Journal Website

Article history:
Received 14 September 2024
Revised 03 November 2024
Accepted 27 November 2024
Published online 30 Dec. 2024

Iranian Journal of Neurodevelopmental Disorders

Volume 3, Issue 4, pp 162-167

Journal of Neurodevelopmental Disorder

E-ISSN: 2980-9681

Comparison of Social Phobia, Difficulty in Emotion Regulation, and Social Self-Efficacy in Individuals with Clinical Body Mass Index and Normal Weight

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A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Golpour, K., Alizadeh, S., Alizadeh Darbandi, H. (2024). Comparison of Social Phobia, Difficulty in Emotion Regulation, and Social Self-Efficacy in Individuals with Clinical Body Mass Index and Normal Weight. *Iranian Journal of Neurodevelopmental Disorders, 3*(4), 162-167.
https://doi.org/10.61838/kman.jndd.3.4.16

A B S T R A C T

Purpose: The present study aimed to determine the differences in social phobia, difficulty in emotion regulation, and social self-efficacy between individuals with clinical body mass index (BMI) and normal weight.

Methods and Materials: A causal-comparative design was employed with two groups: 63 individuals with clinical BMI (recruited from nutrition counseling centers in Tehran's District 3 during autumn/winter 2024–2025) and 64 normal-weight individuals. Validated instruments included the Social Phobia Inventory (SPIN; Connor et al., 2000), Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), and Social Self-Efficacy Scale (SSES; Smith & Betz, 2000). Reliability coefficients (Cronbach's α: 0.74–0.94) and validity were confirmed. Multivariate analysis of variance (MANOVA) in SPSS-26 tested group differences after verifying assumptions (Box's test, Levene's test).

Findings: Significant differences emerged across all variables (*p* < .001). The clinical BMI group reported higher social phobia (M = 63.40 vs. 36.80; F(1,125) = 515.85, partial $\eta^2 = 0.82$) and emotion regulation difficulties (M = 69.10 vs. 41.69; F(1,125) = 847.58, partial $\eta^2 = 0.88$), and lower self-efficacy (M = 44.09 vs. 69.07; F(1,125) = 321.44, partial $\eta^2 = 0.74$) compared to the normal-weight group. Large effect sizes ($\eta^2 = 0.74$–0.88) underscored clinically meaningful disparities.

Conclusion: These findings suggest that individuals with clinical BMI experience higher levels of social phobia and lower social self-efficacy compared to those with normal weight. Furthermore, they exhibit greater difficulties in emotion regulation.

Keywords: *social phobia, difficulty in emotion regulation, social self-efficacy, clinical body mass index.*

1. Introduction

Body Mass Index (BMI) is a simple and practical measure for assessing individuals' weight status, used in population studies and as a primary tool to identify weight-related risks. However, more precise health evaluations require supplementary methods and tests (Flynn et al., 2024). This widely applied standard is calculated by dividing weight in kilograms by the square of height in meters, with results used to classify individuals into weight categories. A BMI between 18.5 and 24.9 indicates normal weight, while values above this range classify individuals as having a clinical BMI, placing them in overweight or obese categories (Westbury et al., 2023). Clinical BMI arises from an energy surplus (intake exceeding expenditure) and involves a combination of genetic, psychological, behavioral, and environmental factors that vary across individuals (Weghuber et al., 2019).

According to the 2018 Global Health Survey on obesity prevalence, over 2 billion people were classified as overweight and 650 million as obese. It is projected that by 2030, individuals with clinical BMI will increase significantly, with 2.16 billion (38%) adults worldwide classified as overweight and 1.12 billion (20%) as obese (Pinart et al., 2022). Research evidence indicates that individuals with clinical BMI experience numerous physical (Monda et al., 2017), psychological (Jaremka & Pacanowski, 2019; Sarwer & Polonsky, 2017), and social (Hales et al., 2018) challenges. One psychological issue prevalent in this population is social phobia.

