlet's index (W/H<sup>2</sup>) as a measure of fatness. *International Journal of Obesity*, 9, 147–153.
- Gentile, B., Grabe, S., Dolan-Pascoe, B., Twenge, J. M., Wells, B. E., & Maitino, A. (2009). Gender differences in domain-specific self-esteem: A meta-analysis. *Review of General Psychology*, 13(1), 34–45. <http://dx.doi.org/10.1037/a0013689>.
- Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin*, 134(3), 460–476. <http://dx.doi.org/10.1037/0033-2909.134.3.460>.
- Hargreaves, D. A., & Tiggemann, M. (2003). The effect of “thin ideal” television commercials on body dissatisfaction and schema activation during early adolescence. *Journal of Youth and Adolescence*, 32, 367–373.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67(3), 451–470.

- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, 106(4), 766–794. Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmed/10560328>.
- Henriques, G. R., & Calhoun, L. G. (1999). Gender and ethnic differences in the relationship between body esteem and self-esteem. *Journal of Psychology: Interdisciplinary & Applied*, 133, 357–368.
- Holsen, I., Kraft, P., & Roysamb, E. (2001). The relationship between body image and depressed mood in adolescence: A 5-year longitudinal panel study. *Journal of Health Psychology*, 6, 613–627.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- Jackson, T., & Chen, H. (2007). Sociocultural influences on body image concerns of young Chinese males. *Journal of Adolescent Research*, 23, 154–171. <http://dx.doi.org/10.1177/0743558407310729>.
- Johnson, F., & Wardle, J. (2005). Dietary restraint, body dissatisfaction, and psychological distress: A prospective analysis. *Journal of Abnormal Psychology*, 114(1), 119–125. <http://dx.doi.org/10.1037/0021-843X.114.1.119>.
- Jung, J., Forbes, G. B., & Lee, Y. (2009). Body dissatisfaction and disordered eating among early adolescents from Korea and the US. *Sex Roles*, 61, 42–54. <http://dx.doi.org/10.1007/s11199-009-9609-5>.
- Jung, J., & Lee, S.-H. (2006). Cross-cultural comparisons of appearance self-schema, body image, self-esteem, and dieting behavior between Korean and U.S. women. *Family and Consumer Sciences Research Journal*, 34(4), 350–365. <http://dx.doi.org/10.1177/1077727X06286419>.
- Keery, H., van den Berg, P., & Thompson, J. K. (2004). An evaluation of the Tripartite Influence Model of body dissatisfaction and eating disturbance with adolescent girls. *Body Image*, 1(3), 237–251. <http://dx.doi.org/10.1016/j.bodyim.2004.03.001>.
- Khandelwal, S., & Saxena, S. (1990). Anorexia nervosa in people of Asian extraction. *British Journal of Psychiatry*, 157, 174.
- Kim, O., & Kim, K. (2001). Body weight, self-esteem, and depression in Korean female adolescents. *Adolescence*, 26, 315–322.
- Kim, O., & Yoon, H. (2000). Factors associated with weight control behaviors among high school girls with normal body weight. *Journal of Korean Academy of Nursing*, 30, 391–401.
- Kitayama, S., & Markus, H. R. (2000). The pursuit of happiness and the realization of sympathy: Cultural patterns of self, social, relations, and well-being. In E. Diener, & E. M. Suh (Eds.), *Culture and subjective well-being* (pp. 113–161).
- Kitayama, S., Markus, H. R., & Lieberman, C. (1995). The collective construction of self-esteem: Implications for culture, self, and emotion. In J. Russell, J. Fernandez-Dols, T. Manstead, & J. Wellenkamp (Eds.), *Everyday conceptions of emotion: An introduction to the psychology, anthropology, and linguistics of emotion* (pp. 523–550). Dordrecht, The Netherlands: Kluwer Academic.
- Koronczi, B., Kókányei, G., Urbán, R., Kun, B., Pápay, O., Nagygyörgy, K., et al. (2013). The mediating effect of self-esteem, depression and anxiety between satisfaction with body appearance and problematic internet use. *The American Journal of Drug and Alcohol Abuse*, 39(4). <http://dx.doi.org/10.3109/00952990.2013.803111>, 295–265.
- Kwon, H., Yoon, L., Joormann, J., & Kwon, J. H. (2013). Cultural and gender differences in emotion regulation: Relation to depression. *Cognition and Emotion*, 27, 769–782.
- Lawler, M., & Nixon, E. (2011). Body dissatisfaction among adolescent boys and girls: The effects of body mass, peer appearance culture and internalization of appearance ideals. *Journal of Youth and Adolescence*, 40(1), 59–71. <http://dx.doi.org/10.1007/s10964-009-9500-2>.
- Lee, S., Chiu, H. F., & Chen, C. N. (1989). Anorexia nervosa in Hong Kong. Why not more in Chinese? *The British Journal of Psychiatry*, 154(5), 683–688.
- Lee, H., Lee, H. E., Choi, J., Kim, J. H., & Han, H. L. (2014). Social media use, body image, and psychological well-being: A cross-cultural comparison of Korea and the United States. *Journal of Health Communication*, 19, 1343–1358. <http://dx.doi.org/10.1080/10810730.2014.904022>.
