

THE MEDIATING ROLE OF SLEEPING PROBLEMS, BURNOUT SYNDROME, STRESS, DEPRESSIVE SYMPTOMS, AND SELF-EFFICACY ON THE RELATIONSHIP BETWEEN ATTITUDES TOWARDS APPEARANCE AND BODY DISSATISFACTION AMONG ROMANIAN YOUNG PEOPLE

Lavinia Maria Pop¹, Ruxandra Maria Petrariu³, Magdalena Iorga^{1,2*}

“Alexandru Ioan Cuza” University, Iași, Romania

1. Faculty of Psychology and Educational Sciences

“Grigore T. Popa” University of Medicine and Pharmacy, Iași, Romania

Faculty of Medicine

2. Department of Preventive medicine and Interdisciplinarity

3. Medical Student

*Corresponding author. E-mail: magdalena.iorga@umfiiasi.ro

THE MEDIATING ROLE OF SLEEPING PROBLEMS, BURNOUT SYNDROME, STRESS, DEPRESSIVE SYMPTOMS, AND SELF-EFFICACY ON THE RELATIONSHIP BETWEEN ATTITUDES TOWARDS APPEARANCE AND BODY DISSATISFACTION AMONG ROMANIAN YOUNG PEOPLE (Abstract): The **aim** of the study was to evaluate the presence of anxiety, depression, burnout, and dissatisfaction with body image among young people in Romania. **Materials and methods:** A total of 432 respondents aged 18-30 were included in the research, and several instruments were used: SES-SQ evaluated the socioeconomic level; DASS 21 for the severity of central symptoms in the sphere of depression, anxiety, and stress; the BSQ items assessed body dissatisfaction and concern over body shape; the GLQ questionnaire identified scores related to physical activity, cognitive activities, social activities, other leisure activities, and other behaviors that significantly influence health; and the SATAQ-4 assessed socio-cultural attitudes towards appearance by measuring the pressure from peers, family, and the media to attain the ideal appearance, internalization of the thin/low body fat and internalization of the muscular or athletic body image. The statistical analyses were performed using IBM *Statistical Package for Social Sciences (SPSS) for Windows, version 24* (SPSS Inc, Chicago, IL, USA). **Results:** Sex, the presence of a chronic disease, marital and socioeconomic status was found to be important in depression, anxiety and satisfaction with the body image. Age was found to be related to some of the variables: the older the respondent was, the lower the levels of stress, depression or anxiety. Additionally, age correlates negatively with burnout and sleeping problems, in the sense that as one ages, burnout levels decrease, and sleep disturbances become less prevalent. Negative correlations were also identified between age and the pressure felt from the media. Young people with chronic diseases had a statistically significantly higher level of internalization of thin/low body fat. **Conclusions:** The results showcased a significant correlation between factors such as age, gender, marital and socio-economic status and the impact of stress, depression, anxiety on the perception of body image and related levels of dissatisfaction. **Keywords:** SLEEPING PROBLEMS, BURNOUT SYNDROME, STRESS, DEPRESSIVE SYMPTOMS, SELF-EFFICACY, BODY DISSATISFACTION.

INTRODUCTION

Contemporary society places significant emphasis on self-perception and the manner which body image is perceived by the social group. Numerous studies have highlighted the link between mental health and satisfaction with body image among children and adolescents, but a lack of body satisfaction is very prevalent among adolescents. While this pertains more to weight or the existence of physical abnormalities in children, it frequently involves a desire for aesthetics and group approval among adolescents and young adults; thus, we are discussing group pressure and social pressure.

Media channels and social networks reinforce this desire to have a perfect body, and virtual reality makes it easier to satisfy the desire to look the way everyone wants: selfie posts, photo editing, or video manipulation are common.

The lack of satisfaction with body image and appearance has negative consequences on the physical, mental, and social health. According to Fox *et al.* (1), girls and young women report the feeling of pressure to conform to gender and beauty norms more frequently, and they are more likely to post photos that show them as more attractive. The position of self-objectivation (seeing themselves as a third party) is associated with poor health, shame, low self-esteem, anxiety, depression, sleep-related problems, eating disorders, and low cognitive performance (2, 3). Several studies have indicated that individuals who have low body image satisfaction are more critical of themselves when they are in a negative mood (4). Furthermore, the literature does not distinguish between men and women in this regard. For example, Matias and his team (5) showed that body dissatisfaction is associated with

psychological concerns among both genders, but these concerns do not represent a motivational incentive to adopt healthy behaviors. Therefore, many researchers mentioned that the psychological impact of body dissatisfaction should represent a public health concern due to its negative consequence on psychological balance and general quality of life, including sleep disorders (6), depression (7), eating disorders (8), physical exercises (9), burnout syndrome (10), and self-efficacy (11, 12). Self-efficacy is one of the most important factors related to the process of changing behaviors and adopting healthy ones, referring to the subjective prediction of one's ability to accomplish a certain task or fulfill a specific goal (13, 14).

The aim of the present study was to identify the mediating role of sleeping, burnout syndrome, stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction among Romanian young people.

MATERIALS AND METHODS

Participants. The study was carried out between September and November 2023, and the questionnaires were distributed online to young people on social networks (Facebook, WhatsApp). Participants were informed about the purpose of the study, about the fact that they could withdraw from the study whenever they wanted, without consequences, and about the confidentiality of data. No incentive was given to respondents. The inclusion criteria were young people aged between 18 and 30 years old who agreed to participate in the study and filled out the questionnaire before the deadline. The exclusion criteria were incomplete questionnaires, in which the young people

The mediating role of sleeping problems, burnout syndrome, stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction among

did not express their consent to participate, and questionnaires filled in by people over 30 years old. After applying the inclusion and exclusion criteria, a total of 432 questionnaires were included in the research.

Data collection. The online questionnaire was developed using the Google Forms application (Alphabet, Mountain View, CA, USA), to obtain detailed information about satisfaction with body image, acceptance of dominant socio-cultural standards for appearance, as well as the influence of stress, depression, and anxiety on these variables.

