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Research Article

Body Image and Perceived Stress Levels among Obese Women

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Abstract

Background: Overweight and obesity brings about change in body shape and size of individuals making them to look odd and creates problems in decent dressing due to unavailability of suitable dress designs and brands. This makes most women to feel low, inadequate and inferior to their peers and causes them to resort to emotional eating and social isolation.

Methods: An explorative study with Quan-Qual design was conducted with an objective to examine the body image perception and perceived stress levels among obese women and having a Body mass Index above 31aged between 21 to 50 years in Chittoor district of Andhra Pradesh.

The perceived body image and stress levels was assessed using a five point rating scale along with the somatic status of 100 obese women.

Results: Majority of women under study perceived high levels stress and the percentage of women having high scores of stress were comparatively more among those who had below average body image

(55%) followed by average (33%) and above average body image (12%). The stress levels were found to be high in both the Grade I (61.4%) and Grade II obese women (86.7%).

Discussion: The findings of the present study indicates that the obese women, who were categorized based on their ;body image, Age, Body Mass Index and Waist Hip Ratio perceived elevated levels of stress and statistically significant association was found for BMI and stress levels and WHR and stress levels at 0.05 and 0.001 levels respectively. This ascertains that body image perception of obese women has a strong relationship with their perceived stress levels.

Conclusion: The obesity interventions need to aim at weight loss along with reduction of abdominal fat and stress reducing initiatives as part of their programmes to help obese women to overcome body image issues which is a major stressor.

Keywords: Body image; Perceived stress; Obese women; BMI; WHR

1. Background

Overweight and obesity brings about change in body shape and size of individuals making them to look odd and creates problems in decent dressing due to unavailability of suitable dress designs and brands. This makes most women to feel low, inadequate and inferior to their peers and causes them to resort to emotional eating and social isolation. Furthermore, stress eating, binge eating and other types of emotional eating include poor knowledge on internal physiological states and failure to distinguish between hunger and emotional causes [1-4]. Some people are more impulsive to stress- eating than others and may adopt a self-regulation strategy to overcome the aversive states in which attention is changed from negative self-assessment or appraisal and towards the available stimulus environment, like food [5, 6] Individuals who are labeled as "emotional eaters" are more susceptible to weight gain compared to non-emotional eaters, [7, 8] and they may put on more weight after losing weight successfully through changing diet and exercise.

Diet and exercise have traditionally been the major ways in controlling and treating obesity. However, other modes of treatment are also being contemplated in the pursuit of knowledge and comprehending obesity, addressing the body's stress levels and cortisol release. It is known that stress is a cause and also consequence of overweight and obesity [9].

Overweight and obesity may lead to body image issues and causes stress owing to dissatisfaction of self among women, there are social and major emotional complications due to obesity. Over weight and obese persons frequently feel anxious, stressful and isolate from society because of their body image issues [10]. Women who are overweight or obese prone to have greater body dissatisfaction than those who are slim and normal. In addition, they seem to have lower self-esteem and higher perceived stress [11].

The weight reduction intervention programmes should include stress assessment and alleviation as part of weight loss initiatives.

2. Methodology

An explorative study with Quan-Qual design was used for the study, it was undertaken in November 2019 with an objective to examine the body image perception and perceived stress levels among obese women having a Body mass Index above 31aged between 21 to 50 years in Chittoor district of Andhra Pradesh. From the sample drawn for participation in a doctoral research project having Institutional Ethical Clearance (IEC), around 123 obese women, who were willing to participate in the study were chosen. Around 19 women having co-morbidities were excluded and 4 members could not attend the assessment sessions due to personal reasons, hence they were eliminated, thus the total sample comprised of 100 obese women. The somatic status of the sample; Height, Weight , Body Mass Index and Waist Hip Ratio was assessed using a Stadiometer, Platform type of weighing scale ,Fibre glass tape and BMI and WHR was calculated using the formulae: Weight in kilograms/ Height in metres 2 =BMI and Waist circumference/Hip circumference =WHR respectively. For assessing perceives stress levels a five point rating scale consisting of ten items was developed ((Example: How often you were upset because of your body size? How frequently you felt, if you had a slim body you could have been happy? How many times you have avoided parties and functions for fear of comments?). This scale was standardized (n=35) using Chronbach's alpha test of reliability/ internal consistency (α =0.7) and administered to all the subjects for data collection. In addition, to examine the body dissatisfaction, the sample were asked to perceive their body image as; below average, Average, above average and good. The results of the study was analyzed using SPSS software 21.0 version.

3. Results

Most nutritional behavioral weight loss interventions may not aim at alleviation of psychological stress as a priority in case, stress may be one factor influencing the modest success of long-term weight reduction management [12, 13]. In the present study the body image and perceived stress levels among the sample was examined using a 10 item five point Likert type of scale developed for the purpose. The scores ranged from 10 to 50 and based on the scores the sample were divided in to low (less than 16), moderate (17 to 33) and high (above 34). The table 1 and figure 1, indicates the body image and stress levels of obese women as perceived by them. Majority of women under study perceived high levels of stress and the percentage of women having high scores of stress were comparatively more among those who had below average body image (55%) followed by average (33%) and above average body image (12%). Studies have indicated that being conscious or mindful eating reduced stress and such intervention were successful in increasing mindfulness and responses to bodily sensations, lowering anxiety levels and reducing emotional eating in response to external cues.

