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Impact of Self-Help Psychoeducational Intervention on Management of Emotional Eating Among Obese Individuals: A Randomized Controlled Trial

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With a high prevalence of emotional eating affecting young adults in Pakistan, leading to obesity and other health problems there is urgent need of addressing this issue to prevent severe mental, physical, and social health impairments; and potential benefit of psycho-educational intervention, the current research was conducted to evaluate the effectiveness of a psycho educational program on overweight/ obese young adults by targeting emotional eating, psychological distress, social support and quality of life, using a two-arm, single-blinded, randomized control trial at Fatima Jinnah Women University, Rawalpindi from Nov 2023 to Jan 2024. Psycho-educational Weight Reduction Program can widely be used as a method to improve functioning in young adults having extra build weight and also reduce emotional eating. It can be presumed that changes of eating behaviors, emotional functioning and body image may be imperative in weight management program Study included two phases with a sample of 550 students recruited using convenience sampling with cross-section study design in Phase-I and sample screened for high emotional eating (score >75) and Body Mass Index (25-30 Kg/m). Fourteen eligible students entered Phase II (Intervention) and randomly assigned into the Experimental (self-help psycho-educational weight loss intervention for 12 weeks (2-sessions/ week) and Control groups. Pre and Post-intervention results revealed that the experimental group had significantly lower scores

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($p < 0.001$) for Generalized Anxiety Disorder, Emotional Eating Scale, Patient Health Questionnaire and Discouragement subscale, while significantly higher scores were noted for Physical Component Summary(PCS), Mental Component Summary(MCS) and Encouragement subscale, compared to Control Group. Hence, Self-help psycho educational program for management of emotional eating has significant effects on young adults having obesity in terms of reducing emotional eating, psychological distress and improving social support and life quality.

Keywords. Emotional eating, Body Mass Index, Psychological, Quality of life, and self-help psycho-educational programs

Spread of COVID-19 starting from 2020 emerged as a significant public health concern, profoundly disturbing daily routines worldwide and exerting substantial influences on both physical and mental well-being (Holmes et al., 2020). This was followed by regional lockdowns, as a means to limit its transmission (Ghebreyesus, 2020). Social isolation and quarantine protocols adversely impacted on individuals' physical and mental well-being. Mental health repercussions of COVID-19 pandemic were experienced by the entire populace, with a more pronounced effect on females, young adults, healthcare professionals, and individuals with lower socioeconomic status. This is due to factors such as women's increased responsibilities in childcare and employment within sectors disproportionately affected by the pandemic (Niedzwiedz, 2021).

Emotional Eating is considered Obeseogenic with contribution in achieving an increase in. It commonly results from negative emotions (Konttinen, 2020). Psychosomatic theory explains the emotional eating concept. Individuals with emotional eating fail to see the difference between starvation and physiological condition related to negative emotion. Historically, emotional eating is related to tendency of increasing diet intake because of altered emotions which may be in form of individual’s state of being angry, depressed, furious, nervous or lone (Güneşer & Him, 2021).

According to World Health Organization, the prevalence of this emotional state in the local context is considered 58.1 percent, however 43.9% suffer obesity (Coronavirus Disease 2019 (COVID-19): Situation Report - 64 (24 March 2020) - World, 2020). This indicates Pakistan has to cater to the factors which predict obesity, and essentially catering to the major factor ie., Emotional Eating. Pre-pandemic, 38% adults admitted to overeating while during this period it rose (47%) (Emotional Eating on the Rise During the Pandemic, 2020).

Etiology of Emotional Eating is not known. But, supposedly it can result from a combination of issues related to environment, psychology and biology with their basis on a "bio-psycho-social" models. In other words it can be phrased as "Gun is loaded by the genetic makeup and its trigger pulled by the environment (Galmiche et al., 2019).