- Levine, M. P., & Harrison, K. (2009). Effects of media on eating disorders and body image. In J. Bryant, & M. B. Oliver (Eds.), *Media effects: Advances in theory and research* (3rd ed., pp. 490–515). NY: Routledge/Taylor & Francis.
- Levine, M. P., & Smolak, L. (2002). Body image development in adolescence. In T. F. Cash, & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice*. New York: Guilford.
- Lewinsohn, P., Redner, J., & Seeley, J. (1991). The relationship between life satisfaction and psychosocial variables: New perspectives. In F. Strack, M. Argyle, & A. Schwarz (Eds.), *Subjective well-being: An interdisciplinary perspective* (pp. 141–169). New York, NY: Pergamon.
- Little, T. D. (2013). *Longitudinal structural equation modeling*. New York: Guilford Press.
- Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. Retrieved from: *Journal of Personality and Social Psychology*, 71(3), 616–628 <http://www.ncbi.nlm.nih.gov/pubmed/8831165>.
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98(2), 224–253.
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50, 370–396.
- Murray, K., Rieger, E., & Byrne, D. (2015). The relationship between stress and body satisfaction in female and male adolescents. *Stress and Health*, 31(1), 13–23. <http://dx.doi.org/10.1002/smi.2516>.
- Neumark-Sztainer, D., Paxton, S. J., Hannan, P. J., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *Journal of Adolescent Health*, 39(2), 244–251. <http://dx.doi.org/10.1016/j.jadohealth.2005.12.001>.
- Oh, Y.-H. (2004, July 29). *Korean women live to be thin and slim*. The Korea Herald.
- Park, S.-Y., & Cheah, C. S. L. (2005). Korean mothers' proactive socialisation beliefs regarding preschoolers' social skills. *International Journal of Behavioral Development*, 29, 24–34.
- Park, J. H., & Choi, T. S. (2008). The effect of body image on self-esteem in adolescents. *Korean Journal of Play Therapy*, 11(1), 117–129.
- Paxton, S. J., Neumark-Sztainer, D., Hannan, P. J., & Eisenberg, M. E. (2006). Body dissatisfaction prospectively predicts depressive mood and low self-esteem in adolescent girls and boys and low self-esteem in adolescent girls and boys. *Journal of Clinical Child and Adolescent Psychology*, 35(4), 539–549. <http://dx.doi.org/10.1207/s15374424jccp3504>.
- Polivy, J., & Herman, C. (1987). Diagnosis and treatment of normal eating. *Journal of Consulting and Clinical Psychology*, 21, 635–644.
- Pope, H., Phillips, K. A., & Olivardia, R. (2000). *The Adonis complex: The secret crisis of male body obsession*. Simon and Schuster.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891. <http://dx.doi.org/10.3758/BRM.40.3.879>.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42(1), 185–227. <http://dx.doi.org/10.1080/00273170701341316>.
- Rodin, J., Silberstein, L., & Striegel-Moore, R. (1985). Women and weight: A normative discontent. In T. B. Sondregger (Ed.), *Psychology and gender* (pp. 267–307). Lincoln: University of Nebraska Press.
- Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48(2), 1–36. URL: <http://www.jstatsoft.org/v48/i02/>.
- Smolak, L., & Levine, M. P. (2001). Body image in children. In J. K. Thompson, & L. Smolak (Eds.), *Body image, eating disorders, and obesity in youth: Assessment, prevention, and treatment* (pp. 41–66). Washington, DC: American Psychological Association.
- Smolak, L., & Murnen, S. K. (2001). Gender and eating problems. In R. H. Striegel-Moore, & L. Smolak (Eds.), *Eating disorders innovative directions in research and practice* (1st Ed., pp. 91–110). Washington, DC: American Psychological Association.
- Stice, E., & Bearman, S. K. (2001). Body-image and eating disturbances prospectively predict increases in depressive symptoms in adolescent girls: A growth curve analysis. *Developmental Psychology*, 37(5), 597–607. <http://dx.doi.org/10.1037/0012-1649.37.5.597>.
- Story, M., French, S., Resnick, M., & Blum, R. (1995). Ethnic/racial and socioeconomic differences in dieting behaviors and body image perceptions in adolescents. *International Journal of Eating Disorders*, 18(2), 173–179.
- Tiggemann, M. (2005). Body dissatisfaction and adolescent self-esteem: Prospective findings. *Body Image*, 2(2), 129–135.
- Triandis, H. C. (1989). The self and social-behavior in differing cultural contexts. *Psychological Review*, 96, 506–520.

- Wardle, J., Haase, A. M., & Steptoe, A. (2006). Body image and weight control in young adults: International comparisons in university students from 22 countries. *International Journal of Obesity*, 30(4), 644–651.
- Wichstrøm, L., & Soest, T. Von (2016). Reciprocal relations between body satisfaction and self- esteem: A large 13-year prospective study of adolescents \*. *Journal of Adolescence*, 47(7491), 16–27. <http://dx.doi.org/10.1016/j.adolescence.2015.12.003>.
- Zhao, X., Lynch, J. G., Jr., & Chen, Q. (2010). Reconsidering baron and kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197–206. <http://doi.org/10.1086/651257><http://doi.org/10.1016/j.cpr.2004.09.003>.