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ORIGINAL ARTICLE

Autonomous-related self, eating attitude and body satisfaction in young females

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Abstract
Purpose This research aimed to investigate the relationship between the self, eating attitudes, and body satisfaction within the framework of the autonomous-related self model, in which the healthy functioning self is described as "autonomous" and "related."
Methods Female university students ($n = 314$) with a mean age of 19 (SD = 1.18) were included in the research. The mean body mass index (BMI) of participants was 20.77 (SD = 2.77, range = 15.57–33.06). Participants completed a demographics questionnaire, the Autonomy-Relatedness Scales, Eating Attitudes Test, Body Cathexis Scale, and Beck Depression Inventory.
Results Lower autonomy-relatedness ($\beta = -0.13$, $p < 0.05$) predicted more problematic eating attitudes, but autonomy-relatedness itself was not a significant predictor of body satisfaction in young females. Ideal weight scores ($\beta = -0.19$, $p < 0.01$) negatively predicted a disturbance in eating attitudes, whereas depression scores ($\beta = 0.12$, $p < 0.05$) positively predicted a disturbance. Although none of the self-constructs (autonomy, relatedness, autonomy-relatedness) were significant predictors of body satisfaction, BMI ($\beta = -0.20$, $p < 0.001$), and depressive symptoms ($\beta = -0.28$, $p < 0.001$) negatively predicted body satisfaction, whereas ideal weight scores ($\beta = 0.14$, $p < 0.01$) positively predicted body satisfaction.
Conclusions The Autonomous-Related Self was a meaningful measure of associations between the self and eating psychopathology, but not of the relationship between the self and body satisfaction. It was also important to evaluate objective (e.g., BMI) and subjective (e.g., ideal weight) indicators of weight to better understand the nature of eating patterns and body satisfaction. Future research on autonomy-relatedness and other psychopathology is recommended.

Keywords Autonomous-related self · Body satisfaction · Eating attitudes · Self-construct · Young adult females

Introduction

Feeding and eating disorders (FEDs) continue to be a burden on society, with negative effects in affected individuals ranging from physical and psychological health problems to fatal outcomes. Consistent with DSM-5 criteria, a recent study reported that, considering onset by age 20, the lifetime prevalence of anorexia nervosa (AN) was 0.8 %, while it was 2.6 % for bulimia nervosa (BN) [1]. Among the most prevalent characteristics of FEDs were subjective overeating, objective overeating, extreme concerns about dietary intake, and extreme concerns about weight and shape [2].

Weight control, weight gain, compensation behaviors, and psychological problems related to the FEDs are common, especially among adolescents and young adults [3]. The periods of adolescence and transition to young adulthood are critical for problematic eating attitudes, as dramatic changes occur in the physical, cognitive, and life domain. For many young adults, one of the most challenging developmental tasks of the early pubertal period is adapting to the changes in physical appearance that take place. Sometimes, eating problems may be reactions to these physical changes, as expressed by body dissatisfaction [4], while self-challenges of autonomy-independence issues during this period may further worsen the adaptation

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process [5]. The transition to young adulthood occurs during the late adolescent period via changes in the life domain. Such changes include leaving home (e.g., to attend college), reduced social support, increased dating and pressure to form sexual relationships, academic and career pressures, and identity exploration and instability [6]. Hence, the transition from late adolescence to young adulthood entails stressors in the form of physical development and psychological self-formation. The added stress may play a role in disordered eating patterns.

In early literature, AN and BN were defined as disorders of the self [7]. It was posited that adolescents start to use their body weight as a highly salient, personally controllable, and culturally valued domain as a source of self-definition, to overcome feelings of powerlessness and the lack of a clear identity. Using weight as a source of self-compensation may occur when parenting limits opportunities for autonomous functioning and interferes with the development of one's sense of self [8]. This theoretical formulation has generated much past research focusing on the association between self-concept and eating disorders, with different conceptualizations of the self [9, 10]. Generally, research exploring the association between the self and eating disorders has not been based on a theoretical model of self, while also neglecting to use clear and measurable definitions of the self-related constructs [7]. Consequently, a majority of past research has focused on either the measurement of global feelings toward the self (for example positive or negative self-schemas, self-competence, etc.) or self-esteem [11]. Though these researches have accumulated information about the association between negative views of self and eating psychopathology, they lack to provide links between a comprehensive model of self and eating disorders.

