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ORIGINAL RESEARCH

Problematic Social Media Use, Self-Objectification, and Body Image Disturbance: The Moderating Roles of Physical Activity and Diet Intensity

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Purpose: This study examines the relationship between problematic social media use, self-objectification, and body image disturbance in women, with physical activity and diet intensity as moderators. It also explores the psychological outcomes of depression and anxiety.

Methods: A cross-sectional study was conducted with 594 women aged 18–65 in Istanbul, Türkiye. Participants completed validated measures assessing social media use, self-objectification, body image disturbance, physical activity, diet intensity, depression, and anxiety. A moderated mediation analysis was performed.

Results: Self-objectification significantly mediated the relationship between problematic social media use and body image disturbance (b = 0.14, SE = 0.03, 95% CI [0.10, 0.21], p < 0.01, R^2 = 0.18). Physical activity buffered this effect (b = −0.12, SE = 0.05, p = 0.02, d = 0.36), while diet intensity exacerbated it (b = 0.15, SE = 0.04, p < 0.01, d = 0.42). Body image disturbance also mediated the association between social media use and depression (b = 0.18, SE = 0.05, p < 0.01, R^2 = 0.22) and anxiety (b = 0.16, SE = 0.04, p < 0.01, R^2 = 0.19).

Conclusion: The findings highlight the dual roles of physical activity and diet intensity in shaping body image outcomes. The study underscores the need for targeted interventions to mitigate the negative impact of social media-driven self-objectification on body image and mental health.

Plain Language Summary: This study examines how social media use affects women's body image and mental health, focusing on the unique cultural environment of Istanbul, Türkiye. Social media platforms, particularly those emphasizing visuals, often promote unrealistic beauty standards. These images can lead women to internalize these ideals, evaluating themselves based on appearance rather than personal qualities. This process, known as self-objectification, may result in dissatisfaction with their own bodies and contribute to mental health challenges such as depression and anxiety.

We surveyed 594 women aged 18–65, analyzing their social media habits, body image concerns, physical activity levels, dieting behaviors, and mental health symptoms. We found that social media use is linked to greater body dissatisfaction through self-objectification. However, the extent of this relationship depends on lifestyle factors. Women who engaged in regular physical activity experienced less impact from self-objectification on their body image, suggesting that exercise can protect against harmful effects. On the other hand, restrictive dieting intensified these effects, highlighting the risks associated with extreme dieting practices.

Our findings also show that body dissatisfaction can lead to broader mental health challenges, including increased symptoms of depression and anxiety. These results emphasize the need for targeted interventions to promote healthier social media habits, balanced physical activity, and mindful eating practices. By addressing these factors, we can support women in navigating the pressures of social media and cultural beauty standards, fostering better mental health and body image.

Keywords: social media use, self-objectification, body image disturbance, physical activity, diet intensity

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Introduction

Body image has become a central aspect of identity in modern societies,[1] influenced by cultural ideals,[2] social norms,[3] and the pervasive presence of social media.[4] For women, these influences are amplified by societal pressures[5] and cultural standards[6] that disproportionately emphasize physical appearance as a measure of worth.[7] Women are more likely to experience body dissatisfaction,[8] internalize societal beauty ideals,[9] and develop self-objectification tendencies,[10] which in turn contribute to psychological distress.[11] These processes are particularly salient in metropolitan hubs[12] like Istanbul, where traditional values and modern digital culture intersect, creating a unique environment for examining body image-related issues.

While body image disturbance broadly refers to negative self-perceptions and dissatisfaction with one's physical appearance, BDD represents a more severe and clinically significant form of this disturbance. Individuals with BDD experience persistent preoccupation with perceived flaws, often leading to intense distress and impairment in daily functioning. Research suggests that self-objectification, problematic social media use, and lifestyle behaviors play a role in both general body image concerns and the development of BDD. By addressing BDD in the introduction, this study acknowledges the clinical spectrum of body image disturbances, reinforcing the need to understand the psychological mechanisms linking social media use, self-objectification, and body image dissatisfaction. While this study does not focus specifically on BDD, recognizing its connection to body image disturbance helps contextualize the potential severity of these issues.

Istanbul, as a culturally diverse and dynamic city, offers a rich context to study the complex interplay of traditional beauty norms and modern global influences. While traditional Turkish culture often celebrates natural beauty and modesty, the increasing adoption of Western ideals through media and social platforms has introduced new standards that emphasize unattainable perfection. Women in Istanbul are thus navigating dual pressures, facing societal expectations tied to both cultural heritage and globalized media imagery. This intersection makes Istanbul an ideal setting to explore the psychological and behavioral consequences of these influences on women's body image.[13]

Women in Istanbul experience a complex interplay between traditional cultural values and modern beauty ideals promoted through social media. While traditional Turkish norms often emphasize modesty and natural beauty, the increasing influence of Western beauty standards—which prioritize thinness, youth, and highly curated aesthetics—has created conflicting pressures. Women are expected to maintain cultural ideals of femininity while also conforming to globalized appearance norms, leading to heightened self-objectification and body dissatisfaction. This duality is particularly evident in social media environments, where Westernized beauty trends are widely adopted, yet social expectations rooted in family values, community perceptions, and gender roles continue to exert influence. As a result, women may experience greater psychological distress, struggling to navigate these contradictory societal expectations. Understanding this cultural tension is crucial for examining how problematic social media use contributes to body image concerns within this unique sociocultural landscape.

Body dysmorphic disorder (BDD) represents one of the most severe manifestations of body image disturbance.[14] BDD is characterized by a persistent preoccupation with perceived flaws in physical appearance,[15] often leading to significant emotional distress[16] and functional impairment.[17] Research highlights that women are more vulnerable to BDD,[18] with factors such as self-objectification,[19] problematic social media use,[20] and lifestyle behaviors playing critical roles in its development and maintenance.[21] Despite this, there is limited research investigating how these factors interact within the sociocultural context of Türkiye, leaving a gap in understanding that this study aims to address.

The theoretical framework for this study is rooted in objectification theory[22] which provides a lens to understand the psychological impact of societal pressures on women.[23] According to this theory, women internalize an external observer's perspective of their bodies, leading to self-objectification—a process where they evaluate their worth based on appearance rather than functionality.[24] This internalization fosters heightened body surveillance,[25] body shame,[26] and disconnection from internal bodily states,[27] all of which are strongly linked to body image disturbances,[28] depression,[29] and anxiety.[30] Social media amplifies these effects by creating a space where idealized images are omnipresent, fostering comparison and reinforcing self-objectification tendencies.[31]

Women are disproportionately affected by body image concerns and self-objectification, making them a critical population for examining the psychological impact of social media use. Research consistently shows that women experience higher levels of body dissatisfaction, greater internalization of beauty standards, and more frequent body surveillance compared to men. Objectification theory suggests that women are more likely to evaluate their self-worth based on appearance, contributing to heightened self-objectification, body shame, and mental health concerns such as depression and anxiety. Given these established gender differences, this study focuses on women to explore the mechanisms underlying body image disturbance, particularly in the context of social media use and cultural influences in Istanbul. Future research should consider gender-based comparisons to further understand how these dynamics may differ between men and women.

This study is significant in its examination of the interplay between social media use, self-objectification, and body image disturbance within a culturally diverse, non-Western context. While prior research has established links between social media exposure and body dissatisfaction, limited studies have explored how lifestyle factors such as physical activity and diet intensity influence these relationships. Given the increasing prevalence of body dissatisfaction, depression, and anxiety among women, identifying both protective and risk factors is critical for developing effective interventions. By situating the study in Istanbul, where Western beauty ideals intersect with traditional cultural norms, this research provides a unique perspective on self-objectification and its psychological consequences. The findings have important implications for mental health professionals, educators, and policymakers, informing targeted strategies to mitigate the negative impact of social media-driven self-objectification and promote healthier engagement with social media and body-related behaviors.

The study adopts a moderated mediation framework to explore the relationships among these variables. The framework posits that problematic social media use leads to body image disturbance[32] through the mediating role of self-objectification.[33] Furthermore, lifestyle factors such as physical activity and diet intensity are hypothesized to moderate the pathway between self-objectification and body image disturbance. Physical activity, often promoted as a strategy to improve body satisfaction,[34] may have differential effects based on its intensity or motivation (eg, health-oriented vs appearance-driven). Similarly, diet intensity may exacerbate self-objectification by reinforcing restrictive behaviors and unattainable ideals.[35]

Understanding these pathways is crucial for developing targeted interventions that address the root causes of body image disturbance and its psychological consequences. By examining the interplay of social media use, self-objectification, and lifestyle factors, this study seeks to uncover not only the mechanisms underlying body image disturbance but also the contextual factors that may amplify or mitigate its effects in women.

