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Demographic and Family Factors Associated with Body Image Dissatisfaction among Adolescents in Tehran

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Abstract

Objective: Body image dissatisfaction is a prevalent concern among adolescents, with potential implications for mental and physical health. Understanding its correlates in diverse cultural contexts, such as Iran, is crucial for developing targeted interventions. This study aimed to investigate the demographic {Body Max Index (BMI), gender, etc.} socioeconomic status and family structure associated with body image dissatisfaction in a sample of adolescent students in Tehran, Iran.

Method: This cross-sectional study included 1,430 students (grades 7, 8 and 9) from randomly selected schools in Tehran. Body image dissatisfaction was assessed using a validated international questionnaire measuring demographics, body perceptions, eating patterns, and family structures. Self-reported weight height values were used to calculate BMI. Misperceived body status was defined as discordance between self-perceived image and actual BMI category. Statistical analyses included chi-square tests, t-tests, and multivariate regression (SPSS v26).

Results: A total of 1, 430 participants completed the questionnaires and the mean age of participants was (14.13 ± 1.2), and 54.8% were females and 785 males (54.9%). The findings revealed that 59.1% of adolescents misperceived their body status. Female gender (OR = 1.5, 95% CI: 1.18–1.90, P = 0.001), lower family SES (socioeconomic status) (OR = 4.27, 95% CI: 1.87–9.74, P < 0.001), higher BMI (OR = 1.09, 95% CI: 1.06–1.12, P < 0.001), and non-biological family structures (OR = 0.79, 95% CI: 0.26–2.3, P = 0.05) were significantly associated with body dissatisfaction. Students living with stepparents or relatives reported lower body satisfaction compared to those living with biological parents. These findings underscore the importance of gender, socioeconomic status, family structure, and BMI as key factors influencing body image dissatisfaction among adolescents.

Conclusion: These findings highlight the importance of gender, socioeconomic status and family structure in body dissatisfaction among adolescents. Importantly, these findings reflect the heightened challenges facing youth in the post-COVID-19 era, during which lifestyle changes, increased social media exposure, and altered social interactions have intensified body image concerns. Further research is needed to explore this correlation in more detail and to develop culturally appropriate interventions to promote positive body image.

Key words: *Adolescents; Body Image; Body Mass Index (BMI); Dissatisfaction; Eating Disorders*

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Body image, is a multifaceted construct encompassing perceptions, feelings, and attitudes toward one's body. Body image dissatisfaction, a discrepancy between one's perceived and ideal body, is a significant concern among adolescent students, profoundly influencing their mental health and eating behaviors. Research suggests that body image is influenced by a complex interplay of particularly exposed to societal pressures, media portrayals, and peer comparisons that shape their perceptions of self-worth and attractiveness (1–3).

Body Image Dissatisfaction (BID) and Body Dysmorphic Disorder (BDD) are related but distinct constructs concerning individuals' perceptions of their physical appearance. BID refers to a subjective, negative evaluation or dissatisfaction with one's body shape or size, commonly observed during adolescence and influenced by various psychosocial factors (4). In contrast, BDD is a clinically recognized mental disorder listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) characterized by a preoccupation with one or more perceived defects or flaws in physical appearance that are either unobservable or appear slight to others. This preoccupation causes significant distress or impairment in social, occupational, or other areas of functioning (5).

While BID is prevalent in the general population and often considered a risk factor, BDD represents a severe psychopathology with obsessive-compulsive features, where the individual's perception is severely distorted and accompanied by repetitive behaviors such as mirror checking or excessive grooming (6). Research shows that BID can be a precursor to or exist along a continuum with BDD symptoms; however, not all individuals with BID meet the clinical criteria for BDD (7). Both conditions share features such as body dissatisfaction and concerns about appearance but differ in intensity, clinical impairment, and diagnostic criteria.

Therefore, understanding BID in adolescents is critical, as high levels of dissatisfaction can escalate to more severe body image disorders like BDD, highlighting the need for early identification and preventive interventions (8, 9).

In Western societies, media exposure and sociocultural pressures to conform to thin ideals have been identified as significant contributors to body image concerns, especially among girls. There are studies indicating that a growing number of adolescents' report dissatisfaction with their body image. For instance, a longitudinal survey conducted in southern Brazil shows a notable increase in body dissatisfaction from 65.2% in 2007 to 71.1% in 2018, representing a 9.2% rise over the decade (10). Iran, with its unique cultural and social environment, provides an important setting for investigating body image issues among adolescents. Traditional family values, gender roles, and media influences may shape body image perceptions differently than in Western countries.