The potential benefits of using a psycho-educational weight reduction program is enhancement of functioning of youth with weight gain and increase emotional eating. Hence, it is suggested that variations in behavior of eating, emotions, self-image are crucial in programs which aim to manage weight (Lattimore, 2019). The self-help approach is particularly useful for individuals who cannot access obesity treatment centers or psychological assistance in their area (Levin et al., 2018). The WHO and the European Association for the study of overweightness recommended that finding modern methods to help young adults and develop novel interventions that should be efficient, operative and extra suitable to requirements (McGowan 2016; World Health Organization 2015). These commendations were based on the statistic that: (I) the spread of obesity was continuously snowballing and the price of treatment continuously on a rise, (II) Few studies have showed that psychological factors are intricate in the maintenance, growth and handling of obesity (McGowan, 2016; World Health Organization 2015). However, concluded from previous research studies indicate that traditional treatment for obesity should be supplemented by psycho-education based on web that would be more effective in treating obesity related issues such as Emotional Eating. Research is required to highlight connections between emotional eating and weight gain and psychological distress

With a high prevalence of emotional eating affecting young adults in Pakistan (Coronavirus Disease 2019 (COVID-19)- Situation Report - 64 (24 March 2020) - World, 2020), leading to obesity and other health problems there is urgent need of addressing this issue to prevent severe mental, physical, and social health impairments; and potential benefit of psycho-educational intervention (Lattimore, 2019), the current research was conducted to look into the effectiveness of a psychoeducational program on overweight/ obese young adults by targeting emotional eating, social support, psychological distress and quality of life.

This study has significant since it might have implications for clinical management of overweight/obese emotional eaters and for research.

Objective

1. To assess the efficacy of psycho-education self-help behavioral intervention in reducing Emotional Eating among over-weight/obese young adults.
2. To examine changes in psychological distress levels following the intervention.
3. To evaluate improvements in perceived social support after the intervention.
4. To determine changes in quality of life among participants post-intervention.

Hypothesis

Bases on the objective to evaluate the effectiveness of the psychoeducational program, the following hypotheses were formulated:

1. The program will significantly reduce emotional eating among overweight/obese young adults.
2. The program will significantly reduce psychological distress.
3. The program will significantly reduce perceived social support.
4. The program will significantly enhance overall quality of life.

Method

Current study utilized Randomized Control Trial (RCT) design at Fatima Jinnah Women University (FJWU) Rawalpindi, after ethical approval from FJWU Ethics Committee approval vide reference number FJWU/ EC/2023/59 dated September 13, 2023 and RCT registration number NCT06081023. Study was carried out over a period 3 months starting from November 1, 2023 to January 31, 2024.

Phases and Participants

Although the study was conducted in two phases, the data were analyzed and presented collectively to provide a comprehensive, objective-based interpretation rather than a phase wise breakdown, in line with the study's cross-sectional design.

Phase I: A Cross-Sectional Survey design using convenience sampling recruited a sample of 550 students from Foundation

University, Arid agricultural University, Riphah International University, Barani Institute and National University of Modern Languages Rawalpindi/Islamabad. Sample of 558 was calculated utilizing Raosoft calculator using a confidence level = 95%, 5% margin of error with a population of 3500. However eight participants refused consent and were excluded. The sample of N = 550 was screened for high Emotional Eating Scores and Body Mass Index (BMI). Participants with scores exceeding 75 were categorized as 'Emotional Eaters', while those scoring below 75 were classified as 'non-emotional eaters.' Of the total of 550 participants, it was determined that 50 individuals (10%) self-reported high levels of emotional eating. Moreover, the examination of Body Mass Index (BMI) data revealed that approximately 88 participants (16%) were categorized as overweight, on the BMI calculator. Overall screening revealed N = 15 (2.73%) students who had high Emotional Eating Scores and BMI 25-30 Kg/m (Table 1) which was our sample of study in Phase II.