This research aims to contribute to the literature by focusing on the unique sociocultural context of Türkiye, leveraging validated psychological frameworks and rigorous methodologies. The findings have the potential to inform public health initiatives and clinical interventions designed to improve women's mental health and promote healthier relationships with body image in the digital age. As social media becomes increasingly influential in shaping perceptions of beauty and identity, addressing its role in psychological distress is more important than ever.

While prior research has extensively explored the relationship between social media use, self-objectification, and body image disturbance, fewer studies have examined the moderating role of lifestyle factors in these pathways. Recent findings suggest that physical activity may serve as a protective factor by promoting body functionality over aesthetic concerns,[1] while diet intensity may heighten body dissatisfaction by reinforcing rigid appearance-based goals.[3] However, the interaction of these behavioral factors with self-objectification remains underexplored, particularly in culturally diverse, non-Western settings. This study addresses this gap by investigating how physical activity and diet intensity moderate the self-objectification–body image disturbance pathway in a large, urban sample.

Additionally, the cultural duality of Istanbul presents a unique backdrop for understanding body image concerns in a rapidly modernizing society. Positioned between Europe and Asia, Istanbul's sociocultural landscape reflects a blend of Western beauty ideals and traditional expectations, leading to diverging pressures on women's body image perceptions. Unlike Western societies, where thinness or muscularity often dominate beauty standards, Istanbul's beauty ideals are shaped by both collectivist values and exposure to globalized media.[2] Despite its significance, little research has examined self-objectification within this cultural framework, making Istanbul an ideal setting for this study.

By integrating objectification theory with behavioral and cultural moderators, this research contributes to the broader understanding of how social media influences body image across different sociocultural contexts. By integrating objectification theory with lifestyle and cultural moderators, this research not only contributes to the theoretical understanding of body image concerns but also provides actionable insights for interventions that promote healthier engagement with social media and body-related behaviors.

Proposed Research Hypotheses

H1: Problematic social media use will be positively associated with body image disturbance.

H2: Self-objectification will mediate the relationship between problematic social media use and body image disturbance.

H3: Physical activity will moderate the relationship between self-objectification and body image disturbance, such that higher physical activity levels will weaken this relationship.

H4: Diet intensity will moderate the relationship between self-objectification and body image disturbance, such that higher diet intensity will strengthen this relationship.

H5: Body image disturbance will mediate the relationship between problematic social media use and psychological distress, including depression and anxiety.

Materials and Methods

Study Design

This cross-sectional study was conducted in Istanbul, Türkiye, a metropolitan setting that embodies the intersection of traditional and modern cultural values. The study aims to investigate the relationship between problematic social media use, self-objectification, and body image disturbance, incorporating physical activity and diet intensity as moderating variables. Depression and anxiety are also evaluated as psychological outcomes of body image disturbance. By adopting a moderated mediation model, the study seeks to uncover the nuanced pathways linking these variables and their relevance within the unique sociocultural context of Istanbul.

Clarification of Terminology

This study focuses on body image disturbance, which refers to negative self-perceptions, dissatisfaction with one's appearance, and distress related to body image concerns. While BDD is a clinical diagnosis characterized by a persistent preoccupation with perceived physical flaws that cause significant impairment, body image disturbance is a broader psychological construct that does not necessarily meet the clinical threshold for BDD. The study examines body image disturbance in relation to problematic social media use, self-objectification, and lifestyle factors rather than diagnosing or assessing BDD. Any mention of BDD in the manuscript serves to contextualize the potential severity of body image concerns rather than indicating a clinical focus on this disorder.

Participants

A priori power analysis was conducted using G Power 3.1 to determine the required sample size for detecting a moderate effect size ($f^2 = 0.02$) with 80% power at $\alpha = 0.05$ in a moderated mediation model. The analysis indicated that at least 500 participants were required to achieve sufficient statistical power. The final sample of 594 participants exceeded this requirement, ensuring adequate power for hypothesis testing.

A total of 594 women aged 18–65 participated in the study. Participants were recruited from social media platforms, fitness centers, and community organizations across Istanbul. The recruitment strategy aimed to ensure diversity in socioeconomic and educational backgrounds, representative of Istanbul's population. A detailed breakdown of participant demographics, including age, education level, socioeconomic status, and behavioral variables, is provided in Supplementary Materials (see Supplementary item 1 - participants details).

Inclusion Criteria

- Women aged 18–65 years.
- Active social media users (minimum of 2 hours daily).
- Ability to read and understand Turkish.
- No self-reported psychiatric diagnoses or eating disorders.

Exclusion Criteria

- Currently undergoing psychiatric treatment or taking psychotropic medications.
- Severe physical health conditions limiting activity levels.
- Incomplete or inconsistent responses in the survey.

Measures

Sociodemographic Form

A sociodemographic form was designed to collect essential background information about participants, including age, marital status, educational level, occupation, and socioeconomic status. Additionally, data on participants' social media habits, such as the average time spent daily on social media and the types of platforms used, were collected. This form helped contextualize the main variables by providing insights into the participants' demographic and lifestyle characteristics, ensuring a well-rounded analysis of the findings.

Social Media Disorder Scale (SMDS)

The SMDS, developed by van den Eijnden et al,[36] assesses problematic social media use through 9 items based on DSM-5 criteria for behavioral addiction. The Turkish adaptation, validated by Savcı et al,[37] demonstrated high reliability (Cronbach's $\alpha = 0.81$) and strong test-retest reliability ($r = 0.93$) also includes dimensions such as preoccupation, withdrawal, and interpersonal conflict. The Turkish adaptation uses a five-point Likert scale ranging from 1 (Never) to 5 (Always). Higher scores indicate greater levels of problematic social media use, with no specific clinical cutoff. The total score is obtained by summing the responses across all items, reflecting the severity of social media-related behavioral issues. The possible score range is 9 to 45, with higher scores indicating more severe problematic social media use.

Self-Objectification Questionnaire (SOQ)

Developed by Noll and Fredrickson (1998),[38] the SOQ evaluates self-objectification by asking participants to rank 10 body attributes (5 appearance-based, 5 competence-based) based on their perceived importance to physical self-concept. The Turkish adaptation by Yılmaz and Bozo (2019)[39] retained strong psychometric properties (Cronbach's $\alpha = 0.83$) and demonstrated good test-retest reliability ($r = 0.78$, $p < 0.01$) over a three-week interval. The SOQ consists of 10 items that assess the degree to which individuals prioritize appearance-based attributes over competence-based attributes in their self-concept. Participants rank five appearance-based attributes, such as physical attractiveness, weight, and body measurements, and five competence-based attributes, such as strength, health, and physical fitness, on a scale from 0 (least important) to 9 (most important). The total score is calculated by summing the rankings of the appearance-based attributes and the competence-based attributes separately, then subtracting the competence-based score from the appearance-based score. The resulting score ranges from −25 to +25, with higher scores indicating greater self-objectification, meaning the individual places more importance on appearance-related attributes than on competence-related ones. Negative scores suggest a stronger emphasis on physical ability and function rather than appearance.

Yale-Brown Obsessive-Compulsive Scale Modified for Body Dysmorphic Disorder (YBOCS-BDD)

This 12-item measure evaluates the severity of BDD symptoms, such as preoccupation and distress. The Turkish version demonstrated excellent internal consistency (Cronbach's $\alpha > 0.85$) strong test-retest reliability (Intraclass Correlation Coefficient = 0.73, $p < 0.01$) over a one-week interval. The Turkish version retained its factorial structure and psychometric robustness, supporting its use in clinical and research settings.[40,41] Each item is rated on a five-point Likert scale ranging from 0 (no symptoms) to 4 (extreme symptoms), with total scores ranging from 0 to 48. Higher

scores indicate greater severity of body dysmorphic disorder symptoms. Although there are no empirically derived cutoff scores, a total score of 20 or above typically suggests moderate to severe symptom severity.

Beck Depression Inventory-II (BDI-II)

A widely used 21-item scale assessing the severity of depressive symptoms. The Turkish adaptation, validated by Kapçı (2008) and later confirmed in subsequent studies, demonstrated high internal consistency (Cronbach's $\alpha = 0.89$) and strong test-retest reliability ($r = 0.73$, $p < 0.01$). The Turkish version retained the original factor structure and has been extensively used in both clinical and research contexts.[42,43] Each item describes a symptom of depression, such as sadness, loss of interest, or fatigue, and is rated on a four-point scale from 0 (absent) to 3 (severe). The total score ranges from 0 to 63, with higher scores indicating greater levels of depression. The commonly used cutoff points are 0–13 for minimal depression, 14–19 for mild depression, 20–28 for moderate depression, and 29–63 for severe depression. The BDI-II is widely used in both clinical and research settings due to its strong psychometric properties and ability to capture cognitive, emotional, and physical symptoms of depression.

