RELATIONSHIP BETWEEN BODY IMAGE DISSATISFACTION AND DISORDERED EATING: MEDIATING EFFECT OF SELFESTEEM AND DEPRESSION AMONG FEMALE UNIVERSITY STUDENTS

Agatha Teni Wunyala-Bukari

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United Arab Emirates University
College of Humanities and Social Sciences
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RELATIONSHIP BETWEEN BODY IMAGE DISSATISFACTION AND DISORDERED EATING: MEDIATING EFFECT OF SELF-ESTEEM AND DEPRESSION AMONG FEMALE UNIVERSITY STUDENTS

Agatha Teni Wunyala-Bukari

This thesis is submitted in partial fulfillment of the requirements for the degree of Master of Science in Clinical Psychology

Under the Supervision of Dr. Abdalla Hamid

February 2020
Declaration of Original Work

I, Agatha Teni Wunyala-Bukari, the undersigned, a graduate student at the United Arab Emirates University (UAEU), and the author of this Master’s thesis entitled “Relationship between Body Dissatisfaction and Disordered Eating: Mediating Effect of Depression and Low Self-Esteem Among Female University Students”, hereby, solemnly declare that this thesis is my own original research work that has been done and prepared by me under the supervision of Dr. Abdalla Hamid, in the College of Humanities and Social Sciences at UAEU. This work has not previously been presented or published or formed the basis for the award of any academic degree, diploma or a similar title at this or any other university. Any materials borrowed from other sources (whether published or unpublished) and relied upon or included in my thesis have been properly cited and acknowledged in accordance with appropriate academic conventions. I further declare that there is no potential conflict of interest with respect to the research, data collection, authorship, presentation and/or publication of this thesis.

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Abstract

The objectives of this study were to examine the relationship between body dissatisfaction and disordered eating and to examine whether depression and self-esteem mediate the relationship. The sample consisted of 186 undergraduate and postgraduate female university students. Data collection tools were the Body-Image Ideals Questionnaire (BIQ), the Eating Attitude Test (EAT-26), the Rosenberg Self-Esteem Scale (SES) and the Beck Depression Inventory (BDI). The Linear Structural Relations (LISREL) software and Structural Equation Modeling (SEM) were used for the analysis of data. The findings of this study showed a significant positive correlation between body dissatisfaction and disordered eating. In addition, body dissatisfaction had an indirect effect through depression on disordered eating. On the contrary, self-esteem did not have a mediating effect. This study highlights the potential role of depression in the prediction of disordered eating. Thus, it informs counselors and therapist in clinics to assess for depressive symptoms after assessing for body dissatisfaction. In so doing, this will help to identify and prevent at risk female students from engaging in disordered eating attitudes. It is recommended that female students in the UAE, should be educated on the dangers involved in trying to model the Western ideology of thinness portrayed as beauty and attractiveness.

Keywords: Body dissatisfaction, disordered eating, depression, low self-esteem.
العلاقة بين عدم الرضا عن صورة الجسم واضطرابات الأكل: دور الثقة بالنفس والاكتئاب وسط الإناث بدولة الإمارات العربية المتحدة

الملخص

تتهم هذه الدراسة عدم الرضا عن صورة الجسم، واضطرابات الأكل، وتقدير الذات والاكتئاب وسط طالبات جامعة الإمارات. وتتمثل أهداف هذه الدراسة في بحث العلاقة بين عدم الرضا عن صورة الجسم واضطرابات الأكل، ودور تقدير الذات والاكتئاب في هذه العلاقة. تكوّنت عينة الدراسة من 186 طالبة يدرسون البكالوريوس والماجستير بجامعة الإمارات. وشملت أدوات جمع البيانات استبيان صورة الجسم المثالي(BIQ)، واختبار السلوك تعلق الأكل(EAT-26)، ومقياس تقدير الذات(SES)، واستبيان بيك للاكتئاب(BDI). تم استخدام برنامج العلاقة الخطية الهيكلية(LISRE) ومنظمة المعادلات الهيكلية(SEM) لتحليل البيانات. أظهرت النتائج التي توصلت إليها هذه الدراسة وجود علاقة إيجابية دالة إحصائيًا بين عدم الرضا عن صورة الجسم واضطرابات الأكل. بالإضافة إلى ذلك، كان لعدم الرضا عن صورة الجسم تأثير غير مباشر من خلال الإكتئاب على اضطرابات الأكل على النقيض من ذلك، لم يكن دور تقدير الذات أي دور دال إحصائيًا في العلاقة بين عدم الرضا عن صورة الجسم اضطرابات الأكل.