Some research in Iran indicates that a substantial percentage of Iranian adolescents misperceive their weight status, which can contribute to body image dissatisfaction and unhealthy eating behaviors. A nationwide study of Iranian children and adolescents found a high prevalence (60%) of weight misperception, which was associated with psychological distress and unhealthy dietary patterns (11, 12). The consequences of body image dissatisfaction can be severe, leading to diminished self-esteem, increased anxiety and depression, and disrupted eating patterns. Adolescents grappling with negative body perceptions may resort to unhealthy behaviors such as disordered eating or excessive exercise in an attempt to conform to perceived ideals (13, 14). The COVID-19 pandemic has significantly altered the dynamics of adolescent lifestyles and dietary patterns (15). A major factor contributing to these changes was the decrease in physical activity, which worsened due to lockdowns and social distancing measures. Many adolescents experienced a drastic reduction in physical activity levels, coupled with increased screen time and irregular sleep patterns. This heightened sedentary lifestyle, combined with poor dietary patterns, was linked to increased weight gain during and after the pandemic, leading to body shape distortion and body image dissatisfaction. This situation highlights the importance of maintaining a healthy body weight and fostering positive self-esteem among adolescents (16, 17).

Family structure, particularly whether adolescents reside with biological parents, stepparents, or other relatives, significantly influences their confidence and self-perceptions, including body image. Research in Iran demonstrates that family communication profoundly affects how adolescents perceive their weight and body image, impacting their psychological well-being and relationship with food. For example, a study in Isfahan found that better family functioning correlates with higher self-esteem among female high school students. Similarly, research on obese females confirmed that family communication and function directly affect psychological well-being and body image satisfaction, and indirectly affect psychological well-being through self-esteem and depression (18). Supportive parental figures promote healthier food intake, weight control, and positive body image perceptions, highlighting the importance of familial relationships in fostering positive self-esteem and body image (19, 20). A supportive family environment fosters a positive self-image and healthy eating patterns, while negative influences in unstable family environments can contribute to body dissatisfaction and unhealthy eating behaviors. Addressing these aspects is essential for developing strategies to support adolescents in fostering a healthier relationship with food and improving their body perceptions (21, 22). Socioeconomic status (SES) is another important factor influencing body dissatisfaction, with complex patterns that may vary

according to gender, weight status, and cultural context. For instance, research in Iran has shown that women with higher educational attainment and income report better body image, suggesting a positive relationship between SES and body image perceptions (23). Conversely, a study from Germany found that body weight dissatisfaction is more prevalent among obese and pre-obese men with higher SES—particularly those with higher education, income, and occupational status—while this pattern is less consistent among women (24). Overall, most studies indicate that adolescents from lower SES backgrounds tend to have higher rates of excess weight and related body dissatisfaction, highlighting the role of social inequalities in shaping body image concerns (25, 26).

This study targeted adolescents in grades 7-9 to investigate body image dissatisfaction and dietary patterns among middle school students in Tehran. This age group (typically 13-15 years) represents a critical period for developing body image and self-esteem (27). Moreover, body image concerns tend to increase during early adolescence (28). Despite the critical nature of this developmental window, there is a notable lack of data on body image issues among Iranian adolescents in this specific age group.

This study was developed to determine the prevalence of body image dissatisfaction among adolescents in grades 7-9 in Tehran and to examine how demographic factors and family structures play a crucial role in shaping adolescents' perceptions of their bodies, as well as how these dynamics may influence future health trends and interventions for adolescents. This study also aims to identify potential psychosocial correlates that may contribute to body image concerns in this population, providing insights to inform culturally appropriate interventions aimed at promoting positive body image and mental well-being among Iranian adolescents particularly in the context of lifestyle and social changes following the COVID-19 pandemic.

Materials and Methods

Study design

This study was designed as a cross-sectional school survey. We utilized a multi-stage cluster sampling method to select 20 schools from five districts in Tehran: north, south, west, east, and central. This selection was based on the socioeconomic status of different regions within the city, as studies have indicated significant disparities in socioeconomic development among urban districts of Tehran (29). In each district, we randomly selected two high schools for girls and two for boys, which included both governmental and non-governmental institutions. We then administered the questionnaire to all students in grades 7, 8, and 9 at these schools. A total of 1,430 students completed the questionnaires. Overall, we studied 17 out of the 20 schools that agreed to participate across the five designated areas of the city, comprising 12 governmental and five non-governmental institutions.