The association among the age of the sample and stress levels was examined using chi-square test (see table 2), which indicates that among the 21 -30 years age group majority (72.4%) had high stress levels, similarly in 31-40 years age group 85.7% percent had elevated stress levels and among the 41-50 years age range also 86 percent had high rise in perceived stress levels. This reflects that irrespective of age obese persons perceived stress.

The Body mass Index (BMI) is the measurement used as an index to classify adults into underweight, normal, overweight, obese groups. It also is widely used as a tool for screening obese as a risk screening obese as a risk factor for the prevalence of several health problems. The table 3, shows the Body Mass Index of women, which indicate that among the sample studied 70percent were obese grade1 (BMI=30to34.9) and 30 percent were obese grade II (BMI=35 to 39.9). The stress levels were found to be high in both the Grade I (61.4%) and Grade II obese women (86.7%) .Anthropometric measures such as the body mass index (BMI) and waist and circumference are broadly used as appropriate indices of adiposity, yet there are limits in their estimates of body fat [14]. The waist circumference and hip circumference was used to calculate Waist Hip Ratio (WHR) of women. This measurement is valuable to examine android and ganoids obesity, as the greater WHRs is a health risk issues in both men and women. It is important waist hip ratio should be less than 0.8 and even lower to be fit and healthy. The relationship between WHR and stress levels of obese women was examined using chi-square test the results were presented in table 4, which reveals that a 51.7 percent of women with moderate health risk (WHR: 0.81–0.85) had stress levels and around 67.5 percent of women with high health risk (WHR: 0.86 or higher) had high levels of stress as perceived by them. In spite of research evidence connecting perceived stress to overeating and abdominal adiposity, there are very few studies published on behavioral interventions designed to overcome stress, stress eating, and/or cortisol responses lead to loss of abdominal adiposity.

N=100

S.NO	Perceived Body image	Perceived Stress levels			Total (%)
		Low (%)	Moderate (%)	High (%)	
1	Below average	0	16	39	55
		0%	29%	71%	100%
2	Average	0	9	24	33
		0%	25.7%	72.7%	100%
3	Above average	0	2	10	12
		0%	6.7%	83.3%	100%
	Total	0	27	73	100
		0%	27%	73%	100%

Table 1: Perceived body image and perceived stress levels of obese women.

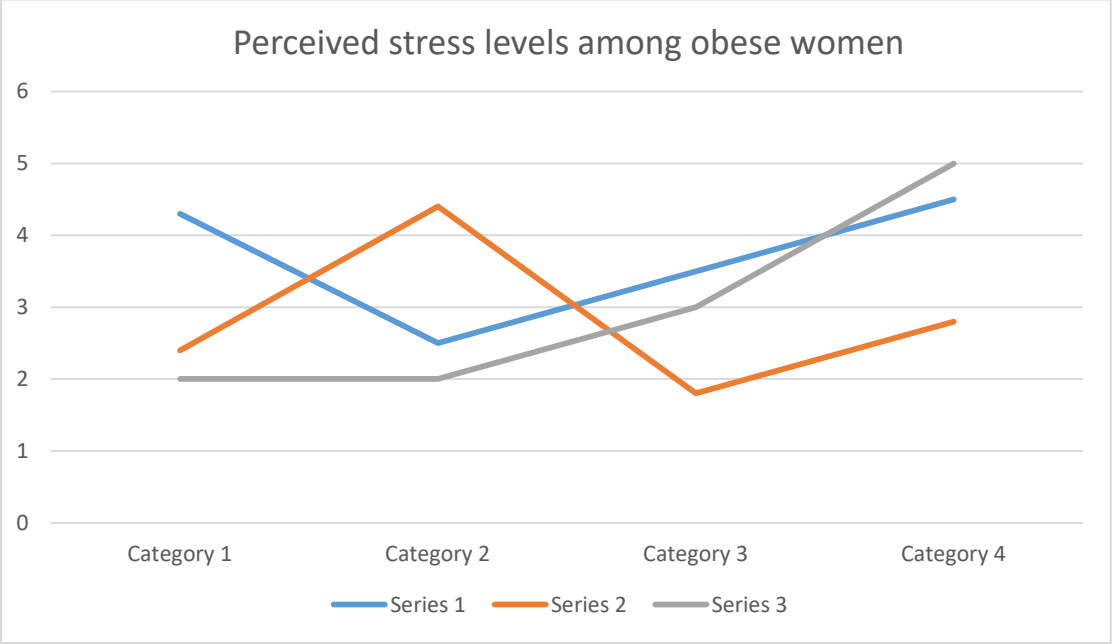

Figure 1: The body image and perceived stress levels among obese women.