The Autonomous-Related Self (ARS) Model [12–14] supports the view that both autonomy and relatedness are necessary for healthy functioning and that a complete separation or detachment from significant others is not conducive to healthy self-development. Development of autonomy implies two different, but compatible, dimensions. The first dimension is the degree of interpersonal distance and lies between two extreme poles of separateness and relatedness. The second dimension concerns the degree of agency and is anchored between autonomy and heteronomy [12]. The ARS model proposes four different types of self: autonomous-related, autonomous-separated, heteronomous-related, and heteronomous-separated (see Fig. 1). The types of self are not categorical; that is, what matters is where individuals fall on the continuums of interpersonal distance and agency. Therefore, self-development shows differences in autonomy and relatedness, and the development of self is determined by the environment in which the child is grown up [15]. In this sense, it can be claimed that the ARS model provides a comprehensive model of self-development.

Though the main focus of this research is on the ARS model and the eating attitudes of young females, body dissatisfaction, defined as a form of weight worry [16], falls within the scope of this research as well. Body dissatisfaction is high in female patients with eating disorders [17]. Research reported that girls who were low in autonomy experienced more desire for thinness and were less confident in their bodies [18]. Therefore, it may not be enough to just focus on sociocultural (e.g., family, friends, media) or biological (e.g., BMI, age) factors to understand body satisfaction. Instead, it would be informative to evaluate the relationships between body satisfaction and psychological variables like the ARS.

Within this theoretical background, the basic aim of the present research was to assess whether autonomy-relatedness is associated with the eating attitudes and body satisfaction of young female participants. Since depressive symptoms and eating psychopathology are often comorbid [19, 20], depressive symptom severity with some weight-related indicators (BMI and ideal weight scores) was assessed for controlling them.

Method

Participants

In the present research, a non-clinical sample of young females was included. The sample comprised 314 university students with the mean age of 19 (SD = 1.18). To tap into the period of young adulthood, they were mainly preparatory or first-year students. The majority of the participants (68.5 %) were from middle-class families. Their mean height was 1.65 m (SD = 0.06), and their mean weight was 56.33 kg (SD = 7.97). The number of participants who thought they were at their ideal weight was 135 (43 %), whereas 177 (56.4 %) participants indicated they were overweight. The body mass index (BMI) and average ideal weight desired by participants was 20.77 (SD = 2.77, range = 15.57–33.06) and 54.22 kg (SD = 6.84), respectively. According to the World Health Organization's criteria for BMI, 19.1 % of the participants were underweight, 70.1 % at a healthy weight, and 8.3 % overweight. Only 1.6 % of them reported having a physical problem, generally related to the eyes (e.g., being myopic), while 9.2 % indicated a chronic health condition (e.g., asthma, thyroid). In addition, 8.9 % of the participants reported using the pharmacy regularly, but no one reported being diagnosed with a psychological or psychiatric disorder.

