

Relationships between Body Mass Index, Body Image Dissatisfaction and Psychological Distress among Fitness Center Female Users in Zarqa-Jordan

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Abstract

One hundred and seventy-seven women aged 20 to 55 years with a body mass index (BMI; $M=30.4$, $SD=3.2$) range between 25.5 and 45 kg/m², attending their first week of exercising in a physical fitness center located in Zarqa-Jordan were recruited to participate in this study. Five scales of Body Mass Index (BMI), Body Shape Questionnaire (BSQ-14), The Body Dissatisfaction Scale (BSS), Centre for Epidemiologic Studies depression scale (CES-D), and The Negative Rosenberg Self-Esteem Scale (RSE), were used to assess the relationship between BMI, perceptions of body shape dissatisfaction and psychological distress. Results showed that scores on the BMI were positively correlated with the BSQ, BSS, CES-D, and negative RSE ($r = 0.73, 0.36, 0.35, 0.23$, $p < .01$), respectively. Thus, women who have higher BMI, tend to report greater dissatisfaction with their physical selves, being more depressed, and having more negative self-esteem, comparing to those with lower BMI. Additionally, scores on BSQ were positively correlated with the BSS, CES-D, and negative RSE ($r = 0.32, 0.44, 0.35$, $p < .01$), respectively. Furthermore, positive significant correlations were observed between scores on the BSS and CES-D, and negative RSE ($r = 0.21, 0.31$, $p < .01$), respectively. Lastly, scores on the CES-D were positively correlated with negative RSE ($r = 0.604$, $p < .01$). Moreover, regression results show that while depression was the best predictor of (BSQ-14), and contributed (19.2%) of variance in body shape negative perceptions, self-esteem was the best predictor and contributed (9.8 %) of variance in Body Dissatisfaction (BSS). Also, body image dissatisfaction significantly mediated the relation between BMI and psychological distress. Further analysis of comparison between participants by age, education, marital and work status on BSQ and BSS, show that younger, married, not working overweight and obese women are more prone to score higher on negative perceptions and dissatisfaction with body shape scales. Future interventions should consider both the mental and physical health of women attending physical fitness centers. Health care providers should monitor the weight of depressive female patients and, similarly, in overweight or obese patients, mood and self-esteem should be monitored. This awareness could lead to prevention, early detection, and co-treatment for women at risk, ultimately reducing the burden of both conditions. There is an urgent need for evaluations of weight management interventions, both in terms of weight loss and psychological benefits among women attendees at physical fitness centers.

Keywords: Body Mass Index; Body Image Dissatisfaction; Depression; Negative Self-Esteem; Overweight and Obesity; Socio-demographic; Jordan.

1- Introduction

Obesity has been identified as one of the rising epidemic across the globe with consequential rise of non-communicable diseases including disproportionate health care cost on individuals, family and society. According to latest WHO estimates, 14.4% (male) and 15% (female) adult aged 15 years and above are obese in the world. More than half a billion adults (205 million men and 297 million women over the age of 20 years) world-wide were obese in 2008 (Goswami, Sachdeva, & Sachdeva, 2012). Specifically, overweight and obesity are major health problems among Arabic-speaking countries populations (Badran, & Laher, 2011), including Jordanian women (Al Nsour, Al Kayyali, & Naffa, 2013).

Since the mid-seventies, the prevalence obesity has increased sharply. Globally, it has affected developed and developing countries (Kumanyika, Jeffery, Morabia, Ritenbaugh, & Antipatis, 2002), including Eastern Mediterranean Region (EMR), which refers to all Arab countries (Musaiger, 2004).

Among Arab countries, in Jordan, obesity among both children and adults has reached an alarming level (Khader et al., 2008; Musaiger, Al-Mannai, & Tayyem, 2013), and women in particular have a high prevalence of obesity (Al Nsour et al., 2013).

Data from two National Health and Nutrition Examination surveys (NHANES) in Jordan showed that among adults aged 20–74 years, the prevalence of obesity increased from 15.0% (in the 1976–1980 survey) to 32.9% (in the 2003–2004 survey) (Zhong et al., 2010, p. 486). Obesity is characterized by excessive weight (i.e., 20 to 25% above normal for age and height) and defined as a body mass index (BMI) greater than 30.0 (World Health Organization (WHO), 1998). BMI is standardized by age and height and is calculated using weight (in kilograms) divided by height (in meters) squared (Field, Barnoya, & Colditz, 2002). Overweight is defined as a BMI between 25.0 and 29.9 (WHO, 1998). Obesity has been conceptualized as a condition with heterogeneous etiology (Brownell & Wadden, 1992). A combination of behavioral and biological variables, including physical inactivity, excessive caloric intake, high fat diets, low resting metabolic rate, low rates of fat oxidation, insulin sensitivity, and high fat cell numbers, all contribute to the development and maintenance of obesity (Brownell & Wadden, 1992; Stein, O'Byrne, Suminski, & Haddock, 2000; Tataranni & Ravussin, 2002). Unfortunately, national intervention programs to prevent and control obesity in EMR are relatively absent. Additionally, factors associated with the occurrence of obesity have not been well investigated, which in turn relatively affect the impact of any programs to prevent obesity in this region (Musaiger, 2011).

Studies have consistently shown that overweight and obese and normal-weight individuals involved in physical activities show increased prevalence of body image dissatisfaction (BID), a greater pre-occupation with weight and body shape compared to the general population (Brewerton et al., 1995; Bryne 2002; Davis, Kennedy, Ravelski, & Dionne, 1994). Encouragement or demand for reduced weight or body fat has become quite popular among obese adults, and benefits of physical activity on weight loss are also observed in patients with severe obesity (BMI \geq 35 kg/m²) (Jakicic, & Davis, 2011). Specifically, exercise adherence or seeking losing weight ought to be based largely on the self-efficacy theory components of self-regulatory efficacy, or one's perceived ability to utilize internal resources to persevere (i.e., self-management and self-regulatory skills), and task self-efficacy, or self-appraisal of one's physical abilities to carry out the task at-hand (Annesi, 2003). Social cognitive theory (Bandura, 1986) and its derivative self-efficacy theory (Bandura, 1997) posits that human functioning is dependent on the reciprocal nature of personal factors (cognitive, affective and biological events), environmental factors, and behavior (Bandura, 1986). Self-efficacy theory states that judgment of one's capabilities to organize and execute required actions is the foundation for human motivation, persistence, well-being, and personal accomplishment (Bandura, 1997).

The problems associated with overweight and obesity or high levels of Body Mass Index (BMI) and body image dissatisfaction (BID) have received substantial attention in the research literature. This is appropriate given that in Western and non-western cultures, there are unrelenting pressures to be thin, particularly for girls and women. Currently, beautiful is considered good and thinness is synonymous with beauty, which makes it valued by society while its opposite, obesity, is strongly rejected. Although the ideals of female beauty vary as a function of esthetical standards adopted at each time, studies show that women have tried to change their bodies to follow these standards (Goswami et al., 2012). In a society in which thinness is so highly valued, it is perhaps not surprising that BMI is described as one of the most consistent characteristics related to body image (Jones, 2004). Individuals who perceive their bodies negatively or who were dissatisfied with their body image (BID) with regard to culturally valued features may have low self-esteem, low satisfaction in life and feeling of inferiority and pose themselves at higher risk for depression, anxiety or eating disorders (Goswami et al., 2012).

Specifically, studies show that in addition to its adverse impact on health and longevity, obesity significantly compromises psychological functioning and quality of life (Wadden, Womble, Stunkard, & Anderson, 2002). One study found approximately 16% of a community sample of obese individuals met criteria for major depressive disorder, compared to 7.5% among normal weight individuals (Roberts, Kaplan, Shema, & Strawbridge, 2000). Also, research has found that women who failed to live up to the body images they thought were perfect, experienced higher levels of depression (Faubel, 1989; Van den Berg, Paxton, Keery, Wall, Guo, & Neumark-Sztaine, 2007). Moreover, research shows that self-esteem predicts body concerns (e.g., Button, Sonuga-Barke, Davies, & Thompson, 1996) as well as shows that self-esteem is an outcome of body concerns (e.g., Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006).

Obese persons have been found to experience prejudice and discrimination in work, school, and interpersonal situations (Puhl & Brownell, 2003). Consequences of obesity appear to be far worse for women, due to the greater societal importance placed on appearance in women than in men. One study, for example, found higher rates of depression and increased risk for suicide in obese women, but not obese men (Carpenter, Hasin, Allison, & Faith, 2000).