The first part of the questionnaire gathered socio-demographic information, such as age, gender, marital status, living environment, educational level, the presence or absence of chronic disease diagnosis, the type of diagnosed disease (if applicable), and socioeconomic status). The body mass index (BMI) was calculated considering the weight and height declared by the participants.

Some items investigated cultural and religious characteristics and nutrition-related habits as well as physical activity, such as the frequency of consuming home-cooked meals, preference for foods that require little preparation time, frequency of dining at restaurants, the importance of consuming locally-produced food, the adherence to religious fasting, the consumption of food supplements or slimming teas, as well as performing physical exercises to maintain body shape. Additionally, a few items investigated the respondents' availability to accept minimally invasive aesthetic procedures or aesthetic surgeries to beautify or change the facial appearance, as well as the use of photo editors or filters when displaying photos on various social networks (e.g., Facebook, Instagram etc.).

Socioeconomic characteristics were evaluated using SES-SQ developed by Roohafza *et al.* (15). The SES-SQ consisted of six items. As the authors sustained, the evaluation of socioeconomic status is a major predictor of health and nutritional status as well as mortality and morbidity related to many diseases.

The next part of the questionnaire included the following psychological instruments:

- DASS 21 - is a set of three self-assessment scales built to assess negative emotional states and the severity of central symptoms in the spheres of depression, anxiety, and stress (16). The reliability of DASS-21 showed that it has excellent Cronbach's alpha values of 0.81, 0.89, and 0.78 for the subscales of depression, anxiety, and stress, respectively;

- sections from the Copenhagen Psychosocial Questionnaire (COPSOQ) related to individual health and well-being, which includes several factors: 1 – self-assessed health, 2 – sleep disorders, 3 – burnout, 4 – stress, 5 – somatic stress, 6 – cognitive stress, 7 – depressive symptoms, 8 – self-efficacy (17);

- The BSQ 16-item is a refined self-report questionnaire developed by Evans and Dolan (18) to assess body dissatisfaction and concern over body shape. Participants rate the items based on a six-point Likert scale, ranging from 1 = *never* to 6 = *always* with higher scores indicating greater body shape dissatisfaction. This instrument has been found to be a reliable and valid measure of body image satisfaction as it has demonstrated excellent internal consistency (0.95);

- SATAQ-4 is a 22-item questionnaire assessing socio-cultural attitudes towards appearance, measuring media, family, and

peer pressure to attain the ideal appearance; internalization of the thin/low body fat; internalization of the muscular or athletic body image. SATAQ-4 subscale scores demonstrated good internal consistency (0.84 or higher) (19);

- The General Lifestyle Questionnaire (GLQ) questionnaire (20) which includes five subscales related to physical activity, cognitive activities (attention, memory and reasoning), social activities, other leisure activities (including activities that we practice mainly for relaxation or personal enrichment, for example, meditation) and other behaviors that significantly influence health (eating habits, alcohol consumption, tobacco consumption, and sleep quality). GLQ scores are calculated using a 5-point Likert scale (score 1 = never, 2 = several times in the last year, 3 = several times a month, 4 = several times a week, 5 = every day or almost every day). Overall, Cronbach's alpha coefficients were satisfactory, with an overall Cronbach's alpha score of 0.72.

Statistical analysis

The statistical analyses were performed using IBM Statistical Package for Social Sciences for Windows, *SPSS version 24* (SPSS Inc, Chicago, IL, USA). The results for descriptive statistics were expressed as means (M) and standard deviations (SD). The normality of the data distribution was tested using the Kolmogorov-Smirnoff test. Given the fact that all data are normally distributed, parametric tests will be applied. To assess comparative results considering gender, living environment, and the presence or absence of chronic diseases, the Independent T Test was performed. Comparative results considering marital status, weight status, and socio-economic status were assessed using the ANOVA

One Way Test to determine if there were statistically significant differences between more than two groups of an independent variable or a quantitative dependent variable. The Pearson correlation was used to test the relationship between variables. A p-value < 0.05 was considered statistically significant.

RESULTS

The average age of the participants was $M = 20.71 \pm 2.60$ years old, with most of them being women (81.7%, $N = 353$). About half of the participants were single (48.8%, $N = 211$), less than half of them were in a relationship (46.5%, $N = 201$), and the fewest were married (4.6%, $N = 20$).

The participants of the study had a medium level of education, with most of them having high school education (83.3%, $N = 360$), and a very small part of them having completed university studies (11.3%, $N = 49$). Additionally, most of the participants reported having an average financial situation (76.6%, $N = 331$).

The SES-SQ instrument, which measures socio economic status, showed that more than half of the participants had a medium economic level (55.1%, $N = 238$), and more than a third had a high economic level (39.9%, $N = 172$). The score of SES-SQ ranged from 3 (0.5%, $N = 2$) to 17 (2.1%, $N = 9$), with the average of the participants being $M = 11.61 \pm 2.76$. As indicators of health status, weight and the presence of chronic disease were considered. More than half of the participants were of normal weight (63.2%, $N = 273$), while more than a quarter were either underweight (15.7%, $N = 73$) or overweight (16.9%, $N = 68$). The smallest proportion of the participants were obese (4.3%, $N = 18$).

The mediating role of sleeping problems, burnout syndrome, stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction among

Although most of the participants did not suffer from chronic diseases (92.1%, N = 398), among those diagnosed with such a disease (7.9%, N = 34), most suffered from gastrointestinal diseases (1.6%, N = 7), autoimmune diseases (1.4%, N = 6), diabetes (1.2%, N = 5), skin diseases (0.7%, N = 3) etc.

Most of the participants reported consuming home-cooked food daily (74.1%, N = 320), while more than a quarter of them at eat a restaurant once every 2-3 months (36.6%, N = 158) or 2-3 times a month (34.7%, N = 150). About half of the participants preferred to buy fresh ingredients for cooking over frozen options quite often (48.8%, N = 211). Less than half of the participants opted for food from local producers or farmers' markets instead of supermarkets quite rarely (41.9%, N = 181). More than a third of the participants occa-

sionally (38.0%, N = 164) or frequently (35.0%, N = 151) consumed traditionally prepared preserved foods such as mashed vegetables, pickles and jam.