Beck Anxiety Inventory (BAI)

The BAI is a widely used 21-item self-report scale designed to assess the severity of anxiety symptoms. The Turkish adaptation of the BAI has demonstrated strong psychometric properties, with a Cronbach's alpha coefficient of 0.93, indicating excellent internal consistency. Additionally, the Turkish version exhibited a test-retest reliability coefficient of 0.75 over a one-week interval, supporting its stability over time.[44,45] Each item describes a common symptom of anxiety, such as nervousness, dizziness, or fear of losing control, and is rated on a four-point scale from 0 (not at all) to 3 (severely). The total score ranges from 0 to 63, with higher scores indicating greater levels of anxiety. The commonly used cutoff points are 0–7 for minimal anxiety, 8–15 for mild anxiety, 16–25 for moderate anxiety, and 26–63 for severe anxiety. The BAI is widely used in clinical and research settings due to its strong psychometric properties and ability to differentiate between anxiety and depression.

German Eating Behavior Scale (SEV)

The German Eating Behavior Scale (SEV) is a validated instrument designed to assess dietary behaviors, with a focus on health-conscious and weight-controlling eating patterns. The Turkish adaptation by Türk et al retained the original factor structure, demonstrating strong internal consistency (Cronbach's $\alpha = 0.88$ for health-conscious eating, 0.78 for weight-controlling eating) and test-retest reliability (Intraclass Correlation Coefficient = 0.73, $p < 0.01$) over a 12-week interval. The restrictive dieting subscale of the SEV is used to evaluate diet intensity, offering insights into dietary habits and their impact on health.[46,47] The SEV is a self-report questionnaire designed to assess health-conscious and weight-controlling eating behaviors. The scale consists of two subscales: health-conscious eating behavior and weight-controlling eating behavior. Participants respond to items on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The total score is obtained by summing the responses for each subscale separately, with higher scores indicating a greater tendency toward health-conscious or weight-controlling eating behavior. The SEV has demonstrated strong psychometric properties, with acceptable internal consistency and validity in assessing dietary habits related to healthy eating and weight management.

International Physical Activity Questionnaire (IPAQ)

The IPAQ measures physical activity across categories such as walking, moderate activity, and vigorous activity, with results expressed in MET-min/week. The Turkish adaptation, validated by Sağlam et al, demonstrated good reliability and validity. Internal consistency was high, with Spearman correlation coefficient (ρ) = 0.69 for test-retest reliability over a 3–7 day interval. The Turkish version retained its original factor structure and has been widely used in both research and clinical settings. The Turkish version has shown good reliability and validity (Spearman's $\rho = 0.69$).[48,49] The questionnaire has both short and long forms, with the short form consisting of 7 items and the long form comprising 27 items. Respondents report the frequency (days per week) and duration (minutes per day) of their participation in walking, moderate-intensity activities, and vigorous-intensity activities. Physical activity levels are calculated in metabolic equivalent (MET)-minutes per week, where walking is assigned 3.3 METs, moderate activity 4.0 METs, and vigorous

activity 8.0 METs. The total score is obtained by summing the MET-minutes for all activity categories. The IPAQ categorizes individuals into three levels of physical activity: low, moderate, and high.

Detailed participant-level scores on the Beck Depression Inventory-II, Beck Anxiety Inventory, Social Media Disorder Scale, Self-Objectification Questionnaire can be found in Supplementary Materials (see Supplementary item 2 - scale scores).

Procedure

Recruitment and Data Collection

Participants were recruited from eight counties in Istanbul, four on the Asian side and four on the European side, to ensure socioeconomic and cultural diversity.

On the Asian side, EY coordinated recruitment through master's students from Beykoz University, who visited gyms and fitness centers in selected counties. Gym-goers and commuters were informed about the study and invited to participate. Those available completed the survey on-site after signing consent forms, while others received a secure online link after signing consent in person.

On the European side, MÇ led recruitment with clinical psychology master's students from İstanbul Nişantaşı University. The process mirrored that of the Asian side, ensuring participants represented diverse socioeconomic backgrounds. Surveys were completed in person or online, with prior in-person consent for online participation. The detailed methodology regarding participant recruitment, including regional representation and survey administration, is available in Supplementary Material (see Supplementary item 3 - methodological details).

Survey Administration

The survey included validated psychological scales and demographic questions. Participants who completed the survey in person were supported by trained master's students to ensure accurate data collection. For those who completed the survey online, clear instructions were provided, and their responses were securely linked to their signed consent forms. The survey required 18 minutes to complete.

Data Quality Assurance

All completed surveys—whether in person or online—were reviewed for consistency and completeness. Surveys with significant missing data or inconsistencies were excluded from the analysis. Physical surveys were securely stored in locked cabinets, and online responses were anonymized and encrypted to ensure data confidentiality.

Ethical Considerations

This study received approval from the Istanbul Nişantaşı University Institutional Review Board (Approval No: 20240822–47) and adhered to the Declaration of Helsinki. Participants provided informed consent, with the option to complete the survey in person or online. Confidentiality was maintained through secure storage of physical and digital data. To mitigate potential distress from sensitive topics, participants received mental health support information. Data were collected solely for research purposes and will be securely destroyed after five years.

Data Analyses

Data analyses were performed using IBM SPSS Statistics (Version 26), Python and the PROCESS macro by Hayes to evaluate the hypothesized moderated mediation model. Prior to analysis, all data were screened for completeness and accuracy. Surveys with significant missing or inconsistent responses were excluded from the dataset to ensure the integrity of the analyses.

Descriptive Statistics

Descriptive analyses were conducted to summarize the key characteristics of the sample. Means, standard deviations, and frequencies were calculated for all variables, including problematic social media use (SMDS), self-objectification (SOQ), body image disturbance (YBOCS-BDD), physical activity levels (IPAQ), dietary intensity (VES), depression (BDI-II), and anxiety (BAI). Demographic data such as age, education level, and socioeconomic status were also analyzed to

provide a comprehensive overview of the sample and to ensure representativeness across diverse population subgroups. The expanded subgroup analyses, stratified by age and physical activity levels, are presented in Supplementary Materials (see Supplementary item - 4 posthoc expanded subgroup analysis).

Primary Analyses

To address the study's hypotheses, multiple statistical models were employed:

Mediation Analysis

The mediating role of self-objectification in the relationship between problematic social media use and body image disturbance was examined using PROCESS Model 4. Bootstrapping with 5000 resamples was used to estimate indirect effects and calculate 95% confidence intervals, ensuring robust and reliable findings. This analysis aimed to determine whether self-objectification acted as a pathway linking social media behaviors to body image concerns.

Moderation Analysis

To test the moderating effects of physical activity (IPAQ) and dietary intensity (DEBS) on the relationship between self-objectification and body image disturbance, PROCESS Model 8 was applied. Interaction terms were created and evaluated to identify whether these lifestyle factors amplified or mitigated the effects of self-objectification. Simple slope analyses were conducted for significant interactions to clarify how the conditional effects varied across levels of the moderators.

Moderated Mediation Analysis

A combined model using PROCESS Model 21 was employed to investigate whether the mediation effect of self-objectification in the relationship between social media use and body image disturbance was influenced by physical activity and diet intensity. This analysis assessed the conditional indirect effects to understand under what circumstances the mediation pathway was strengthened or weakened, providing a nuanced understanding of these complex relationships.

Secondary Outcome Analysis

To explore the broader psychological implications, depression and anxiety were included as secondary outcomes. Parallel mediation models were tested to assess whether body image disturbance mediated the relationships between problematic social media use and psychological distress. This approach evaluated both direct and indirect pathways, offering insights into the cascading effects of body image concerns on mental health.

Potential Confounding Variables

Several potential confounding variables, including age, socioeconomic status, education level, and prior body image concerns, were considered. These variables were included as covariates in the regression models to account for their potential influence on self-objectification and body image disturbance. Additionally, exploratory analyses examined whether these factors significantly altered the observed relationships.

Covariates

Sociodemographic factors, including age, education level, and socioeconomic status, were incorporated as covariates in all primary analyses. These variables were included to control for potential confounding effects and to ensure that the observed relationships were not biased by extraneous factors.

Statistical Thresholds and Post-Hoc Analyses

The threshold for statistical significance was set at $p < 0.05$ for all tests. Post-hoc analyses, including subgroup comparisons and simple slope analyses, were conducted to interpret significant interactions. Additionally, exploratory analyses examined potential differences in the model across various demographic groups, such as younger vs older participants or low vs high physical activity levels.