Table 1: *Assessment of Emotional Eating and Body Mass Index (N = 550)*

Variable		Emotional Eating		
	Group	Low	High	Total
Body Mass Index	Normal (18.5-25 kg/m)	427 (77.64)	35 (6.36)	462 (84)
	Overweight (25-30 kg/m)	73 (13.27)	15 (2.73)	88 (16)
	Total	500 (90.91)	50 (9.09)	550

These screened individuals were then informed about the opportunity to voluntarily participate in the second phase of the study. Sample comprised participants with variation of age from 19-35 with a mean age of 22 years for males and 21 years for females. These included 261(23.5%) females and 289 (52.5%), males.

Phase II: Of the sample screened out for the phase II i.e., N = 15, one participant refused consent to undergo Phase II, while, N = 14 expressed their commitment to the study for a period of 3 months and were randomly assigned to either the control or experimental group, constituting Phase II of the study which comprised a psycho-educational weight loss intervention utilizing a Randomized Control Trial. Each participant was provided with a volunteer participation form, and their involvement in the

interventional study was acknowledged, including their right to withdraw from the study if they wished to do so.

Measures

Evaluation tools included Emotional Eating Scale (EES) (Tanofsky-Kraff et al., 2007) which is a 25 item reliable tool that measures emotional eating using a 5 point Likert scale; Generalized Anxiety Disorder (GAD) Scale (Spitzer et al., 2006) measuring Anxiety using 7 items that are measured using a 4 point likert scale; Patient Health Questionnaire (PHQ) (Kroenke et al., 2001) measuring depression using 9-items with 4 point likert scale; Social Support for Eating Habits (SSEH) (Sallis et al., 1987) measuring social support using 10 items with 5 point likert scale; and Short Form 36 (SF-36) (Ware & Sherbourne, 1992) measuring general health using 36 items.

Intervention

Following pre-intervention assessment, the intervention, known as Self-Help, was then implemented exclusively for the experimental group. In contrast, the control group participants were provided with an audio clip that guided them through a muscle relaxing technique to alleviate psychological distress, but no other behavioral techniques were applied. Intervention was instituted for a period of 12 weeks. After the intervention, assessment was carried out for determination of effectiveness of the Self-Help intervention.

Reduction of weight using psycho-educational strategy can be utilized to enhance functions among youth who are obese and to cut down overeating associated with psychological issues. It is assumed that alteration in eating habit, emotional state and self-image is essential for managing weight in weight reduction programs (Montesi et al., 2016; Teixeira et al., 2015). The fact behind might be that improvement in mental health could have a enhanced role, raising motivation and self-control (Teixeira et al., 2015). Self-help strategy could help individuals living far-away from obesity-handling-centers. Further, web-based management may be a reasonable option for such individuals living far-away from these centers or in conditions like Covid-19 pandemic.

Data Collection Procedure

Data was collected pre-intervention and post-intervention by the researcher using the measures described above.

Statistical Analyhsis

Data analysis for this study was performed using SPSS version 26. An independent *t*-test analysis was performed to juxtapose participants from distinct groups, focusing on emotional eating, anxiety, depression, social support, and quality of life for comparative assessment. *t*-test will be used to see difference between groups. $p < 0.05$ was taken as significant value.

Results

Demographic characteristics

A randomized control trial was conducted with a cohort 14 cases with 07 cases Group A (Experimental Group) and 07 in Group B (control group). Out of the 14 participants screened, 6(42.86) were males and 8(57.14) females. The age range of most participants was 21-25 years with most being overweight 12(85.71%). No significant difference was noted among experimental and control groups with $p > 0.05$ as regards age, gender and education level (Table 2).