More than half of the participants stated that they did not resort to various food diets to lose weight (60.9%, N = 263), or consumed various weight-loss teas or food supplements (86.3%, N = 373). Less than a quarter of the participants occasionally (24.1%, N = 104) or rarely (22.0%, N = 95) engaged in excessive exercise for weight loss or body shape maintenance. Over half of the participants (69.0%, N = 298) reported not utilizing various photo filters or photo editors for the pictures they post on various social media platforms. Other items are detailed below, (tab. I), where the answers were indicated on a Likert scale ranging from 1 (total disagreement) to 5 (total agreement).

TABLE I.
Self-rated items¹

Items	1	2	3	4	5	M±SD
I buy fresh ingredients for cooking (e.g. meat, vegetables, etc.) to cook over frozen options.	1, (0.2)	39, (9.0)	91, (21.1)	211, (48.8)	90, (20.8)	3.81 ± 0.87
I buy food from local producers or farmers' markets rather than from supermarkets.	16, (3.7)	126, (29.2)	181, (41.9)	91, (21.1)	18, (4.2)	2.93 ± 0.90
It is important to me that the food I eat is prepared the way my family cooked it.	91, (2.1)	27, (6.3)	180, (41.7)	167, (38.7)	49, (11.3)	3.51 ± 0.85
I prefer foods that are prepared quickly rather than those that take more time to cook.	15, (3.5)	61, (14.1)	203, (47.0)	121, (28.0)	32, (7.4)	3.22 ± 0.90
I eat canned food, traditionally prepared by myself or family members.	6, (1.4)	61, (14.1)	164, (38.0)	151, (35.0)	50, (11.6)	3.41 ± 0.91
It is important to me that the food I eat comes from my own country.	31, (7.2)	69, (16.0)	208, (48.1)	84, (19.4)	40, (9.3)	3.08 ± 1.00
I read food labels.	11, (2.5)	77, (17.8)	145, (33.6)	132, (30.6)	67, (15.5)	3.39 ± 1.02
Since abiding by religious fasts is important to me, my eating behavior undergoes important changes during these periods.	120, (27.8)	83, (19.2)	129, (29.9)	68, (15.7)	32, (7.4)	2.56 ± 1.25

¹Means and standard deviations (M±D), frequency and percentages (%)

Approximately half of the participants reported a good state of health (46.5%, N = 201), with an average evaluation of health

of M = 7.68 ± 1.56 on the Likert scale ranging from 1 (very bad) to 10 (very good).

The DASS-21 demonstrated strong reliability in our study, with Cronbach's alpha values of 0.87, 0.87, and 0.85 for the stress ($M = 18.50 \pm 9.02$), depression ($M = 13.10$

± 8.58) and anxiety ($M = 15.56 \pm 9.27$) subscales, respectively.

The interpretation of these subscale values can be found in second table.

TABLE II.
DASS Severity Classification¹

	Normal	Mild	Moderate	Severe	Extremely severe
Stress	163 (37.7)	78 (18.1)	86 (19.9)	73 (16.9)	32 (7.4)
Depression	146 (33.8)	89 (20.6)	120 (27.8)	43 (10.0)	34 (7.9)
Anxiety	91 (21.1)	23 (5.3)	107 (24.8)	69 (16.0)	142 (32.9)

¹Frequency and percentages (%)

An independent-samples t-test was run to determine if there were significant differences between women and men on this scale. The results showed that men ($M = 15.11 \pm 8.52$) reported lower stress levels than women ($M = 19.26 \pm 8.97$, $t(430) = -3.754$, $p < 0.001$). Moreover, men ($M = 11.84 \pm 8.00$) reported lower levels of anxiety than women ($M = 16.39 \pm 9.22$); $t(430) = -4.004$, $p < 0.001$.

This study found that people living in rural areas had statistically significantly higher levels of anxiety ($M = 14.15 \pm 8.00$) compared to people residing in urban areas (12.45 ± 8.87), $t(430) = 2.016$, $p = 0.044$. There was a statistically significant difference between groups in terms of marital status as determined by the one-way ANOVA ($F(2,429) = 7.313$, $p = 0.001$). A Tukey post hoc test revealed that married people ($M = 11.50 \pm 8.82$) had a statistically significantly lower level of stress compared to single people ($M = 19.39 \pm 9.18$), $p = 0.001$ and people who were in a relationship ($M = 18.27 \pm 8.59$), $p = 0.004$.

A one-way ANOVA was performed to compare the level of depression on marital status and revealed that there was a statistically significant difference in marital between the three groups ($F(2, 429) = 10.053$,

$p < 0.001$). Tukey's HSD Test found that married people ($M = 6.40 \pm 7.85$) had statistically significantly lower level of depression compared to single people ($M = 14.48 \pm 9.24$), $p < 0.001$ and to people who were in a relationship ($M = 15.21 \pm 8.30$), $p = 0,008$. Additionally, results showed that single people ($M = 14.48 \pm 9.24$) had statistically higher levels of depression compared to people who were in a relationship ($M = 12.32 \pm 7.48$), $p = 0,029$. A one-way ANOVA was also performed to compare the level of anxiety on marital status and it revealed that there was a statistically significant difference in marital status between the two groups ($F(2, 429) = 4.263$, $p = 0.015$). Results showed that single people ($M = 16.38 \pm 9.93$) had a statistically higher level of anxiety compared to married participants ($M = 10.30 \pm 9.78$), $p = 0,015$.

There was a statistically significant difference between groups in terms of socioeconomic status as determined by the one-way ANOVA ($F(2,429) = 5.128$, $p = 0.006$). A Tukey post hoc test revealed that people with a middle socioeconomic status ($M = 19.73 \pm 9.37$) had a statistically significantly higher level of stress compared to people with a high socioeconomic status ($M = 16.87 \pm 8.46$), $p = 0.005$. A one-way

The mediating role of sleeping problems, burnout syndrome, stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction among

ANOVA was also performed to compare the level of depression with socioeconomic status and revealed that there was a statistically significant difference ($F(2, 429) = 5.155, p = 0.006$). Results showed that people with a middle socioeconomic status ($M = 14.11 \pm 8.81$) had a statistically significantly higher level of depression compared to people with a high socio-economic status ($M = 11.50 \pm 8.13, p = 0.007$).