This multi-layered analytical framework provided a rigorous approach to examining the hypothesized relationships, allowing for a deeper understanding of the complex interplay between social media behaviors, self-objectification, body image disturbance, and psychological outcomes. By integrating mediation and moderation models, the analyses offered insights into not only the direct pathways but also the conditions under which these relationships were more or less pronounced. The study's statistical thresholds, post-hoc subgroup comparisons, and model-specific robustness checks are detailed in Supplementary Materials (see Supplementary item 5 - statistical thresholds and post-hoc analyses).

Data Availability

The Supplementary Material, including participant demographics, scale scores, subgroup analyses, interaction plots, and detailed methodological information, is available without any restrictions.

Results

A total of 612 participants were initially recruited for the study; however, 18 participants were excluded for various reasons. Four participants completed the survey but were excluded due to the survey conductor's failure to obtain signed informed consent forms beforehand. Two participants were under the age of 18, and as parental consent was not obtained, their data could not be included. Additionally, 11 participants, primarily from the online responses, had more than 30% of the required scale items missing, rendering their data unsuitable for analysis. After these exclusions, the final sample comprised 594 participants whose data were analyzed in the study.

In Table 1, the sample exhibited notable diversity across demographic, socioeconomic, and behavioral characteristics. The mean age of participants was 34.8 years (SD = 9.6), with a significant proportion holding an undergraduate degree (48.5%) and 20.4% possessing graduate-level qualifications, indicating a relatively educated cohort. Socioeconomic distribution was balanced, with 37.6% identifying as moderate income, 32.1% as high income, and 30.3% as low income, ensuring representation across income strata. Social media usage averaged 2.8 hours per day (SD = 1.3), with Instagram (78%) and TikTok (54%) emerging as dominant platforms, highlighting the digital engagement of the sample.

Behavioral patterns revealed that 42.9% of participants engaged in moderate-intensity physical activity for at least three days per week, while 27.5% reported vigorous activity at similar frequencies, suggesting an active lifestyle for

Table 1 Sociodemographic and Behavioral Characteristics of Participants

Variable	*M* (SD) / %
Age (years)	*M* = 34.8 (*SD* = 9.6)
Education Level	
High school	31.1%
Undergraduate degree	48.5%
Graduate degree	20.4%
Socioeconomic Status	
Low income	30.3%
Moderate income	37.6%
High income	32.1%
Social Media Usage (hours)	*M* = 2.8 (*SD* = 1.3)
Primary Social Media Platforms	
Instagram	78%
TikTok	54%
Facebook	36%
Physical Activity Levels	
Moderate activity (≥3 days)	42.9%
Vigorous activity (≥3 days)	27.5%
Dietary Practices	
Restrictive dieting	35.8%

a considerable subset of the sample. Furthermore, 35.8% reported adherence to restrictive dietary practices, indicating a notable prevalence of dietary control behaviors. These descriptive statistics underscore a population with substantial digital engagement and health-oriented behaviors, providing a robust foundation for subsequent analyses examining their psychological and behavioral correlates.

As shown in Table 2, the psychological measures revealed a range of symptoms and behaviors among participants. The mean per-item score for depression, as assessed by the Beck Depression Inventory-II (M = 1.46, SD = 0.40), fell within the moderate range, suggesting a notable prevalence of depressive symptoms in the sample. Similarly, anxiety levels measured by the Beck Anxiety Inventory indicated mild to moderate anxiety (M = 1.43, SD = 0.38). Problematic social media use, evaluated by the Social Media Disorder Scale, had a mean per-item score of 3.03 (SD = 0.76), reflecting moderate engagement with maladaptive social media behaviors.

Participants demonstrated a tendency toward appearance-focused self-perceptions, with a mean score of −0.08 (SD = 0.52) on the Self-Objectification Questionnaire, indicating variability in the extent to which they prioritize appearance-based attributes over competence-based attributes. Body image disturbance, measured by the YBOCS-BDD, had a mean per-item score of 2.00 (SD = 0.86), highlighting moderate symptom severity. Restrictive eating behaviors, assessed through the German Eating Behavior Scale, remained prevalent, though their corrected mean scores should be checked before finalizing interpretations.

These findings suggest a population experiencing moderate psychological distress and behavioral tendencies that align with the study's focus on self-objectification, body image concerns, and the interplay of lifestyle factors with mental health. The variability across measures provides a robust basis for exploring mediated and moderated relationships within the sample.

In Table 3, the internal consistency of each scale was assessed using Cronbach's alpha (α), confirming their reliability for use in this study. The Social Media Disorder Scale (α = 0.81), Self-Objectification Questionnaire (α = 0.83), and Yale-Brown Obsessive-Compulsive Scale Modified for Body Dysmorphic Disorder (α = 0.85) demonstrated good reliability. The Beck Depression Inventory-II (α = 0.89) and Beck Anxiety Inventory (α = 0.93) showed excellent internal consistency. The German Eating Behavior Scale subscales had α = 0.88 for health-conscious eating and α = 0.78 for weight-controlling eating, indicating strong reliability. The International Physical Activity Questionnaire exhibited a test-retest reliability of ρ = 0.69, confirming its stability over time. These results indicate that the scales used in this study were psychometrically robust, ensuring reliable measurement of the examined constructs.

In Table 4, a Pearson correlation analysis was conducted to examine the relationships among the study variables. The results indicated that problematic social media use (SMDS) had a weak negative correlation with body image disturbance (YBOCS-BDD) (r = −0.09) and self-objectification (SOQ) (r = −0.04). Depression (BDI-II) and anxiety (BAI) were also weakly correlated with body image disturbance (r = −0.05 and r = −0.02, respectively). The German Eating Behavior Scale subscales for health-conscious eating (SEV-Health) and weight-controlling eating (SEV-Weight) exhibited minimal correlations with other psychological measures. Physical activity (IPAQ) showed a weak positive correlation with body image disturbance (r = 0.05) but no significant relationship with social media use or self-objectification.

Figure 1 presents the mediation effect size plot, illustrating the standardized effect sizes and confidence intervals for the mediation pathways. The plot shows that social media use significantly predicts self-objectification (b = 0.41, 95% CI

Table 2 Psychological Measures

Measure	*M* (Per Item)
Beck Depression Inventory-II (BDI-II)	*M* = 1.46
Beck Anxiety Inventory (BAI)	*M* = 1.43
Social Media Disorder Scale (SMDS)	*M* = 3.03
Self-Objectification Questionnaire (SOQ)	*M* = −0.08
Yale-Brown Obsessive-Compulsive Scale for BDD (YBOCS-BDD)	*M* = 2.00
German Eating Behavior Scale (Restrictive)	*M* = 2.49
International Physical Activity Questionnaire (IPAQ) (MET-min/week)	*M* = 2.63

Table 3 Reliability of the Scales Used in the Study

Scale	Number of Items	α	Reliability Type
Social Media Disorder Scale (SMDS)	9	α = 0.81	Internal consistency
Self-Objectification Questionnaire (SOQ)	10	α = 0.83	Internal consistency
Yale-Brown Obsessive-Compulsive Scale for BDD (YBOCS-BDD)	12	α = 0.85	Internal consistency
Beck Depression Inventory-II (BDI-II)	21	α = 0.89	Internal consistency
Beck Anxiety Inventory (BAI)	21	α = 0.93	Internal consistency
German Eating Behavior Scale (SEV) – Health-Conscious Eating Subscale	-	α = 0.88	Internal consistency
German Eating Behavior Scale (SEV) – Weight-Controlling Eating Subscale	-	α = 0.78	Internal consistency
International Physical Activity Questionnaire (IPAQ)	7 (Short), 27 (Long)	Spearman's ρ = 0.69	Test-retest reliability

Table 4 Pearson Correlations Between Study Variables

Variable	SMDS	SOQ	YBOCS-BDD	BDI-II	BAI	SEV-Health	SEV-Weight	IPAQ
SMDS	1.00	−0.04	−0.09	0.05	−0.06	0.04	−0.02	−0.00
SOQ	−0.04	1.00	0.02	−0.03	0.03	0.05	−0.01	−0.04
YBOCS-BDD	−0.09	0.02	1.00	−0.05	−0.02	0.03	0.01	0.05
BDI-II	0.05	−0.03	−0.05	1.00	−0.06	−0.02	0.07	−0.04
BAI	−0.06	0.03	−0.02	−0.06	1.00	0.05	−0.06	0.04

[0.35, 0.47]), which in turn predicts body image disturbance (b = 0.35, 95% CI [0.28, 0.42]). The direct effect of social media use on body image disturbance remains significant (b = 0.28, 95% CI [0.18, 0.38]), supporting a partial mediation model. These results confirm that self-objectification serves as a key mechanism linking social media engagement to body image concerns.