Among obese women seeking treatment for weight loss, depressive symptoms are also related to body image dissatisfaction (BID) and low self-esteem (Foster, Wadden, & Vogt, 1997; Sarwer, Wadden, & Foster, 1998). Also, for the majority of overweight women seeking treatment, (BID) appears to play a significant role in their motivation to pursue weight loss (Sarwer, Grossbart, & Didie, 2001). Collectively, these findings suggest that obesity in women can be associated with adverse psychological consequences such as body image dissatisfaction, depression and low self-esteem. Assessing these relationships may help women deal with their lower body images before drastic behaviors, such as eating disorders and/or suicide occur (Hamilton, 2008, p. 13).

The current investigation aims to contribute to the literature by examining the relationship between Body Mass Index (BMI), women's body image dissatisfaction (BID), and psychological distress in terms of depression and negative self-esteem among overweight or obese women aged 20 to 55 years attending their first weeks at physical fitness centers in Zarqa-Jordan, as well as discuss the possible socio-demographic factors that may associate with body image dissatisfaction (BID).

Psychological Correlates of Overweight/Obesity

Body Image Dissatisfaction

The concept of body image as a psychological phenomenon was initially established in 1935, by the Austrian psychiatrist Paul Schilder (1886-1940), who said that the mental images that individuals have of their own bodies explain the way their bodies are introduced to them (Schilder, 1964). According to this psychiatrist, one's mental body image is established by senses, ideas and feelings that, most of the time, are unconscious. This representation is built and rebuilt throughout life (Slade, 1994). Body image is a multidimensional dynamic construct that involves internal biological and psychological factors as well as external cultural and social determinants (Goswami et al., 2012). Body dissatisfaction is a psychologically salient discrepancy between perceived body and ideal body. It refers to negative subjective evaluations of particular parts of the body, such as figure, weight, stomach, buttocks and hips (Myers & Crowther, 2007; Stice & Shaw, 2002).

Body image research has progressed over the past several decades. Much of this research has focused on adolescents, particularly with females who have been diagnosed with an eating disorder (Cash & Pruzinsky, 2002). Recently there has been a call to expand the research on body image with more diverse populations, e.g., overweight/obese (Cash & Pruzinsky, 2002), and older adults (Whitbourne, Sneed, & Skultety, 2002). In recent years, cross-sectional studies have been published in the area of obesity, body image, and quality of life (Cash, 1994; Foster et al., 1997; Rosen, Orosan, & Reiter, 1995). Overall, these studies have found that obese individuals tend to have a more negative body image and lower quality of life than normal weight controls (Brodie & Slade, 1998; Mathus-Vliegen, de Weerd, & de Wit, 2004). Although strong associations between body image and obesity have consistently been found (Neumark-Sztainer & Haines, 2004), the exact relationship between body image and obesity remains unclear, and there are limited data regarding the effect of obesity on measures of body image among weight loss seekers. Body image dissatisfaction (BID) is widely recognized as the most important global measure of body image disturbance (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Cash (2002) describes body dissatisfaction as including two core features: evaluation (i.e., the level of satisfaction with one's appearance) and investment (i.e., the psychological importance one places on appearance). These may be applied to one's general appearance or to a specific physical characteristic or feature (including body weight and shape). Body dissatisfaction has been linked to low self-esteem, anxiety, and depression (e.g., Cash & Fleming, 2002; Keeton, Cash & Brown, 1990; Noles, Cash, & Winstead, 1985; Powell & Hendricks, 1999).

Depression

Depression has been viewed as both proximal and distal antecedent (immediate trigger factors) to overeating or obesity (Annesi, 2010; Walker, Timmerman, Kim, & Sterling, 2002; Waller, 2002). Research confirms that individuals who are generally more depressed and anxious will tend to have more episodes of low mood (Endler & Magnusson, 1976).

Thus, it is likely that overall feelings of depression may be associated with a general tendency to overeat in order to improve dysthymia which is a mild but long-term (chronic) form of depression (Christensen, 1993; Cooper, 1995).

The study of the relationship between body image and depression has been in effect for decades. This relationship has been examined in many different populations including adolescents, obese women (Faubel, 1989), middle aged women (Simon et al., 2008), Chinese women (Davis & Katzman, 1997) Korean females (Kim, & Kim, 2001), Turkish adolescents (Ozmen et al., 2007), Swedish women (Ivarsson, Rastam, Wentz, Gillberg, & Gillberg, 2000), and among Saudi women (Abdel-Fattah, Asal, Hifnawy, & Makhlof, 2008). Unfortunately no similar studies were found among women in Jordan (Khader et al., 2008). The relationship between body image and depression has also been found in people of different ethnicities (Davis & Katzman, 1997). Davis and Katzman examined the relationship between depression and body image on Chinese men and women and concluded that women had significantly lower body images and higher depression levels, when compared to men, and their results were similar to those in European American samples.

Similar results were found among Swedish, Australian and American adolescents (Ivarsson, Svalander, Litlere, & Nevenon, 2006; Kostanski & Gullone, 1998; Stice & Bearman, 2001). Carpenter et al. (2000) found that women who were obese compared to those of normal weight, had lower body image perceptions, and suffered from more depressive symptoms. Conversely, Sarwer and colleagues (1998) found no significant differences between groups of obese and non-obese women on measures of depression. These findings suggest that the relationship between obesity and depression remains unclear at this time, and may differ as a function of other untested variables.

Self-Esteem

Many studies document the ubiquity of body image concerns among women cross-culturally, and within this literature there is a long history of linking self-esteem to women's body concerns (Wasylikiw, MacKinnon, & MacLellan, 2012). Self-esteem, a general overall evaluation of oneself, has been associated with being dissatisfied with one's appearance such that the more dissatisfied a woman is with her body and/or shape, the lower or the more negative her self-esteem (e.g., Cash & Fleming, 2002; Cooley & Toray, 2001; Stice, 2002; Stice & Whitenton, 2002). Moreover, although the association between self-esteem and body image dissatisfaction (BID) has largely been examined using non-clinical samples, there is evidence that the severity of symptoms of body dysmorphic disorder is negatively associated with self-esteem (e.g., Phillips, Pinto, & Jain, 2004).

Also, self-esteem was shown to inversely correlate with BID and accounted for the largest amount of variance in BID (Matz, Foster, Faith, & Wadden, 2002). These results mirror those of previous studies (Grilo, Wilfley, Brownell, & Rodin, 1994) and suggest that in overweight women evaluations of physical self and overall self-evaluation are closely linked. This finding may help explain why obese persons of different weights vary in BID; BID may be governed by self-esteem (Rosen, 1996).

2. Previous Research

Faubel (1989) compared women of normal weight, women with an early onset of obesity, and women with a later onset of obesity. She found that there was not a significant difference between the groups in their body image perceptions; she also found that women who have lower body images showed more depressive symptoms across all three groups. Sarwer, Wadden and Foster, (1998) assessed the specificity, severity, and clinical significance of body image dissatisfaction in 79 obese women. The vast majority of obese women demonstrated body image dissatisfaction related to their obesity, with almost half reporting the greatest dissatisfaction with their waist or abdomen. On average, they reported significantly more body image dissatisfaction than did 43 non-obese controls. Body image dissatisfaction correlated significantly with reports of depressive symptoms and lower self-esteem but was not correlated with body mass index. Kim and Kim (2001) examined if BMI and perception of body weight (having a weight problem) predicted self-esteem and depression in Korean female adolescents. 2.6% of the subjects were overweight, 78.5% desired to be underweight. Results showed that perception of having a weight problem (overweight) was a positive predictive of self-esteem and depression. Friedman, Reichmann, Costanzo and Musante (2002) examined body image as a potential mediator of the relationship between obesity and psychological distress.

One hundred ten men and women in a residential weight control facility completed the Multidimensional Body Self-Relations Questionnaire, the Beck Depression Inventory, the Rosenberg Self-Esteem Scale, and the Binge Eating Scale. Results revealed that for both men and women, body image satisfaction partially mediated the relationship between degree of overweight and depression/self-esteem.

Fabricatore and Wadden (2003) reviewed the psychosocial correlates of obesity with special emphasis on mood disturbance. This review found that obese women are at greater risk than obese men of depression and related complications. Binge eating and extreme obesity further increase the likelihood of patients reporting emotional complications such as depression and low self-esteem. The study of Werrij, Mulken, Hospers, and Jansen (2006) aimed to investigate whether the presence of depressive symptoms in overweight and obese people is related to increased specific eating psychopathology and decreased self-esteem among a sample (n=149) of overweight/obese people seeking dietary treatment who were grouped according to their scores on the Beck Depression Inventory (BDI). Results showed that symptomatic people had more shape, weight and eating concerns, and had lower self-esteem ($P < 0.001$).

