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Psychological resiliency and associated factors among adults with obesity: a cross-sectional study

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Abstract

Introduction: Obesity is a complex health problem affecting physical, psychological, and social aspects. Those affected face stressors such as social stigma and low self-esteem, making resilience crucial for improving their health. Psychological resilience is an individual's ability to adapt positively to stress. which positively impacts their health and quality of life. **Objective:** The study aimed to assess the psychological resiliency and its relationship with socio-demographical and clinical data among adults with obesity. **Methods:** Descriptive cross sectional study design adapted to obtain objectives related to study phenomena from the period 10 September 2025 to 8 May 2026. Non probability convenience sample method was selected to participate in the study to achieve the objectives, (180) person selected to carrying out this study. Data were analyzed using SPSS version 26, employing descriptive and inferential statistics. **Results:** More than half of the participants (54.4%) have a moderate level of psychological resiliency. Statistically significant differences were found between psychological resiliency and six factors (age, sex, employment status, economic status, smoking, and daily living activities) at p. value (< 0.05). The highest values were associated with age (≥50 years). Clinically, statistically significant difference was found between associated comorbidities and body mass index (BMI), with significant correlations with medications and family history at p. value (< 0.05). **Conclusion:** The study finding indicate that psychological resilience plays a significant role among adults with obesity. The psychological resiliency was less than acceptable and affected by several factors among adults suffered from obesity. **Recommendation:** The findings also underscore the importance of fostering these aspects through integrated health care and educational programs, given their positive impact on improving overall health and quality of life.

Keywords: Obesity. Psychological resiliency. Adults.

Introduction

According to the World Health Organization (WHO), obesity is defined as an excessive accumulation of fat that poses a health risk. It is classified using the Body Mass Index (BMI ≥ 30). It is a chronic condition that affects most bodily functions **[2]**. Statistics show that obesity rates have doubled globally, with 16% of adults being obese **[8]**.

Obesity is associated with an increased risk of chronic diseases such as diabetes and heart disease, in addition to its negative impact on mental and social well-being. Even a small amount of weight loss can lead to a significant improvement in health. Psychological resilience is an individual's ability to cope with the stresses and challenges associated with obesity, such as social stigma and difficulty losing weight. It plays a crucial role in promoting adherence to healthy behaviors **[18]**. However, despite the growing interest in psychological resilience, most previous studies have focused primarily on the general population or specific disease groups, with limited attention specifically directed towards adults with obesity. In addition, there is a lack of studies examining the level and determinants of psychological

resilience among obese adults, particularly in local and regional contexts [9].

This gap limits a comprehensive understanding of the role of psychological resilience in individuals with obesity. Therefore, this study aims to assess the level of psychological resilience among obese adults and identify its associated factors, in order to provide a clearer understanding that can support the development of targeted psychological and health interventions. Finally, obesity is a chronic global health problem associated with multiple physical and psychological risks. Psychological resilience plays a crucial role in helping individuals cope with the challenges of obesity and maintain healthy behaviors. However, studies addressing psychological resilience in obese adults, particularly in local contexts, remain limited.

Therefore, this study aimed to assess the level of psychological resilience and identify its associated factors in this population.

Methods

Study design

A descriptive cross-sectional design was used in this quantitative research to assess psychological resiliency among adults with obesity. This design was selected as it enables the evaluation of psychological resiliency levels at a single point in time.

Setting and Sample

The study was conducted in two teaching hospitals in Al-Hilla, Iraq (Marjan teaching hospital and AL Imam AL Sadiq Teaching Hospital). Non probability convenience sample of (180) was included.

Study Participant

The study included 180 adults with obesity who attended selected healthcare centers in Babylon Governorate. Participants aged 18 years and older with a body mass index (BMI) of ≥30 kg/m² were recruited according to the inclusion criteria during the data collection period. Adults who agreed to participate and provided informed consent were included in the study.