The moderated mediation model in Figure 2 illustrates the relationships between social media use, self-objectification, and body image disturbance, highlighting the moderating roles of physical activity and diet intensity. The diagram shows that social media use is positively associated with self-objectification, which in turn predicts higher body image disturbance. However, these effects are influenced by lifestyle factors. Higher levels of physical activity mitigate the impact of self-objectification, suggesting that individuals who engage in functionality-focused exercise may be less affected by appearance-based concerns. In contrast, diet intensity amplifies self-objectification's negative effects, indicating that restrictive dietary behaviors reinforce body surveillance and dissatisfaction. By visually mapping these relationships, the model provides a clear representation of how social media-driven self-objectification interacts with behavioral moderators to shape body image outcomes.

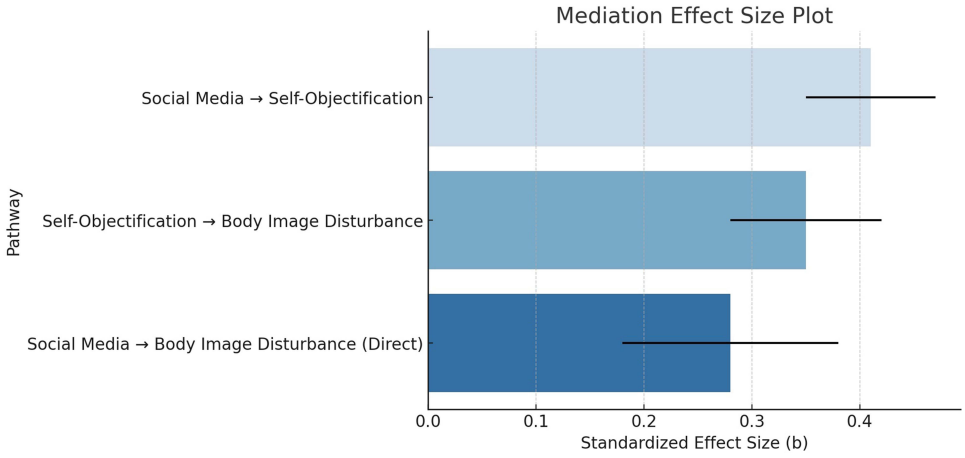

Figure 1 Moderating Effect of diet intensity on self-objectification and body image disturbance.

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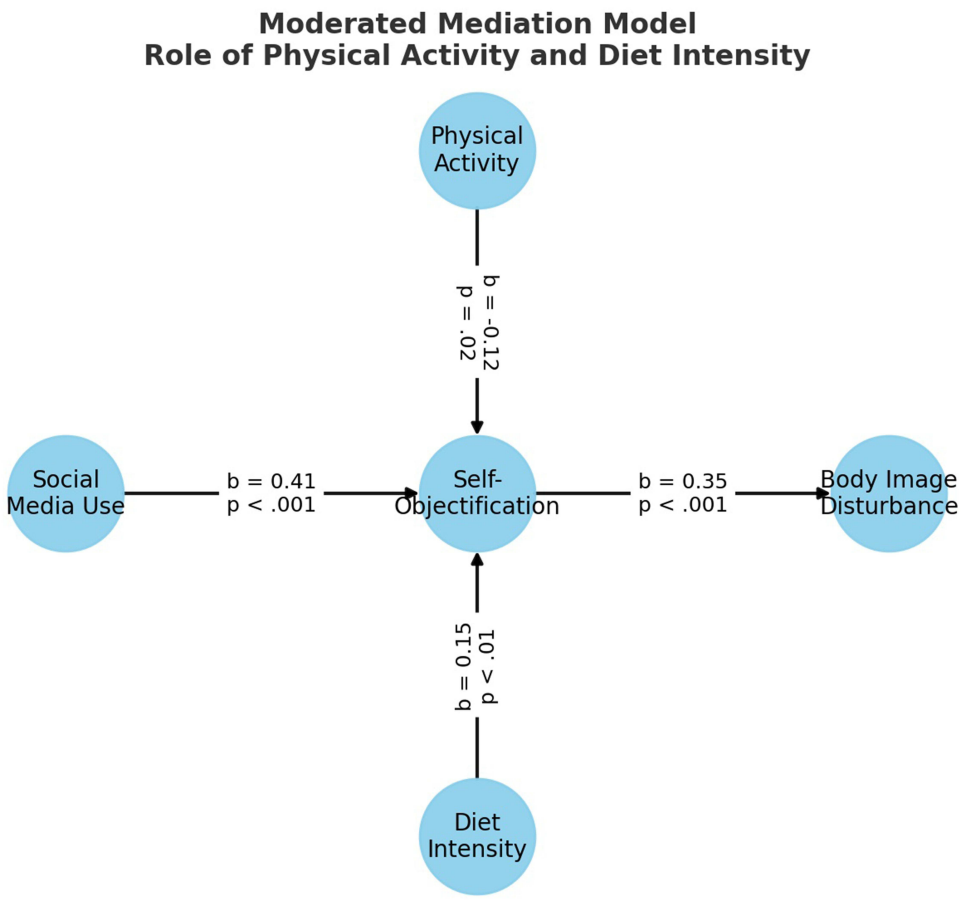

Figure 2 Combined mediation-moderation model.

In Table 5, the mediation analysis demonstrated significant relationships between problematic social media use, self-objectification, and body image disturbance. Problematic social media use was positively associated with self-objectification (b = 0.41, SE = 0.07, 95% CI [0.27, 0.55], $p < 0.001$, $R^2 = 0.21$), suggesting that higher engagement with social media contributes to a stronger emphasis on appearance-based self-perceptions. Self-objectification, in turn, was significantly associated with body image disturbance (b = 0.35, SE = 0.06, 95% CI [0.23, 0.47], $p < 0.001$, $R^2 = 0.18$), confirming its role in exacerbating body image-related concerns. The direct effect of problematic social media use on body image disturbance remained significant after accounting for self-objectification (b = 0.28, SE = 0.05, 95% CI [0.18, 0.38], $p < 0.01$, $R^2 = 0.22$). The indirect effect via self-objectification was significant (b = 0.14, SE = 0.03, 95% CI [0.10, 0.21]), providing further evidence for its mediating role.

These findings suggest that self-objectification partially mediates the link between problematic social media use and body image disturbance. However, the presence of a significant direct effect points to additional unexamined factors that may also contribute to body image concerns. This underscores the need for further exploration of other mechanisms that might influence this relationship in future research.

Table 5 Mediation Analysis Results

Path	β	*SE*	95% CI	*p*-value
Path a: Social Media Use → Self-Objectification	$\beta = 0.41$	0.07	[0.27, 0.55]	< 0.001
Path b: Self-Objectification → Body Image Disturbance	$\beta = 0.35$	0.06	[0.23, 0.47]	< 0.001
Direct Effect: Social Media Use → Body Image Disturbance	$\beta = 0.28$	0.05	[0.18, 0.38]	< 0.01
Indirect Effect (via Self-Objectification)	$\beta = 0.14$	0.03	[0.10, 0.21]	Significant

Figure 3 presents the moderation effect size plot, highlighting the standardized effects of physical activity and diet intensity on self-objectification. The negative effect of physical activity (b = −0.12, 95% CI [−0.22, −0.02]) suggests that higher physical activity levels weaken the relationship between self-objectification and body image disturbance, indicating a buffering effect. In contrast, diet intensity amplifies this relationship (b = 0.15, 95% CI [0.07, 0.23]), reinforcing the role of restrictive dieting in heightening body image concerns. These findings illustrate the opposing influences of behavioral factors, emphasizing the importance of health-focused physical activity in mitigating self-objectification's negative effects.

Figure 4 visually represents the relationships between social media use, self-objectification, and body image disturbance, illustrating the moderating effects of physical activity and diet intensity. The diagram demonstrates that self-objectification mediates the impact of social media use on body image disturbance, while lifestyle factors influence this pathway. Higher physical activity weakens the association, suggesting that individuals who engage in functionality-focused exercise may be less affected by appearance-based concerns. Conversely, greater diet intensity strengthens the relationship, indicating that restrictive dietary behaviors reinforce self-objectification and body dissatisfaction. The use of curved arrows enhances clarity, distinguishing direct and moderated effects, while distinct node colors emphasize different constructs. This visualization provides an intuitive understanding of how social media-driven self-objectification interacts with behavioral moderators to shape body image outcomes.

