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An Investigation of the Relationship Between Body Image, Pain, Sleep Quality and Emotional State Among University Students

Üniversite Öğrencilerinde Vücut İmajının Ağrı, Uyku Kalitesi ve Duygu durum Arasındaki İlişkinin İncelenmesi

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ABSTRACT

This study aims to examine the relationship between body image, pain, sleep quality, and emotional state in university students. The study was conducted between January and March 2025 with the participation of 106 university students. Body image was assessed using the Body Appreciation Scale, depression levels with the Beck Depression Inventory, sleep quality with the Pittsburgh Sleep Quality Index, and pain intensity with the Visual Analog Scale. Data were analyzed using SPSS 20.0, and Pearson correlation tests were performed. The results revealed a statistically significant negative correlation between body image and depression ($p<0.05$), while no significant correlation was found between body image and either pain or sleep quality ($p>0.05$). In conclusion, a lower body image is associated with higher levels of depression. These findings suggest that body image should be considered in psychological assessments and mental health interventions among university students.

Keywords: Body image, depression, sleep quality, pain, university students.

ÖZET

Bu çalışma, üniversite öğrencilerinde vücut imajı ile ağrı, uyku kalitesi ve duygu durumu arasındaki ilişkiyi incelemeyi amaçlamaktadır. Çalışmaya 2025 yılı Ocak-Mart ayları arasında 106 üniversite öğrencisi katılmıştır. Katılımcıların vücut imajları Bedeni Beğenme Ölçeği, depresyon düzeyleri Beck Depresyon Ölçeği, uyku kaliteleri Pittsburgh Uyku Kalitesi İndeksi ve ağrı düzeyleri ise Görsel Analog Skala kullanılarak değerlendirilmiştir. Elde edilen veriler SPSS 20.0 programı aracılığıyla analiz edilmiş ve değişkenlerin arasındaki ilişkileri belirlemek amacıyla Pearson korelasyon testi uygulanmıştır. Analiz sonuçları vücut imajı ile depresyon arasında negatif yönde anlamlı bir ilişki bulunduğunu göstermiştir ($p<0,05$). Buna karşılık vücut imajı ile ağrı düzeyi ve uyku kalitesi arasında istatistiksel olarak anlamlı bir ilişki saptanmamıştır ($p>0,05$). Sonuç olarak, düşük vücut imajı depresyon düzeyinin artması ile ilişkilidir. Bu bulgu, üniversite öğrencilerinin ruh sağlığı değerlendirmelerinde vücut imajının dikkate alınması gerektiğini ortaya koymaktadır.

Anahtar Kelimeler: Vücut imajı, depresyon, uyku kalitesi, ağrı, üniversite öğrencileri

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INTRODUCTION

Body image is the mental representation of an individual's body and all bodily sensations (Anlı et al., 2015). It not only reflects a person's psychological state but also encompasses perceptions of physical appearance and the evaluations formed through interactions between these perceptions and the social environment (Sardoğan et al., 2006). In this context, the concept of body image cannot be considered independent of the desire to appreciate one's own appearance and to be appreciated by others (Sardoğan et al., 2006).

While a positive body image does not pose a problem, studies show that a negative body image affects individuals not only psychologically but also physically (Ejder Apay & Bacacı, 2018). During young adulthood, the body is perceived both as a functional structure shaped by the development of sexual identity and as a fundamental determinant of body image (Anlı et al., 2015; Hisli, 1989; Sardoğan et al., 2006). In this period, young adults with low body image may experience mood disorders such as anxiety and depression. Among university students—who can be categorized as young adults—factors such as a demanding academic schedule, exam stress, and preparation for professional life may lead to pain and sleep disturbances, which are significant in relation to body image. Insufficient sleep and the presence of pain prevent individuals from feeling comfortable and at ease and thus may contribute to a decrease in body image (Brand et al., 2016; Finan et al., 2013; Gupta & Gupta, 2013).

Understanding the relationship between body image and pain, sleep quality, and mood among university students will allow for a more holistic approach to individuals experiencing these issues. Therefore, the purpose of this study is to examine the relationship between body image, pain, sleep, and mood in university students.

METHOD

The study protocol was approved by the Clinical Research Ethics Committee. The study was conducted between January and March 2025 among university students actively enrolled in their education. Demographic information—including age, gender, weight, and height—was collected from students who agreed to participate in the study Students' body image was assessed using the Body Appreciation Scale; mood was evaluated with the Beck Depression Inventory; sleep quality with the Pittsburgh Sleep Quality Index; and pain levels with the Visual Analog Scale. A form including demographic information and all assessment scales was prepared on an electronic platform. The form was shared in closed social media groups

used by university students. Participants who wished to take part in the study completed the form and recorded their responses.