Ozmen et al. (2007) conducted a cross-sectional survey of 2,101 Turkish adolescents to examine the effects of weight, perceived weight and body satisfaction on self-esteem and depression. Results showed that being female was important in the prediction of body dissatisfaction; body dissatisfaction was related to low self-esteem and depression, and perceived overweight was related only to low self-esteem but actual overweight was not related to low self-esteem and depression in adolescents.

In Saudi Arabia Abdel-Fattah, Asal, Hifnawy, and Makhlof (2008) assessed depression and body image disturbances in obese patients seeking treatment for obesity. Total of (236) obese women, self-referred to a residential weight-loss facility for weight control, were compared with (296) of an age-matched control group. All participants completed the Beck Depression Inventory for depressive symptoms, Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 2000) for body image satisfaction and The Body Image Avoidance Questionnaire. Results revealed that obesity was more common among older than younger females, among married than single females, and among those with lower level of education than those with higher level. Obese women as compared with non-obese reported significantly more symptoms of depression and significantly more negative body image. Hamilton (2008) participants of college women completed the (MBSRQ) to measure perceived body image, and the Beck Depression Inventory (BDI) to measure the presence of depressive symptoms. The results showed that overall there was not a significant relationship between body image and depression.

The study of Myers and Crowther (2009) aimed to explore the relationship between social comparison and body dissatisfaction. This was a meta-analysis of 156 studies examining 189 different effect sizes. Results showed that increased social comparison was related to higher levels of body dissatisfaction. This effect was stronger for women than men and was more present in younger people in comparison to older people. Lastly, Gavin, Simon, and Ludman (2010) explored the mediating role of negative body image on the association between obesity and depression. In addition, the study explores the variation as a function of years of education. 4543 women (aged 40-65) who were enrolled on a health plan gave self-report data on height, weight, depression, education, and body image. Results revealed that negative body image was significantly associated with depression regardless of level of education.

Considering this background, and the paucity of research on the association of body image dissatisfaction, depression and self-esteem, with overweight and obesity among Jordanian women, the current cross-sectional descriptive study sought to examine the relationships between Body Mass Index (BMI), body image dissatisfaction (BID) and psychological distress as measured by depression, self-esteem among obese/overweight women attending physical fitness centers at Zarqa-Jordan. It is predicted that there will be a correlational positive relationship between higher levels of BMI, body image dissatisfaction (BID), depression, and negative self-esteem. In addition, this study seeks to expand the current research to additional populations, especially urban Jordanian women aged 20 to 55 years. Hopefully, classifying risk factors and understanding the role they play in the development of the body dissatisfaction can help identify high-risk individuals in need of preventive interventions and the content of such interventions. Specifically, research in this field will help other women help themselves with their perceived body images before they begin to take drastic measures to reach the "thin ideal".

Theoretical Framework

Obese individuals are frequently thought to suffer from depression, low self-esteem, and related problems. Anecdotal and theoretical accounts of the psychological causes and effects of obesity abound. According to traditional psychoanalytic thought, overeating (and subsequent obesity) is the product of a deep sense of dependency that arises in the oral stage of development when the infant's basic needs are not adequately satisfied (Bychowski, 1950). Obese people themselves may attribute their weight to a tendency to view food as a source of comfort—a friend who can help them cope—in times of stress, anger, depression, and loneliness. One may look at extremely obese individuals and assume that they cannot be happy or must have low self-esteem as a result of their weight (Fabricatore & Wadden, 2003, p. 246).

Though, the theoretical framework of stress and coping posited by Lazarus (1991) and Lazarus and Folkman (1984) guided this study (see, Puskar, Bernardo, Fertman, Ren, & Stark, 2009). Life tests people's coping with (a) life events, (b) changing body images, (c) issues of belonging and acceptance with others and (d) obesity stigma, given that existing weight loss approaches have limited success, many people remain overweight and must cope with stigma for years. Such events and their meaning are determined by the persons' perceptions and coping resources. Emotions are an integral part of this process and have an impact upon the persons' biological, social, and cognitive functions. Emotions can be positive or negative, healthy or unhealthy.

Emotion-focused strategies may be more common for dealing with unchangeable situations and problem-focused methods for coping with unstable events (Carver, Scheier, & Weintraub, 1989). Attributions of blame have been identified as central components of negative attitudes toward obese people (Puhl & Brownell, 2003, p. 54). Multiple means of coping have been studied, ranging from attempts to change the stigmatizing condition (losing weight) to taking pride in the condition and mobilizing social action to prevent discrimination (Puhl & Brownell, 2003, p. 53). Obese women perceived their weight to be a central factor in social outcomes and reacted to stigma by accepting negative stereotypes. Coping strategies involving confirmation of negative stereotypes would not appear to be adaptive. Crocker, Cornwell, and Major (1993) found that confirmation increased negative affect, depression, and hostility, and Fuller and Groce (1991) reported negative self-evaluations by obese women who internalized appearance norms. Quinn and Crocker (1998) argue that overweight individuals who internalize stereotypes about obesity are vulnerable to low self-esteem (see Puhl & Brownell, 2003, p. 58). The inability to cope with negative perceptions, such as perceived problems with weight, can possibly lead to depression, anxiety, low self-esteem and other mental health issues. Exploring relationships between how individuals appraise a situation (perception of body weight) and how these appraisals affect their mental health (depression, self-esteem) underpins this research study.

3. Hypotheses

On the basis of findings from previous research on obesity and body image, the expectations of this study are that the following hypotheses will be supported:

H1: Body Mass Index (BMI), body image dissatisfaction as measured by Body Shape Questionnaire (BSQ), Body Satisfaction Scale (BSS); and psychological distress as measured by Center for Epidemiologic Studies Depression Scale (CES-D) and The negative Rosenberg Self-Esteem Scale (RSE) are related significantly, and (CES-D), (RSE), subsequently, will predict a significant portion of variance in total Body Image dissatisfaction.

H2: The relationships between BMI and elements of psychological distress (Depression, Negative Self-esteem) will be mediated by Body Image dissatisfaction as measured by the Body Shape Questionnaire (BSQ).

H3: level of groups of Age (1. 20-29; 2. 30-39; 3. ≥ 40), Education (1. *Less than 12 years & High School*; 2. *Diploma*; 3. *College*), Marital (single vs. married), and Work Status (work vs. no work), will significantly contribute to the variance in total body image dissatisfaction score as measured by the Body Shape Questionnaire (BSQ), Body Satisfaction Scale (BSS).

4. Research Method

For the purpose of estimating the research models for hypotheses testing, a convenient sample of 177 members of three physical fitness women centers located in Zarqa in Jordan, a region in northeastern Jordan, during the period of February to March 2014 is used.

4.1. Hypotheses Testing

4.1.1. Body Mass Index (IBM), body image dissatisfaction, depression, negative self-esteem, are related significantly; and depression, negative self-esteem, subsequently, will predict a significant portion of variance in total (BSQ) and (BSS) scores respectively. (H1)

4.1.2. Tests of the mediated role of body image dissatisfaction as measured by Body Shape Questionnaire (BSQ) in the relationships between BMI and elements of psychological distress: depression and self-esteem. (H2)

4.1.3. Testing the age, education, marital and work status based differences in body image dissatisfaction measures. (H3)

4.2. Scope of the Research

Target population of the current study was members of three physical fitness women centers located in Zarqa in Jordan, who were attending physical training classes for the first time; aimed to lose weight by practicing and exercising different physical activities on at least three days a week, during February to March 2014. This study was conducted in accordance to the current state of scarcity of research on obesity/overweight in the arena of physical and mental health among Arab women (Rahim et al., 2014), and as an attempt to explore and understand the nature and effects of both obesity/overweight and body image dissatisfaction, and how it impacts Jordanian women's ability to function psychologically. In particular, researchers (e.g., Kim & Kim, 2001; Sarwer et al., 1998) concluded that obesity/overweight and body image dissatisfaction can have a direct impact on psychological well-being, and ability to control both mood and self-evaluations.

However, professionals in the field must also begin to better understand how to intervene to change the influence of these factors. The primary goal of this study is to explore and describe the potential variables (body image dissatisfaction, depression, and self-esteem) connected with obesity/overweight as measured by BMI that affect the well-being of women, thus, the counselors and other mental health professionals can address each of these potential counseling areas and thereby to start for example to design programs and interventions to address the origins of negative attitudes internalized by obese people, reduce self-blame by counteracting bias about obesity, and teach clients to challenge stereotypes and to be assertive when confronted with prejudice (Robinson & Bacon, 1996), as a starting step toward more coping skills focused on the problem.