Sample size

The sample size for this cross-sectional study consisted of 180 adults with obesity. Participants were recruited using a convenience sampling method based on the study eligibility criteria and willingness to participate. The sample size was considered sufficient to support statistical analysis and achieve reliable study findings.

Instrument

To achieve the study's objective, a specific questionnaire was prepared after an extensive review of related literature. The questionnaire was divided into three parts. The socio-demographic data part consists of (11) items, which include the following: age, sex, educational level, marital status, Employment Status, Economic status (Monthly income), Residency, Daily Living Activities (DLA), Smoking, Alcohol consumption, Dietary habits. The clinical information part consists of (4) items, which include the following: Associated comorbidities, Body Mass Index (BMI), Medications, Family History of obesity. Psychological resiliency scale consists of (Connor-dividson resilience 25 items, 5-point likert scale).

Validity and Reliability

Face validity was established through expert review (n = 10) experts from multidisciplinary field, who have more than 7 years of experience in their specialty. To establish the study questionnaire, the internal consistency was assessed by Cronbach's Alpha (0.887). To assess the psychological resiliency of adults with obesity five points Likert scale level used as a pattern of rating (not true at all, rarely true, sometimes true, often true, true nearly all the time). The adopted scoring system, which is used (0- not true at all, 1-rarely true, 2- sometimes true, 3-often true ,4- true nearly all the time). The cutoff point was 33.33 according to the following: Low= 0-33.33, Moderate= 33.34-66.66, High= 66.67-100. This part includes (25) items, adapted from [5].

Data Collection

Data collection was conducted over a twenty-one-day period, from December 10 to December 31, 2025. Following the formal approval of the study, the data collection phase commenced by approaching persons attending the hospital. The study objectives were clearly explained to the participants before distributing the questionnaire. Each participant independently completed the self-administered questionnaire, which required approximately 20-30 minutes to complete. The process ensured that all feedback was collected directly from persons.

Ethical Considerations

Ethical approval for this study was obtained from the Scientific Research Ethical Committee of the College of Nursing, University of Babylon (Approval No. 94). Written informed consent was obtained from all participants before their enrollment in the study.

Data Analysis

Data were analyzed using SPSS (Version 26). Descriptive statistics and non-parametric tests (Mann–Whitney U, Kruskal–Wallis) were used. Significance was set at $p < .05$. This cross-sectional study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Results

Table 1 show the socio-demographic characteristics of the study sample (n = 180). The participants' ages ranged from less than 30 years to 50 years and above, with the largest proportion (40.0%) aged 30–39 years, and an overall mean age of 37.08 ± 11.44 years. Females constituted the majority of the sample (62.2%), while males accounted for 37.8%. More than half of the participants resided in urban areas (55.6%), with the remaining living in rural areas (44.4%). Regarding marital status, most participants were married (52.2%), followed by single (33.3%), with smaller proportions of divorced (6.7%), widowed (3.3%), and separated (4.4%) individuals.

Educationally, half of the participants held a bachelor's degree (58.3%), while 23.3% completed secondary school, 11.1% primary school, 2.9% held a master's degree, and a minority (4.4%) were illiterate. In terms of employment, the largest groups were housewives (25.6%) and students (20.0%), with smaller proportions employed in government (15.6%), private sectors (17.8%), self-employed (12.2%), or as workers (8.9%). Economically, nearly half of the participants (47.8%) had a monthly income of 750,000–1,500,000 IQD, while 30.0% earned more than 1,500,000 IQD and 22.2% earned less than 750,000 IQD. Regarding lifestyle factors, 21.1% of participants reported smoking, and 10.0% reported alcohol consumption.

Dietary habits showed that the largest proportion consumed a high-fat diet (43.3%), followed by high salt (31.1%) and high sugar (25.6%). Finally, assessment of daily living activities indicated that more than half of the participants (52.2%) had partially depends, 28.9% had dependent, and 18.9% had high levels of independence in performing daily activities.