خلاصة هذه الدراسة أنها سلطت الضوء على احتمالية دور الاكتئاب في التنبيء باضطرابات الأكل. وبالتالي فإن ذلك سيسهم في مساعدة سياسهم والمعالجين الاستشاريين النفعيين والمهمين بهذا المجال على التركيز على قياس أعراض الاكتئاب عند تقييم الحالات التي تعاني من عدم الرضا عن صورة الجسم. كما سيساعد ذلك في التعرف على وقائع الطالبات المعرضة لخطر الانخراط في السلوكيات المتعلقة باضطرابات الأكل. توصي هذه الدراسة بتثقيف وتوظيف الطالبات في دولة الإمارات العربية المتحدة بالمخاطر المتعلقة بمحاولة اتباع المعايير الغربية التي تعتبر النحافة مؤشر على الجمال والجاذبية.

مفاهيم البحث الرئيسية: عدم الرضا عن صورة الجسم، اضطرابات الأكل، الاكتئاب، تقدير الذات.
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I would also like to thank my committee for their guidance, support, and assistance throughout my preparation for this thesis, especially my advisor Dr. Abdalla Hamid. and my co-supervisors.
Dedication

To my beloved husband, Zacchaeus Bukari, my children, Joycelyn Bukari, Mike Bukari and Brendalyn Bukari as well as my parents Mr. and Mrs. Wunyala
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<tr>
<td>AGFI</td>
<td>Adjusted Fitness Index</td>
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<tr>
<td>BDI</td>
<td>Beck Depression Inventory</td>
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<tr>
<td>BIQ</td>
<td>Body-Image Ideals Questionnaire –</td>
</tr>
<tr>
<td>DSM-5</td>
<td>Diagnostic and Statistical Manual of Mental Disorders 5th Edition</td>
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<tr>
<td>DSM-IV</td>
<td>Diagnostic and Statistical Manual of Mental Disorders 4th Edition</td>
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<tr>
<td>EAT-26</td>
<td>Eating Attitude Test-26</td>
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<td>GFI</td>
<td>Goodness of Fit Index</td>
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<tr>
<td>LISREL</td>
<td>Linear Structural Relations</td>
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<td>RMSEA</td>
<td>Root Mean Square Error of Approximation</td>
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<tr>
<td>SEM</td>
<td>Structural Equation Model</td>
</tr>
<tr>
<td>SES</td>
<td>Rosenberg Self-Esteem Scale</td>
</tr>
<tr>
<td>UAE</td>
<td>United Arab Emirates</td>
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<td>UAEEU</td>
<td>United Arab Emirates University</td>
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Chapter 1: Introduction

1.1 Overview

Thinness in Western cultures represents beauty and attractiveness, which stems from a sociocultural perspective that emphasize the risk of culturally transmitted standards, most notable through the mass media (Levine & Harrison, 2009). These norms have been so much accepted to the extent that, according to Polivy and Herman (1987), normal eating for women can be likened to dieting. Men are of no exception, as they are also confronted with pressure to have a culturally accepted ideal body type (Frederick, Forbes, Grigorian & Jarcho, 2007), which must be lean muscularity. On the other hand, many non-Western societies like the United Arab Emirates (UAE) and Arab cultures previously attributed plumbness in women to health, physical attractiveness, social status, fertility and womanhood (Nasser, 1988).

The UAE, as an Arab country located in the Arabian Peninsula, has witnessed tremendous economic and socio-cultural change due to the discovery of oil and the migration of expatriates from different parts of the world (Eapen, Mabrouk & Bin-Othman, 2006). This has however, resulted in a shift from traditional lifestyle to the adaptation of Western lifestyle, which conflict with the indigenous culture. The results lead to an increase in lifestyle diseases such as diabetes, hypertension, as well as psychological distress (Eapen, Mabrouk, & Bin-Othman, 2006).

Research evidence suggested that, conflict between indigenous culture and adopted cultures, may increase the risk of individuals developing disordered eating attitudes and body image concerns (Tsai, Curbow, & Heinberg, 2003; Brunet, Sabiston, Dorsch, & McCreary, 2010). Disordered eating behaviors can be defined as
unhealthy eating habits that may include restraint eating, restrictive dieting, and binge eating (Fitzsimmons-Craft, Ciao, & Accurso, 2016) to lose weight.