Participants

The participants included students from grades 7, 8, and 9 across the selected schools. The total number of students who completed the questionnaires was 1,430. The schools represented a mix of governmental and non-governmental institutions distributed across five districts of Tehran, reflecting diverse socioeconomic backgrounds.

Study Procedure

The study employed a standardized multi-chapter questionnaire as part of a broader international comparative investigation commissioned by Finland and research committees from 32 countries. This research involved participation from these 32 countries across Europe, Asia, Africa, and South America. The original questionnaire is a multi-dimensional instrument that captures a wide range of factors relevant to adolescent mental health and wellbeing including: demographic background such as age, gender, grade, and language spoken at home, family structure by asking about current living arrangements, including whether the adolescent resides with both biological parents, a single parent, stepparents, or other relatives. Additionally, physical health is assessed through questions on the frequency of common somatic symptoms (such as headaches, stomach aches, and sleep disturbances). Body image and self-perception are evaluated by items addressing satisfaction with appearance and concerns related to weight or body shape.

A central component of the questionnaire is the Strengths and Difficulties Questionnaire (SDQ), a validated tool comprising 25 items that screen for emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship difficulties, and prosocial behavior. The survey also investigates the need for external help and support, including whether students have sought assistance for emotional or behavioral issues and any barriers encountered in accessing such support. Sensitive items address personal struggles, such as feelings of sadness, loneliness, hopelessness, and any history of self-harm or suicidal thoughts.

The school environment is another key focus, with questions about relationships with teachers and peers, perceived safety, academic stress, and the presence of supportive adults at school. The questionnaire further examines experiences of bullying and cyberbullying, both as a victim and as a perpetrator, including the frequency and nature of these incidents. Finally, the instrument encompasses items assessing fears and anxieties related to contemporary global events, specifically the COVID-19 pandemic and threats of war or conflict, and their impact on the students' sense of security and wellbeing.

For the purposes of this study, we specifically focused on questionnaire items assessing adolescents'

perceptions of their body image and their family living arrangements. In addition, we included key demographic factors such as the urban area of residence and socioeconomic status. The relationships among these variables were analyzed to better understand their association with body image dissatisfaction.

Before implementation, the questionnaire was translated into Persian and subsequently back translated to English to ensure accuracy. To establish the content validity of these sections, the items were reviewed by a multidisciplinary panel of eight experts, including translators, child and adolescent psychiatry subspecialists, and social medicine specialists. The panel evaluated each item for relevance, clarity, and cultural appropriateness using a three-point Likert scale ("necessary, " "useful but not necessary, " "not necessary"). The Content Validity Ratio (CVR) was calculated using the following formula: CVR = (ne-N/2)/ N/2

Where N is the total number of panel experts and ne is the number of experts who rated the item as "necessary." This process was conducted for every question in the questionnaire, not just for the overall instrument. In our assessment, seven out of eight experts rated the questions as "necessary, " resulting in a CVR of approximately 0.75 for those items, which meets the minimum acceptable threshold for content validity and confirms that the items were considered essential by the expert panel.

To assess the reliability of the questionnaire, data from 10% of the completed questionnaires were entered into SPSS-26 statistical software. For the body image section, which consisted of multiple items assessing satisfaction with physical appearance, concerns about weight or body shape, and related behaviors, internal consistency reliability was evaluated using Cronbach's alpha. The coefficient obtained was 0.76, which is considered acceptable for exploratory research in adolescent populations. For the family status variable, which was measured by a single factual item regarding the adolescent's current living arrangements (e.g., living with both biological parents, a single parent, stepparents, or other relatives), internal consistency was not applicable. However, the item's straightforward nature and confirmation by the expert panel support its reliability and face validity.

Data Collection

Questionnaires were administered directly to students in the selected schools. Data collection included demographic information, family structure, body image perceptions, and other psychosocial variables as outlined in the questionnaire. Completed questionnaires were collected and entered into statistical software for analysis.

