Original Article

Inter-relationship between self-perceived body image, self-esteem and depression: Is self-esteem a mediator? A cross-sectional study among young adults

Jayawardane, M. H.[1]*, Ali Jinnah, S.[2]

[1]Department of Psychology, Faculty of Health Science, KIU, Sri Lanka

[2]Global Technological Campus, Kohuwala, Sri Lanka

Abstract

Self-perceived body image (SPBI) is the key to experience personal value and worthiness of oneself and has a significant influence on young adults' psychological functioning and well-being. Most researches on this area focused on adolescent girls. Therefore, this study sought to examine the mediation role of self-esteem with young adults' SPBI and depression. If self-esteem is found to be mediated the poor body image and depression, then the treatment can be focused more on self-esteem. In this cross-sectional study, a sample of 186 young adults (age: 18- 30 years) responded to a battery of questionnaires, which measured demographic information, self-perceived body image (measured by Appearance Schemas Inventory-Revised ASI-R), self-esteem (measured by Rosenberg's Self-Esteem Scale RSES), and depression (measured by Beck's Depression Inventory-II BDI-II). Data were analyzed using Spearman's correlation, multiple regression analyses, and simple mediation analyses. Self-esteem was tested as a mediator between SPBI and depression. Results revealed that SPBI is significantly correlated with both self-esteem (r=-.17, p<.05) and depression (r=-.17, p<.05). Self-esteem is also negatively correlated with depression (r=-.57, p<.001). Simple mediation analysis was conducted using self-evaluative salience (SES), and motivational salience (MS), subscales of appearance schema inventory-revised (ASI-R), and results indicated that the relationship between SES and depression was fully mediated through self-esteem, whereas MS was not significant to self-esteem nor depression. There was a significant gender difference in SPBI (p<.001). Self-esteem is recommended as a screening tool for young adults' body satisfaction and psychological well-being. Therefore, the findings of this study indicate that early attention to self-esteem will be beneficial in reducing the symptoms of depression and body dissatisfaction in young adults.

Keywords : Self-perceived body image, self-esteem, depression, young adults, cross-sectional study, Sri Lanka

Introduction

Self-perceived body image is the first impression that is formed in one's mind. It involves how individuals see themselves when they look in the mirror, how they feel about their body, what they believe about their appearance, and how they sense their physical attractiveness. It is well known that outer beauty is one of the first individual characteristics that is mostly concerned by oneself and noticed by others (Pop, 2016). Individuals' view of their body image reflects how well a person prizes, values, approves, likes, and thinks about themselves (Frost & McKelvie, 2004). A positive image of their body is viewed as an important reason to enhance self-esteem and it is strongly associated with improving physical and psychological well-being (Mellor et al., 2010). Therefore, it is clearly revealed that a poor view of body image has been related to a broad range of psychological conditions such as poor self-esteem, poor self-confidence, depression, distorted eating patterns, and obesity (Darby et al., 2007; Jackson et al., 2014). A significant proportion of young adults internalize their ideal body image and struggle with their body image perception. Even though the extensive academic researches explore the body image concept (Duchesne et al., 2016; Ra & Cho, 2017; Hamilton, 2008; Pisitsungkagarn et al., 2014; Grossbard et al., 2009; Brennan et al., 2010; Pop, 2016; Mellor et al., 2010) less research studies have been carried out to reveal the mediation role of self-esteem with SPBI among young adults. Indeed, the need for psychological and physical care for body dissatisfaction and eating disorders has greatly increased in preceding years (Brechan & Kvalem, 2014; Brennan et al., 2010; Mellor et al., 2010). This is because, physical attractiveness and physical changes related to body shape, weight, and appearance act as leading causes for young adults' psychological well-being, physical well-being, and social interactions (Ra & Cho, 2017). Everyone's ultimate goal is to achieve an ideal body image. Therefore, striving for the ideal body can lead young adults to disregard their physical needs and engage in unhealthy behavioral patterns. Therefore, it requires to focus attention on the aspects of body image and related problems.