4.3. Sampling and Data Collection

The data for this study were derived from a convenient sample of 177 members of three physical fitness centers for women located in Zarqa, a region situated in northeastern of Jordan with about 1 million populations. Women volunteered to be a part of this research by responding to advertisements in the three local fitness centers for women in Zarqa city-Jordan. Inclusion criteria consisted of (a) minimum age of 20 years, (b) being overweight or obese (body mass index; BMI [kg/m²], 25 to 29.9, and 30 to 45), respectively, (c) new regular exercise (not more than one week) undertaken within the previous week, and (d) reporting a goal of weight loss. Institutional review board approval was received, and informed consent was obtained from all participants.

Table 1: Socio-Demographical Factors Associated with Obesity and Overweight among Jordanian Women (N=177)

Social demographic variables	Overweight (BMI 25– <30) Number (%)	Obesity(30.0>kg/m ²)	Total	*P value
Age Group				R=-0.033
20-29	29 (35.4)	39 (41)	68 (38.4%)	0.659
30-39	29 (35.4)	28 (29.5)	57 (32.2%)	
40≥	24 (29.3)	28 (29.5%)	52 (29.4%)	
Educational Level				R=-0.027
Less than 12 years & High School	34 (41.7)	39 (40.5)	73 (41.2%)	0.690
Diploma	26 (31.7)	35 (36.8)	61 (34.5%)	
Bachelor	22(26.8)	21(22.1)	43 (24.3%)	
Marital status				R=-0.185
Single	48 (27.1)	38 (21.5)	86 (48.6%)	0.014
Married	34 (19.2)	57 (32.2)	91 (51.4%)	
Work Status				R=0.061
Work	33 (18.6%)	44 (24.9)	77 (43.5%)	0.419
Not-work	49 (27.7)	51 (28.8)	100 (56.5%)	
Body Mass Index (BMI)				R=0.687
Overweight (25.0-29.99kg/m ²)	82 (46.3%)	95 (53.7%)	177 (100.0%)	0.002
Obesity(30.0>kg/m ²)				
*p-value based on χ^2 test				

The survey gathered self-reported information on IBM, body image dissatisfaction, depression, and negative self-esteem, as well as socio-demographic data. As a means of avoiding potential biases in responses, questionnaires were conducted at respondents' free time before or after exercises sessions, throughout the first two-weeks of February 2014. Only 6.2% of respondents were replaced as a result of refusal or absence. A sub-sample of all overweight and obese women was recruited for the purposes of this study. To avoid possible reverse causation effects, individuals reporting a limiting long-standing illness in the 12 months preceding the survey, were excluded from study analysis. The final sample under analysis was composed of 177 women with BMI range from 25.5.0 to 45.2 ($M = 30.4$, $SD = 3.2$). Based on Body Mass Index (BMI), overall prevalence of overweight in this sample was 46.3 % (95% CI: 27.6, 28.1), and obesity was 53.7% (95% CI: 32.1, 33.3), with differences between study groups ($p < 0.001$).

Women's age range of 20 to 55 years ($M = 33.8$, $SD = 8.1$); 41.2 % were less and high school, 34.5% diploma, and 24.3% college; Marital status group make-up was 48.6% single, 51.4% married; 43.5 % were employed, and the rest (56.5%) does not work (see Table 1).

4. 4. Measures

1. Body Mass Index (BMI). The height and body weight in kilograms and meters were obtained respectively from each subjects' records after all participants provided written consent for this procedures. Scores of Body mass index (BMI; weight in kg/[height in meters]² × 100) were calculated for each woman as a routine procedure in the fitness center and every participant therefore had to be informed about her status BMI. Body mass index (BMI) was calculated by dividing reported weight in kilograms by reported height squared in meters. The definition of overweight/obesity was based on the 1997 WHO criteria, so that the BMI was classified into overweight (25–29.99 kg/m^2), and obese (≥ 30 kg/m^2) (World Health Organization (WHO), 2000).

2. Body Image Dissatisfaction. Body Image satisfaction was evaluated by two questionnaires commonly used to measure this construct, which were analyzed separately to consider body image's multidimensional nature. Two scales were used to assess body image related constructs, chosen because of their focus on body preoccupation: Negative affects and dissatisfaction with body parts. The first scale was Body Shape Questionnaire (BSQ)-14 - Modified Version (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987), and the other is Body Satisfaction Scale (BSS; Slade, Dewey, Newton, Brodie, & Kiemle, 1990).

2-a. Body Shape Questionnaire BSQ-14 (Cooper et al., 1987) which was chosen because of its focus on negative affects with body preoccupation, is a 14-item self-report measure designed to assess negative feelings about one's body size and shape by evaluating the fear of putting on weight, feelings of low self-esteem because of one's appearance, the desire to lose weight and body dissatisfaction over the past four weeks on a scale from 1 (never) to 6 (always). Scores were summed and yielded a possible range from 14 to 84, with higher scores indicating more concerns about weight/shape. A score of ≥ 32 reflects body image concerns. Evans and Dolan (1993) reported Cronbach's alpha of .87 in a non-clinical sample of women. Dowson and Henderson (2001) used the modified version for their study and found the internal reliability to be 0.93. Cronbach's alpha in the present study was .74.

2-b. Body Satisfaction Scale with body parts (BSS; Slade et al., 1990) was chosen because of its focus on subjective satisfaction with body parts. The BSS is a 16-item self-report questionnaire that is completed by paper and pencil. The BSS is designed to measure satisfaction/dissatisfaction with 16 total body parts and includes the following subscales: general, body, and head. On the BSS, higher scores indicate higher levels of body dissatisfaction. Only general scale was used in the present study to serve as convergent validity measure for the BSQ-14. The subjects rate their satisfaction on a 6-point scale ranging from 1 (completely unhappy) to 6 (completely happy) of how happy they were with the body parts/characteristics such as: height, weight, body shape, thighs, stomach, and face. Scores ranged from 16 to 96 with higher scores reflective of greater body satisfaction. The scale has demonstrated good reliability and convergent validity with other measures of body satisfaction (Slade et al., 1990). The alpha coefficient was equal to .91 in the present sample.

3. Center for Epidemiologic Studies Depression Scale (CES-D).

The 20-item CESD, which was developed to measure depressive symptomatology in non-psychiatric populations (Radloff, 1977), assesses depressed mood, feelings of guilt, failure and helplessness, psychomotor retardation, loss of appetite, and sleep disturbance.

Respondents report how often during the past week they felt or behaved as described by each of the 20 CES-D items by rating themselves on a 4-point frequency scale. Scores for each item can vary from 1 (“Rarely or none of the time; less than 1 day”) to 4 (“Most or all of the time; 5-7 days”); scale scores range from 20 to 80. Impressive evidence of the concurrent and convergent validity of the CES-D is reflected in correlations of .81 with the BDI and .90 with the Zung Self-Rating Depression Scale (ZUNG); Zung, 1965) (Weissman, Prussoff, & Newberry, 1975). The (CES-D) was found to have a coefficient alpha of .89 in the current sample.

4. The Rosenberg Self-Esteem Scale (Rosenberg, 1965). (RSE) was used to assess self-esteem. This scale is a 10-item questionnaire that assesses global self-esteem. For this measure, respondents indicate their extent of agreement to each item (e.g., “On the whole, I am satisfied with myself”) on a scale from 1 (strongly disagree) to 4 (strongly agree). In this study, the total score has a possible range from 10 to 40, with higher scores indicating higher negative self-esteem. Fleming and Courtney (1984) reported a test–retest correlation of .82 with a 1-week interval, and Byrne (1983) reported a test–retest correlation of .61 with a 7-month interval. Moreover, this index of global self-esteem has been widely used with college women and there is evidence of its predictive validity and internal consistency reliability (e.g., Sinclair, Blais, Gansler, Sandberg, Bistis, & LoCicero, 2010; Twenge & Campbell, 2001). Cronbach’s alpha in the present study was .88.

5. Demographic Form. Participants provided information related to their age, educational level, marital status and work status.

4.5. Procedures and Research Design

Each participant completed a packet of questionnaires with socio-demographic information sheet included during one of several scheduled testing times in the three targeted local fitness centers in accordance to previous arrangements. During the participant’s first full day at the center, a trained qualified staff member measured each participant’s height on a standard wall height-measuring device and weight on a digital computerized platform scale, as routine procedures in the fitness center. Questionnaires were administered by conducting group sessions held by three female students enrolled in family counseling graduate program at Hashemite University. Participants were not asked to include their names or any identifying information. Participants were asked to read and complete a consent form. They then answered the questionnaires and were asked intentionally to report their current measured BMI values which were verified later with their records. The questionnaires were counterbalanced to eliminate possible order effects. Upon completion they were debriefed. Average time to complete all 76 items was approximately 20-25 minutes. Each participant was given one free session for completing the measures.