Moreover, disordered eating habits are often known to be linked to one’s exposure to the media which portrays thinness as the ideal body size, thus leading to sociocultural pressures and body image concerns (Radwan, Hasan, Najm & Zaurub, 2018; Doumit, Kharma, Sanchez-Ruiz & Zeeni, 2018; Calzo, Horton, Sonneville & Field, 2016; White & Halliwell, 2010). One of the significant reasons for body image dissatisfaction and concerns about shape and weight is the social appearance anxiety, which occurs concurrently with an eating disorder (Levinson & Rodebaugh, 2012). Depression has also been established to be a significant predictor of disordered eating behavior especially among females (Doumit et al., 2018; Liechty & Lee, 2013).

According to Cash (2002, p. 38) negative body image does not only involve unhealthy eating habits but includes psychological problems and excessive cognitive investment in one’s physical appearance, in defining one’s sense of self. However, body dissatisfaction is identified as root causes for negative emotions and disordered eating and incites the onset and maintenance of eating disorders (Yu & Parez, 2019; Stice, 2002). Information obtained from a study conducted in the UAE by Schulte & Thomas (2013) confirmed the association between body dissatisfaction and depression and anxiety. The authors reported that depression acted as the major predictor of disordered eating in both males and females. Likewise, other studies with adolescent females found that body dissatisfaction predicted both low self-esteem and depressive symptoms which in turn predicted disordered eating attitudes (Johnson & Wardle, 2005; Paxton, Neumark-Sztainer, Hannan & Eisenberg, 2006). These findings suggest
that body dissatisfaction may directly or indirectly contribute to disordered eating through low self-esteem and depression.

It is important to note that the rate at which eating disorder attitudes are increasing in developing countries such as the UAE, are similar to that of developed countries (Eapen et al., 2006). The increase in disordered eating among adolescents and college students in Arab countries such as Kuwait, Jordan, and the UAE are explained to be a result of their openness to Western cultures and lifestyle (Musaiger, Al-Mannai, Tayyem, & Chirane, 2013). A study conducted by Musaiger et al. (2013) was to study obesity, eating attitudes and barriers to healthy eating and physical activity among adolescents in seven Arab countries namely, Algeria, Jordan, Kuwait, Libya, Palestine, Syria, and UAE. The findings of the authors indicated the risk of eating disorders among females to be high. Obesity was strongly associated with disordered eating among adolescents in all seven Arab countries included in the study (Musaiger et al., 2013). This finding suggests an alarming prevalence rate of disordered eating attitudes among adolescents in Arab countries especially among females.

In UAE, body dissatisfaction and disordered eating among adolescents is reported to be at an alarming rate (Eapen et al., 2006) but studies focusing on their relationship and the mediation effect of self-esteem and depression are rare. The current study therefore seeks to examine the relationship between body dissatisfaction and disordered eating, and to examine whether low self-esteem and depression mediate this relationship.
1.2 Statement of the problem

The habit of not being satisfied with one’s body, has been known by research (Yu & Perez, 2019; Polivy & Herman, 2002; Stice, 2002) to be linked with health and psychological problems and the risk in developing eating disorders. For instance, a survey of 495 adolescents in the UAE (Eapen et al., 2006) indicated that 66% of their sample reported a dissatisfaction with their weight and had the desire to be thin, 78% scored high on disordered eating attitude, and reported that attempts made to reduce weight include, dieting which involves energy restriction, severe limitation of food intake, and avoidance of certain food groups, as well as excessive exercise and/or use of manual self-induced vomiting. Furthermore, 32% of high scores on the Eating Attitude Test (EAT-26), also reported binging episode. As female students develop higher levels of body image concerns, there is the probability for them to develop low self-esteem and depressive symptoms. In addition, these low self-esteem and depressive symptoms may encourage them to practice harmful eating habits which will in turn develop into diagnostic eating problems such as anorexia nervosa and bulimia nervosa.

Eating disorders are life-threatening conditions that involve one’s excessive concern about body shape, appearance, and weight, and they result in poor health outcomes (Turel, Jameston, Gitimu, & Pohle-Krauza, 2018). Disordered eating can be treated more effectively when they are detected early. Therefore, it is important to identify disordered eating behaviors before they lead to pathological eating disorders that fit the diagnostic criteria of Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) (American Psychiatric Association, 2013).
1.3 Objective of the Study

The objectives of this study are:

1. To examine participant’s demographic variables of age, nationality, year of study, marital status, socio-economic status and the most body image concerns.
2. To examine the relationship between body dissatisfaction and disordered eating.
3. To examine whether low self-esteem will mediate the relationship between body dissatisfaction and disordered eating.
4. To examine whether depression will mediate the relationship between body dissatisfaction and disordered eating.