Self-perceived body image is described as a personalized, multidimensional construct that embraces an individual's self-perception and evaluation of his or her physical appearance (Cash et al., 2004). Body image attitudes, evaluative thoughts, and beliefs of oneself have significant influences on their cognitive, behavioral, and emotional well-being. People who considered themselves as attractive often have more favorable attitudes towards themselves than those who considered themselves as unattractive. This is known as the "halo effect" (Thorndike, 1920) because individuals who are more attractive tend to think positively about themselves compared to less attractive individuals. This concept is also known as the "what is beauty is good" stereotype (Brennan et al., 2010). In our society, physical attractiveness is viewed as central for gaining a better place in the social setting since it would add a significant

importance to positive self-esteem (Pop, 2016). Body image perception has a great place in self-worth, while body dissatisfaction has a great influence on both self-esteem and mood. Self-esteem is often defined as one's overall sensation of how worthy they are (Cherry, 2019). The evaluation of body image importance entails evaluations of self-worth, thus the inconsistencies between the real and ideal body image can be manipulated by controlling self-esteem (Mellor et al., 2010). For example, if an individual has negative attitudes towards his or her physical self, that person finds difficulty in accepting information that is opposing his/her beliefs. Likewise, if the individual has strong and positive attitudes, it is possible for him or her to accept the information which would reinforce his or her beliefs. Therefore, holding persistent negative beliefs may contribute to a lack of self-esteem by playing a central role in mental well-being. In present times, women's physical attractiveness often connects to attain a thin and attractive physical appearance, whereas, for men, it connects with a more muscular and mesomorph physique. Ideal appearance is often unattainable for average people, and therefore they become overwhelmed in coping with the disparity between real and ideal body image. Research studies have shown that body image incongruence has major issues that predominantly affect women (Brennan et al., 2010; Mellor et al., 2010; Duchesne et al., 2016). Consequently, dissatisfaction with their bodies seems to be higher in women compared to men, and they are more susceptible to value themselves lower and develop mood disorders (Brennan et al., 2010). Therefore, depression is one of the disturbances that closely link to body dissatisfaction. Major depression is the most severe form of depression, which may have the following symptoms: prolonged sadness, lethargy, loss of pleasure, changes in sleep and appetite, forgetfulness, poor self-worthiness, and suicidal thoughts (American Psychiatric Association, 2013). Therefore, the main purpose of this study is to gain a comprehensive understanding of the linkage between SPBI, self-esteem, and depression.

More specifically, the research was directed to achieve the following specific research objectives: to critically evaluate the inter-relationship between self-perceived body image, self-esteem, and depression to identify the mediation role of self-esteem between self-perceived body image and depression and lastly to compare the gender differences in young adults' perceived body image.

Methodology

A quantitative survey research method with a cross-sectional design was used in this study. This study consisted of young adults as a target population. The unit of analysis was young men (N=85) and women (N=95). Using G* power 3.1 version (Faul et al., 2009), a statistical power analysis was conducted to determine the sample size of this study, and it was determined that 115 participants were required to detect the medium effect ($f^2=0.15$) in the primary outcomes. A

total of 186 young adults participated in the current study, exceeding the minimum of 115 sample size. This list of young adults, age between 18 to 30 years served as the sampling frame for this study. The participants were selected from convenience sampling methods because of the conveniently available pool of respondents, proximity, and some eligibility criteria. Moreover, snowball sampling method was used to get the potential sample size. The eligibility criteria of this study were young adults who are literate, mentally stable, having no current medical diagnosis of body image disorders, and able to sign the informed consent form. A survey questionnaire was employed by 186 respondents on the sampling frame.

Data was gathered over three months from February to May 2018 using a battery of self-administered questionnaires. Before conducting the survey, from all participants, informed consent was obtained. Using an online basis and traditional paper-pencil method, the participants completed an assessment battery of three instruments and a demographic questionnaire. No incentives were given to participants to complete the questionnaire. All research procedures were approved by the Ethics Review Committee of Colombo International Institute of Higher Education and Coventry University regulations (ERC/BSPS18006).

Evaluation of self-perceived body image was assessed using the Appearance Schemas Inventory-Revised (ASI-R) (Cash et al., 2003), which is an extensive revision of Cash and Labarge's (1996) Appearance Schemas Inventory. Cronbach's alpha coefficient of the composite ASI-R scale of 0.90 is much similar to the previous reporting of Cash et al. (2003). Beck's Depression Inventory-II (BDI-II) (Beck et al., 1996) used to assess participant's depression, which is a revision of Beck et al.'s (1988) Depression Inventory. Cronbach's alpha coefficient of 0.89 is slightly lower than the value of 0.91 reported by Beck et al. (1996). Self-esteem was assessed using Rosenberg's (1965) Self-esteem Scale (RSES). Participants rated the extent to which they agreed with ten statements on a four-point Likert-type scale, ranging from 0 (Strongly Disagree) to 3 (Strongly Agree). Cronbach's alpha of RSES of 0.86 is closer to the previous study of Rosenberg (1965), showing satisfactory internal consistency.