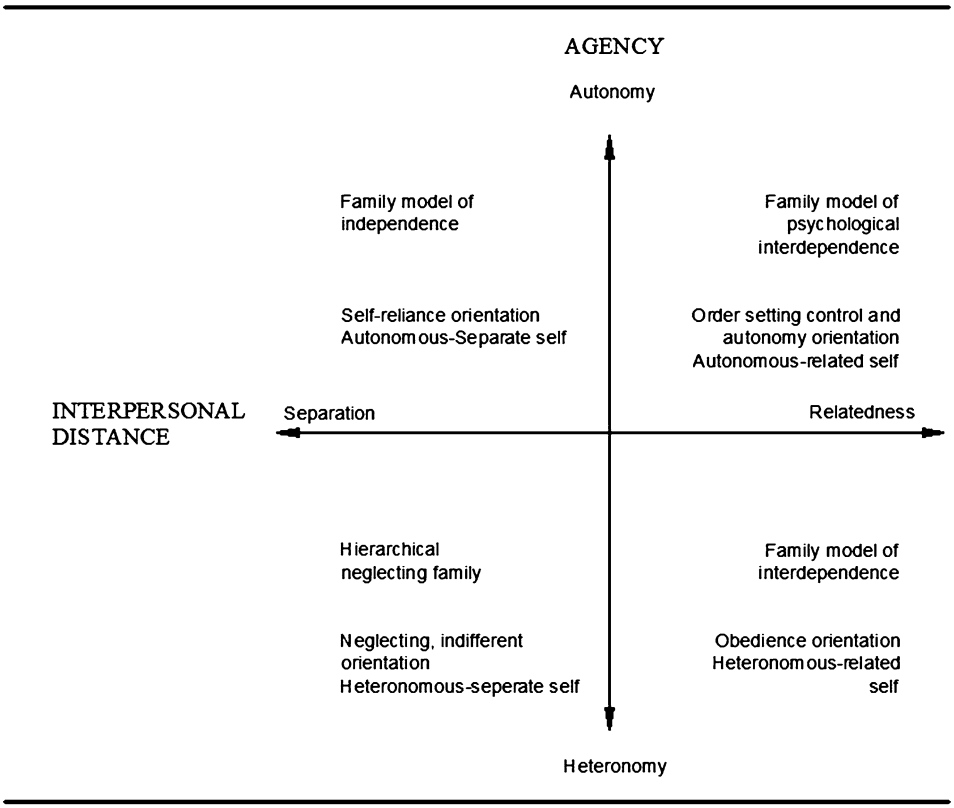

Fig. 1 Agency, interpersonal distance, and the types of Selves and families. Adapted from 'Autonomy and Relatedness in Cultural Context: Implications for Self and Family' by Kagitcibasi [13]. Copyright [2005] by Sage Publications. Adapted with permission

Materials

Demographics questionnaire

The researchers of the study designed a questionnaire to collect socio-demographic characteristics of the sample (e.g., age, gender, education level) and several other measures (e.g., height, current weight, desired ideal weight, general health).

Autonomy-relatedness scale

Three scales, tapping the related self, autonomous self, and autonomous-related self, were developed by Kagitcibasi to assess autonomy (A) and relatedness (R). Each scale is composed of nine items that participants rate from 1 (not true at all) to 5 (completely true) [13]. The highest possible score for each scale is 45. The autonomous self scale measures agency (e.g., "I feel independent of the people who are close to me"), while the related self scale assesses interpersonal distance (e.g., "My relationships to those who are close to me make me feel peaceful and secure"). To evaluate both autonomy and relatedness on a single scale, the Autonomous-Related Self scale (e.g., "A person can feel both independent and connected to those who are close to him/her") can be used. Higher scores on the autonomous-related self scale indicate people who are autonomous and related at the same time. In the original study, the reliability coefficients of the related self, autonomous self, and autonomous-related scales were 0.78, 0.74, and 0.84, respectively [15]. In the present research, Cronbach's alpha values were found 0.72 for related self, 0.78 for autonomous self, and 0.72 for autonomous-related self scales.

Eating attitudes test-40 (EAT-40)

The eating attitudes test-40 (EAT-40) was developed as an objective and valid index of symptoms frequently observed in AN [21]. The EAT-40 contains 40 items, and participants respond from 0 (never) to 3 (always). It can be used to diagnose patients with clinical-level eating disorders, as well as people who are vulnerable to eating psychopathology. To discriminate between participants who have problematic eating attitudes during the original test development, a cutoff score of 30 was suggested [21], although some studies have suggested a lower threshold of 25 [22]. Higher total scores on the EAT-40 indicate the severity of the disturbances in participants' eating attitudes. The EAT-40 was adapted into Turkish by Savasır and Erol and revealed good psychometric indicators [23]. In the present research, Cronbach's alpha coefficient of EAT-40 was 0.75.