Table 1. Distribution of Study Sample by their Socio-demographic Variables (SDVs) (n=180).

SDVs	Classification	No.	%
Age / years	<30	40	22.2
	30-39	72	40.0
	40-49	46	25.6
	50 and above	22	12.2
	Total	**180**	**100.0**
	M ± SD	**37.08 ± 11.443**	
Sex	Male	68	37.8
	Female	112	62.2
	Total	**180**	**100.0**
Residence	Urban	100	55.6
	Rural	80	44.4
	Total	**180**	**100.0**
Marital status	Single	60	33.3
	Married	94	52.2
	Divorced	12	6.7
	Widowed	6	3.3
	Separated	8	4.4
	Total	**180**	**100.0**
Educational level	Don't read & write	8	4.4
	Primary school	20	11.1
	Secondary school	42	23.3
	Bachelor's degree	105	58.3
	Master's degree	5	2.9
	Total	**180**	**100.0**
Employment Status	Government	28	15.6
	Private	32	17.8
	Student	36	20.0
	Housewife	46	25.6
	Self-employed	22	12.2
	Worker	16	8.9
	Total	**180**	**100.0**
Economic status (Monthly income)	<750,000 IQD	40	22.2
	750,000–1,500,000 IQD	86	47.8
	>1,500,000 IQD	54	30.0
	Total	**180**	**100.0**
Smoking	Yes	38	21.1
	No	126	70.0
	Ex-smoker	16	8.9
	Total	**180**	**100.0**
Alcohol consumption	Yes	18	10.0
	No	162	90.0
	Total	**180**	**100.0**
Dietary habits	High sugar	46	25.6
	High salt	56	31.1
	High fat	78	43.3
Daily Living Activities (DLA)	Dependent (0–6.66)	52	28.9
	Partially (6.67–13.33)	94	52.2
	Independent (13.34–20)	34	18.9
	Total	**180**	**100.0**

No. Number; %= Percentage; M ± Std. Deviation= Mean & Standard Deviation. Source: Own authorship.

Table 2 show the clinical characteristics of the study sample (n = 180). Regarding associated comorbidities, 41.1% of participants reported no comorbid conditions, while the remaining had diabetes mellitus (25.6%), hypertension (21.1%), or heart disease (12.2%). Concerning body mass index, more than half of the participants (54.5%) were classified as having Class II obesity, followed by 23.3% with Class III obesity and 22.2% with Class I obesity. Concerning

medications, 43.3% of participants reported taking medications, whereas 56.7% did not. In terms of family history of obesity, 56.7% of participants had a positive family history, while 43.3% did not.

Table 2. Distribution of Study Sample by their Clinical Characteristics (n=180).

Clinical Characteristics	Classification	No.	%
Associated comorbidities	Diabetes mellitus	46	25.6
	Hypertension	38	21.1
	Heart disease	22	12.2
	None	74	41.1
	Total	**180**	**100.0**
Body Mass Index (BMI)	Obesity Class I: 30.0 – 34.9 kg/m²	40	22.2
	Obesity Class II: 35.0 – 39.9 kg/m²	98	54.5
	Obesity Class III: ≥ 40.0 kg/m²	42	23.3
	Total	**180**	**100.0**
Medications	Yes	78	43.3
	No	102	56.7
	Total	**180**	**100.0**
Family History of Obesity	Yes	102	56.7
	No	78	43.3
	Total	**180**	**100.0**

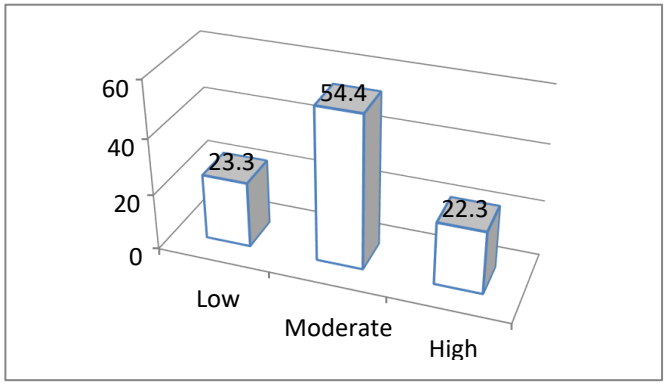
No. Number; %= Percentage. Source: Own authorship.