To identify whether the questions were answered randomly, the item “What is the capital of Turkey?” was embedded among the other questions. A total of 197 students completed the form; however, 91 were excluded from the dataset due to incomplete or incorrect responses, and analyses were conducted with the remaining 106 students.

Demographic Data Form

In the demographic data form prepared by the researchers, participants were asked about their age, gender, weight, and height. Before the questionnaire items, a brief paragraph was provided outlining the purpose and scope of the study, the estimated time required to complete the form and contact information for any questions. Informed consent was obtained from all participants who agreed to take part in the study.

Body Appreciation Scale

The Body Appreciation Scale was developed by Tylka and Wood-Barcalow and adapted into Turkish by Anlı and colleagues. The scale consists of 10 items with 5-point Likert-type response options. There are no reverse-coded items, and the total body appreciation score is obtained by summing the scores of all items. The minimum and maximum possible scores are 10 and 50, respectively, with higher scores indicating a higher level of body appreciation (Anlı et al., 2015).

Beck Depression Inventory

The Beck Depression Inventory (BDI) was developed by Beck and colleagues to identify behavioural indicators of depression in adolescents and adults. It was later restructured by removing repetitive statements that defined severity levels, and participants are asked to respond based on the past week, including their current condition (Sardoğan et al., 2006). The total score of the inventory is calculated by summing the points obtained from all items. The resulting scores are interpreted as follows: 0–9 indicates minimal depression, 10–16 mild depression, 17–29 moderate depression, and 30–63 severe depression. The Turkish version of the scale is valid and reliable (Hisli, 1989).

Pittsburgh Sleep Quality Index

The Pittsburgh Sleep Quality Index (PSQI) was developed by Buysse and colleagues in 1989 to assess patients’ sleep quality over the past month in clinical studies. The Turkish validity and reliability study of the scale was conducted by Ağargün and colleagues in 1996 (Ağargün, 1996). The scale consists of 24 items. The last five items are answered by a person who shares the same room but are not included in the scoring. The total PSQI score ranges from 0 to 21.

Individuals scoring 5 or below are considered to have good sleep quality, whereas those scoring above 5 are regarded as having poor sleep quality (Buysse et al., 1989).

Visual Analog Scale

The Visual Analog Scale (VAS) is a subjective assessment tool consisting of a 10 cm horizontal or vertical line. The endpoints represent 0: no pain and 10: extreme/unbearable pain. The patient is asked to mark a point on the line corresponding to the intensity of their pain, taking these endpoints into account. The value is recorded in centimetres (Langley & Sheppeard, 1985).

Statistical Analysis

Data collected in the study were analysed using SPSS 20.0 (Statistical Package for the Social Sciences). Descriptive statistical methods, such as mean, standard deviation, and frequency distributions, were used to evaluate the data. The normality of the variables was assessed using the Shapiro-Wilk test. In this study, the relationships between participants' Body Appreciation Scale scores and the results of the Visual Analog Scale, Pittsburgh Sleep Quality Index, and Beck Depression Inventory were examined using the Pearson correlation test. A significance level of $p < 0.05$ was accepted.

RESULTS

The aim of this study was to examine the relationship between body image and pain, sleep quality, and mood among university students. A total of 106 participants, including 82 females and 24 males with a mean age of 21.3 ± 2.7 years, took part in the study. The participants' demographic information is presented in Table 1. The means and standard deviations of the assessed parameters are presented in Table 2.

Table 1. Demographic Characteristics of the Participants

Variables	Minimum	Maximum	Mean	Standard Error
Age (years)	17	36	21,3	2,7
Height (cm)	150	190	166,7	8,4
Weight (kg)	42	110	64,7	13,7

Table 2. Means and Standard Deviations of the Evaluated Parameters

Variables	Minimum	Maximum	Mean	Standard Deviation
Body Appreciation Scale	10	50	39,9	9,5
Visual Analog Scale	0	10	5,4	2,4
Pittsburgh Sleep Quality Index	0	16	7,9	3,5
Beck Depression Inventory	0	39	14,06	8,5

The descriptive statistics of the variables included in our study are summarized in Table 2. Participants' scores on the Body Appreciation Scale were relatively high (mean = 39.9, SD = 9.5), with the high standard deviation indicating considerable variability in levels of body appreciation. The mean score on the Pittsburgh Sleep Quality Index was 7.9 (SD = 3.5), suggesting that, overall, the group experienced a moderate level of sleep disturbance. On the Beck Depression Inventory, the mean score was 14.06 (SD = 8.5), which corresponds to mild depression according to the BDI scoring system. The Beck Depression Inventory scoring is as follows: 0–9 minimal depression, 10–16 mild depression, 17–29 moderate depression, and 30–63 severe depression. Among all variables, the lowest standard deviation was observed for the Visual Analog Scale (SD = 2.4), indicating that participants were relatively more homogeneous in their perception of pain.