4.6. Data Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS version 12.0, 2006). Descriptive statistics were used to generate means, standard deviations, and frequencies for a list of variables. In addition, research hypotheses were tested by employing correlations, multiple regression, and MANOVA. Additionally, for the best Type I error control (Preacher, Rucker, & Hayes, 2007), continuous independent and dependent variables were assessed for homogeneity of variance and normality values. Results indicated values of skewness and kurtosis in acceptable ranges that do not exceed the value of (1.00) (Tabachnick & Fidell, 2001). Furthermore, George and Mallery (2005) stressed that the reliability of measurement of the scales was imperative to the implementation of the regression analysis. Table 2 presented mean, standard deviations, skewness, and kurtosis, and Cronbach's alpha (α) of the main variables in this study.

Table2: Results of Descriptive Statistics for Overall Study Sample (N = 177), Homogeneity of Variance and Normality Values on Study Measures

Scale	Mean	SD	Range	Skewness	Kurtosis	Cronbach's Alpha (α)
1. Body Mass Index (BMI)	-	30.4	3.2	19.66	-1.08	0.990
2. Body Shape Questionnaire (BSQ) 1-6 (14-84)	3.19	40.6	10.3	31.01	.370	-1.00
3. Body Satisfaction Scale (BSS) 1-6 (16- 96)	2.84	42.6	11.2	64.04	1.07	-.753
4. Center for Epidemiologic Studies Depression Scale (CES-D)1-4 (20-80)	2.64	50.5	8.9	29.03	-.230	1.08
5. The Rosenberg low Self-Esteem Scale (RSE) 1-4 (10-40)	2.36	21.7	3.4	15.03	.314	-0.861

5. The Results of Hypotheses Testing

In this section of this study, analysis of the results of research hypotheses will be presented. The following subsections provide analysis of results of hypotheses testing at age, education, marital status, and work status group levels.

5.1. Results of Testing H1

Hypothesis 1 (H1) of this study was that body mass index (BMI), body image dissatisfaction, depression, negative and self-esteem, are related significantly; and depression, negative self-esteem, subsequently, will predict a significant portion of variance in total (BSQ) and (BSS) scores respectively. This hypothesis was tested by computing Pearson correlation coefficients between the five study variables, then by using two multiple regression analyses with scores on the predictor variables (depression scale CES-D, negative self-esteem RSE), and criterion two body image dissatisfaction variables (Body Shape Questionnaire (BSQ) and Body Satisfaction Scale (BSS)). Table 3 demonstrated the Pearson correlation matrix for the main variables in this study that will be described throughout this section. All significance tests of the hypotheses were two-tailed.

Table 3: The Pearson Correlation Matrix for the Main Study Variables

Measure	1	2	3	4	5
1. Body Mass Index (BMI)	-				
2. Body Shape Questionnaire (BSQ)	.729**	-			
3. Body Satisfaction Scale (BSS)	.357**	.321**	-		
4. Center for Epidemiologic Studies Depression Scale (CES-D)	.351**	.439**	.209**	-	
5. The Rosenberg negative Self-Esteem Scale (RSE)	.228**	.350**	.312**	.604**	-

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Table 3 showed that scores on the BMI were positively correlated with the BSQ, BSS, CES-D, and negative RSE ($r = .73, .36, .35, .23, p < .01$), respectively. Thus, women who have higher BMI, tend to report greater dissatisfaction with their physical selves, being more depressed, and having more negative self-esteem, comparing to those with lower BMI. Additionally, scores on BSQ were significantly and moderately correlated with the BSS, CES-D, and negative RSE ($r = .32, .44, .35, p < .01$), respectively. Furthermore, positive significant correlations were observed between scores on the BSS and CES-D, and negative RSE ($r = .21, .31, p < .01$), respectively. Lastly, scores on the CES-D were positively correlated with negative RSE ($r = .604, p < .01$). Although the correlations between the five variables in question exhibit statistically significant relationships, these values were moderate to high moderate, thus, indicating relatively minimal overlap between scales.

Prior to conducting the multiple linear regression analysis, the relationships between predictor variables were examined to assess for violations of the assumption of multicollinearity. The first step in assessing multicollinearity is to examine a correlation matrix of the variables being used in regression analysis (see Table 3). Additionally, the issue of linear dependency between the predictor variables was not to use two variables one of which was partially dependent upon the other (George & Mallery, 2005). In general, correlations greater than .80 between independent variables are regarded as problematic (Berry & Feldman, 1985; Cohen, 1988). Inter-correlations among total score of Center for Epidemiologic Studies Depression Scale (CES-D), and Rosenberg negative Self-Esteem Scale (RSE) which was ($r=0.604$), approach this mark. Guidelines for the interpretation of multicollinearity statistics suggest that the tolerance statistic should be greater than .20 and the variance inflation factor (VIF) should be less than 5 to satisfy the condition of independent predictors (Tabachnick & Fidell, 2001). Analyses revealed that the tolerance statistic and VIF were adequate for the two predictor variables (i.e., variable tolerances ranging from .65 to .83 and Variation Inflation Factors (VIF) ranging from 1.06 to 1.57), indicating that all variables were unique predictors and the regression models were robust.

Table 4: Regression Analysis for Variables Predicting Total Score Body Shape Questionnaire (BSQ)

Predictors	R	R ²	F	B	t
Full Model	.451	.204	22.26**		
CES-D				.358	4.221**
RSE				.133	1.570
Restricted Model					
CES-D	.439	.192	41.708**	.439	6.458**

Note. CES-D = Total score on the Center for Epidemiologic Studies Depression Scale. RSE = Total score on the Rosenberg negative Self-Esteem Scale. ** $p < .01$. * $p < .05$.

As shown in Table 4 the full model containing the two predictors did predict a significant portion 45 % of variance in total score BSQ ($R = .451$, $R^2 = .204$, $F 2, 174 = 22.26$, $p < .000$). However, total score on the Rosenberg negative Self-Esteem Scale RSE made no significant contributions to the equation beyond total score total score on the Center for Epidemiologic Studies Depression Scale (CES-D). When this variable (RSE) dropped from the equation, total score of Center for Epidemiologic Studies Depression Scale (CES-D) predict 44 % or 19.2% of variance in total score Body Image dissatisfaction (BSQ) ($R = .439$, $R^2 = .192$, $F 1, 175 = 41.71$, $p < .000$). Therefore, Hypothesis 1 was partially supported.

Table 5: Regression Analysis for Variables Predicting Total Score Body Satisfaction Scale (BSS)

Predictors	R	R ²	F	β	t
Full Model	.313	.098	9.47**		
CES-D				.032	.357
RSE				.293	3.242**
Restricted Model					
RSE	.312	.098	18.906 **	.312	4.348 **

Note. CES-D = Total score on the Center for Epidemiologic Studies Depression Scale. RSE = Total score on the Rosenberg negative Self-Esteem Scale. ** $p < .01$. * $p < .05$.

Table 5 showed that full model containing the two predictors did predict a significant portion 31% of variance in total score BSS ($R = .313$, $R^2 = .098$, $F 2, 174 = 9.47$, $p < .000$). However, total score on the Center for Epidemiologic Studies Depression Scale (CES-D) made no significant contributions to the equation beyond total score on the Rosenberg negative Self-Esteem Scale (RSE). When this variable (CES-D) dropped from the equation, total score of Rosenberg negative Self-Esteem Scale (RSE) predict 31 % or 9.8% of variance in total score of Body Image dissatisfaction (BSS) ($R = .312$, $R^2 = .098$, $F 1, 175 = 18.91$, $p < .000$). Therefore, Hypothesis 1 was partially supported.

5.2. The Results of Testing H2

Hypothesis 2 (H2) of this study was that the relationships between Body Mass Index (BMI) and elements of psychological distress (Center for Epidemiologic Studies Depression Scale (CES-D), and The Rosenberg negative Self-Esteem Scale (RSE)) will be mediated by Body Shape Questionnaire (BSQ). In order to determine whether Body image dissatisfaction (BSQ) plays a mediating role in the relationships between BMI and elements of psychological distress: (CES-D), (RSE), two sets of series of regression analyses were computed. Following Baron and Kenny (1986), to test for mediation (1) the predictor (BMI) must be significantly related to the criterion (CES-D, and negative RSE). This was tested by individually regressing the proposed body mass index score (BMI) on psychological distress (total score CES-D, and negative RSE). This step showed that predictor was significantly related to the two criterion. (2) The predictor (BMI) must be significantly related to the proposed mediator (BSQ). This was tested by individually regressing the proposed predictor (BMI) on body image dissatisfaction (total score BSQ). (3) The proposed mediator (BSQ) must be significantly related to the criterion (psychological distress). As shown in Table 3 higher total BSQ scores were significantly related to higher total CES-D, and negative RSE ($r = .44$, $.35$, $p < .01$), respectively, and this was tested by regressing total score BSQ on total score CES-D, and RSE. (4) The relationship between the initial predictor (BMI) and the criterion (psychological distress) disappears or is substantially reduced when the mediator (body image) is included in the regression equation.