A one-way ANOVA was performed to compare the level of anxiety on socioeconomic status and revealed that there was a statistically significant difference ($F(2, 429) = 6.597, p = 0.002$). Tukey's HSD Test found that people with a high socioeconomic status ($M = 13.59 \pm 8.50$) had a statistically significantly lower level of anxiety compared to people with a middle socioeconomic status ($M = 16.86 \pm 9.60, p = 0.001$).

The **COPSOQ wellbeing scales** consisted of several items collected with a five-point Likert scale (categories ranging from "never" to "always"). The single items of the COPSOQ scales were transformed to a theoretical range from 0 (representing the lowest possible value of the aspect under investigation) to 100 (representing the highest possible value). Scale values are presented as mean values. Cronbach's Alpha was employed to evaluate the internal consistency of the scales, demonstrating good reliability: 0.74 for sleep disorders, 0.85 for burnout, 0.79 for general stress, 0.74 for somatic stress, 0.85 for cognitive stress, 0.85 for depressive symptoms, and 0.84 for general self-efficacy. Table III presents the results according to gender, for the seven COPSOQ wellbeing subscales.

TABLE III.
Gender differences for COPSOQ wellbeing subscales.¹

Subscales	Men	Women	Differences
Sleep disorders	36.15 ± 17.55	39.53 ± 19.57	p = 0.158
Burnout	50.07 ± 25.14	56.92 ± 21.02	p = 0.012
General stress	43.45 ± 21.99	48.44 ± 21.05	p = 0.060
Somatic stress	25.31 ± 20.67	33.76 ± 18.47	p = 0.000
Cognitive stress	38.44 ± 20.80	43.89 ± 22.03	p = 0.046
Depressive symptoms	42.32 ± 25.88	45.57 ± 22.16	p = 0.255
General self-efficacy	72.46 ± 18.49	65.21 ± 17.86	p = 0.001

¹ Means and standard deviations (M±D), frequency and percentages (%)

An independent-samples t-test was run to determine if there were significant differences between people living in urban areas and those living in rural areas on the COPSOQ scale. The results showed that people who lived in urban areas ($M = 37.17 \pm 19.86$) reported lower levels of sleeping troubles than people who lived in rural areas ($M = 41.71 \pm 17.91$). This difference was significant: $t(430) = 2.401, p = 0.017$.

Additionally, the results showed that people living in urban areas ($M = 30.16 \pm 19.25$) reported lower levels of somatic stress than people living in rural areas ($M = 35.50 \pm 18.57, t(430) = 2.839, p = 0.005$).

The results of the research showed that people diagnosed with chronic diseases had statistically a significantly higher level of burnout ($M = 63.41 \pm 17.95$) compared to people who did not have such a diagnostic

(55.00 ± 22.17), $t(430) = 2.152$, $p = 0.032$.

There was a statistically significant difference between groups in terms of marital status, as determined by the one-way ANOVA ($F(2,429) = 5.759$, $p = 0.003$). A Tukey post hoc test revealed that single people ($M = 58.26 \pm 21.46$) had a statistically significantly higher level of burnout compared to married people ($M = 42.18 \pm 22.56$), $p = 0.005$. Cronbach's Alpha score for the BSQ scale was 0.94. The overall BSQ score averaged at $M = 43.43 \pm 19.20$, with scores ranging from 16 (0.7%, $N = 3$) to 96 (0.2%, $N = 1$). An independent-samples t-test was conducted to determine if there were significant differences between women and men on this scale. The results showed that men ($M = 34.18 \pm 14.05$) reported a lower level of body dissatisfaction compared to women ($M = 45.50 \pm 19.60$). This difference was significant $t(430) = -5.972$, $p < 0.001$.

This study found that people diagnosed with chronic diseases had a statistically significantly higher level of body dissatisfaction ($M = 51.76 \pm 18.62$) compared to people who did not have such a diagnostic

(42.72 ± 19.11), $t(430) = 2.653$, $p = 0.008$.

A one-way ANOVA was performed to compare the level of body dissatisfaction on weight status and revealed that there were statistically significant differences in the three groups ($F(3, 428) = 20.080$, $p < 0.001$). Tukey's HSD Test found that normal-weight people ($M = 42.85 \pm 18.51$) had a statistically significantly higher level of body dissatisfaction compared to underweight people ($M = 32.62 \pm 10.98$), $p < 0.001$. Results showed that normal-weight people ($M = 42.85 \pm 18.51$) had a lower level of body dissatisfaction compared to overweight people ($M = 50.52 \pm 20.96$), $p = 0.007$. Additionally, results showed that overweight people ($M = 50.52 \pm 20.96$) had a lower level of body dissatisfaction compared to underweight participants ($M = 64.11 \pm 19.37$), $p = 0.026$.