1.3.1 Research questions

1. What is the relationship between body dissatisfaction and disordered eating?
   1. What is the mediation effect of self-esteem in the relationship between body dissatisfaction and disordered eating?
   2. What is the mediation effect of depression in the relationship between body dissatisfaction and disordered eating?

1.3.2 Hypothesis

2. There is a significant relationship at 0.05 level of significance between body dissatisfaction and disordered eating.
3. Low self-esteem will significantly mediate the relationship between body dissatisfaction and disordered eating at 0.05 level of significance
4. Depression will significantly mediate the relationship between body dissatisfaction and disordered eating at 0.05 level of significance.
Chapter 2: Literature Review

2.1 Theoretical perspectives

The aim of this study is to examine the relationship between body dissatisfaction and disordered eating, and to examine whether this relationship, if any, is mediated by self-esteem and depression. Over the years many different theoretical perspectives on body dissatisfaction have been established. Popular among those that are closely relevant to the concepts of body dissatisfaction and disordered eating include, social comparison theory (Festinger, 1954), self-discrepancy theory (Higgins, 1987) and the normative discontent theory (Rodin, Silberstein & Striegel-Moore, 1984). On the surface, these theories look old, yet their relevance is premised in the fact that they are currently applied in recent studies and their modern interpretation well captured in the current existing literature.

The social comparison theory developed by Festinger (1954) focused on factors that impact body outlook and disordered eating habits among females. This theory postulates that females compare their bodies with other individuals considered ideal by the society and strive to improve their body appearance closer to that. In a recent study by Gitimu and colleagues (2016), the modern relevance of the social comparison theory lies in its ability to distinguish between downward and upward comparisons. In case of downward comparison, females compare themselves with other individuals considered lower than themselves, leading to a source of inspiration and body satisfaction. With regard to the upward comparison, an individual compare herself with someone considered superior to others, leading to negative emotions such as inferiority complex, low self-esteem or frustration and as a result feeling of anxiety.
and depression (Festinger, 1954; Gitimu, et al., 2016). Similarly, Myers, Ridolfi, Crowther & Ciesla (2012) holds the notion that appearance-based social comparison may lead to body dissatisfaction, anxiety, depression and disordered eating behavior as an individual strives to acquire the attributes of the superior outlook as represented by media and society.

The normative discontent theory also presents very important perspective on the female body dissatisfaction due to differences between their body image and what is portrayed as a “norm” in media or society. According to Tantleff-Dunn, Barnes and Larose (2011), the normative discontent theory proposes that body dissatisfaction with one’s weight has become so widespread among females that, feeling negatively about one’s appearance is alleged to be the “norm” rather than the exception. The theory has been used by researchers to explain the phenomenon in which women generally have overwhelming body dissatisfaction (Gitimu, et al., 2016; Rodin, Silberstein & Striegel-Moore, 1984; Tantleff-Dunn, Barnes & Larose, 2011).

Another such theory that is of great relevance to the current study is the theory of self-discrepancy, originally proposed by Higgins (1987). The self-discrepancy theory postulated that the discrepancies between an individual’s actual (real) and the ideal (desired) appearance may lead to an unfavorable mental condition such as low self-esteem and depression (Higgins, 1987). With a modern perspective, Gitimu et al. (2016) explained that females at risk of experiencing disordered eating had significantly larger discrepancies between their current body appearance and their ideal body outlook and scored significantly higher in both sociocultural attitude towards appearance and depression. It is further argued that, the more a female has perceptual discrepancy between the actual and ideal appearance, the greater is her risk
of body dissatisfaction, depression, low self-esteem and disordered eating behaviors (Jung-Hee, Lennon & Rudd, 2001).

The self-discrepancy theory distinguishes three domains and two standpoints of self-state (Higgins, 1987). The three domains of self-state include actual self which is an individual’s representation of the attributes that himself or herself or someone’s believes she/he possess. The ideal self, which is associated with personal wishes, representation of an individual’s attributes that her/himself or another would like him/her, ideally to possess. and lastly, the “ought self” refers to the sense of duty, which is an individual’s representation of the attributes of one or other believes one should or ought to possess. The two stand points are the “own self” and other beliefs (Higgins, 1987; Gitimu, et al., 2016). The “own self”, deals with one’s own beliefs concerning the attributes one would personally like ideally to possess whereas the “other’s beliefs”, in contrast relate to one’s beliefs concerning the attributes that some significant other person’s including family members, friends and media presentations would like one to ideally possess.