To test for this, both the initial variable (BMI) and the proposed mediator (BSQ) are entered together as predictor variables on the two elements of psychological distress (i.e., depression, self-esteem), respectively, in the same regression equation. To establish mediation, the semi-partial correlation (sr) between the initial predictor and the outcome variable should be zero or at least significantly smaller than it was in the first step of the procedure, and its beta weight should be significantly reduced as well. The mediator variable should still have a significant semi-partial correlation with the outcome variable of interest. This procedure was followed for each of the two predictor variables with the two psychological distress criterion CES-D; RSE.

1-Center for Epidemiologic Studies Depression Scale (CES-D). Table 6 shows the relevant tests with total score CES-D as the dependent criterion factor.

In the first step, total score BMI was a significant predictor of total score CES-D ($R = .351, R^2 = .123, F 1, 175 = 24.65, p < .01$). The second step showed that total score BMI predicted a significant portion of variance in total score BSQ ($R = .729, R^2 = .53, F 1, 175 = 198.6, p < .01$). In the third step, total score BSQ was a significant predictor of variation in total score CES-D ($R = .439, R^2 = .192, F 1, 175 = 41.71, p < .01$). Therefore, the first three conditions for mediation were met. In the fourth step, regression of both total score BSQ and total score BMI on total score CES-D showed that BMI was no longer a significant predictor of total score CES-D after controlling for total score BSQ. The total score BMI beta weight changed from $\beta = .35$ to $\beta = .067$, and it had an insignificant semi-partial correlation with total score CES-D ($sr = .051, t = 0.68, ns$). Total score BSQ maintained a significant semi-partial correlation with total score CES-D ($sr = .285, \beta = .39, t = 3.9, p < .01$). Therefore, conditions for the mediation by BSQ of the relationship between BMI and depression appear to have been met. This suggests that body image dissatisfaction BSQ is a full mediator in the relationship between BMI and depression.

Table 6: Regression Equations for Test of Mediation by Body Shape Questionnaire (BSQ) of the Relationship between BMI and Depression

Criterion	Predictor	R	R ²	F	sr	β	t
1 CES-D	BMI	.351	.123	24.65			
2 BSQ	BMI	.729	.532	198.68			
3 CES-D	BSQ	.439	.192	41.71			
4 CES-D	BSQ				.285	.390	3.91**
	BMI				.051	.067	0.68

*Note. BMI = Total score for subjects Body Mass Index. CES-D = Total score for the Center for Epidemiologic Studies Depression Scale. BSQ = Total score on the Body Shape Questionnaire. **p < .01. *p < .05.*

2. *The Rosenberg negative Self-Esteem Scale (RSE).* Table 7 shows the relevant tests with total score RSE as the dependent criterion factor. In the first step, total score BMI was a significant predictor of total score RSE ($R = .228, R^2 = .052, F 1, 175 = 9.623, p < .01$). The second step showed that total score BMI predicted a significant portion of variance in total score BSQ ($R = .729, R^2 = .53, F 1, 175 = 198.68, p < .01$). In the third step, total score BSQ played as a significant predictor of variation in total score RSE ($R = .350, R^2 = .122, F 1, 175 = 24.361, p < .01$). Therefore, the first three conditions for mediation were met. In the fourth step, regression of both total score BSQ and total score BMI on total score RSE showed that BMI was no longer a significant predictor of total score RSE after controlling for total score BSQ. The total score BMI beta weight changed from $\beta = .23$ to $\beta = .057$, and it had an insignificant semi-partial correlation with total score RSE ($sr = .041, t = 0.548, ns$). Total score BSQ maintained a significant semi-partial correlation with total score RSE ($sr = .275, \beta = .39, t = 3.8, p < .01$). Therefore, conditions for the mediation by BSQ of the relationship between BMI and negative self-esteem appear to have been met. This suggests that body image dissatisfaction BSQ is a full mediator in the relationship between BMI and negative self-esteem.

Table 7: Regression Equations for Test of Mediation by Body Shape Questionnaire (BSQ) of the Relationship between BMI and Negative Self-Esteem

Criterion	Predictor	R	R ²	F	sr	β	t
1 RSE	BMI	.228	.052	9.62			
2 BSQ	BMI	.729	.532	198.68			
3 RSE	BSQ	.350	.122	24.36			
4 RSE	BSQ				.275	.391	3.77**
	BMI				.041	.057	0.548

*Note. BMI = Total score for subjects Body Mass Index. RSE = Total score for the Rosenberg negative Self-Esteem Scale. BSQ = Total score on the Body Shape Questionnaire. **p < .01. *p < .05.*

5.3. The Results of Testing H3

Hypothesis 3 (H3) of this study was that Age group (1-20-29; 2- 30-39; and 3- ≥ 40 , years old), educational level (1-Less than 12 years and high school; 2- Diploma; 3-college), marital status (Single (1) vs. Married (2)), and work status (Work (2) vs. not work (1)), will significantly contribute to the variance in both body image dissatisfaction scales as measured by total Body Shape Questionnaire (BSQ) and Body Satisfaction Scale (BSS) scores.

To determine whether these demographic variables influenced the outcome measure, a series of one-way multivariate analysis of variance (one-way MANOVA) were conducted and yielded few significant mean differences. Table 8 presents the mean and standard deviations, *F* and (*p*-value) for the BSQ and BSS total scores for age, educational level, marital and work status.

Table 8: Means and standard Deviations, *F* and (*p*-value) for the Body Shape Questionnaire (BSQ) and Body Satisfaction Scale (BSS) on Total Scores for Levels of Age, Educational Level, Marital Status, and Work

Social demographic variables	Number (%)	Body Shape Questionnaire (BSQ) (Mean±SD)	*Body Satisfaction Scale (BSS) (Mean±SD)	<i>P</i> value-(BSQ)	<i>P</i> value-(BSS)
<i>Age Group</i>					
20-29	68	40.64±1.1	39.73 ± 1.4	<i>F</i> 2, 170=356. <i>p</i> > 0.05)	* <i>F</i> 2, 170= 3.129, <i>p</i> < 0.05)
30-39	57	39.48 ± 0.9	44.44± 1.3		
≥40	52	40.57± 1.2	41.49 ± 1.7		
<i>Educational Level</i>					
Less than 12 years & High School	73	40.06± 0.9	42.64± 1.3	<i>F</i> 2, 170=.041, <i>p</i> >0.05)	<i>F</i> 2, 170=.656, <i>p</i> > 0.05)
Diploma	61	40.16± 1.1	40.67± 1.3		
College	43	40.48 ± 1.1	42.36 ± 1.5		
<i>Marital status*</i>					
Single	86	31.44 ± 1.2	49.91± 1.2	* <i>F</i> 1, 170= 119.6, <i>p</i> < 000)	* <i>F</i> 1, 170= 51, 4, <i>p</i> < 000)
Married	91	49.03 ± 1.1	33.87 ± 1.4		
<i>Work status</i>					
Work	77	38.70±1.1	46.72± 1.3	<i>F</i> 1, 170= 3.079, <i>p</i> > 05)	* <i>F</i> 1, 170= 15.65, = <0.000)
Not work	100	41.77± 2.3	37.06± 1.5		

*Note. Lower scores in BSS reflect dissatisfaction with body image.

A 3 (group of Age: 1. 20-29; 2. 30-39; 3. 40≥ years) × A 3 (level of education: 1. Less than 12 years & High School; 2. Diploma; 3. College) × 2 (Marital: Single; Married) × 2 (Work: Work; Not work) MANOVA, with the Body Shape Questionnaire (BSQ) and Body Satisfaction Scale (BSS) scores as the dependent variables, yielded a significant main effect for each of level of Age $F(2, 170) = 3.129, p < .046$, and Marital status $F(1, 170) = 51.41, p < .000$ and Work status $F(1, 170) = 15.65, p < .000$, on (BSS), but there was no significant main effect for these factors on BSQ ($ps > .05$). Also, there was a significant main effect for Marital status on (BSQ), $F(1, 170) = 119.68, p < .000$, and there was no significant main effect ($ps > .05$), for Education on the two indices of body image disturbances (BSQ; BSS).

Moreover, Post hoc pairwise comparisons with Tukey's honestly significant difference (HSD) procedure indicated that younger participants in the first age group (20-29 years) had significantly lower body image satisfaction BSS scores than did the second group (30-39 years), who reported the highest BSS score among the three age groups; and that married women had significantly higher BSQ, and lower BSS scores than did single women. Lastly, women not working had significantly lower BSS scores than did working women.