For the **SATAQ scale**, Cronbach Alpha was 0.91 for total scale, 0.85 for Internalization (thin/low body fat) 0.87 for Internalization (Muscular or Athletic), 0.95 for Pressures-Media, 0.87 for Pressures-Family and 0.89 for Pressures-Peers. For SATAQ subscales we obtained the following results:

TABLE IV.
Gender differences for SATAQ scale and subscales.¹

Subscales	Men	Women	Differences
Internalization Thin / Low Body Fat	12.49 ± 4.42	14.89 ± 5.39	$p = 0.000$
Internalization Muscular / Athletic	16.41 ± 5.00	13.44 ± 4.68	$p = 0.000$
Pressure Media	8.12 ± 4.88	11.24 ± 5.49	$p = 0.000$
Pressure Family	8.22 ± 3.77	8.19 ± 4.38	$p = 0.956$
Pressure Peers	7.70 ± 3.62	7.32 ± 4.05	$p = 0.440$
General SATAQ score	52.97 ± 13.99	55.11 ± 17.13	$p = 0.302$

¹ Means and standard deviations ($M \pm D$), frequency and percentages (%)

This study found that people diagnosed with chronic diseases had statistically significantly higher levels of internalization of thin/low body fat ($M = 16.88 \pm 4.41$) com-

pared to people who did not have such a diagnostic (14.25 ± 5.33), $t(430) = 2.796$, $p = 0.005$. Moreover, results showed that people diagnosed with chronic diseases had

The mediating role of sleeping problems, burnout syndrome, stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction among

statistically significantly higher levels of socio-cultural pressures from media ($M = 13.50 \pm 4.82$) compared to people who did not have such a diagnostic (10.43 ± 5.50), $t(430) = 3.145, p = 0.002$. A one-way ANOVA was conducted to compare SATAQ subscale levels among different marital status groups, uncovering statistically significant differences in the internalization of thin, low body fat levels ($F(2, 429) = 3.835, p = 0.022$). The Tukey's HSD Test found that single people ($M = 14.82 \pm 5.28$) had a statistically significantly higher level of internalization of the thin, low body fat compared to married people ($M = 12.90 \pm 5.95$), $p = 0.041$. Additionally, one-way ANOVA results for the pressure from the media subscale ($F(2, 429) = 5.470, p = 0.005$) showed that married people ($M = 6.85 \pm 3.68$) had a lower level of *socio-cultural* pressure from the media compared to single people ($M = 11.07 \pm 5.58$), $p = 0.003$.

A one-way ANOVA was performed to compare the level of internalization of the thin/low body fat on socioeconomic status and revealed that there was a statistically significant difference ($F(2, 429) = 4.930, p = 0.008$). Tukey's HSD Test found that people with a high socioeconomic status ($M = 14.85 \pm 4.86$) had a statistically significantly higher level of internalization of the thin, low body fat compared to people with a middle socioeconomic status ($M = 13.34 \pm 4.79$), $p = 0.001$. For the present study, the Cronbach Alpha score was 0.77. **General lifestyle scores**, as measured with the GLQ, ranged from 94 up to 190 ($M = 143.83 \pm 15.14$). The following results were obtained for GLQ subscales: *physical activity*- $M = 28.40 \pm 6.84$, *cognitive activities* - $M = 18.72 \pm 6.16$, *social activities*- $M = 32.53 \pm 3.97$, *other leisure activities* - $M = 23.64 \pm 3.56$, *eating habits, alcohol con-*

sumption, tobacco consumption, and sleep quality - $M = 36.39 \pm 4.86$.

A one-way ANOVA was performed to compare the levels of GLQ subscales on marital status, and revealed that there were statistically significant differences in terms of physical activity levels ($F(2, 429) = 5.066, p = 0.007$). The Tukey's HSD Test found that single people ($M = 29.43 \pm 7.08$) had a statistically significantly higher level of physical activity compared to people who were in a relationship ($M = 27.55 \pm 6.55, p = 0.015$).

A one-way ANOVA was performed to compare the levels of GLQ scale and subscales on socioeconomic status. There was a statistically significant difference ($F(2, 429) = 5.751, p = 0.003$) on GLQ scale. Tukey's HSD Test found that people with high socioeconomic status ($M = 146.72 \pm 15.49$) had a better overall lifestyle compared to people with middle socioeconomic status ($M = 142.17 \pm 14.96$), $p = 0.008$. There was a statistically significant difference between groups on GLQ subscale measuring social activities ($F(2, 429) = 16.599, p < 0.001$). The Tukey's HSD Test demonstrated that people with high socioeconomic status ($M = 33.67 \pm 4.00$) participated in more social activities compared to people with low socioeconomic status ($M = 29.59 \pm 3.73$), $p < 0.001$ and to people with a middle socioeconomic status ($M = 31.97 \pm 3.72$), $p < 0.001$. Furthermore, results found that people with a low socioeconomic status ($M = 29.59 \pm 3.73$) engaged in fewer social activities compared to people with a middle socioeconomic status ($M = 31.97 \pm 3.72$), $p = 0.017$.

There was a statistically significant difference between groups in terms of weight status and *Sleep, diet and consumption subscale* as determined by the one-way

ANOVA ($F(3,428) = 3.860, p = 0.010$). A Tukey post hoc test revealed that underweight people ($M = 37.81 \pm 4.79$) had a statistically significantly higher level on this scale compared to overweight people ($M = 35.22 \pm 4.93$), $p = 0.008$.

The correlational analysis showed that there were significant associations between the participants' age and certain variables. We identified that the older the age, the higher the BMI ($r = 0.121^*$, $p = 0.012$). The results showed that age correlated negatively with stress ($r = -0.186^{**}$, $p < 0.001$), depression ($r = -0.115^*$, $p = 0.016$), and anxiety ($r = -0.204^{**}$, $p < 0.001$) in the sense that the older the age, the lower the levels of stress, depression, or anxiety. Furthermore, age correlated negatively with burnout ($r = -0.196^{**}$, $p < 0.001$) and sleeping problems ($r = -0.179^{**}$, $p < 0.001$) variables in the sense that the older the age, the lower the levels of burnout, and fewer problems with sleep appear. Negative correlations were identified between age and the pressure felt from the media ($r = -0.104^*$, $p = 0.031$), in the sense that the older the age, the lower the level of *socio-cultural* pressure from the media. Moreover, age correlated negatively with social activity ($r = -0.099^*$, $p = 0.039$), in the sense that the older the people get, the fewer social activities they perform.

The Pearson correlation results showed that there were positive correlations between BMI and the BSQ total score ($r = 0.396^{**}$, $p < 0.001$), in the sense that the higher the BMI, the higher the body dissatisfaction.