Table 3 and Figure 1 show the distribution of psychological resiliency among adults with obesity (n = 180) according to the CD-RISC. The results indicate that most participants reported moderate levels of psychological resiliency across the majority of items, with mean scores ranging from 2.14 to 2.79. Statements with the highest mean scores, reflecting a high level of resiliency, included overcoming difficult situations (M = 2.79), remaining hopeful about the future (M = 2.77), learning from failures (M = 2.70), and feeling supported by others (M = 2.67). Items such as using relaxation or mindfulness techniques to cope with stress (M = 2.14) and staying calm in difficult situations (M = 2.24) had the lowest mean scores, indicating slightly weaker resiliency in these areas.

Table 3. Distribution of Psychological Resiliency among Adults with Obesity According to CD-RISC (n = 180).

No.	Psychological Resiliency Statements	0		1		2		3		4		M.s	Ass.
		No.	%	No.	%	No.	%	No.	%	No.	%		
1	Adapt when changes occur	10	5.6	24	13.3	48	26.7	58	32.2	40	22.2	2.52	M
2	Stay focused under pressure	14	7.8	30	16.7	50	27.8	52	28.9	34	18.9	2.35	M
3	Bounce back after hardship	12	6.7	26	14.4	44	24.4	58	32.2	40	22.2	2.48	M
4	Achieve goals despite obstacles	8	4.4	22	12.2	46	25.6	60	33.3	44	24.4	2.61	M
5	Stay calm in difficult situations	16	8.9	34	18.9	52	28.9	46	25.6	32	17.8	2.24	M
6	See challenges as opportunities	10	5.6	26	14.4	48	26.7	56	31.1	40	22.2	2.50	M
7	Cope effectively with stress	12	6.7	30	16.7	50	27.8	52	28.9	36	20.0	2.40	M
8	Handle unpleasant feelings	14	7.8	32	17.8	48	26.7	54	30.0	32	17.8	2.32	M
9	Maintain a positive outlook	10	5.6	28	15.6	46	25.6	58	32.2	38	21.1	2.47	M
10	Find strength in values/beliefs	8	4.4	24	13.3	40	22.2	56	31.1	52	28.9	2.66	M
11	Learn from failures	6	3.3	22	12.2	42	23.3	60	33.3	50	27.8	2.70	H
12	Ask for help when needed	12	6.7	28	15.6	46	25.6	54	30.0	40	22.2	2.45	M
13	Confidence in abilities	8	4.4	24	13.3	44	24.4	58	32.2	46	25.6	2.61	M
14	Keep going when things are tough	10	5.6	26	14.4	42	23.3	60	33.3	42	23.3	2.56	M
15	Influence what happens in life	12	6.7	30	16.7	50	27.8	52	28.9	36	20.0	2.39	M
16	Adjust plans when challenged	8	4.4	22	12.2	46	25.6	60	33.3	44	24.4	2.61	M
17	Look for creative solutions	10	5.6	26	14.4	48	26.7	54	30.0	42	23.3	2.50	M
18	Remain hopeful about future	6	3.3	20	11.1	38	21.1	60	33.3	56	31.1	2.77	H
19	Manage emotions during stress	14	7.8	30	16.7	52	28.9	50	27.8	34	18.9	2.33	M
20	Feel supported by others	8	4.4	22	12.2	40	22.2	58	32.2	52	28.9	2.67	H
21	Recover quickly after disappointment	12	6.7	28	15.6	48	26.7	54	30.0	38	21.1	2.43	M
22	Focus on what I can control	10	5.6	26	14.4	46	25.6	56	31.1	42	23.3	2.51	M
23	Use relaxation/mindfulness	20	11.1	36	20.0	52	28.9	44	24.4	28	15.6	2.14	M
24	Persistent toward goals	8	4.4	22	12.2	44	24.4	58	32.2	48	26.7	2.65	M
25	Overcome difficult situations	6	3.3	20	11.1	40	22.2	60	33.3	54	30.0	2.79	H