Supplemental analyses showed that there was a significant interaction for level of Age × Marital only on BSS Roy's Largest Root=0.01, ($F(2, 168) = 5.648, p < .004, < 0.01$) such that among women in different age groups who are married, older participants in the third age group (40≥ years), reported the lowest mean and the highest levels of body dissatisfaction of BSS scores ($M=36.9$) compared to those in the other two middle (30-39 years) and younger (20-29 years) age groups ($M=38.6; 42.8$), respectively, while, in contrast, among women in different age groups who are un-married, the women in the first younger age group (20-29 years) reported the lowest mean and the highest levels of body dissatisfaction of BSS scores ($M=46.9$) compared to those in the other two middle and older age groups ($M= 52.0; 62.9$), respectively. Figure 1 presents the significant interaction for age × marital status on women's BSS scores.

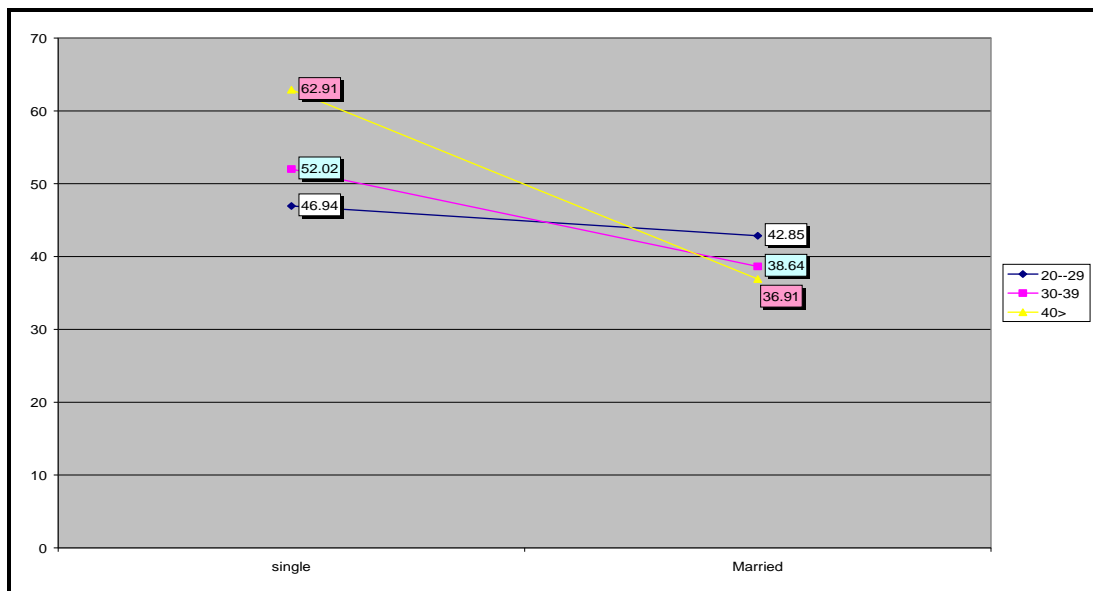


Figure 1: Interaction of age × Marital Status on Women's BSS Scores

These interaction results suggest that obesity/overweight may be salient risk factors for body image disturbances among older women ($40 \geq$ years) when they are married, and younger women (20-29) years as a function of being un-married. These findings also suggest that both older married women and younger single women exercising within the fitness centers environment may be at an increased risk of developing negative body image perceptions. This may be attributed to eastern social norms put too pressures on young women to be married otherwise this means they are not favored and men don't find them accepted as women. Also, this maybe a function of social comparisons effect that might be stronger and more present in younger people when they are not married in comparison to single older people, in particular, comparing yourself to others may lead to reduced body satisfaction (Myers, & Crowther, 2009). Many young women feel that body image and exercise are important for their self-esteem, want to lose weight, are afraid they might gain weight, and feel fat (Abraham, 2003). It seems this is true specifically when they have no partner. Also, it is possible that aged married women were at high risk of being unsatisfied with their appearance, because of the long past history internalization of such body negative perceptions that strongly influenced by the sociocultural ideal of thinness (Fallon & Rozin, 1985; Rozin & Fallon, 1988).

6. Summary and Concluding Remarks

This cross-sectional study attempted to enhance the understanding of the relationship between overweight/obesity and psychological distress among women using fitness centres in Jordan, by examining the associations among BMI, body image dissatisfaction, and two indices of psychological distress (depression and self-esteem). Results revealed a number of important findings, and specifically, there were five major findings: (1) degree of obesity (IBM) was correlated with body image dissatisfaction, (2) degree of obesity (IBM) was associated with depression and negative self-esteem, (3) body image dissatisfaction was related to both depression and self-esteem, and (4) the relationship between degree of obesity (IBM) and depression/negative self-esteem was mediated by body image dissatisfaction, and finally, (5) age, marital and work status play a significant effect in body image dissatisfaction.

First, the finding that degree of obesity (IBM) was related to body image dissatisfaction, accords with the results of previous studies that suggest degree of obesity was correlated with body image dissatisfaction (Friedman et al., 2002; Neumark-Sztainer & Haines, 2004; Xanthopoulos et al., 2011), but contrasts with other studies such as Sarwer et al. (1998) who found no relationship between body image dissatisfaction and BMI in their samples of obese women enrolled in nonresidential clinical weight-loss trials. Though, these results are also, in contrast to other research (i.e., Seifert, Arnell, & Kiviniemi, 2008) that found degree of body dissatisfaction was inversely related to frequency estimates of obese body sizes; highly dissatisfied participants found obese body sizes less salient.

It is possible that the particular body sizes that women attend to may be influenced by the way they feel about their own bodies and, thus, by the content of their body image schemas. Women who are satisfied with their bodies may attend to different body sizes than will women with high levels of body dissatisfaction.

Also, differences in participant characteristics between current sample and the others may help explain these inconsistent findings. More specifically, in the study by Sarwer et al. (1998), participant groups were fairly heterogeneous with respect to racial composition. Approximately one-half of the women were white and over one-third were black American. However, in the sample of the current study all the participants were white Arab. Given that the relationship between weight and body image evaluation is strongly influenced by cultural variables, it is plausible that in previous studies, the relationship between degree of obesity and body image evaluation was influenced by race. Another possible explanation for the difference in findings is the discrepancy in range of BMI in the samples. Sarwer et al., $M = 35.6 \text{ kg/m}^2$ [$SD = 4.3$]. Thus, the wider range in BMI in the current sample (range from 25.5-45.2 kg/m^2), may have enabled the detection of this finding. In sum, most of the studies that explored the relationship between body image dissatisfaction and body weight found that increased weight was associated with lower body satisfaction. Body weight was found to be the strongest predictor of negative body image regardless of gender or ethnicity (Xanthopoulos et al., 2011). It is possible that for some individuals an increase in body weight is associated with social pressure to lose weight which leads to a reduction in body satisfaction (Cafri et al., 2005).

Second, the result that degree of obesity (IBM) was associated with psychological distress namely, depression and negative self-esteem, seems in contrast with previous reports (e.g., Fabricatore & Wadden, 2003; Telch & Agras, 1994), but this finding mirrors those described in previous studies (Abdel-Fattah et al., 2008; Faubel, 1989; Kim & Kim, 2001). This result maybe attributed to the fact that confirmation and internalization stereotypes about obesity increased negative affect, depression, and low self-esteem (Crocker et al., 1993; Quinn & Crocker 1998). Another possible explanation for the finding that the degree of overweight is associated with the level of distress is that the participants in this study were "weight" loss or treatment seekers. It has consistently been reported that overweight treatment-seeking individuals report more psychological distress than their non-treatment-seeking counterparts (Fitzgibbon, Stolley, & Kirschenbaum, 1993). In the study by Telch and Agras (1994), participants responded to newspaper advertisements seeking participants for outpatient, university-based clinical trials, whereas participants in the present study actively sought out weight loss plan and became paying participants in a physical fitness program requiring at least one-two hours 3 times weekly with an average period of 4-8 weeks. Accordingly, the primary reason for overweight people seeking weight loss may reflect psychosocial differences that impact also on successful weight loss. Identifying a person's reasons and motives for weight loss in future studies is required and may help in expanding the vision about the relation between BMI and psychological distress (O'Brien et al., 2007).