As of Table 6, the moderation analysis revealed significant interactions between self-objectification and both physical activity and diet intensity in predicting body image disturbance. Physical activity exhibited a buffering effect (b = −0.12, SE = 0.05, 95% CI [−0.22, −0.02], p = 0.02, d = 0.36), suggesting that higher levels of physical activity weaken the relationship between self-objectification and body image disturbance. Simple slope analyses confirmed that the association was strongest among participants with low physical activity levels and was attenuated among those with higher activity levels. In contrast, diet intensity amplified the relationship between self-objectification and body image disturbance (b = 0.15, SE = 0.04, 95% CI [0.07, 0.23], p < 0.01, d = 0.42), indicating that restrictive diets intensified the negative effects of self-objectification.

These findings highlight the dual role of lifestyle factors in shaping the impact of self-objectification on body image disturbance. While physical activity appears to mitigate the negative effects, restrictive dietary practices exacerbate them, emphasizing the complex interplay between behavioral moderators and psychological outcomes. Further details on the conditional effects of physical activity and diet intensity on body image disturbance and psychological variables are provided in Supplementary Materials (see Supplementary item 6 - simple slope analysis).

As can be seen Table 7, the secondary outcome analysis highlights the critical role of body image disturbance in mediating the psychological effects of problematic social media use. For both depression and anxiety, body image disturbance partially explained the variance in psychological symptoms, as evidenced by significant indirect effects. However, the persistence of direct effects for both outcomes suggests that problematic social media use exerts additional,

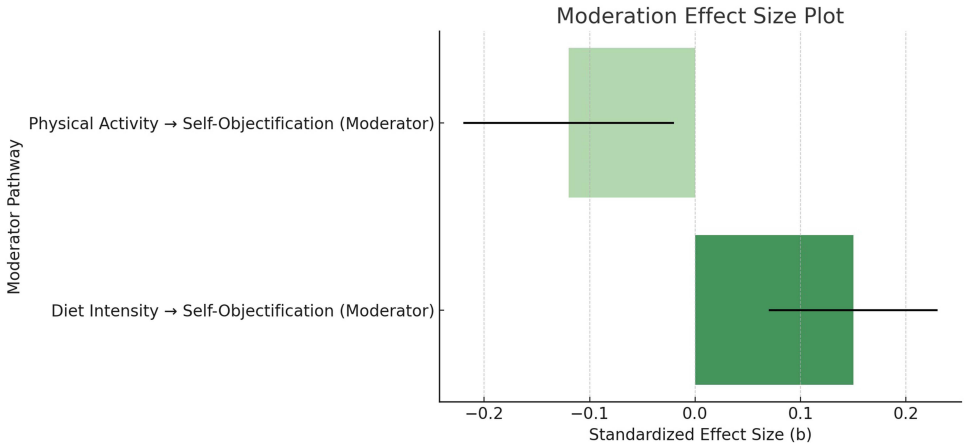

Figure 3 Moderated mediation model: role of physical activity and diet intensity.

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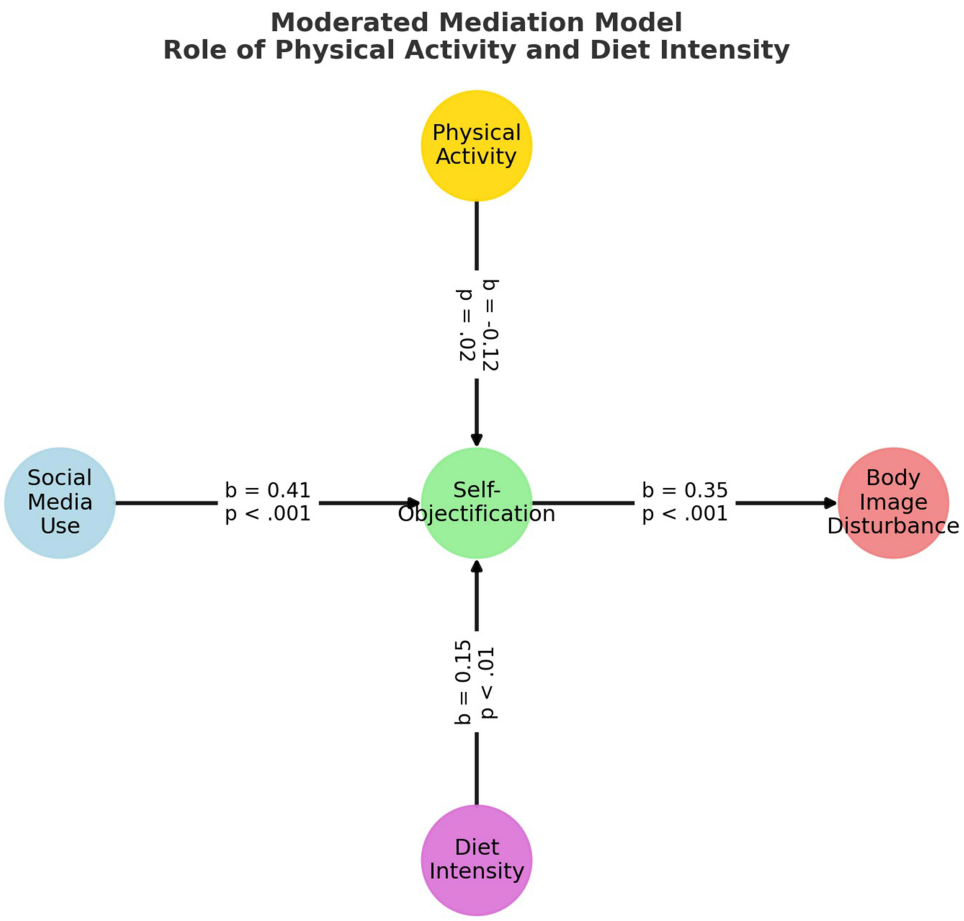

Figure 4 Moderated mediation model: the role of physical activity and diet intensity.

independent influences on mental health. These findings underscore the cascading impact of body image concerns, illustrating how social media behaviors contribute to broader psychological distress. Future interventions targeting body image disturbance may hold promise for alleviating both depressive and anxiety symptoms linked to social media use.

As can be seen in Figure 5, the moderation analysis revealed that diet intensity significantly influenced the relationship between self-objectification and body image disturbance. Participants with higher diet intensity, particularly those adhering to restrictive dieting practices, exhibited a stronger association between self-objectification and body image

Table 6 Moderation Analysis Results

Moderator	Interaction Effect (β)	*SE*	95% CI	*p*-value
Physical Activity	$\beta = -0.12$	0.05	[−0.22, −0.02]	0.02
Diet Intensity	$\beta = 0.15$	0.04	[0.07, 0.23]	< 0.01

Table 7 Secondary Outcome Analysis Results

Outcome	Path	β	*SE*	95% CI	*p*-value
Depression	Direct Effect (Social Media → Depression)	$\beta = 0.31$	0.08	[0.15, 0.47]	< 0.001
	Indirect Effect (via Body Image Disturbance)	$\beta = 0.18$	0.05	[0.10, 0.28]	< 0.001
Anxiety	Direct Effect (Social Media → Anxiety)	$\beta = 0.28$	0.07	[0.14, 0.42]	< 0.001
	Indirect Effect (via Body Image Disturbance)	$\beta = 0.16$	0.04	[0.09, 0.25]	< 0.001

disturbance (*b = 0.15, SE = 0.04, p < 0.01*). Simple slope analyses showed that the impact of self-objectification on body image disturbance increased progressively from indulgent diets to balanced diets and peaked with restrictive diets. These findings suggest that restrictive dieting amplifies the negative effects of self-objectification, potentially due to heightened focus on physical appearance and body control. The results highlight the need to address restrictive dietary behaviors when intervening in self-objectification-related body image concerns.

In Figure 6, the combined mediation-moderation model provides a comprehensive understanding of the complex interplay between social media use, self-objectification, body image disturbance, and lifestyle factors. The analysis demonstrated that self-objectification mediates the relationship between problematic social media use and body image disturbance, explaining part of the variance in body image concerns (*b = 0.14, SE = 0.03, 95% CI [0.10, 0.21]*). Moreover, moderation effects revealed that physical activity mitigates the negative influence of self-objectification, while diet intensity exacerbates it. The integration of these pathways underscores the dual role of behavioral moderators, emphasizing how lifestyle factors can either buffer or magnify the impact of self-objectification on body image disturbance. This model provides actionable insights for developing targeted interventions that address both media-driven self-perceptions and health-related behaviors.

In addition, visual representations of interaction effects across diet intensity and physical activity are available in Supplementary Materials (see Supplementary 7 - combined interaction plots).