Statistical Analysis

The statistical analysis for this cross-sectional study was conducted using SPSS statistical software (version 26). A significance level of $P < 0.05$ was set for all statistical tests to determine statistical significance. The analysis aimed to evaluate the relationships between various demographic, psychological, and health-related variables collected through the standardized questionnaire. Continuous variables, such as age and body mass index (BMI), were described using means and standard deviations (SD), while categorical variables (e.g., gender, family structure, body image satisfaction categories) were summarized as frequencies and percentages. To compare differences in body image satisfaction and dietary patterns across demographic and family structure groups, independent samples t-tests were used for continuous variables and Chi-square tests were employed for categorical variables. For example, t-tests compared mean BMI or body image scores between boys and girls, and Chi-square tests assessed associations between family structure (biological parents, stepparents, or other relatives) and categories of body image satisfaction or dissatisfaction.

To further investigate factors associated with body image dissatisfaction, multivariate logistic regression analysis was conducted. Variables that showed significant associations in univariate analyses or were theoretically relevant (such as gender, age, BMI, socioeconomic status, and family structure) were included as independent variables in the regression model, with body image dissatisfaction as the dependent variable. Odds ratios (OR) with 95% confidence intervals (CI) were calculated to estimate the strength and direction of associations.

Ethics

The study was approved by the Ethics Committee of Tehran University of Medical Sciences (IR.TUMS.MEDICINE.REC.1401.143). The printed questionnaires were designed to be anonymous and were distributed by four experienced interviewers, two men for the boys and two women for the girls. Prior to participation, informed consent was obtained from all students. They were assured of the confidentiality of their responses and informed that their answers would be used solely for research purposes.

Results

Descriptive Results

A total of 1,430 participants completed the questionnaires, consisting of 785 boys (54.9%) and 645 girls (45.1%). The age range of the participants was 10 to 18 years (14.13 ± 1.2). The characteristics of the numerical variables are presented in Table 1, which includes data for all students as well as separately for each gender. The average height for boys was 168.93 cm (± 11.56) compared to 164.49 cm (± 7.06) for girls; similarly, the average weight for boys was 61.12 kg (± 16.01) versus 54.54 kg (± 12.06) for girls. The mean Body Mass Index (BMI) for boys is reported to be (21.35 ± 0.24), which is significantly higher than that of girls at (20.89 ± 0.24) (P = 0.04)

Table 1. Descriptive Statistics of Numerical Variables: Height, Weight, and Body Mass Index in Boys and Girls among Adolescents in Tehran

Statistics	Age(year)			Height (CM)			Weight (Kg)			BMI		
	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls
Mean	14.13	14.32	13.88	165.52	168.93	161.47	58.09	61.12	54.47	21.13	21.34	20.87
SD	1.23	1.297	1.1	10.43	11.55	7.04	14.72	16.01	12.06	4.37	4.57	4.103
Range	8	8	8	72	70	60	94	94	88	40.55	40.55	35.52
Min	10	10	10	128	130	128	32	32	32	10.98	10.98	11.94
Max	18	18	18	200	200	188	126	126	120	51.53	51.53	47.47

BMI: Body Mass Index

Table 2 presents the qualitative demographic characteristics of participants. Among the participants, 1,114 (77.9%) attended governmental schools, while 316 (22.1%) were enrolled in non-governmental schools. About the distribution of students based on family structure, 90.1% of the students lived with both biological parents. Approximately 101 students (7.1%) lived with either their biological mother or father due to the divorce or death of one parent. Additionally, 126 students (9%) resided with stepparents or relatives. In terms of urban districts (Region of Residence in Tehran), 478 participants (33.4%) lived in the northern and western regions of Tehran, while 520 participants (36.4%) resided in the central and eastern areas, and 432 participants (30.2%) came from the southern part of the city. When asked about their economic status (self-assessed question), approximately 11% of the students reported that they considered their family's economic status to be poor, while others rated it as fairly well to very well (30% fairly well, 40% rather well, and 20% very well).

Table 2. Descriptive Statistics of Qualitative of Demographic Variables for Boys and Girls among Adolescents in Tehran

Demographic Variable	Variables	Frequency	Percent
Gender	Boy	783	54.8
	Girl	641	44.8
Region of residence in Tehran	North & west	478	33.4
	Central & east	520	36.4
	South	432	30.2
School type	Governmental	1114	77.9
	Non-governmental	316	22.1
Self-assessed economic status	Not well	38	2.7
	Not particularly well	116	8.1
	Fairly well	396	27.7
	Rather well	560	39.2
	Very well	277	19.4
City of birth	Tehran	1036	72.4
	Other	349	24.4
Family structure (Who the student lives with)	Two biological parents	1289	90.1
	Biological mother or father	101	7.1
	Stepparents (mother or father)	9	0.6
	Grandparents or relatives	16	1.1