Social phobia refers to a marked and persistent fear of social or performance situations, driven by the belief that one will act in an embarrassing or humiliating manner. This disorder profoundly impacts daily functioning, often disabling individuals and disrupting their lives (Eskandarnajad & Alizadeh, 2021). Studies confirm the association between social phobia and clinical BMI (Eskandarnajad & Alizadeh, 2021; Jaremka & Pacanowski, 2019).

Emotional functioning is another dimension that may differ between individuals with clinical BMI and normal weight (Micanti et al., 2017). Positive emotions foster engagement with social environments; individuals with high positive emotions approach life actively, confidently, and joyfully, seek social interactions, and experience trust and satisfaction in these exchanges. Conversely, those with negative emotions tend toward distress, self-criticism, and dissatisfaction (Maafi et al., 2019). Emotional states also influence eating behaviors.

Emotion regulation encompasses processes through which individuals modify the intensity, duration, and expression of emotions (Cong et al., 2021). Difficulties in emotion regulation impair self-regulation in other domains, such as eating control. Theoretical models of binge eating in obesity and related disorders suggest that excessive eating may stem from failed emotion regulation in response to intense emotions (Leehr et al., 2015). Many individuals with clinical BMI use eating as a coping mechanism for negative emotions, often lacking adaptive strategies and leading to emotional eating patterns (Shriver et al., 2021). Research indicates that individuals with clinical BMI exhibit greater emotion regulation difficulties compared to normal-weight peers (Micanti et al., 2017; Shast Fouladi & Bashardoust, 2020; Shirzadi et al., 2022).

Self-efficacy, another psychological variable, may differ between these groups. Individuals with clinical BMI often perceive their eating behaviors as uncontrollable. Self-efficacy—the belief in one's ability to execute specific tasks—plays a critical role in behavioral change. Higher self-efficacy predicts greater effort and commitment to adopting healthy behaviors (Liou & Kulik, 2022). Studies demonstrate differences in self-efficacy between individuals with clinical BMI and normal weight (Ghanbari et al., 2018; Liou & Bauer, 2018; Liou & Kulik, 2022; Shirzadi et al., 2022).

Given the global rise in clinical BMI and its psychosocial consequences, further research is essential to identify differences in psychosocial variables between individuals with clinical BMI and normal weight. Investigations into psychological profiles, social dynamics, and lifestyle patterns can inform targeted interventions and treatments. This study aimed to determine differences in social phobia, emotion regulation difficulties, and social self-efficacy between individuals with clinical BMI and normal weight.

2. Methods and Materials

2.1. Study Design and Participants

The present study was a causal-comparative design with two statistical populations. The first population included all individuals with a clinical Body Mass Index (BMI) who visited nutrition counseling centers in District 3 of Tehran during autumn and winter of 2024–2025. The second population comprised individuals with normal weight. Using convenience sampling, 65 participants were initially selected

E-ISSN: 2980-9681

for each group; however, due to participant attrition, 63 individuals from the clinical group and 64 from the normal weight group were included in the final analysis.

2.2. Measures

2.2.1. Social Phobia

This scale was developed by Connor et al. (2000) to assess social phobia. It is a 17-item self-report questionnaire with three subscales: fear, avoidance, and physiological discomfort. Items are scored on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). Test-retest reliability in groups diagnosed with social phobia ranged from 78% to 89%, while internal consistency (Cronbach's alpha) in non-clinical populations was 0.94 for the total scale, 0.89 for the fear subscale, 0.91 for avoidance, and 0.80 for physiological discomfort. Hasanvand Amouzadeh (2007) validated the scale's reliability and validity in a non-clinical Iranian sample. Cronbach's alpha coefficients were 0.82 for the first half, 0.76 for the second half, split-half correlation 0.84, Spearman-Brown coefficient 0.91, and subscale reliabilities of 0.75 (avoidance), 0.74 (fear), and 0.75 (physiological discomfort), confirming satisfactory reliability (Eskandarnajad & Alizadeh, 2021).