Statistical Package for Social Sciences (SPSS) (Version 22) was used to examine the data. To ensure the eligibility of participants, a demographic information form was reviewed. The analysis procedure started with descriptive analysis, which examined the distribution, mean, median, and standard deviation of the scores for the variables. Spearman's correlations were computed to compare the correlation between SPBI, self-esteem, and depression. Subsequently, multiple linear regression analyses were performed to determine if any relationships existed. A simple mediation model, using PROCESS version 3.3 (Hayes, 2013), was conducted to verify the mediation effect of self-esteem between SPBI and depression.

Results and Discussion

Prior to the main analysis, the primary steps of statistical analysis were conducted. From the total of 186 final realized sample, only 180 were usable questionnaires because data from six of the participants were dropped from the study due to multivariate outliers. However, there was an adequate response rate of 97% for this study. All the completed questionnaires, therefore, were utilized to analyze. The sample consisted of young men (47.2%) and young women (52.8%) with an average age of 24.24 ± 2.73. The average weight and height for young women respectively were 56.48 kg ± 10.22 and 161.33 cm ± 9.16, whereas for young men were 74.84 kg ± 13.17 and 173.72 cm ± 8.81.

Multiple linear regressions were conducted to examine how SPBI and self-esteem can be used to predict depression. Prior to the analysis, the researcher ensured that regression met all five assumptions; linear relationship, normality, absence of multicollinearity, no auto-correlation, and homoscedasticity.

Table 1

Multiple Regression Results of Self-Perceived Body Image and Self-Esteem

Variables	B	SE	β	t	p
SES	-0.35	0.07	-0.48	-5.08	<.001
MS	0.29	0.07	0.39	4.15	<.001

Note: Measured self-perceived body image using subscales of ASI-R; SES & MS
R=0.39, R^2=0.156, F=4.55, p<.001

To test the relationship between SPBI and self-esteem, a multiple linear regression was conducted concerning ASI-R sub-scales of SES and MS as predictor variables and self-esteem as an outcome variable. Table 1 showed that both SES and MSre significant predictors of self-esteem, β= -0.48, t(179)= -5.08, p<.001 and β=0.39, t(179)= 4.15, p<.001 respectively. Therefore, the SPBI has a significant relationship with self-esteem was consistently supported by current findings. Predictive variables (SES and MS) of the Appearance Schema Inventory-Revised (ASI-R) were used to examine this association because that measures individuals' core beliefs about the importance, value, and efforts that one placed on their physical appearance (Cash et al., 2003). Supporting original findings of Cash et al. (2003), the current finding revealed that SES significantly predicted self-esteem with an inverse relationship while MS significantly predicted self-esteem with a positive relationship. That is when participants with higher SES tend to define themselves based on the beliefs they placed on their physical appearance. Their body image reflects how well they look and, how it feels and relates to their emotional experiences. The findings of this study supported the idea that the greater one concerns about their appearance, the more negatively they evaluate themselves (Rosenfield et al., 2006). Such self-evaluations are related insofar as they compare themselves with others and more likely to lower their self-esteem. Supporting Cash's (2011) cognitive-behavioral perspectives, these negative self-schemas are rooted as consequences of negative

Two simple mediation analyses were conducted to test the mediation effect of self-esteem in the relationship between SPBI (using the subscales of ASI-R; SES, and MS) and depression (Table 4). Results showed that SES negatively predicted self-esteem, $\beta=-0.16$, $t(179)=-3.01$, $p=.002$, and self-esteem negatively predicted depression, $\beta=-0.46$, $t(179)=-9.52$, $p<.001$. The direct path from SES to depression was not significant in the presence of self-esteem. Results further revealed that the indirect effect was significant (indirect effect=0.0786, SE=0.0318, CI [0.0158, 0.1418]), confirming the mediation role of self-esteem. Therefore, self-esteem fully mediated the relationship between SPBI (as measured by SES) and depression. Dysfunctional body image attitudes (SES) predicted depression only in the presence of self-esteem. Therefore, those who are with stronger dysfunctional attitudes towards their physical appearance affects lowering self-esteem, which in turn affects depression. Although dissatisfaction is important, meaning placed on appearance is pivotal for one's sense of self. Thus, negative self-evaluations are the true mediator for depression. Poor view of body image leads to a preoccupation with self-perceived flaws, and this could be the underlying mechanism for lowering self-esteem and provoking depressive affects. Unlike SES, MS was not a significant predictor of self-esteem ($\beta= 0.06$, $t(179)=1.10$, $p=.269$) nor depression ($\beta=-0.04$, $t(179)=-1.10$, $p=.270$). Therefore, the mediation effect of self-esteem was not significant between MS and depression (indirect effect=-0.0298, SE=0.0297, CI [-0.0884, 0.0291]). Since MS and depression were not mediated by self-esteem, further research needs to clarify this association.