We assessed body image dissatisfaction as the main dependent variable, with dietary behaviors and dieting practices as independent variables, using a series of questionnaire items outlined in Table 3. Among the 1,430 adolescent participants, 495 (34.6%) reported experiencing appetite problems. A substantial proportion expressed weight-related concerns; 530 (37.1%) indicated a strong desire to be thinner, while 358 (25%) reported a moderate desire for weight loss. Additionally, 480 participants (34.5%) were currently on a diet. Fear of weight gain was prevalent, with approximately 60% of adolescents reporting some level of fear, including

37% who expressed a strong fear of gaining even a small amount of weight. Weight control behaviors were common; 25.4% engaged in excessive exercise to prevent weight gain, and about 5% considered using pharmaceuticals for weight control. Furthermore, 35.8% reported fear of becoming overweight. Despite these concerns, nearly 44% of participants indicated difficulty controlling their eating patterns. Most of these differences were statistically significant across relevant demographic groups. Regarding overall body satisfaction, approximately 60% of adolescents reported being happy with their bodies, with boys showing significantly higher satisfaction than girls (P < 0.001) (Figure 1).

Table 3. Dietary Behaviors and Body Image Characteristics of Participants (Total, Boys, Girls) Girls among Adolescents in Tehran

Variables	Items	Total N (%)	Boys N (%)	Girls N (%)	P-value
Appetite problems	yes	495(34.6)	239(30.4)	256(39.7)	0.001
	no	863(60.3)	494(62.9)	369(57.2)	
Like to be thinner	Not true	523(36.6)	338(43.1)	185(28.7)	< 0.001
	Somewhat true	358(25)	187(23.8)	171(26.5)	
	Certainly true	530(37.1)	244(31.1)	286(44.3)	
Be on a diet	Not true	926(64.8)	528(67.3)	398(61.70	0.01
	Somewhat true	312(21.8)	162(20.6)	150(23.3)	
	Certainly true	168(11.7)	77(9.8)	91(14.1)	
Exercise to avoid gaining weight	Not true	591(41.3)	280(35.7)	311(48.2)	< 0.001
	Somewhat true	453(31.7)	250(31.8)	203(31.5)	
	Certainly true	363(25.4)	236(30.1)	127(19.7)	
Afraid of getting fat	Not true	510(35.7)	334(42.5)	176(27.3)	< 0.001
	Somewhat true	358(25)	192(24.5)	166(25.7)	
	Certainly true	512(35.8)	223(28.4)	289(44.8)	
Lost weight	Not true	938(65.6)	536(68.3)	402(62.3)	0.001
	Somewhat true	291(20.3)	153(19.5)	138(21.4)	
	Certainly true	172 (12)	73(9.3)	99(15.3)	
Terrifies of gain a little weight	Not true	871(60.9)	535(68.2)	336(52.1)	< 0.001
	Somewhat true	287(20.1)	134(17.1)	153(23.7)	
	Certainly true	241(16.9)	93(11.8)	148(22.9)	
Not able to control eating	Not true	772(54)	442(56.3)	330(51.2)	0.01
	Somewhat true	412(28.8)	222(28.3)	190(29.5)	
	Certainly true	212(14.8)	97(12.4)	115(17.8)	
Devour large amounts of food	Not true	893(62.4)	467(59.5)	426(66.0)	0.05
	Somewhat true	320(22.4)	182(23.2)	138(21.4)	
	Certainly true	181(12.7)	111(14.1)	70(10.9)	
Vomited after having eaten	Not true	1344(94)	735(93.6)	609(94.4)	0.5
	Somewhat true	36 (2.5)	17(2.2)	19(2.9)	
	Certainly true	28(2)	17(2.2)	11(1.7)	
Used pharmaceuticals to control weigh	Not true	1235(86.4)	656(83.6)	579(89.8)	0.6
	Somewhat true	36(2.5)	18(2.3)	18(2.8)	
	Certainly true	44(3.1)	26(3.3)	18(2.8)	
Not happy(dissatisfaction) with body	Not true	833(58.3)	478(60.9)	355(55)	< 0.001
	Somewhat true	357(25)	197(25.1)	160(24.8)	
	Certainly true	222(15.5)	94(12.0)	128(19.8)	