2.2.2. Difficulties in Emotion Regulation

This 36-item self-report measure, developed by Gratz and Roemer (2004), comprehensively assesses emotion regulation difficulties. Items are rated on a 5-point Likert scale from 1 (rarely) to 5 (always), with items 1, 2, 6, 7, 8, 10, 17, 20, 22, 24, and 34 reverse-scored. Factor analysis confirmed six subscales: non-acceptance of emotional responses, difficulties engaging in goal-directed behavior, impulse control difficulties, limited emotional awareness, restricted access to emotion regulation strategies, and lack of emotional clarity. The total scale demonstrated high internal consistency (α = 0.93) and convergent validity with a 0.60 correlation with emotional avoidance measures (Gratz & Roemer, 2004). In Iran, Mazaheri et al. reported a Cronbach's alpha coefficient of 0.90 for this scale (Shast Fouladi & Bashardoust, 2020).

2.2.3. Social Self-Efficacy

This 22-item scale, developed by Smith and Betz (2000), measures social self-efficacy using a 5-point Likert scale ranging from 1 (no confidence) to 5 (complete confidence). Total scores range from 22 to 110, with higher scores indicating greater social self-efficacy. Convergent and divergent validity were confirmed, and reliability was established via Cronbach's alpha (α = 0.94) and test-retest over three weeks (r = 0.82) (Smith & Betz, 2000). In Iran, Zarei et al. (2013) reported a Cronbach's alpha of 0.94 for the scale (Zarei et al., 2013).

2.3. Data Analysis

After descriptive analysis, the data were analyzed using multivariate analysis of variance (MANOVA) in SPSS-26 software.

3. Findings and Results

The descriptive statistics of the research variables are presented in Table 1.

Table 1

Mean and standard deviation values for dependent variables

Variables	*Clinical BMI Group Mean*	*Clinical BMI Group SD*	*Normal Weight Group Mean*	*Normal Weight Group SD*
Social Phobia	63.40	2.26	36.80	2.03
Emotion Regulation Difficulty	69.10	2.43	41.69	2.53
Self-Efficacy	44.09	2.21	69.07	2.81

As shown in Table 1, there are differences in the mean scores of dependent variables between individuals with clinical BMI and normal weight.

Multivariate analysis of variance (MANOVA) was used to analyze the data. Prior to conducting MANOVA, its assumptions were tested via Box's test, Wilks' lambda, Levene's test, and cross-correlation between dependent variables, confirming the appropriateness of MANOVA. The results are presented in Table 2.

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Table 2

Multivariate analysis of variance (MANOVA) results for social phobia, emotion regulation difficulty, and self-efficacy

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Social Phobia						
Group	19,965.733	1	19,965.73	515.846	< .001	0.823
Error	4,296.232	125	38.705			
Emotion Regulation Difficulty						
Group	21,188.499	1	21,188.50	847.581	< .001	0.884
Error	2,774.867	125	24.999			
Self-Efficacy						
Group	17,653.542	1	17,653.54	321.443	< .001	0.738
Error	6,271.683	125	56.502			

Results from Table 2 indicate significant differences between individuals with clinical BMI and normal weight in social phobia. A comparison of means revealed that the clinical BMI group had significantly higher social phobia scores (M = 63.40) than the normal weight group (M = 36.80), $F(1, 125) = 515.85$, *p* < .001, partial $\eta^2 = 0.82$. The group variable accounted for 82.3% of the variance in social phobia.

Similarly, significant differences were found in emotion regulation difficulty, with the clinical BMI group (M = 69.10) scoring higher than the normal weight group (M = 41.69), $F(1, 125) = 847.58$, *p* < .001, partial $\eta^2 = 0.88$.

For self-efficacy, the normal weight group (M = 69.07) exhibited significantly higher scores than the clinical BMI group (M = 44.09), $F(1, 125) = 321.44$, *p* < .001, partial $\eta^2 = 0.74$. The group variable explained 73.8% of the variance in self-efficacy.