The results showed that BMI correlated with SATAQ subscales such as Internalization of body fat ($r = 0.204^{**}$, $p < 0.001$), Pressure from Media ($r = 0.163^*$, $p = 0.001$) Pressure from Family ($r = 0.441^{**}$, $p < 0.001$) and Pressure from Peers ($r =$

0.355^{**} , $p < 0.001$), in the sense that the higher the BMI, the higher the internalization of a thin, low body fat, and the more *socio-cultural* pressures from the media, family, or peers were felt. Furthermore, there were negative correlations between BMI and the GLQ total score ($r = -0.101^*$, $p = 0.036$), in the sense that the higher the BMI, the less healthy the lifestyle of the participants.

The correlational analysis showed that there was a positive correlation between socioeconomic status and the GLQ total score ($r = 0.188^*$, $p < 0.001$), in the sense that the higher the socioeconomic status, the healthier the lifestyle of the participants. The results showed that socioeconomic negatively correlated with cognitive stress ($r = -0.160^{**}$, $p = 0.001$), somatic stress ($r = -0.187^{**}$, $p < 0.001$), burnout ($r = -0.149^{**}$, $p = 0.002$), sleeping problems ($r = -0.102^*$, $p = 0.034$), anxiety ($r = -0.161^{**}$, $p = 0.001$) and depression ($r = -0.169^{**}$, $p < 0.001$) in the sense that the higher the socioeconomic status, the lower the participants' levels of cognitive stress, somatic stress, burnout, depression, anxiety, and the fewer sleep problems appear. Other correlational results are presented in Table V.

A multiple regression was run to predict body dissatisfaction from depression, anxiety, and stress. This resulted in a significant model, $F(3, 248) = 27.309, p < 0.001, R^2 = 0.161$. Further analysis of the individual predictors revealed that depression ($t = 3.075, p = 0.002$) and anxiety ($t = 2.435, p = 0.015$) were significant predictors but stress was not ($t = 0.584, p = 0.559$). Another multiple regression was run to predict *socio-cultural* attitudes towards appearance from sleeping problems, burnout, depressive symptoms,

The mediating role of sleeping problems, burnout syndrome, stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction among

self-efficacy, somatic stress, and cognitive stress. This resulted in a significant model, $F(6, 425) = 9.373, p < 0.001, R^2 = 0.342$. Further analysis of the individual predictors revealed that depressive symptoms ($t = -4.313, p < 0.001$) and self-

efficacy ($t = -1.885, p = 0.006$) were significant predictors but, sleeping problems ($t = 0.444, p = 0.657$), burnout ($t = -0.564, p = 0.573$), somatic stress ($t = 1.336, p = 0.182$), and cognitive stress ($t = -0.928, p = 0.354$) were not.

TABLE V.
Correlation results

	BSQ	SATAQ_ Int_body fat	SATAQ_ Int_Muscular, Athletic	SATAQ_ Pressure_M	SATAQ_ Pressure_F	SATAQ_ Pressure_P	Stress	Depression	Anxiety
BSQ	1								
SATAQ Int Body fat	$r=0.680$ $p=0.000^{**}$	1							
SATAQ Int Muscular, Athletic	$r=0.153$ $p=0.001^{**}$	$r=0.342$ $p=0.000^{**}$	1						
SATAQ Pressure Media	$r=0.578$ $p=0.001^{**}$	$r=0.469$ $p=0.001^{**}$	$r=0.158$ $p=0.001^{**}$	1					
SATAQ Pressure Family	$r=0.527$ $p=0.000^{**}$	$r=0.372$ $p=0.000^{**}$	$r=0.169$ $p=0.000^{**}$	$r=0.388$ $p=0.000^{**}$	1				
SATAQ Pressure Peers	$r=0.530$ $p=0.000^{**}$	$r=0.377$ $p=0.000^{**}$	$r=0.157$ $p=0.001^{**}$	$r=0.414$ $p=0.000^{**}$	$r=0.682$ $p=0.000^{**}$	1			
STRESS	$r=0.341$ $p=0.000^{**}$	$r=0.188$ $p=0.000^{**}$	no correlation	$r=0.264$ $p=0.000^{**}$	$r=0.188$ $p=0.000^{**}$	$r=0.197$ $p=0.000^{**}$	1		
DEPRESSION	$r=0.377$ $p=0.000^{**}$	$r=0.206$ $p=0.000^{**}$	no correlation	$r=0.283$ $p=0.000^{**}$	$r=0.213$ $p=0.000^{**}$	$r=0.219$ $p=0.000^{**}$	$r=0.763$ $p=0.000^{**}$	1	
ANXIETY	$r=0.361$ $p=0.000^{**}$	$r=0.197$ $p=0.000^{**}$	no correlation	$r=0.271$ $p=0.000^{**}$	$r=0.190$ $p=0.000^{**}$	$r=0.223$ $p=0.000^{**}$	$r=0.742$ $p=0.000^{**}$	$r=0.707$ $p=0.000^{**}$	1

* $p < 0.05$; ** $p < 0.001$.

The study assessed the mediating role of sleeping problems, burnout, general stress, cognitive stress, somatic stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction. The results revealed a significant indirect effect of impact of attitudes towards appearance on body dissatisfaction through sleeping problems ($b = 0.832, t = 3.783, p = 0.002$), burnout ($b = 1.018, t = 4.067, p = 0.001$), general stress ($b = 0.629, t = 3.440, p = 0.006$), somatic stress ($b = 0.950, t = 4.363, p < 0.001$), cog-

nitive stress ($b = 1.058, t = 4.250, p < 0.001$), depressive symptoms ($b = 1.779, t = 7.071, p < 0.001$), and general self-efficacy ($b = -1.262, t = -4.060, p < 0.001$).

The study also found a significant indirect effect of the impact of body dissatisfaction on attitudes towards appearance through sleeping problems ($b = -0.093, t = -2.335, p = 0.002$), somatic stress ($b = 0.043, t = 2.258, p = 0.002$), depressive symptoms ($b = 1.731, t = 3.404, p = 0.007$), and general self-efficacy ($b = -0.079, t = -2.330, p = 0.021$). Furthermore, the direct effect of

attitudes towards appearance on body dissatisfaction in the presence of the mediators was also found to be significant ($b = 0.730$, $p < 0.001$). Hence, sleeping problems, somatic stress, depressive symptoms, and general self-efficacy partially mediated the relationship between attitudes towards appearance and body dissatisfaction.