Scoring: 0 = Not true at all, 1 = Rarely true, 2 = Sometimes true, 3 = Often true, 4 = True nearly all the time. Level of Responses (Low [L]=0-1.33; Moderate [M]=1.34-2.66; High [H]=2.67-4). Source: Own authorship.



[Low= 0-33.33, Moderate= 33.34-66.66, High= 66.67-100]
Figure 1. Distribution of Psychological Resiliency among Adults with Obesity According to CD-RISC. Source: Own authorship.

Table 4 show the illustrates the statistical differences in overall psychological resiliency scores across socio-demographic variables among adults with obesity (n = 180). Significant differences were observed for age (H = 10.652, p = 0.014), indicating that older participants (50 years and above) had higher mean ranks of psychological resiliency compared to younger age groups. Sex also showed a significant difference (U = 5.314, p = 0.022), with females exhibiting higher psychological resiliency than males.

Similarly, educational level was significantly associated with psychological resiliency (H = 8.213, p = 0.038), where participants with higher education levels had higher scores. Employment status demonstrated a significant difference (H = 7.924, p = 0.041), as certain occupational groups, such as workers and self-employed, showed higher resiliency scores. Economic status was significant (H = 6.874, p = 0.032), with participants in higher-income brackets showing higher resiliency. Additionally, smoking status influenced psychological resiliency (U = 4.976, p = 0.029), with non-smokers displaying higher scores than smokers. Finally, daily living activities were strongly associated with psychological resiliency (H = 14.872, p = 0.001), indicating that participants with greater functional abilities had higher resiliency.

Table 4. Statistical Differences in Overall Psychological Resiliency Scores by Socio-demographic Variables (n = 180).

Socio-demographic Variables	Classification	N	Mean Rank	H / U	p-value
Age / years	<30	40	108.4	10.652[b]	0.014*
	30–39	72	121.3		
	40–49	46	129.7		
	50 and above	22	137.2		
Sex	Male	68	115.8	5.314[m]	0.022*
	Female	112	127.6		
Residence	Urban	100	124.2	2.572[m]	0.102
	Rural	80	119.8		
Marital status	Single	60	116.5	4.872[b]	0.181
	Married	94	126.8		
	Divorced	12	120.3		
	Widowed	6	123.7		
	Separated	8	118.4		
Educational level	Don't read & write	8	102.6	8.213[b]	0.038*
	Primary school	20	110.4		
	Secondary school	42	119.2		
	Bachelor's degree	105	128.5		
	Master's degree	5	135.7		
Employment Status	Government	28	113.7	7.924[b]	0.041*
	Private	32	119.4		
	Student	36	123.6		
	Housewife	46	128.8		
	Self-employed	22	131.5		
	Worker	16	134.2		
Economic status (Monthly income)	<750,000 IQD	40	116.5	6.874[b]	0.032*
	750,000–1,500,000 IQD	86	125.6		
	>1,500,000 IQD	54	130.7		
Smoking	Yes	38	114.8	4.976[m]	0.029*
	No	126	127.3		
	Ex-smoker	16	121.5		
Alcohol consumption	Yes	18	117.2	1.037[m]	0.309
	No	162	126.8		
Dietary habits	High sugar	46	119.4	2.186[b]	0.336
	High salt	56	123.5		
	High fat	78	127.8		
Daily Living	Dependent	52	104.8	14.872[b]	0.001*
Activities (DLA)	Partially	94	126.5		
	Independent	34	138.4		

(b = Kruskal-Wallis test; m = Mann-Whitney U test; N =Number; sig. = p < 0.05).
Source: Own authorship.