Body cathexis scale (BCS)

This scale was developed by Secord and Jourard to evaluate the extent to which people are satisfied with their various body parts and functions [24]. The scale contains 40 items rated from 1 (I do not like at all) to 5 (I really like). The lowest score is 40 and the highest is 200; higher scores indicate more body satisfaction. The Turkish version of this scale and its validity indicators were developed by Hovardaoğlu [25]. The present research showed BCS with Cronbach's alpha value of 0.94 was a reliable measure in this sample.

Beck depression inventory (BDI)

The BDI is composed of 21 items that assess vegetative, emotional, and motivational symptoms of depression. Higher scores indicate more severe depressive symptoms. Studies to validate and standardize the BDI in Turkish were conducted by Hisli [26] and indicated good psychometric qualities [27]. The present research indicated the Cronbach's alpha value of BDE was 0.90.

Procedure

Materials were administered after receiving approval from the Hacettepe University Ethics Committee and the Middle East Technical University Human Subject Ethics Committee. Both affiliated universities are located in Ankara, Turkey. After reading a brief description of the purpose of the research, the participants signed an informed consent form. There was no compensation for participation, and participants who did not refuse to participate were included in the research. Completion of the questionnaires required 10 min, and all the questionnaires were administered during course hours with the approval of the course instructors.

Data analysis

SPSS Version 20 was used to complete data analyses. A preliminary analysis was done to check the assumptions of running hierarchical regression analyses. Frequency distributions, homoscedasticity of variance, and outliers along with other assumptions were explored [28]. All variables revealed a normal distribution, while homoscedasticity of variance was not violated. However, 13 univariate outliers in terms of standardized z-scores were eliminated, according to the statistical rule of ± 3.29, resulting in 314 participants. Further preliminary analysis showed that after the exclusion of these univariate outliers, there were no multivariate outliers with respect to the criteria set by Field [28]. Confidence intervals were calculated at the 95 % confidence level.

We ran two hierarchical regression analyses. Autonomy, relatedness, autonomy-relatedness, depression, ideal weight scores, and BMI were independent variables, while eating attitudes and body dissatisfaction were included as the dependent variables in the first and second analysis, respectively. BMI, ideal weight, and depression scores were entered at Step 1. Autonomy, relatedness, and autonomy-relatedness were entered to the models at Step 2 in each analysis.

Table 1 Means of autonomy, relatedness, autonomy-relatedness, eating attitudes, body satisfaction, and depression

	Mean (M)	Standard deviation (SD)
Autonomy	26.67	4.64
Relatedness	32.92	4.63
Autonomy-relatedness	35.86	4.57
Eating attitude	14.38	7.54
Body satisfaction	144.13	22.26
Depression	10.26	8.94

Results

The mean and standard deviations of the measured variables are presented in Table 1. The mean scores of eating attitudes ($M = 14.38$), body satisfaction ($M = 144.13$), and depression ($M = 10.26$) were considered normal for a non-clinical population. 19.7 % of participants got BDI scores showing clinically significant depressive symptom level (cutoff = 17) [27] while 8 % of them had EAT-40 scores indicating significant level of disturbance (cutoff = 25) [22]. 2.5 % of the participants had both clinically significant depressive symptoms and problematic eating attitudes.

Pearson correlation analyses were run to indicate which variables were correlated with each other (see Table 2). Additionally, because we predicted that ideal weight and BMI might influence eating attitudes and body satisfaction, these two variables were also included in correlational and hierarchical regression analyses. According to the results, though autonomy did not correlate with eating attitudes, autonomy-relatedness ($r = -0.14$, $p = 0.010$), relatedness ($r = -0.14$, $p = 0.014$), depressive symptoms ($r = 0.15$, $p = 0.006$), ideal weight ($r = -0.17$, $p = 002$), and body satisfaction ($r = -0.13$, $p = 0.025$) were correlated significantly with eating attitudes. Body satisfaction correlated significantly with BMI ($r = -0.15$, $p = 0.008$) and depressive symptoms ($r = -0.29$, $p = 0.000$). Last, ideal