The gender difference in SPBI was assessed using an independent sample t-test. The t-test was statistically significant, as the female group (M=3.36 ± 0.65) was significantly different, 95% CI [-0.492, -0.137], to male group (M=3.05 ± 0.53), $p<.001$. Dysfunctional body image attitudes are prominent among young women; therefore, they are more prone to experience negative body schemas, depression, and anxiety (Brennan et al., 2010). The results, therefore, confirmed the final objective as there was a significant gender difference in the way they view their body image. In line with past research, women are more vulnerable to experience negative body-schemas in more situations than young men, therefore they are more disposed to suffer from body dissatisfaction (Brennan et al., 2010; Grossbard et al., 2009). Further, gender differences are may due to the level of internalization of sociocultural appearance standards as women are more susceptible to the effect of social pressure associated with physical appearance (Brennan et al. 2010). Perhaps, men have more realistic expectations to achieve the male masculine ideal, while women engage in more unrealistic expectations to achieve the thin ideal (Mellor et al. 2010). Limitations of the present study include the fact that the findings are based on non-probability samples, thus limit the generalizability of findings and limit making inferences about populations. Therefore, future research should consider random sampling

to validate the findings. Furthermore, the present study examined the mediation role of self-esteem between SPBI and depression. Future research studies, therefore, need to be directed to identify the other psychological factors that mediate the relationship between SPBI and depression.

Implications
This study supports the existing literature, showing the vital role of self-esteem as a mediator between the relationship of SPBI and depression. The study may also contribute to understand the relationship between SES and MS with self-esteem and depression while stressing that SPBI varies somewhat and may not the same for men and women. Supporting self-concept theory (Craven & Marsh, 2000) and domain theory (Brechan & Kvalem, 2014), findings of the present study suggest that treatments for body dissatisfaction should be more focused on self-esteem rather than dysfunctional self-attitudes. Since it explains that body dissatisfaction influences the self-esteem of young adults, self-esteem can be targeted through body dissatisfaction. Understanding the real association may help clinicians to focus on true causes and decide the best therapeutic approaches for those who present depression. Since depression is the most prevalent mental illness in the world, findings from this study may offer clinicians to target more on SES and MS in treatments. For instance, by understanding that a high level of SES is linked to lowering self-esteem, clinicians may examine the causes for SES and recommend healthy behavioral interventions targeting the predictors of SES. Further, concerning the linkage of MS, it is therefore recommended to implement behavioral plans related to appearance management as it relates to enhance the actual self, which may increase self-efficacy. Since the results of this study confirmed the mediation role of self-esteem, the increase, and early attention on self-esteem may be warranted.

Conclusion
The findings from the current study confirm the existence of a relationship between SPBI, self-esteem, and depression, whereby the linkage between SPBI and depression can be explicated through self-esteem. Interestingly, this study found that the more participants described their self-esteem concerning their physical appearance, the more they shatter their self-esteem and experience depressive symptoms. The findings of the study further explained that attending, appreciating, and managing one's physical appearance may not always involve maladaptive appearance management behavior, but the investment in dysfunctional beliefs of one's body considerably affect one's life as it is central for one's sense of self-worth. Due to the dysfunctional body image attitudes, as well as sociocultural appearance standards, the findings may suggest that young women are more prone to experience negative body schemas, anxiety, and depression. Therefore, these findings may provide directions to researchers and clinicians to focus more on self-esteem.

self-evaluations, thus creating disruptive cognitive frameworks for physical appearance that directly impacts on individuals' self-esteem. However, those who are engaged in appearance-management (MS) behaviors to enhance attractiveness are not maladaptive as grooming behavior relates to achieving their actual self, which may boost their self-esteem. Thus, the more they are motivated to groom their behavior, the more they perceive their real self. Individuals who placed more value on managing appearance less likely to shatter their self-image. Consequently, their self-esteem may be unaffected or positively related to appearance-grooming behaviors.