With a 99% confidence level ($\alpha = 0.01$), the hypothesis that significant differences exist in social phobia, emotion regulation difficulty, and self-efficacy between individuals with clinical BMI and normal weight is confirmed.

4. Discussion and Conclusion

The hypothesis of the study, which posited differences in social phobia, emotion regulation difficulties, and self-efficacy between individuals with clinical body mass index (BMI) and normal weight, was confirmed. Results indicated that individuals with clinical BMI experience higher levels of social phobia and emotion regulation difficulties, as well as lower self-efficacy, compared to those with normal weight. These findings align with prior research (Cong et al., 2021; Eskandarnajad & Alizadeh, 2021; Flynn et al., 2024; Jafari et al., 2019; Jaremka & Pacanowski, 2019; Liou & Bauer, 2018; Liou & Kulik, 2022; Maafi et al., 2019; Mousavi, 2021; Pinart et al., 2022; Shast Fouladi & Bashardoust, 2020; Shirzadi et al., 2022; Shriver et al., 2021; Weghuber et al., 2019; Westbury et al., 2023).

To explain the results, Rapee and Heimberg's (1997) model of social phobia suggests that individuals with social phobia excessively prioritize creating a desired impression on others and perceive others as highly critical. When anticipating or entering social situations, they form mental representations of how they believe they are perceived by others (Westbury et al., 2023). For individuals with clinical BMI, poor body image may amplify negative thoughts about being judged in social contexts, thereby exacerbating social phobia.

Regarding emotion regulation difficulties, individuals with higher BMI often report stronger desires for weight loss, which correlates with body dissatisfaction, low self-worth, and anxiety about weight (Shirzadi et al., 2022). Such negative emotional states can trigger emotional eating where individuals with clinical BMI overeat in response to distress, perpetuating a cycle of weight gain and emotional dysregulation.

Self-efficacy, another differentiating variable, refers to an individual's belief in their ability to manage challenges and

E-ISSN: 2980-9681

adopt health-promoting behaviors (Liou & Kulik, 2022). Higher self-efficacy predicts greater engagement in healthy behaviors, such as balanced eating and physical activity, which are critical for weight management. Conversely, lower self-efficacy in individuals with clinical BMI may hinder their capacity to adopt lifestyle changes necessary for weight control.

In conclusion, individuals with clinical BMI exhibit distinct psychosocial challenges, including elevated social phobia, impaired emotion regulation, and reduced self-efficacy. These findings underscore the need for integrated psychological interventions targeting body image, emotion regulation strategies, and self-efficacy to support sustainable weight management and improve mental health outcomes in this population.

This study has several limitations, including the use of convenience sampling, which restricts the generalizability of findings to broader populations. The cross-sectional design precludes causal inferences about the relationships between clinical BMI and psychosocial variables. Reliance on self-report measures introduces the risk of response bias, particularly for socially sensitive constructs like social phobia and body image. Additionally, the sample was drawn exclusively from nutrition counseling centers in Tehran, limiting cultural and regional diversity. Potential confounding variables, such as socioeconomic status, comorbid mental health conditions, or medical comorbidities, were not controlled. Finally, the study did not explore longitudinal changes in these variables, which could provide insights into the temporal dynamics of psychosocial factors in weight management.

Future research should employ longitudinal or experimental designs to establish causal pathways between clinical BMI and psychosocial variables. Expanding sampling to diverse geographic and cultural contexts would enhance external validity. Integrating objective measures (e.g., physiological assessments of stress, behavioral observations) with self-reports could reduce bias. Interventions targeting emotion regulation strategies, social skills training, and self-efficacy enhancement should be developed and evaluated for individuals with clinical BMI. Researchers should also investigate mediating or moderating factors, such as societal stigma, social support, or genetic predispositions, to refine theoretical models. Replication in clinical populations with structured weight management programs could clarify practical implications for integrated care.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We hereby thank all individuals for participating and cooperating us in this study.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the study and participated in the research with informed consent.

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E-ISSN: 2980-9681