Table 2: *Demographic Variables Versus Frequency of Participants Among Study Groups in Phase II: Cross Tabulation (N = 14)*

Variables	Category	Group		Total	*p*-Value
		Experimental ($n = 7$)	Control ($n = 7$)		
Gender	Male	3	3	6	0.704
	Female	4	4	8	
Age	20	2	0	2	0.502
	21	1	3	4	
	22	1	1	2	
	23	1	1	2	
	24	1	2	3	
	25	1	0	1	
Body Mass Index	Over weight (25-29.9)	5	7	12	0.462
	Obese (above 30)	2	0	2	

Note. PHQ = Patient Health Questionnaire, PCS = Physical Component Summary, MCS = Mental Component Summar, GAD = Generalized Anxiety Disorder).

Table 3: *Mean Differences in Predictor Variables Between Pre and Post-Intervention Group (N = 14)*

Variables	Pre-Intervention Mean±SD	Post-Intervention Mean±SD
Emotional Eating Scale	87.07±7.28	64.79±26.91
t,p-value	3.495, .004	
PCS	49.00±8.88	57.29±14.43
t,p-value	-2.312, .04	
MCS	41.00±5.99	48.71±12.00
t,p-value	-2.209, .05	
GAD	14.86±2.85	8.29±8.11
t,p-value	3.192, .01	
PHQ	18.64±3.15	9.86±9.83
t,p-value	3.272, .01	
Encouragement	13.79±3.51	16.14±4.26
t,p-value	-1.612, .13	
Discouragement	16.79±1.63	14.79±6.13
t,p-value	1.05, .31	

Note. PHQ = Patient Health Questionnaire, GAD = Generalized Anxiety Disorder, MCS = Mental Component Summary, PCS = Physical Component Summary.

Results of the current study (Table 3) for scores of Emotional Eating Scale (EES), Physical Component Subscale (PCS), Mental Component Scale (MCS), Generalized Anxiety Disorder (GAD), Physical Health Questionnaire (PHQ), Encouragement and Discouragement for pre-intervention versus post-intervention results revealed significantly improved results for EES, PCS, MCS, GAD, PHQ, encouragement with $p < 0.05$; while no significant ($p = .31$) difference was noted for discouragement.

Table 4: *Mean Differences in Predictor Variables Between Control and Experimental Group A) Pre-Intervention and B) Post-Intervention (N = 7)*

Variables	Groups		*t*-test Statistics	
	Experimental (Mean±SD)	Control (Mean±SD)	*t*-value	*p*-value
PRE-INTERVENTION				
Emotional eating scale	84.29±9.14	89.86±3.63	-1.50	.16
PCS	47.00±6.32	51.00±11.03	-.83	.42
MCS	40.14±7.65	41.86±4.18	-.52	.61
GAD	14.00±3.37	15.71±2.14	-1.14	.28
PHQ	18.57±4.12	18.71±2.14	-.08	.94
Encouragement	13.71±5.06	13.86±1.07	-.07	.94
Discouragement	17.57±2.07	16.00±0.00	2.01	.07
B) POST-INTERVENTION				
Emotional Eating Scale	39.43±7.25	90.14±4.02	-16.18	.000
PCS	67.00±1.53	47.57±15.12	3.38	.005
MCS	59.14±1.21	38.29±7.54	7.22	.000
GAD	0.57±0.79	16.00±1.73	-21.46	.000
PHQ	0.71±0.76	19.00±3.70	-12.82	.000
Encouragement	19.71±2.06	12.57±2.30	6.12	.000
Discouragement	9.00±1.15	20.57±1.40	-16.99	.000