Table 2
Multiple Regression Results of Self-Perceived Body Image and Depression

Variables	B	SE	β	t	p
SES	0.20	0.05	0.36	3.74	<.001
MS	-0.20	0.05	-0.35	-3.62	<.001

Note: Measured self-perceived body image using subscales of ASI-R; SES & MS
$R=0.38$, $R^2=0.144$, $F=4.14$, $p<.001$

To test the relationship between SPBI and depression, a multiple linear regression was conducted using SES and MS as predictor variables and depression as an outcome variable. Table 2 regression showed that these two variables were significant predictors of depression; SES, $\beta= 0.36$, $t(179)= 3.74$, $p<.001$ and MS, $\beta=-0.35$, $t(179)= -3.62$, $p<.001$. Results further supported that SES significantly predicted depression with a positive relationship, while MS negatively predicted depression. This means participants who are with higher SES tend to have a higher level of depression because their self-esteem often links with the negative beliefs about their physical appearance. Thus, it pointed out that disrupted self-image leads them to experience a significant amount of depression. Consistent with self-discrepancy theory, discrepancies between real and ideal self can be seen as failures, which may affect self-perception and self-esteem, causing them to experience emotional vulnerability, depression, and even suicides (Higgins, 1987; Kindrat, 2007). If they define their self-esteem based on their outer look (SES), the more likely they endure depression (Rosenfield et al., 2006). However, if the individuals attending to their appearance through appearance-grooming behavior (MS), the less they are to suffer from depressive symptoms. This is because, the act of grooming behavior relates to transforming their self-perceived selves into their actual selves, which may improve their perceptions of his or her body and reduce depressive symptoms. The negative relationship between MS and depression may be due to self-confidence and the ability to achieve the desired self. Thus, individuals with high MS levels are often found to be preoccupied with appearance-grooming behavior to achieve desired self. This explained that those who lack the beliefs about their ability to maintain SPBI are struggling with body image and depression.

Table 3
Linear Regression Results of Self-Esteem and Depression

Variable	B	SE	β	t	p
Self-esteem	-0.46	0.04	-0.58	-9.80	<.001

Note: $R=0.63$, $R^2=0.397$, $F=18.97$, $p<.001$

Correlation between perceived stress level and general self-efficacy among participants

To examine the relationship between self-esteem and depression, a simple linear regression was conducted using self-esteem as a predictor and depression as an outcome variable. Table 3 regression analysis showed that self-esteem significantly predicted depression, $\beta=-0.58$, $t(179)=-9.80$, $p<.001$. As proposed by Beck's (1987) cognitive theory, self-esteem had a negative effect on depression. The findings further supported the fact that more self-conscious participants are found to be negatively evaluative of their appearance and directly link with depression. It is therefore clearly projected that depression and self-esteem are intertwined and contribute to negative moods. Supporting the cognitive-behavioral perspective, depression is rooted in lower self-esteem (Beck, 1987), and negative self-evaluations are the most proximate psychological contributors to weaken self-esteem (Brennan et al., 2010). Thus, the more individuals dissatisfied with their body image, the more they experience weakened self-esteem and depression. Furthermore, cognitive theories of depression explained that negative evaluations are crucial for depression (Beck 1987), therefore self-esteem and depression are closely related even though depression can be caused by more than one thing.

Table 4
Total, Direct, and Indirect Effect of Self-Perceived Body Image (SES and MS) on Depression (Mediated via Self-esteem)

Path	Total effect	Direct effect	Indirect effect
SES ---▶DEP	0.079 (.075)	0.0008 (.983)	0.078 [0.015, 0.141]
MS ---▶ DEP	-0.070 (.122)	-0.0405 (.270)	-0.029 [-0.088, 0.029]

Note: Measured self-perceived body image using subscales of ASI-R; SES & MS
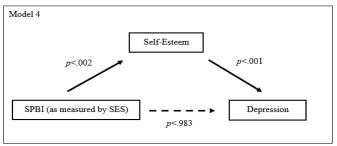SES= Self-Evaluative Salience, MS= Motivational Salience, DEP=Depression

Fig. 1. – Mediation Role of Self-Esteem between Self-Perceived Body Image (as measured by Self-Evaluative Salience) and Depression

References

American Psychiatric Association (2013). The Diagnostic and Statistical Manual of Mental Disorders (DSM- 5) (5th ed.)