DISCUSSION

The present research showed that sex, age, marital status, socioeconomic level, the presence of a chronic disease, and BMI are important variables. The analysis of the data revealed that men were less stressed and anxious, and they were less likely to have body dissatisfaction compared to women. These results are congruent with the scientific literature and can be explained by the fact that, usually, men are less accurate in evaluating their weight compared to women. Young women were more accurate in estimating their BMI, so they could be more objective in expressing dissatisfaction with their body weight. Additionally, failing to estimate overweight could generate a low level of involvement in dieting or the practice of healthy behaviors (21-23). Dye and his team (24) also showed in their study that women reported higher preoccupation with weight, dieting, and eating restraint than men.

Age. The research showed that the older the respondent was, the lower the levels of stress, depression, or anxiety. Additionally, age correlated negatively with burnout and sleeping problems. Negative correlations were identified between age and the pressure felt from the media and social activity, in the sense that the older the people got, the fewer social activities they performed, and the less pressure from the media they felt. Some other authors maintain that age

plays a significant role in the relationship between body dissatisfaction and BMI. This is because BMI increases across the transition from adolescence to young adulthood. The studies of Bucchianeri *et al.* (25) and Bully *et al.* (26) identified opposite results regarding the fact that youth become increasingly dissatisfied with their bodies. The first research team identified that young females were more dissatisfied with their body image, while Bully and his team found that there were not important differences throughout the years.

Marital status was found to be an important factor, the study revealing that married people presented statistically significantly lower levels of stress, depression, anxiety, and burnout syndrome compared to single people or those in a relationship. The results of the research identified that married respondents presented a lower level of *socio-cultural* pressure from the media and a lower level of internalization of the thin, low body fat compared to single subjects. Single people had a statistically significantly higher level of physical activity compared to people who were in a relationship.

Rosenqvist *et al.* (27) identified that in case of married women, satisfaction with body image is related to the level of education. These differences in body dissatisfaction based on educational level were found to be important in public health actions aiming to reduce socioeconomic inequalities in health and well-being.

Socio-economic status. There was a statistically significant difference between groups in terms of socioeconomic status. Results showed that people with a middle socioeconomic status had a statistically significantly higher level of depression, anxiety and stress compared to people with

The mediating role of sleeping problems, burnout syndrome, stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction among

a high socioeconomic status. We also found that people with a high socioeconomic status had a statistically significantly higher level of internalization of the thin, low body fat compared to people with a middle socioeconomic status. Subjects with a high socioeconomic status had a better overall lifestyle and had better social activity compared to respondents with middle socioeconomic status. The data showed that the higher the socioeconomic status, the healthier the lifestyle of the participants and the lower the participants' levels of cognitive stress, somatic stress, burnout, depression, anxiety, and fewer sleep problems. Therefore, health policies prioritize addressing socioeconomic factors to ensure that individuals from all socioeconomic backgrounds have equal access to recreational, medical, psychological, and recovery health services. These policies also aim to promote changes in nutritional and physical activity behaviors that contribute to overall health, while emphasizing the importance of high-quality food.

Chronic disease. People who were chronically ill had statistically significantly higher levels of burnout syndrome, and they registered higher levels of body dissatisfaction compared to young people with no chronic disease. Young people with chronic diseases obtained statistically significantly higher levels of internalization of the thin, low body fat and a significantly higher level of *socio-cultural* pressure from the media, compared to people who did not have a diagnostic. Our results are congruent with those of the scientific literature, but this variable should also be interpreted considering the type of chronic disease. For example, Markey *et al.* (28) identified that the acceptance of pain was associated with reports of body appreciation in case of

young people with chronic pain; Wabich *et al.* (29) showed that 87% of patients with inflammatory bowel disease reported body dissatisfaction; and Darukhanavala *et al.* (30) proved that the rate is about 21% among men and 66% among women with cystic fibrosis.

BMI. The analysis of the answers identified that the higher the BMI, the higher the body dissatisfaction. We found that normal-weight young people had a statistically significantly higher level of body dissatisfaction compared to underweight people, but a lower level of body dissatisfaction compared to overweight people. We also found that underweight people obtained a statistically significantly higher level on the scale *Sleep, diet and consumption* compared to overweight respondents.

In order to predict body dissatisfaction from depression, anxiety, and stress, the multiple regression showed a significant model, and indicated that depression and anxiety were significant predictors, but stress was not.

We also found that sleeping problems, somatic stress, depressive symptoms and general self-efficacy partially mediated the relationship between attitudes towards appearance and body dissatisfaction.

CONCLUSIONS

In this study, by using a specific questionnaire to collect relevant information related to socio-economic and psychological factors, we assessed the impact of sleeping problems, burnout syndrome, stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction among Romanian young people. The study was conducted on people aged between 18-30 years old. The results showcased a significant correlation between

factors such as age, gender, marital and socio-economic status and the impact of stress, depression, anxiety on the perception of body image and related levels of dissatisfaction.

CONFLICT OF INTEREST AND FUNDING

The authors declare that there is no conflict of interest, and they received no specific funding regarding this scientific research.