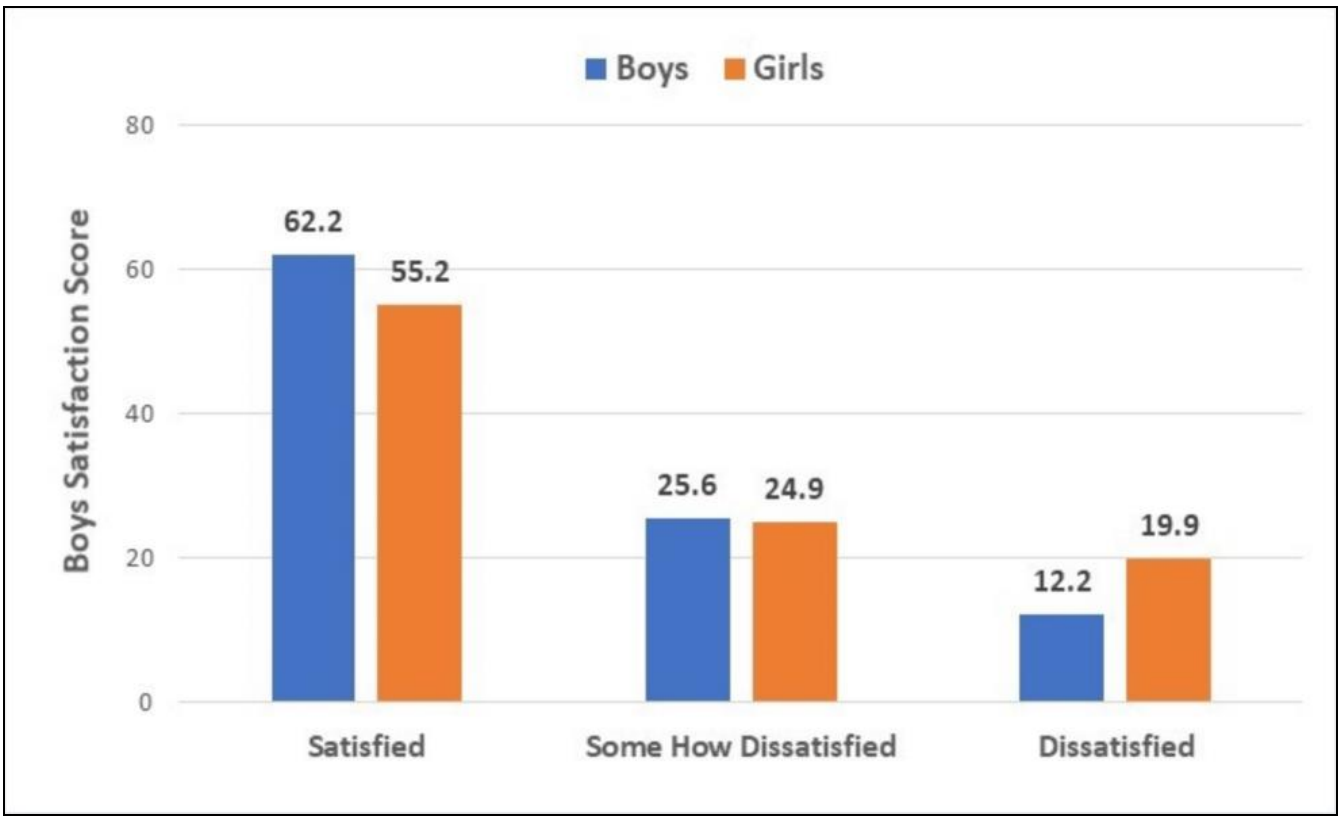

Figure 1. Relationship between Body Satisfaction and Gender Girls Among Adolescents in Tehran

Analytic Results

We analyzed the correlation between body satisfaction as the main variable and various independent variables. As shown in Table 4, gender significantly influences body satisfaction, with boys reporting higher satisfaction levels than girls ($P < 0.001$) (Figure 1). Additionally, we examined the relationship between students' self-assessed family economic status and body satisfaction. Our findings indicate that adolescents from lower economic backgrounds face greater challenges related to body image dissatisfaction with a significant correlation observed between these variables ($P < 0.001$). We also assessed the correlation between place of residence by city region and body satisfaction; however, the correlation was not statistically significant ($P = 0.07$). To examine the relationship between the urban area in which participants lived and their economic status, we employed cross-tabulation analysis. The results indicated a positive correlation; those living in the northern regions exhibited a higher socioeconomic status. This study highlights a significant relationship between geographic area and socioeconomic status as well ($P = 0.002$).