Table 2 Pearson correlation table for variables

	Autonomy	Relatedness	Autonomy-relatedness	Eating attitudes	Body satisfaction	Depression	Ideal weight	BMI
Autonomy		−0.47***	0.08	0.11	0.04	0.05	−0.09	−0.07
Relatedness			0.39***	−0.14*	0.07	−0.10	0.02	−0.04
Autonomy-relatedness				−0.14*	0.05	−0.11	−0.04	−0.10
Eating attitudes					−0.13*	0.15**	−0.17**	0.03
Body satisfaction						−0.29***	0.10	−0.15**
Depression							−0.07	−0.03
Ideal weight								0.33***
BMI								

Reliabilities for each measure are given on the diagonal

BMI body mass index

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 3 Summary of hierarchical regression results for variables predicting eating attitudes

	B	*SE B*	*β*	Sr^2	*F*
Step 1					
BMI	0.28	0.16	0.10	0.01	6.58***
Ideal weight	−0.31	0.09	−0.20**	0.03	
Depression	0.12	0.05	0.14**	0.02	
Step 2					
BMI	0.25	0.16	0.09	0.01	4.86***
Ideal weight	−0.30	0.09	−0.19**	0.03	
Depression	0.10	0.05	0.12*	0.01	
Autonomy	0.14	0.11	0.09	0.00	
Relatedness	−0.04	0.12	−0.03	0.00	
Autonomy-relatedness	−0.21	0.10	−0.13*	0.02	

Adj. $R^2 = 0.05$ for Step 1, $\Delta R^2 = 0.02$ for Step 2 ($p < 0.05$)

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 4 Summary of hierarchical regression results for variables predicting body satisfaction

	B	SE *B*	*β*	Sr^2	*F*
Step1					
BMI	−1.68	0.46	−0.21***	0.03	15.04***
Ideal weight	0.68	0.26	0.14*	0.01	
Depression	−0.71	0.13	−0.28***	0.08	
Step 2					
BMI	−1.63	0.46	−0.20***	0.03	7.94***
Ideal weight	0.70	0.26	0.14**	0.02	
Depression	−0.71	0.13	−0.28***	0.08	
Autonomy	0.47	0.31	0.10	0.00	
Relatedness	0.42	0.33	0.09	0.00	
Autonomy-relatedness	−0.15	0.30	−0.03	0.00	

Adj. $R^2 = 0.12$ for Step 1, $\Delta R^2 = 0.01$ for Step 2 ($p > 0.05$)

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

weight scores were correlated significantly with BMI ($r = 0.33$, $p = 0.000$).

Results of the first hierarchical regression analysis (see Table 3) indicated that ideal weight scores [t (310) = −3.36, $p < 0.01$] and depressive symptoms [t (310) = 2.63, $p < 0.01$] emerged as significant predictors of eating attitudes in the first step [$R = 0.24$, Adj. $R^2 = 0.05$, F (3,310) = 6.58, $p < 0.001$] and they explained 5 % of variance in problematic eating attitudes. In the second step, it was found that only autonomy-relatedness, as a self-construct, [t (307) = −2.01, $p < 0.05$] was a significant predictor [$R = 0.29$, Adj. $R^2 = 0.07$, F (6,307) = 4.86, $p < 0.001$] and the explained variance change in R^2 was 0.02 ($p < 0.05$) with the unique contribution of autonomy-relatedness to the model predicting problems in eating attitudes. Unlike autonomy-relatedness ($\beta = -0.13$, $p < 0.05$) and ideal weight scores ($\beta = -0.19$, $p < 0.01$) which were negatively associated with problems in eating attitudes, depressive symptoms ($\beta = 0.12$, $p < 0.05$) was positively associated with disturbances in eating attitudes.