REFERENCES

1. Fox J, Vendemia MA, Smith MA, Brehm NR. Effects of taking selfies on women's self-objectification, mood, self-esteem, and social aggression toward female peers. *Body Image* 2021; 36: 193-220.
2. Wang Y, Wang X, Liu H, Xie X, Wang P, Lei L. Selfie posting and self-esteem among young adult women: A mediation model of positive feedback and body satisfaction. *Journal of Health Psychology* 2020; (2): 161-172.
3. Lamp SJ, Cugle A, Silverman AL, Thomas MT, Liss M, Erchull MJ. Picture perfect: The relationship between selfie behaviors, self-objectification, and depressive symptoms. *Sex Roles* 2019; 81: 704-712.
4. Tiggemann M, Zinoviev K. The effect of #enhancement-free Instagram images and hashtags on women's body image. *Body Image* 2019; 31: 131-138.
5. Matias TD, Silva KS, Duca GF, Bertuol C, Lopes MV, Nahas MV. Attitudes towards body weight dissatisfaction associated with adolescents' perceived health and sleep (PeNSE 2015). *Ciência & Saúde Coletiva* 2020; 25: 1483-1490.
6. Murray K, Rieger E, Byrne D. A longitudinal investigation of the mediating role of self-esteem and body importance in the relationship between stress and body dissatisfaction in adolescent females and males. *Body Image* 2013; 10(4): 544-551.
7. Hao M, Liu X, Wang Y, Wu Q, Yan W, Hao Y. The associations between body dissatisfaction, exercise intensity, sleep quality, and depression in university students in southern China. *Frontiers in Psychiatry* 2023; 14: 1118855.
8. White ML, Triplett OM, Morales N, Van Dyk TR. Associations Among Sleep, Emotional Eating, and Body Dissatisfaction in Adolescents. *Child Psychiatry Hum Dev* 2024 / doi: 10.1007/s10578-024-01692-4.
9. Liu B, Liu X, Zou L, Hu J, Wang Y, Hao M. The effects of body dissatisfaction, sleep duration, and exercise habits on the mental health of university students in southern China during COVID-19. *PLoS One* 2023; 18(10): e0292896.
10. Brand S, Beck J, Hatzinger M, Harbaugh A, Ruch W, Holsboer-Trachsler E. Associations between satisfaction with life, burnout-related emotional and physical exhaustion, and sleep complaints. *The World Journal of Biological Psychiatry* 2010; 11(5): 744-754.
11. Kołło H, Guskowska M, Mazur J, Dzielska A. Self-efficacy, self-esteem and body image as psychological determinants of 15-year-old adolescents' physical activity levels. *Human movement* 2012; 13(3): 264-270.
12. Ghosh E, Mukherjee P, Ghosh S. A comparative study on objectified body image and self-efficacy among young adult and middle-aged women from urban area. *IJPR* 2024; 6(1): 05-09.
13. Guo QG, Luo J, Song ML, Xi, HD. Influence of self-esteem and body image on sports participation in students. *J Xian Phys Educ Uni* 2017; 34: 730-738.
14. Ouyang Y, Wang K, Zhang T, Peng L, Song G, Luo J. The influence of sports participation on body image, self-efficacy, and self-esteem in college students. *Frontiers in Psychology* 2020; 10: 499087.
15. Roohafza H, Feizi A, Gharipour M, *et al.* Development and validation of a Socio-economic Status Short-Form Questionnaire (SES-SQ). *ARYA Atheroscler* 2021; 17: 2355.

The mediating role of sleeping problems, burnout syndrome, stress, depressive symptoms, and self-efficacy on the relationship between attitudes towards appearance and body dissatisfaction among

16. Lovibond PF, Lovibond SH. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behavior research and therapy* 1995; 33(3): 335-343.
17. Burr H, Berthelsen H, Moncada S, *et al.* The third version of the Copenhagen psychosocial questionnaire. *Safety and health at work* 2019; 10(4): 482-503.
18. Evans C, *et al.* Body Shape Questionnaire: derivation of shortened “alternate forms”. *International Journal of Eating Disorders* 1993; 13(3): 315-321.
19. Schaefer LM, Burke NL, Thompson JK, *et al.* Development and validation of the Socio-cultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4). *Psychol Assess* 2015; 27: 54-67.
20. Lopez-Fontana I, Perrot A, Krueger KR, Le Scanff C, Bherer L, Castanier C. A global lifestyle assessment: Psychometric properties of the General Lifestyle Questionnaire. *Psychologie Française* 2020; 65(4): 311-323.
21. Wardle J, Haase AM, Steptoe A. Body image and weight control in young adults: international comparisons in university students from 22 countries. *International Journal of Obesity* 2006; (4): 644-651.
22. Mikolajczyk RT, Maxwell AE, El Ansari W, Stock C, Petkeviciene J, Guillen-Grima F. Relationship between perceived body weight and body mass index based on self-reported height and weight among university students: a cross-sectional study in seven European countries. *BMC Public Health* 2010; 10: 1-1.
23. Radwan H, Hasan HA, Ismat H, *et al.* Body mass index perception, body image dissatisfaction and their relations with weight-related behaviors among university students. *International journal of environmental research and public health* 2019; 16(9): 1541 / doi: 10.3390/ijerph16091541.
24. Dye H. Are there differences in gender, race, and age regarding body dissatisfaction? *Journal of Human Behavior in the Social Environment* 2016; 26(6): 499-508.
25. Bucchianeri MM, Arikian AJ, Hannan PJ, Eisenberg ME, Neumark-Sztainer D. Body dissatisfaction from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Body Image* 2013; 10(1): 1-7.
26. Bully P, Elosua P. Changes in body dissatisfaction relative to gender and age: The modulating character of BMI. *The Spanish Journal of Psychology* 2011; 14(1): 313-322.
27. Rosenqvist E, Kontinen H, Berg N, Kiviruusu O. Development of body dissatisfaction in women and men at different educational levels during the life course. *International Journal of Behavioral Medicine* 2023; 1-2 / doi: 10.1007/s12529-023-10213-x.
28. Markey CH, Dunaev JL, August KJ. Body image experiences in the context of chronic pain: An examination of associations among perceptions of pain, body dissatisfaction, and positive body image. *Body Image* 2020; 32: 103-110.
29. Wabich J, Bellaguarda E, Joyce C, Keefer L, Kinsinger S. Disordered eating, body dissatisfaction, and psychological distress in patients with inflammatory bowel disease (IBD). *Journal of Clinical Psychology in Medical Settings* 2020; 27(2): 310-317.
30. Darukhanavala A, Merjaneh L, Mason K, Le T. Eating disorders and body image in cystic fibrosis. *Journal of Clinical & Translational Endocrinology* 2021; 26: 110028.