In this study, individuals' body image perception was evaluated using the Body Appreciation Scale. The results revealed a statistically significant negative correlation between the Body Appreciation Scale and the Beck Depression Inventory among university students ($p<0.05$). This indicates that lower body image perception is associated with higher levels of depressive mood. No statistically significant relationship was found between the Body Appreciation Scale and either the Visual Analog Scale or the Pittsburgh Sleep Quality Index ($p>0.05$) (Table 3).

Table 3. The Relationship Between Individuals' Body Image Perception and Pain, Depression, and Sleep Quality

Variables		Beck Depression Inventory	Pittsburgh Sleep Quality Index	Visual Analog Scale
Body Appreciation Scale	**r**	-0.32	-0.18	-0.02
	p	0.001	0.06	0.81

$p<0.05$

DISCUSSION

The aim of this study was to examine the relationship between body image and pain, sleep quality, and depression levels among university students. The results indicated a significant relationship between body image and depression, whereas no significant relationship was found between body image and either sleep quality or pain.

As a social being, humans have a desire to establish a place for themselves within society, and one of the societal criteria for achieving this is attitudes and perceptions related to the body. When individuals' body appearances do not align with the idealized body image promoted by

society, body dissatisfaction may arise (Erdoğan & Tütüncü, 2015). How a person perceives their appearance and body influences their belief in acquiring a new identity and gaining acceptance within society (Timurturkan & Demez, 2018). Depression is a mood disorder that ranges from mild feelings of unhappiness and dissatisfaction to intense sadness, pessimism, and hopelessness, negatively affecting an individual's daily functioning (VandenBos, 2007). There are multiple factors contributing to depression, one of which is a disturbed body image (Beck, 1973; Noles et al., 1985). The results of this study indicated a significant negative relationship between body image and depression. In other words, individuals with lower body image were found to have higher levels of depression. Previous studies in the literature have similarly reported that low body image is associated with depression (Begovic-Juhant et al., 2012; Noles et al., 1985). Likewise, it has been suggested that as individuals' depression levels increase, negative body perceptions also intensify (Bayar, 2019). Body perception is known to play a critical role in identity development, particularly during the transition from adolescence to adulthood. The university period is characterized by increased interaction with physical and social environments and heightened social comparisons, which may create a context in which negative body image perceptions contribute to the development of psychological problems.

In this study, no significant relationship was found between body image and either pain or sleep quality. This finding may, in some respects, contradict the literature, as sleep quality is generally known to be associated with psychological well-being and body satisfaction (Shochat et al., 2014). However, this relationship was not observed in our study. A possible explanation is that the majority of participants were young, active individuals without chronic health conditions. Physiological conditions such as pain are often more strongly associated with age, medical history, and lifestyle factors. The predominance of young, healthy, and active participants in the sample may therefore have influenced the absence of a significant relationship. Pain and related sleep disturbances are typically more pronounced in populations with chronic illnesses, advanced age, or sedentary lifestyles. In young and healthy populations, the generally low variance in pain and sleep quality scores (typically indicating good levels) may make it difficult for correlations between these variables to reach statistical significance. Additionally, the lack of stress assessment may be relevant, as the literature indicates that negative body image often affects sleep quality through psychological stressors such as stress and anxiety. In our study, the absence of a direct measure of stress may have led to the potential mediating effect of this mechanism being overlooked. Even if body image dissatisfaction is high among participants, low overall stress levels may prevent negative

effects on pain and sleep quality. Furthermore, because measures such as pain and sleep quality are based on self-report, participants may have reported their current perceptions rather than their actual experiences, which could have masked clinically meaningful relationships, particularly in young and healthy individuals.

According to the Pittsburgh Sleep Quality Index (PSQI) results used in this study, the overall mean score was above 5, indicating that a substantial portion of participants experienced poor sleep quality. However, no significant association was found between body appreciation, and this reduced sleep quality. The exclusion of numerous factors that can affect sleep quality—such as academic stress, social environment, technology use, nutrition, and physical activity level—may have contributed to this outcome.

Limitations

The limitations of this study include its cross-sectional design, which is not suitable for establishing causal relationships. Participants were recruited voluntarily through social media, which may limit the representativeness of the sample. Another limitation is that important variables such as physical activity, chronic illness, or medication use—factors that can affect both sleep and pain—were not assessed.

CONCLUSION

In conclusion, the findings of this study suggest that body image perception may have significant effects on the psychological well-being of university students. Therefore, mental health programs implemented at universities should address not only issues such as stress, anxiety, and depression but also include interventions aimed at improving body image. Additionally, incorporating body image awareness into student counselling services and including body image assessments alongside depression and mental health screenings may represent valuable clinical implications derived from this study.

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