Table 5, show the illustrates the statistical differences in overall psychological resiliency scores among adults with obesity (n = 180) based on their clinical characteristics. Participants without associated comorbidities showed significantly higher psychological resiliency scores compared to those with diabetes mellitus, hypertension, or heart disease (H = 9.842, p = 0.019). Body Mass Index was significantly related to psychological resiliency, with normal-weight participants scoring the highest, followed by overweight, obesity, and underweight individuals (H = 10.715, p = 0.013). Moreover, participants who reported taking medications had significantly higher psychological resiliency scores than those who did not (U = 4.863, p = 0.028). Similarly, participants with a family history of obesity demonstrated higher psychological resiliency scores compared to those without such a history (U = 5.024, p = 0.026).

Table 5. Statistical Differences in Overall Psychological Resiliency Scores by Clinical Characteristics (n = 180).

Clinical Characteristics	Classification	N	Mean Rank	H / U	p-value
Associated comorbidities	Diabetes mellitus	46	112.8	9.842[b]	0.019*
	Hypertension	38	118.9		
	Heart disease	22	122.1		
	None	74	130.5		
Body Mass Index (BMI)	Obesity Class I	40	103.4	10.715[b]	0.013*
	Obesity Class II	98	132.9		
	Obesity Class III	42	123.1		
Medications	Yes	78	129.2	4.863[m]	0.028*
	No	102	119.7		
Family History of Obesity	Yes	102	128.8	5.024[m]	0.026*
	No	78	119.1		

(b = Kruskal-Wallis test; m = Mann-Whitney U test; N = Number; sig. = p < 0.05)
Source: Own authorship.

Discussion

Regarding to psychological resiliency, the findings showed that the majority of participants (54.4%) possessed a moderate level of psychological resilience, indicating a moderate ability to cope with stress and challenges. This finding aligns with **[15]**, who found that 66.4% of participants exhibited moderate psychological resilience associated with better coping abilities, and with **[11]**, who indicated that 66.2% of adults possessed moderate psychological resilience

under stress **[12]** also demonstrated that higher psychological resilience is associated with healthier behaviors such as improved diet, sleep, and physical activity.

The balancing effect of individual, social, and environmental factors. Past experiences and effective coping strategies, along with a healthy lifestyle and social support, contribute to maintaining a moderate and stable level of psychological resilience. Regarding to Socio- demographical characteristics, the findings showed that the age group ≥50 years demonstrated higher psychological resilience, which aligns with **[7]**, who found that older adults possess higher levels of psychological resilience. This is explained by the accumulation of experiences and improved coping skills and emotional regulation with age. Regarding sex, the findings showed that females demonstrated higher psychological resilience, which aligns with **[16]**, who found that women are more resilient and use positive coping strategies. This is explained strong social support and the ability to express emotions. Regarding residence, marital status, alcohol, and dietary habits, the findings showed non-significant differences were found ($p>0.05$), which is consistent with **[10]**, who found no significant correlation.

This is explained by the fact that psychological resilience depends more on internal factors such as adaptation and self-control. Regarding educational level, the findings showed a significant relationship, which is consistent with **[6]**, who found a positive correlation between education and psychological resilience. This is explained by the role of education in enhancing thinking and problem-solving skills. Regarding employment status, the findings showed a significant relationship, which is consistent with **[17]**, who found that employees possess higher resilience. This is explained by the stability, social support, and sense of purpose that employment provides. Regarding economic status, the findings showed a significant relationship, which is consistent with **[6]**, who found a positive correlation between economic status and psychological resilience.