Chi-square value	**p-value**	**Perceived stress levels**			**Total**
2.500	0.287	**Low**	**Moderate**	**High**	
Age	21-30 years	0	8	21	29
		0%	27.6%	72.4%	100%
	31-40 years	0	5	30	35
		0%	14.3%	85.7%	100%
	41-50 years	2	3	31	36
		5.5	8.5%	86.0%	100%
		2	16	82	100
		2%	16%	82%	100%

Table 2: Association between age of obese women and their perceived stress levels.

Chi-square value	**p-value**	**Perceived stress levels**			**Total**
8.68*	0.034	**Low**	**Moderate**	**High**	
BMI	30-34.9	4	23	43	70
		5.7%	32.9%	61.4%	100%
	35-39.9	0	4	26	30
		0%	13.3	86.7%	100%
Total		4	27	69	100
		4%	27%	69%	100

*Significant at 0.05 level

Table 3: Relationship between the BMI and perceived stress levels of obese women.

Chi-square value	**p-value**	**Perceived stress levels**			**Total**
17.110**	0.001	**Low**	**Moderate**	**High**	
Waist Hip Ratio	Moderate risk	6	23	31	60
		10%	38.3%	51.7%	100%
	High risk	4	9	27	40
		10%	22.5%	67.5%	100%
Total		10	22	58	100
		10%	22%	58%	100%

**Significant at 0.001 level

Table 4: Association between waist hip ratio and perceived stress levels among obese women.

4. Discussion

The findings of the study suggests that majority of women (55%) perceived their body image as below average and they had moderate (29%) to high stress (71%) levels ,which reflects body dissatisfaction and elevated stress among obese women [11], stated that women who were overweight or obese tend to have higher body dissatisfaction than healthy women. A malaise of body shape and size is endemic in women and called as a normative discontent. Mass media may influence the ideal concept of beauty, health, and wellness. Since childhood, boys and girls have exposure to body stereotype that has a tremendous psychosocial influence. Dolls, movie characters, models, dancers, and superheroes portrayed a specific ideal body shape. For example, Barbie is a reference model for girls [14].

The data in table 2 indicates that the women in all the three age groups indicated high stress levels , though there was no significant association (p=0.287) found among perceived stress levels and age of obese women. Which also reveals that perceived stress scores were independent of the variable -age of women, which is supported by the study results of [15] who found that young girls and older women had similar body dissatisfaction, but more adolescent girls had a higher drive for thinness and greater influences from society to their body image.

The obese grade I and II groups also showed high stress levels (see table 3) and there was significant association (p=0.034) found between BMI and perceived stress scores at 0.05 alpha level. As shown in table 4, majority of the women under the categories of moderate and high health risk with regard to their WHR indicated elevated stress levels. Furthermore, statistically significant association was found between WHR values and perceived stress levels of obese women. It is well known that body image issues are higher among obese women than non-obese persons. Women with obesity may feel depressed and perceive it as a condition that causes unhappiness [16]. There are positive relationship between body weight and stress, but negative associations between stress and weight control behaviors (e.g., diet, weight control and exercise [17]. Richardson et al. (2015) [18] findings indicated that non nutritional behaviors or physiologic mechanisms showed relationship with high levels of perceived stress that also contributed to severe obesity due to emotional and uncontrolled eating habits. The possible situation was that perceived stress increased vulnerability of cortisol reactivity to negative moods, self-medication, increased impulsivity and food craving.

The findings of the present study indicates that the obese women, who were categorized based on their ;body image , Age ,Body Mass Index and Waist Hip Ratio perceived elevated levels of stress and statistically significant association was found for BMI and stress levels and WHR and stress levels at 0.05 and 0.001 levels respectively. This ascertains that body image perception of obese women has a strong relationship with their perceived stress levels. It is supported by the results of a study, where perceived stress among university students was elevated (71.7% boys; 66.7% girls) and prevalence of body dissatisfaction was higher in obese persons [19]. The steady weight gain due to stress leads to overweight and obesity, which in turn causes body dissatisfaction and increases stress levels and may lead to depression affecting their work and social life [20].

A mindfulness-based training may be effective in reducing stress and reducing stress-related overeating as earlier studies indicate that mindfulness intervention reduces psychological stress and improves psychological well-being for a various health conditions, [21-25] may improve cortisol patterns, [26] may reduce binge eating and other eating disorder symptoms among obese persons with eating disorders, and may reduce weight among obese and no obese adults [27-30]. Mindfulness training may enhance awareness of and responsiveness to

physical sensations and reduce mental distress, emotional eating, and cortisol secretion, which, in turn, may reduce levels of abdominal adiposity. The recent evidence indicate that upper abdomen as well as visceral fat is related to increased insulin resistance [31] and leg fat is associated with lower metabolic risk [32, 33]. Thus, stress seems to change patterns of food through under or overeating depending on stressor severity. Chronic stress appears to be related to a greater need for energy and nutrient dense foods, such as junk foods high calories. In addition, the obesity interventions need to aim at weight loss along with reduction of abdominal fat and stress reducing initiatives as part of their programmes to help obese women to overcome body image issues which is a major stressor.

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