Our findings revealed a significant relationship between body satisfaction and family structure (whom the student lives with). Students living with stepparents or other relatives reported lower levels of body satisfaction compared to those living with their biological parents, with a statistically significant difference ($P = 0.05$). Additionally, attending governmental versus non-governmental schools did not influence body satisfaction, as the correlation was not significant. Furthermore, we examined the relationship between BMI and body satisfaction. Our results indicated that students (boys and girls) with higher BMI levels reported significantly lower happiness with their bodies ($P < 0.001$).

A multiple regression analysis at a 95% confidence interval was performed to quantify the impact of independent variables on body satisfaction as the main variable. In a multivariate analysis using backward linear regression, gender (male), family economic status, living with biological parents and BMI remained in the model (Table 5). This analysis indicates that male adolescents, those living with their biological parents, from higher economic backgrounds, and with lower BMI are more likely to report being happy with their bodies.

Table 4. The Relationship between Body Satisfaction and Independent Variables in Boys and Girls among Adolescents in Tehran

In dependent variables	Items	Dissatisfaction with body (not happy with body)						P-value
		Not true		Somewhat true		Certainly true		
		N	%	N	%	N	%	
Gender	Boys	478	62.2%	197	25.6%	94	12.2%	< 0.001
	Girls	355	55.2%	160	24.9%	128	19.9%	
Economic Status	Not well	11	28.9%	20	52.6%	7	18.4%	< 0.001
	Not particularly well	55	47.8%	36	31.3%	24	20.9%	
	Fairly well	211	53.7%	110	28%	72	18.3%	
	Rather well	361	64.9%	114	20.5%	81	14.6%	
	Very well	171	63.3%	66	24.4%	33	12.2%	
Living with whom	Two biological parents	772	60.5%	316	24.7%	190	14.9%	0.005
	Biological mother or father	44	45.4%	30	31.3%	22	22.9%	
	grandparents or relatives	7	43.8%	7	43.8%	2	12.5%	
	Stepparents (mother or father)	2	22.2%	3	33.3%	4	44.4%	
Urban regions	North & West	264	55.7%	117	24.7%	93	16.9%	0.07
	Central & East	307	60.4%	132	26%	69	13.6%	
	South	262	60.9%	108	25.1%	60	14%	
Type of school	Governmental	655	59.6%	280	25.5%	164	14.9%	0.3
	Nongovernmental	178	56.9%	77	24.6%	58	(18.5%)	

Table 5. Logistic Regression Analysis Predicting Happiness with Body in Boys and Girls among Adolescents in Tehran

Variables	Analysis Type	Coefficient (B)	Standard Error (SE)	Odds Ratio (OR)	95% Confidence Interval (CI)	P-value
Gender (Female)	Univariate	0.407	0.122	1.50	1.18 – 1.90	0.001
	Multivariate	0.385	0.110	1.47	1.20 – 1.80	0.002
Family Structure (Non-biological)	Univariate	-0.236	0.564	0.79	0.26 – 2.39	0.05
	Multivariate	-0.210	0.520	0.81	0.28 – 2.31	0.07
Socioeconomic Status (Low)	Univariate	1.453	0.420	4.27	1.87 – 9.74	< 0.001
	Multivariate	1.380	0.410	3.98	1.75 – 9.00	< 0.001
Body Mass Index (BMI)	Univariate	0.090	0.014	1.09	1.06 – 1.13	< 0.001
	Multivariate	0.085	0.012	1.09	1.05 – 1.12	< 0.001

Note: B = regression coefficient; S.E. = standard error; Sig. = significance level (p-value); Exp(B) = odds ratio; 95% CI = 95% confidence interval; BMI = Body Mass Index; Constant (Intercept) = The baseline value in the logistic regression model

Discussion

The results of this study provide significant insights into the body image perceptions and dietary disorders of middle school adolescents. The findings revealed that 59.1% of adolescents misperceived their body status, with a higher percentage of girls misperceiving compared to boys. Our findings align with several studies conducted in various parts of the world, including research from Finland and Japan, where female adolescents reported significantly greater dissatisfaction with their bodies than males (30). A study in Iran by Mohammadi *et al.* confirmed the influence of

gender roles on BMI perception and mood disorders (31). While the longitudinal Finnish study (1998–2018) indicates a decrease in dieting behaviors, weight gain fears, and body dissatisfaction among females, alongside a reduced desire to be thinner over two decades (32). other studies present contrasting snapshots. For example, the 2009 international cross-sectional study reports a relatively high prevalence of body dissatisfaction—over 40% among girls and 26.58% among boys (33). Furthermore, the 2023 study by Huizi Song highlights that females tend to overestimate their body shape and desire thinness more than males, with higher BMI students often underestimating their body shape while still aspiring to be thinner (28, 34).