Study revealed (Table 4) no significant difference for scores of EES, PCS, MCS, GAD, PHQ, encouragement and discouragement between Experimental and Control Group before intervention $p > 0.05$. While post-intervention results of Control versus Experimental Group as assessed using an independent sample *t*-test revealed significantly ($p = .000$) lower EES for experimental group compared to control (39.43 ± 7.25 vs. 90.14 ± 4.02); PCS revealed significant ($p = .005$) higher scores for Experimental Group vs Control group (67.00 ± 1.53 vs.47.57 ± 15.12); MCS revealed significantly ($p = .000$) higher scores for Experiential Group vs Control (59.14 ± 1.21 vs. 38.29 ± 7.54); GAD revealed significantly ($p = .000$) lower scores for Experimental group vs Control (.57 ± .79 vs. 16.00 ± 1.73); PHQ revealed significantly ($p = .000$) lower scores for experimental group compared to control (.71 ± .76 vs.19.00 ± 3.70); Encouragement subscale revealed significantly ($p = .000$) higher scores for Experimental group compared to control (19.71 ± 2.06 vs 12.57 ± 2.30) while Discouragement subscale revealed significantly

(p = .000) lower scores for Experimental compared to control group (9.00 ± 1.15 vs 20.57 ± 1.40).

These scores indicate that intervention resulted in less psychological distress as compared to control group, with higher level of encouragement and lower discouragement scores helping to control emotional eating. These findings support all four hypotheses, showing that the intervention significantly reduce emotional eating and psychological distress, increased perceived social support, and enhanced overall quality of life among overweight/obese young adults.

Discussion

Emotional eating as a cause of weight gain cannot be ignored (Frayn & Knaüper, 2017), since literature suggests that there is association of emotional eating with weight gain (Dakanalis et al., 2023). In current study results showed higher baseline assessment score EES, GAD and discouragement. They had low social support in terms of encouragement, indicating low mental and physical health. Furthermore, the effectiveness of Intervention based on a Psycho-educational program for young adults with obesity and emotional eaters was also explored. Well reliable and valid tools were used to assess the predictors of emotional eating. Psycho-education-based intervention was based on 12 weeks, aiming to reduce BMI and emotional eating.

Literature reveals that psychological factors are involved in association of emotional dysregulation and emotional eating (De Oliveira Da Fonseca et al., 2023). In current study psycho-educational management strategy attempted to educate the university students about the results of emotional over eating, high BMI, and lower the impact of psychological issues was instituted for the interventional groups. The psycho-educational management strategy was successful in reducing emotional eating and psychological distress in terms of GAD, PHQ, and discouragement and improve the physical and mental components of QoL and encouragement among the interventional group individuals. This is in compliance with literature which suggests that management of emotional eating should target emotional regulation instead of dieting to control caloric intake (Van Strien, 2018). Association of anxiety with emotional eating was also reported in another study by Carlos et al. (2020) which recommended educational intervention. While, Tuncer and Duman (2022) reported encouraging results of using self-help program which guided the patients to regulate emotional eating. In another study Cognitive Behavioral Therapy has shown effectiveness in controlling emotional

eating and overweight (Smith et al., 2023), and a study by Eik-Nes et al. (2021), reported improvement using psychoeducational intervention for binge eating disorder with low quality of life pre intervention. Similarly, Rohrbach et al. (2022) reported internet based self-help as well as support provided to patients by clinicians are helpful in improving eating issues. According to literature based on randomized control trial study designs, psycho-educational programs have also been implemented at the junior school level, to help regulate emotions and improve problem solving skills. Significant differences were observed between baseline and post-intervention assessment (Ebrahem & Shattla, 2019). Hence, these interventions have a role to play in controlling emotional eating and weight (Treasure et al., 2022).

Limitations and Suggestions

The study was conducted after the pandemic, and it is important to acknowledge that the high scores on emotional eating may have been influenced by the pandemic. Future studies should take this into account when interpreting and generalizing study findings. The current study was purely quantitative, and there may have been an impact of social desirability as participants may have felt pressure to respond in a socially desirable manner. Future studies should consider using a mixed methodology approach to gain deep knowledge from participants and gain understanding regarding major etiologies resulting in emotional eating and high BMI.

To generalize the study findings, future studies should include individuals from all age groups and population strata.

Conclusions

The study found that the psycho-educational self-help weight reduction program was effective in was helpful in reducing emotional eating, psychological distress, improving social support and quality of life.

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