Findings of the second hierarchal regression analysis (see Table 4) showed that BMI [t (310) = −3.67, $p < 0.001$], ideal weight scores [t (310) = 2.57, $p < 0.05$], and depressive symptoms [t (310) = −5.36, $p < 0.001$] were all significant predictors of body satisfaction in the first step by explaining 12 % of variance in body dissatisfaction [$R = 0.36$, Adj. $R^2 = 0.12$, F (3,310) = 15.04, $p < 0.001$]. In the second step, results displayed that none of the self-constructs reliably contributed to prediction of body dissatisfaction after controlling for BMI, ideal weight scores, and depressive symptoms.

Discussion

The purpose of this research was to evaluate whether autonomy-relatedness predicts problematic eating attitude and body dissatisfaction after controlling for BMI, ideal weight scores, and depressive symptoms. The results indicated that lower autonomy-relatedness and ideal weight, and higher depressive symptoms predict problematic eating attitudes. With respect to body dissatisfaction, higher BMI and depressive symptoms, and lower ideal weight but not autonomy-relatedness predict body dissatisfaction.

These results support the hypothesis that young females with higher autonomous-relatedness would have fewer problems in eating attitudes. Our findings are consistent with previous studies indicating that individuals whose needs for autonomy and relatedness are satisfied have healthy diet habits [29], and individuals whose needs for autonomy and relatedness are restrained have unhealthy weight control behaviors [30], and display more eating disorder symptoms [31] and more binge eating behaviors [32–34]. Although the contribution of autonomy-relatedness to the problems in eating attitudes was low in terms of explained variance in this research, this may be because we used a non-clinical university sample. Though normally functioning young females may ideally try to lose weight and be depressed about their physical appearance, issues with agency and interpersonal distance may be bigger concerns for clinically diagnosed patients with eating disorders. The ideal weight for which young females strive and depressive symptomatology were also statistically influential in eating-related problems in the expected directions. However, BMI was not a significant predictor of disturbances in eating attitudes, which may stem from the fact that it is an objective standard of measuring weight, while problems in eating attitudes may originate from a subjective way of the extent to which a person feels overweight. To support this, ideal weight scores showing a trend toward losing weight, even for participants of normal weight, were more influential in predicting problematic eating attitudes. This finding implied the importance of evaluating subjective indicators (e.g., ideal weight scores, perception of current weight) as much as objective indicators (e.g., current weight, BMI) in eating disorder research.

We expected to find significant relationships between autonomy-relatedness and body satisfaction; however, our results contradicted the expectations and findings of previous studies [35–38]. Instead of autonomy-relatedness, ideal weight, BMI, and depressive symptomatology explained the variance in body satisfaction in the expected direction. This might stem from the fact that variables related to weight (e.g., BMI, ideal weight scores) could be more powerful in the prediction of body satisfaction. The relationship between self-constructs and body satisfaction may become statistically significant with the inclusion of a mediator or moderator. Future work should continue to investigate the relation between autonomy-relatedness and body satisfaction, especially in clinical samples.

Limitations of the current study should be noted. Although the Autonomous-Related Self Model provides some implications about family context, this research did not assess the family background of its young female participants. It is recommended that family background should be assessed together with the self-constructs and eating psychopathology. Additionally, only young female subjects participated in the current research. Future research should examine the relationships between the autonomous-related self, eating attitudes, and body satisfaction with a larger clinical sample, including younger adolescent participants and both sexes. Another limitation was the use of self-report measures as no structured interviews were used. Results with self-report measures can be biased. In particular, structured interviews should be used while assessing clinically important variables like eating disturbances. Last, potential mediator and moderator variables should be investigated to better understand the relations between the self and healthy functioning. In the current research, a measure of eating attitudes was employed as the indicator of healthy functioning. Future studies with different indicators are warranted.

Hence, as proposed by the autonomous-related self model, our results support the necessity of autonomy and relatedness coexisting for well-being. The indicated association between autonomous-related self and problematic eating attitudes may imply that constructs of autonomy and relatedness are proximal measures of self. Autonomous-related self being defined as healthy functioning human model may be parsimonious and comprehensive way of measuring self with respect to eating psychopathology.

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Conflict of interest On behalf of all the authors, the corresponding author states that there is no conflict of interest.

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