The third major finding showed that body image dissatisfaction was significantly and moderately correlated with both depression and negative self-esteem, and this is consistent with the findings of others (e.g., Abdel-Fattah et al., 2008; Friedman et al., 2002; Gavin et al., 2010; Kim & Kim, 2001; Myers & Crowther, 2009; Ozmen et al., 2007; Sarwer et al., 1998). Though these past research that support the links between body image dissatisfaction and depressive symptoms or psychological disorders have been previously documented in many clinical and non-clinical contexts, in the current study, sample of obese women were seeking body shape change, losing weight in the context of physical fitness. Taken together, this finding asserts the strength of the association between body image dissatisfaction and psychological distress.

The fourth key finding of this study supports the hypothesis that the relationship between degree of weight (BMI) and depression/ self-esteem is mediated completely by participants' body image dissatisfaction. In previous work with obese populations body image has not typically been considered when investigating the relationship between BMI and psychological functioning; however, the current findings confirm that in this sample, body image dissatisfaction accounted for a significant portion (28.5; 27.5) of the correlations of BMI with both depression and negative self-esteem, respectively. This result was in accord with results from previous studies showing that body image mediates the relation between BMI and psychological functioning; for example, Friedman et al. (2002) found that the relationship between weight and depression/ self-esteem is partially mediated by participants' body image scores on Body-Self Relations Questionnaire (Cash, 1994). Similarly, Shin and Shin (2008) reported that body dissatisfaction was a full mediator between BMI and self-esteem. Also, both McCarthy (1990) and Stice and Bearman (2001) suggested that body dissatisfaction may mediate the relationship between overweight and depression.

The findings of body dissatisfaction mediation suggest that this might have been one of several mechanisms by which the heavy weight influenced psychological distress, and may reflect the role of (BDI) assessment tools being employed in this study in determining this mediation. In the current study, the measure of body dissatisfaction (BSQ; Cooper et al., 1987), assessed negative feelings about one's body size and shape by evaluating the fear of putting on weight, feelings of low self-esteem because of one's appearance, the desire to lose weight and body dissatisfaction. The current results seem to point to the previous hypothesis, considering the reciprocal effects observed between body size dissatisfaction and psychological distress. Taking into account the positive social evaluation of a thin body, a norm which is internalized by so many people, especially women (McCarthy, 1990), it is easy to accept that body size dissatisfaction would mediate association between body mass index and depression/ self-esteem. Specifically, several studies show that overweight persons may encounter stigma and discrimination, which increase body dissatisfaction and increase depressive symptoms and levels of low self-esteem (Stice, & Bearman, 2001; Stice et al., 2000; Friedman et al., 2002). This condition also suggests an indirect association, whereby depressive symptoms and self-esteem are affected by weight through the effects of body dissatisfaction.

Lastly, the results of the hypothesis concerning effects of socio-demographic factors on body image dissatisfaction, showed that age, marital, work status, and interaction between age and marriage were found to influence the self-perception of body appearance appropriateness, while the level of education was not found here to be a determinant. Although results in the literature are mixed in this area; younger participants in the current study were more dissatisfied with their bodies, this finding may be attributed to reasons for exercise, whereby younger women tend to exercise more for appearance-related reasons such as to lose weight or to tone up rather than for functional or health-related reasons (Tiggemann & Williamson, 2000). Moreover, with respect to married women were being more dissatisfied with their body image, this finding may be attributable to married women in this study sample being heavier, because we did not control for BMI. Also, Some previous work has suggested that marriage, or entry into marriage, is associated with fatness and weight gain (Sobal, Rauschenbach, & Frongillo, 1992). AL-Otaibi, Nassef, and Raouf (2013) recently found that marital status was the most predictor for body shape dissatisfaction. This result was validated partially also by another study conducted in Saudi Arabia (Abdel-Fattah et al., 2008). Although, other studies found that marital status did not have significant effects among women in some research (e.g., Chang, & Christakis, 2003).

Actually, the fact that marital status has significant effects among both older married and youngest unmarried women in the current study confirms that mental representation of the body is complex and multidimensional, as the body carries out different roles. This is not surprising, given that appearance and attractiveness have been noted to serve as important factors for women in marital entry and marital mobility (Chang, & Christakis, 2003), if appearance were to function as such for women, it would be expected that unmarried women are more concerned with being overweight. Further investigation is required to more thoroughly delineate these relationships. Moreover, theoretical framework of stress and coping (Lazarus, 1991; Lazarus & Folkman, 1984) and feminine gender role stress (Stice & Shaw, 2002) may explain many aspects of this result of body dissatisfaction among married and single women. Heightened internalization of the thin ideal and the belief that achieving thinness will result in a multitude of positive social benefits (e.g. acceptance and success) will increase the degree of body image dissatisfaction, if the actual or perceived body size is highly discrepant to a person's ideal body (Bell, Lawton, & Dittmar, 2007). Actually, internalization and perceived pressures have a significantly stronger relationship to body image dissatisfaction among women; for example, some research indicates that women misinterpret men's standards of bodily attractiveness. Women have been found to believe that men prefer thinner women than they actually do (Fallon & Rozin, 1985; Rozin & Fallon, 1988). Also, feminine gender role stress might only be one pathway by which femininity may have an impact on body dissatisfaction (Stice & Shaw, 2002). Theoretically, the relentless pursuit of an ultra-slender body that is virtually unattainable promotes dissatisfaction with one's physical appearance (Groesz, Levine & Murnen, 2002; Stice & Shaw, 2002).

Also, data of this hypothesis showed that women who are unemployed in this study were found that they were at higher risk for body image dissatisfaction. Some authors confirmed that this risk factor of unemployment is overrepresented among women (McGrath, Keita, Stickland, & Russo, 1990), putting them at high risk of many psychological disturbances. In sum, the data support that younger age, marriage and unemployment as potential risk factors for body dissatisfaction among obese women.

Altogether, these findings add to the growing amount of literature that suggest that a greater understanding of differing psychological and socio-demographic factors should be a focus in future studies of obesity. Although, there are several limitations in this study that require mention.

First, this was a cross-sectional survey and thus, no causal relationships can be assessed. Future research should employ longitudinal or experimental methods to investigate the relationships among the variables examined, in order to establish causality. Second, data were entirely based on self-reports, and therefore subject to all of the internal validity issues associated with this methodology. Third, the sample was self-selected, so findings cannot be generalized to the Jordanian women population, as one may do with a representative random sample. Finally, study sample was relatively homogeneous in regard to race, with Whites making up the whole of the sample and thus, this results should be interpreted with caution. Future studies might use a nationally representative sample when attempting to replicate and extend the current findings.

7. Implications for Practice

In sum, this study attempted to ascertain whether psychological variables were associated with obesity in a female exercisers sample. Specifically, this might facilitate the development of preventative intervention strategies at the primary and secondary levels, which would likely be more beneficial for afflicted individuals along with being more cost effective. Furthermore, by understanding how psychological factors related to body image satisfaction and interact in predicting obesity, rather than attempting to develop one-size-fits-all paradigms to treat obesity, we may be able to deliver a more nuanced approach to treatment, whereby improving treatment quality.

The general finding of the study was that the perceptual (BSS), affective (BSQ), components of body image differed as a function of psychological distress (i.e., depression, low self-esteem), socio-demographic factors (Age, marital and work status), but the nature of the differences varied with the measure employed. The pattern of results for the affective measure suggests a cautious view of its reliability and validity. The multidimensional approach of this study, in marked contrast to earlier fractionated studies, offers a more integrated perspective on body image and provides new directions for future research.

Although there remain some questions about the direction of the association between depression, self-esteem and body concerns, the evidence in this study supports a reliable link enough with what some researchers have suggested in accordance to designing interventions aim at improving depressive symptoms, self-esteem in order to improve body image concerns. For example, O'Dea (2004) describes a program that focuses on developing young students' self-esteem with the ultimate goal to prevent body image concerns, and she reports significant improvements in body image for female students.

The mediation effects analysis could be more elucidating in a study with these characteristics, thus providing more information about the dynamical mechanisms underlying body image dissatisfaction and help researchers improve the contents and conditions of obesity treatments. Results highlight the relevance of considering the presence of body image dissatisfaction (BID) as a marker of clinical severity of depression and negative self-esteem among the overweight/obese women, and suggest that the BID could be an interesting screening instrument to identify this particular subgroup.

Future interventions should consider both the mental and physical health of women attending physical fitness centers. Health care providers should monitor the weight of depressive female patients and, similarly, in overweight or obese patients, mood and self-esteem should be monitored. For example, treatment efforts to improve body image among overweight persons might do so by enhancing self-esteem and helping patients separate self-esteem and feelings of personal worth from body size and shape (Rosen, 1996). This awareness could lead to prevention, early detection, and co-treatment for women at risk, ultimately reducing the burden of both conditions. There is an urgent need for evaluations of weight management interventions, both in terms of weight loss and psychological benefits among women attendees at physical fitness centers.

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