The availability of resources and support, which enhances feelings of security. Regarding smoking, the findings showed that non-smokers have higher psychological resilience, which is consistent with **[3]**, who linked smoking to increased psychological stress. This is explained by the fact that smokers rely on unhealthy coping mechanisms. Regarding daily living activity (DLA), the findings showed a significant relationship, which is consistent with **[14]**, who found a positive correlation between daily activity and psychological resilience. This is explained by the fact that independence enhances self-confidence and adaptability. Regarding clinically comorbidities, the findings showed a significant relationship between chronic diseases and psychological resilience, with patients scoring lower.

This aligns with **[13]**, who found reduced resilience in individuals with chronic diseases, which can be explained by the ongoing health and psychological stresses associated with these illnesses. Regarding body mass index (BMI), the findings showed a significant relationship between BMI and psychological resilience. According to **[18]**, who found that higher BMI is associated with lower psychological resilience. This is explained by factors such as low selfesteem, social stressors, and health problems. Regarding medications, the findings showed a significant relationship between medication use and psychological resilience. This aligns with **[1]**, who indicated the influence of psychological factors on medication adherence. This can be explained by the fact that adherence to treatment reflects an ability to self-regulate and control the disease, thus enhancing psychological resilience. Regarding family history of obesity, the findings showed a significant relationship, which is consistent with **[4]**, who found a moderate correlation between family history and BMI with the influence of behavioral factors. This is explained by the influence of genetic factors and shared lifestyle on stress response and, consequently, on psychological resilience.

Limitation

The study was conducted in a small geographic area (the center of Babylon Governorate), which may limit the generalizability of the findings to other populations or settings. In addition, cultural beliefs and social norms of the participants may have influenced their responses during data collection. Furthermore, some participants withdrew from the study, while others did not complete the questionnaire, which resulted in a reduction in the final sample size.

Conclusion

The study concludes that the level of psychological resilience among obese adults was generally average. Statistically significant differences were found according to age, sex, education level, employment status, and economic status, while no significant differences were found with regard to place of residence, marital status, alcohol consumption, and dietary habits. Findings also revealed a statistically significant positive relationship between psychological resilience and several factors, indicating that more resilient individuals tend to use more effective coping

strategies. These findings underscore the importance of psychological resilience in improving the psychological health and quality of life of obese individuals. It is recommended to develop and implement intervention programs aimed at enhancing psychological resilience in obese adults. It is also advisable to integrate educational strategy into health and nursing programs to promote positive coping behaviors. In addition, providing psychological support contributes to improving individuals' ability to manage stress effectively. Further research is recommended to explore other factors influencing psychological resilience among obese adults.

Abbreviations List

Body Mass Index: BMI
World Health Organization: WHO
Statistical Package for the Social Sciences: SPSS
Standard Deviation: SD
Probability Value: P-Value
Quality of Life: QOL
Activities of Daily Living: ADL
Confidence Interval: CI
Degree of Freedom: DF
Significance: SIG
Kilogram: KG
Square Meter: m^2
Number: NO
Percentage: %
Mean: M
Low: L
Moderate: M
High: H

CRediT

Author contributions: Conceptualization, methodology, investigation, data collection, formal analysis, data interpretation, supervision, writing—original draft: All authors.

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Ethical Approval

Ethical approval for this study was obtained from the Scientific Research Ethical Committee of the College of Nursing, University of Babylon (Approval No. 94). Written informed consent was obtained from all participants before their enrollment in the study.

Informed Consent

Written informed consent was also obtained from all participants before their inclusion in the study.

Funding

Not applicable.

Data Sharing Statement

The datasets generated and analyzed during the current study and available from the corresponding author upon reasonable request.

Conflict of Interest

The authors declare that there are no competing interests or potential conflict related to the conduct or publication of this study.

Similarity Check

It was applied by Ithenticate[@].

Application of Artificial Intelligence (AI)

Not applicable.

Peer Review Process

It was performed.

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