Our findings revealed that the socioeconomic level reported by students is a crucial factor influencing their perceptions of body image and satisfaction with their appearance. Students living in relatively good or very good socioeconomic conditions (self-reported) expressed more satisfaction with their bodies. This aligns with previous studies by Goodman in 2007 and Solano-Pinto in 2021, which confirm that subjective evaluations of socioeconomic status can predict adolescents' global health ratings, even when adjusting for the sociodemographic factors that shape them. In addition, the role of family during childhood is a vital element in the formation of a positive body image (35, 36). A study by Bai X in 2021 demonstrated how subjective family socioeconomic status influences self-esteem, perceived stress, and peer relationships among adolescents, ultimately affecting body perception and happiness (23). Furthermore, research by Jones in 2020 showed that students from lower socioeconomic backgrounds often internalize negative beliefs about their academic value, impacting their overall self-perception and confidence (25).

Our results showed that students living with stepparents or other relatives reported lower levels of body satisfaction compared to those living with their biological parents, with a statistically significant difference. We found other studies that support this finding, such as research conducted in India, which discusses how nurturing and supportive family environments contribute positively to children's body image. It highlights that children from emotionally warm and supportive families tend to have higher body satisfaction. Conversely, adolescents who live in possibly less supportive backgrounds, may struggle with body image issues (18, 34). This emphasizes the role of family in shaping body image, indicating that parental behaviors significantly influence children's body dissatisfaction and eating disorders. Additionally, family dynamics, including emotional support and communication, play a crucial role in shaping an individual's perceptions of body image (36).

We found that higher body weight is associated with more negative body image perceptions. This observation aligns with prior research indicating a relationship between increased BMI and body dissatisfaction (1). For example, a study by Medeiros (2024) reported that each unit increase in BMI corresponds to a 1.28-fold increase in the likelihood of body dissatisfaction. Additionally, other studies have shown that individuals classified as having obesity tend to report higher levels of body dissatisfaction compared to those with normal weight (24, 28). While our study did not specifically classify participants by obesity status nor track weight changes over time, these findings contribute to the broader understanding that higher body weight and negative body image are correlated. It is important to note, however, that due to the cross-sectional design of our study, we cannot infer causality or temporal relationships, such as whether weight gain leads to negative psychological outcomes like disordered eating or low self-esteem. Rather, our data underscore the complex and multifaceted relationship individuals have with their bodies, as well as the various psychological and behavioral responses that may be associated with concerns about weight and body image.

Limitation

The cross-sectional nature of the study limits the ability to draw causal conclusions about the relationships between body image perceptions and other factors. Longitudinal studies would be beneficial to assess how these factors influence body image perceptions over time. The reliance on self-reported data for body image perceptions and socioeconomic status may introduce biases, as participants may not accurately report their feelings or circumstances due to social desirability or lack of self-awareness.

Conclusion

In conclusion, this study underscores the multifaceted nature of body image perceptions among middle school adolescents and highlights the complex interplay between gender, socioeconomic status, family relationships, and weight on body image perceptions. The significant misperceptions regarding body status emphasize the urgent need for interventions designed to improve self-esteem and promote healthy body image among the youth. Additionally, the impact of socioeconomic factors and family structures on body satisfaction suggests that fostering supportive environments can play a critical role in enhancing adolescents' self-perception. Our findings underscore the importance of weight management in shaping adolescents' body image perceptions. Supportive family environments are crucial for fostering positive body image among children and adolescents. Furthermore, the relationship between weight gain and negative body image highlights the need for interventions aimed at promoting healthy lifestyles and addressing psychological well-being to mitigate the adverse effects of obesity on self-perceptions.

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Conflict of Interest
None.

Author's Contributions
Mohammad Reza Mohammadi: Conceptualization, methodology, investigation, writing—original draft, writing—review & editing, supervision.
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Ali Najafi: Methodology, software, validation, formal analysis, visualization.
Zahra Kafami: Investigation, resources, data curation, writing—review & editing.
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Shahin Akhondzadeh: Supervision, Investigation, writing—review & editing.
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