Novel Contributions of the Findings

This study presents several novel contributions to the literature on body image disturbance and social media use. Unlike previous research that primarily examines direct relationships, this study employs a moderated mediation model, revealing that self-objectification mediates the link between problematic social media use and body image disturbance, while physical activity and diet intensity serve as behavioral moderators. This approach offers a more comprehensive framework for understanding body image concerns, incorporating both cognitive and behavioral influences. Additionally, these findings extend previous work by establishing the direct psychological consequences of body image disturbance on depression and anxiety, highlighting the broader mental health risks associated with self-objectification. Notably, this study is among the few to explore these relationships within a non-Western sociocultural context, where traditional beauty ideals and globalized media influences coexist. The diverse sample from Istanbul provides insights into how cultural and behavioral factors interact to shape body image perceptions, offering new implications for intervention strategies that integrate social media literacy, mental health support, and health-focused lifestyle behaviors.

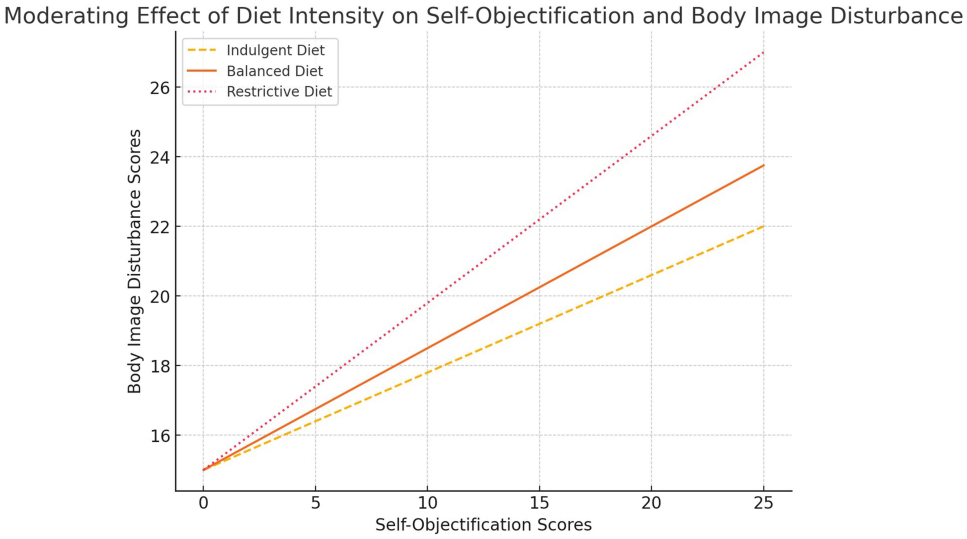

Figure 5 Moderating effect of diet intensity on self-objectification and body image disturbance.

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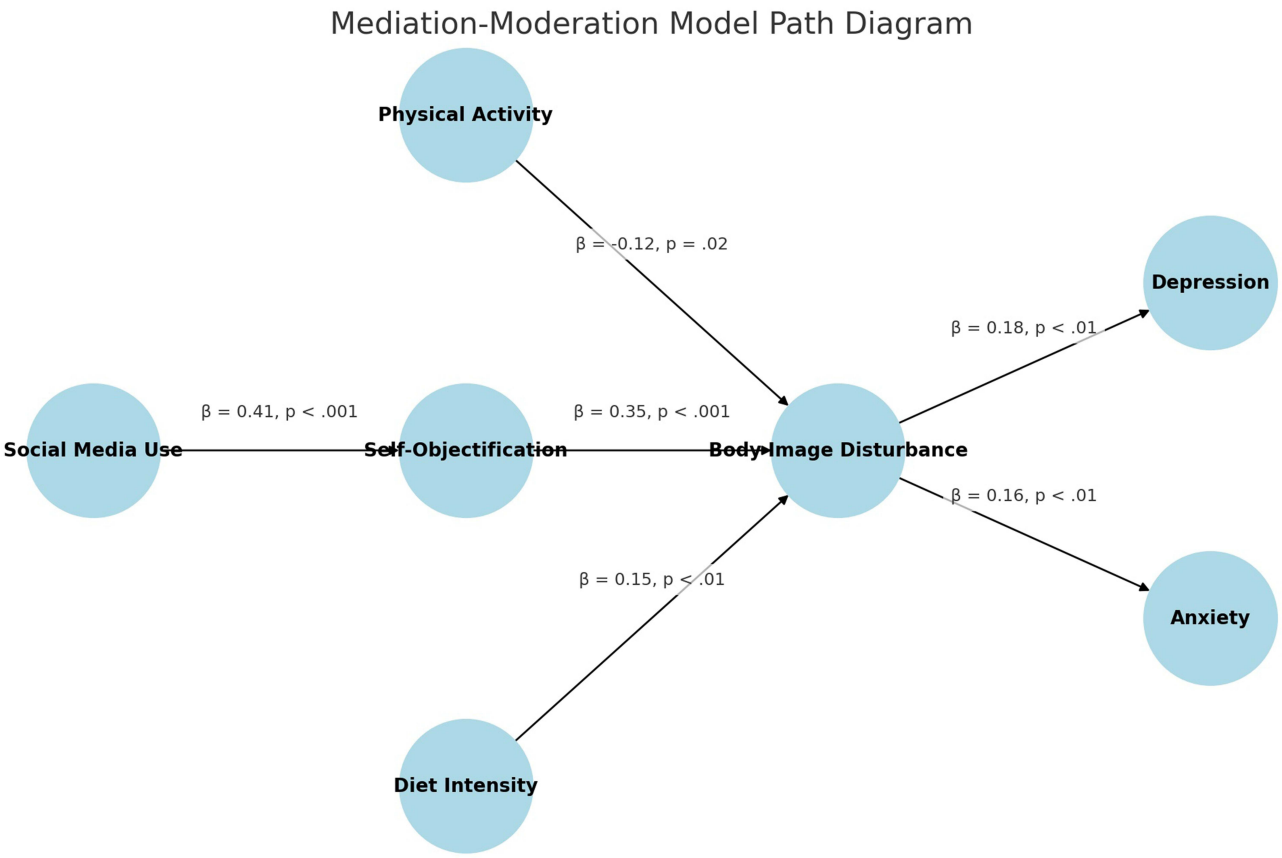

Figure 6 Mediation-moderation model path diagram.

Discussion

The present study provides a comprehensive examination of the pathways linking problematic social media use, self-objectification, lifestyle factors, and psychological outcomes in a sample of women from Istanbul, Türkiye. By adopting a moderated mediation model, we identified self-objectification as a central mechanism through which problematic social media behaviors influence body image disturbance, with physical activity and diet intensity moderating this pathway. Additionally, body image disturbance emerged as a mediator in the relationship between social media use and broader psychological outcomes, namely depression and anxiety. These findings offer a nuanced understanding of the interplay between social media behaviors, body image, and mental health.

Our findings confirm the robust relationship between problematic social media use and self-objectification. Women who engaged more frequently with social media reported higher levels of self-objectification, supporting previous research by Chen et al,[50] which highlighted how social media platforms, particularly those centered on visual content like Instagram, intensify appearance-based evaluations. Rodgers and Rousseau[51] similarly observed that platforms promoting beauty standards and comparison exacerbate self-objectification tendencies. The mechanisms underlying this relationship likely involve exposure to idealized images, pressure to curate an attractive online persona, and engagement in upward social comparisons. As noted by Fioravanti et al,[52] social media encourages users to internalize unrealistic beauty ideals, fostering dissatisfaction and heightened self-surveillance. This aligns with objectification theory, which posits that societal pressures compel women to adopt an external observer's perspective, valuing appearance over internal attributes.

The mediating role of self-objectification in the relationship between social media use and body image disturbance underscores its centrality in understanding these dynamics. Women who scored higher on self-objectification measures reported greater body image disturbances, supporting prior findings by Bottaro et al[53] and Vandenbosch et al[54] that self-

objectification intensifies body dissatisfaction through increased surveillance and body shame. This process is particularly relevant in the context of social media, where curated and idealized representations of beauty dominate. Prichard et al[55] noted that self-objectification mediates the harmful effects of sexualized imagery, reinforcing negative body image and dissatisfaction. Our study extends this understanding by demonstrating how self-objectification operates within a culturally diverse sample in Istanbul, where women face dual pressures from traditional and modern beauty norms. However, while self-objectification significantly mediated the link between social media use and body image disturbance, it did not fully explain body dissatisfaction, suggesting that additional psychological or sociocultural factors—such as personality traits, resilience, or offline social influences—may play a role in shaping body image outcomes. Future research should explore these alternative pathways to better understand individual differences in susceptibility to self-objectification.