Beck, A. T., Steer, R. A., Ball, R., & Ranieri, W. (1996). Comparison of Beck Depression Inventories -IA and -II in Psychiatric Outpatients. Journal of Personality Assessment, 67(3), 588-597.
https://doi.org/10.1207/s15327752jpa6703_13

Beck, A. T., Steer, R. A., & Carbin, M. G. (1988). Psycho-metric Properties of the Beck Depression Inventory: Twenty-Five Years of Evaluation. Clinical Psychology Review, 8(1), 77-100.
https://doi.org/10.1016/0272-7358(88)90050-5

Cash, T. F., Maikkula, C. L., & Yamamiya, Y. (2004). Baring the Body in the Bedroom: Body Image, Sexual Self-Schemas, and Sexual Functioning among College Women and Men. Electronic Journal of Human Sexuality, vol. 7.

Cash, T. F., Melnyk, S. E., & Hrabosky, J. I. (2004). The Assessment of Body Image Investment: An Extensive Revision of the Appearance Schemas Inventory. The International Journal of Eating Disorders, vol. 35, 305-316.

Cherry, K. (2019, May). What Exactly Is Self-Esteem? https://www.verywellmind.com/what-is-self-esteem-2795868

Craven, R. G., & Marsh, H. (Eds.). (2000). Self-Concept Theory, Research and Practice: Advances for the New Millennium. Sydney: Research Centre.

Darby, A. M., Phillipa, H., Mond, J. M., Rodgers, B., & Owen, C. (2007). Disordered Eating Behaviours and Cognitions in Young Women with Obesity: Relationship with Psychological Status. International Journal of Obesity, 31(5), 876-882. https://doi.org/10.1038/sj.ijo.0803501

Duchesne, A-P., Dion, J., Lalande, D., Bégin, C., Émond, C., Lalande, G., & McDuff, P. (2016). Body Dissatisfaction and Psychological Distress in Adolescents: Is Self-Esteem a Mediator? Journal of Health Psychology, 22(12), 1-7.
https://doi.org/10.1177/1359105316631196

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical Power Analyses Using G*Power 3.1: Tests for Correlation and Regression Analyses. Behavior Research Methods, 41(4), 1149-1160.
https://doi.org/10.3758/BRM.41.4.1149

Frost, J., & McKelvie, S. (2004). Self-Esteem and Body Satisfaction in Male and Female Elementary School, High School, and University Students. Sex Roles, 51(1/2), 45–54.

Hamilton, S. R. (2008). The Relationship Between Perceived Body Image and Depression: How College Women See Themselves May Affect Depression. Student Journal of Psychological Science, 1(1), 13-20.

Hayes, A. F. (2013). Introduction to Mediation, Moderation, and Conditional Process Analysis. New York: Guilford Press.

Higgins, E. T. (1987). Self-Discrepancy: A Theory Relating Self and Affect. Psychological Review, 94(3), 319-340.
https://doi.org/10.1037/0033-295X.94.3.319

Jackson, K., Janssen, I., Appelhans, B., Kazlauskaite, R., Karavolos, K., Dugan, S., Avery, E. F., Shipp-Johnson, K., Powell, L. H., & Kravitz, H. M. (2014). Body Image Satisfaction and Depression in Midlife Women: The Study of Women's Health Across the Nation (SWAN). Archives of Women's Mental Health, 17(3), 77–187.
https://doi.org/10.1007/s00737-014-0416-9

Mellor, D., Fuller-Tyszkiewicz, M., McCabe, M. P., & Ricciardelli, L. A. (2010). Body Image and Self-Esteem Across Age and Gender: A Short-Term Longitudinal Study. Sex Roles, vol. 63, 672–681.

Pop, C. (2016). Self-Esteem and Body Image Perception in a Sample of University Students. Eurasian Journal of Educational Research, 64, 31-44.

Rosenberg, M. (1965). Society and the Adolescent Self-Image. New Jersey: Princeton University Press.

Rosenfield, S., Lennon, M. C., & White, H. (2006). The Self and Mental Health: Self-Salience and the Emergence of Internalizing and Externalizing Problems. Journal of Health and Social Behavior, 46(4), 323-340.
https://doi.org/10.1177/002214650504600402

Thorndike, E. L. (1920). A Constant Error in Psychological Ratings. Journal of Applied Psychology, 4(1), 469-477.