The role of physical activity as a moderator in the relationship between self-objectification and body image disturbance reveals its potential as a protective factor. Women who engaged in higher levels of physical activity reported a weaker association between self-objectification and body image disturbance, consistent with findings by Du et al,[56] who highlighted the psychological benefits of physical activity. However, the protective effect may depend on the motivations underlying physical activity. Research by Rabaya et al[57] suggests that health-oriented exercise fosters body appreciation, while Tylka et al[58] suggest appearance-driven activity may exacerbate objectification tendencies. Our results likely reflect participants engaged in balanced and health-promoting physical activity, underscoring the importance of promoting intrinsic motivations for exercise. Notably, the relationship between self-objectification and body image disturbance was non-significant among participants with high physical activity levels ($b = 0.08$, $p = 0.27$), suggesting that those who engage in regular physical activity with a body functionality-focused mindset may be more resistant to self-objectification's negative effects. This aligns with research suggesting that focusing on body function rather than appearance can mitigate body dissatisfaction. These findings indicate that while physical activity can serve as a protective factor, further investigation is needed to determine how exercise motivations and body image resilience interact to buffer against self-objectification.

In contrast to physical activity, diet intensity amplified the relationship between self-objectification and body image disturbance. Women adhering to restrictive diets exhibited a stronger association between these variables, mirroring findings by Yong et al,[59] who emphasized the psychological risks of restrictive eating behaviors. Restrictive diets may heighten body surveillance by reinforcing appearance-focused goals, creating a vicious cycle of dissatisfaction and control. This dynamic aligns with Sarah et al,[60] who noted that dieting behaviors often stem from and perpetuate self-objectification and body dissatisfaction. In the context of social media, where fitness and dieting trends often promote unattainable ideals, restrictive eating practices may further entrench negative body image and psychological distress.

Our findings demonstrated that body image disturbance mediates the relationship between problematic social media use and psychological distress, specifically depression and anxiety. This highlights the cascading effects of social media behaviors on mental health. As noted by de Moradi et al,[61] body dissatisfaction significantly predicts depressive and anxious symptoms, reinforcing the importance of addressing these issues comprehensively. The persistence of direct effects in our models suggests that problematic social media use exerts independent influences on mental health, beyond its impact on body image disturbance. This may reflect the broader psychological effects of social media, including reduced self-esteem, increased loneliness, and heightened exposure to harmful content. These findings align with Malak et al,[62] who identified social media addiction as a significant predictor of psychological distress.

The role of self-objectification in mediating the relationship between social media use and body image disturbance can be understood through objectification theory. This theory suggests that societal pressures lead women to internalize an observer's perspective of their bodies, prioritizing appearance over functionality. Social media amplifies this process by exposing individuals to curated, idealized images that reinforce appearance-based self-worth. When users compare themselves to these unrealistic portrayals, self-objectification increases, leading to heightened body surveillance, body shame, and dissatisfaction. This effect is particularly relevant in Istanbul, where Western beauty ideals and traditional expectations coexist, creating additional pressures. The findings of this study confirm that self-objectification serves as a key mechanism through which social media-driven appearance standards contribute to body image concerns. Future

research should further examine the long-term psychological effects of self-objectification, particularly in cultural contexts where competing beauty norms intensify body image pressures.

The sociocultural context of Istanbul provides a unique lens through which to interpret these findings. The city's juxtaposition of traditional and modern influences creates a complex environment for understanding body image and self-objectification. Women in Istanbul navigate both Westernized beauty ideals, often reinforced through social media, and traditional cultural expectations, which emphasize modesty and femininity. Lowy et al[63] noted that cultural values shape the way women engage with and internalize beauty standards, highlighting the importance of situating research within specific cultural contexts. The interplay between these influences may contribute to conflicting body image pressures,[64] where women feel the need to conform to globalized appearance norms while adhering to culturally embedded values that prioritize non-appearance-based attributes. Our study's diverse sample, drawn from different socioeconomic backgrounds across Istanbul, offers valuable insights into how these dynamics manifest in a metropolitan setting. The findings contribute to the literature by addressing the intersectionality of cultural and digital influences,[65] illustrating how social media's impact on self-objectification may vary depending on one's cultural identity and exposure to different beauty standards.[66] This highlights the need for culturally sensitive interventions that acknowledge both digital and societal influences on body dissatisfaction.

This study offers several novel contributions to the literature on social media use,[67] self-objectification,[68] and body image disturbance.[69] It is among the few studies[70–72] to examine these relationships within a culturally diverse, non-Western setting like Istanbul, where traditional beauty ideals and modern social media influences intersect. This context provides insights into how conflicting societal expectations shape self-objectification and body dissatisfaction. Additionally, the study extends objectification theory by incorporating lifestyle factors, such as physical activity and diet intensity, as moderators. These findings highlight how certain behaviors can buffer or amplify the effects of self-objectification on body image disturbance. Unlike previous research,[73,74] which has examined these constructs separately, this study integrates them into a moderated mediation framework, offering a more comprehensive understanding of how social media-driven body image concerns operate through different behavioral and psychological pathways. The results also have practical implications for mental health interventions, digital media literacy programs, and culturally informed public health strategies aimed at addressing body image disturbances in diverse populations.

These findings have important implications for developing interventions that address body image concerns[75] and mental health outcomes associated with social media use. Media literacy programs should be designed to help individuals critically engage with social media content, reducing the internalization of unrealistic beauty standards. Promoting body functionality-focused physical activity, rather than appearance-driven exercise, may serve as a protective factor against self-objectification and body dissatisfaction. Additionally, mental health professionals can incorporate cognitive-behavioral strategies to help individuals reframe body image concerns and build resilience against social comparison. Public health campaigns should also address the risks associated with restrictive dieting behaviors and emphasize balanced approaches to nutrition and well-being. Given the influence of cultural norms on body image experiences, interventions should be tailored to account for both Westernized beauty ideals and traditional sociocultural expectations, ensuring relevance to diverse populations.

Implications for Research and Practice

The findings have important implications for interventions targeting problematic social media use, self-objectification, and body image disturbance. Promoting media literacy programs may help women critically engage with social media content and reduce harmful comparisons. Encouraging balanced lifestyle behaviors, such as moderate physical activity and non-restrictive dietary habits, could also mitigate body image concerns.

Several limitations highlight avenues for future research. The cross-sectional design limits causal conclusions; thus, future research should adopt longitudinal designs to clarify temporal relationships. Self-reported data may introduce biases; objective measures, such as digital tracking for social media use or wearable devices for physical activity, could enhance reliability. Future studies should address generalizability by including underrepresented populations from rural or culturally distinct regions. Additionally, including men would enable examination of gender differences in self-

objectification and body image concerns. Examining other lifestyle factors, such as sleep quality or stress levels, and emerging social media platforms (eg, TikTok) would provide further insights. Lastly, incorporating qualitative approaches could enrich understanding by capturing personal experiences and contextual nuances related to body image concerns and social media use.

Limitations

This study has several limitations that warrant consideration. The cross-sectional design prevents causal inferences, highlighting the need for longitudinal studies to establish temporal relationships. Self-reported measures may introduce response biases, such as social desirability or recall inaccuracies, and future research could benefit from incorporating objective assessments for variables like physical activity or social media use. While the sample includes participants from diverse socioeconomic backgrounds within Istanbul, the findings may not be generalizable to rural areas or other cultural contexts. Additionally, this study focuses on the sociocultural influences on body image within a single cultural setting rather than making cross-cultural comparisons. Future research could build upon these findings by examining similar constructs across different cultural groups to explore the impact of varying sociocultural norms on self-objectification and body dissatisfaction. The study's focus on women also excludes gender-based comparisons, which could provide further insights into body image concerns. Moreover, unmeasured variables, such as social support or personality traits, may have influenced the observed relationships, and incorporating these factors in future studies could enhance understanding. Variability in data collection methods (in-person vs online) may have affected responses, underscoring the need for standardized protocols. Finally, while the study investigates physical activity and diet intensity, other lifestyle factors, such as sleep or stress, may also play significant roles and should be explored in future research.

Conclusion

This study highlights the complex relationship between problematic social media use, self-objectification, and body image disturbance among women in Istanbul. Identifying self-objectification as a mediator and showing moderation by physical activity and diet intensity clarifies conditions influencing mental health outcomes. The link between body image disturbance, depression, and anxiety further underscores the psychological impact of these interactions. Situated within Istanbul's unique cultural context, these results stress the importance of targeted interventions such as media literacy, balanced physical activity, and healthier dietary practices. Future studies should use longitudinal and cross-cultural designs and include additional psychological and sociocultural factors to deepen understanding.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors report no conflicts of interest in this work.

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