According to Higgins (1987), greater discrepancy may result in a mental condition such as depression. Even though old, Jung-Hee et al. (2001) suggested that the application of the self-discrepancy theory is significantly useful in understanding females’ beliefs about their body appearance. The more an individual has perceptual discrepancy between his/her actual and ideal appearances, the greater is his/her risk of body dissatisfaction, disordered eating behaviors, depression and low self-esteem (Cash, Wood, Phelps & Boyd, 1991).

The discrepancies between actual/own self-state and ideal self-state, signify the absence of positive outcomes, which is associated with dejection-related emotions
such as dissatisfaction, disappointment, sadness and low self-esteem (Levinson & Rodebaugh, 2012). In contrast, discrepancies between actual/own self-state and ought self-state, signify the presence of negative outcomes, which is associated with agitation-related emotions such as fear, threat, restlessness and depression (Liechty & Lee, 2013). These theories and their modern interpretations provide the lens through which the data gathered will be interpreted.

2.2 Conceptual framework of the study

The relationship between body dissatisfaction and body changing behaviors like disordered eating is adequately established in the literature (Yu & Perez, 2019; Stice & Desjardins, 2018; Benninghoven, Jürgens, Mohr & Jantschek, 2006; McCabe & Ricciardelli, 2004). According to Cash, Melnyk & Hrabosky (2004), persons with greater body dissatisfaction experience more disordered eating as well as depression and low self-esteem (Grilo, 2004).

Body dissatisfaction is extensively established to be significantly correlated with disordered eating among adolescent girls (Johnson & Wardle, 2005) and college women (Yu & Perez, 2019; Lim & You, 2017; Jonstang, 2009) as well as among middle-aged women (Tiggemann, 2004). This may explain why negative body image is a greater risk factor for engaging in disordered eating among females than in males (Stice & Desjardins, 2018; Ricciardelli & McCabe, 2004).

Thus far, it is established in the literature that body dissatisfaction has a direct effect on disordered eating across gender (Cruz-Saez, Pascual, Wlodarczyk & Echeburua, 2018; Wardle, Waller & Rapoport, 2001). This simply shows that an
individual is likely to engage in disordered eating after having negative concerns regarding his/her body.

This constitute one of the objectives of the current study, aimed to test the relationship between body dissatisfaction and disordered eating (Figure 1). Furthermore, body dissatisfaction is known to have an indirect effect on disordered eating through depression and low self-esteem (Brechan & Kvalem, 2015; Jonstang, 2009). However, as an individual becomes dissatisfied with his or her body, he/she is likely to experience depressive symptoms or low self-esteem which is likely to lead to the practice of unhealthy eating attitudes. Moreover, disordered eating is a symptom of depression shedding more light on the reason why a depressed individual is likely to engage in disordered eating behaviors, after experiencing body image concerns. Thus, considering the coupling of depression and self-esteem as mediators to body dissatisfaction and disordered eating, this study further examined the mediation of self-esteem and depression in the relationship between body dissatisfaction and disordered eating (Figure 1).
2.3 Disordered eating

Disordered eating is defined as different eating behaviors that do not meet the DSM-V criteria for diagnosing specific eating disorders such as anorexia nervosa, bulimia nervosa, or eating disorder not otherwise specified (American Psychiatric Association, 2013). Even though a person may not meet the criteria to be diagnosed with an eating disorder, he/she may still engage in unhealthy eating habits that may affect the weight and experience depressive symptoms and low self-esteem (Puccio, Fuller-Tyszkiewicz, Ong & Krug, 2016) as well as other emotional and physical problems (Fairweather-Schmidt, Lee & Wade, 2015). Disordered eating is therefore considered to be the tendency of having unhealthy eating relationship with food which
involves a range of problematic eating behaviors such as dieting, binge eating, restrictive eating and purging (Ricciardelli & McCabe, 2004).

With an increase in the number of adolescents and young adults in the population structure of the UAE (Viernes et al., 2007; Thomas, Khan & Abdulraman, 2010) there is a tendency for disordered eating / eating disorder attitudes and body image concerns to increase. The proportions of disordered eating behaviors among female adolescents were observed to be like those reported in Western countries such as Greece, Spain, and the United States (Costarelli, Antonopoulou & Mavrogounioti, 2011; Haines, Ziyadeh, Franko & Austin, 2011; Rivas, Bersabe, Jimenez & Berrocal, 2010). This is therefore a major issue to be considered in the UAE, not the least because the prevalence rate is comparatively high, as in the Western world. Disordered eating mainly involves binge eating, dieting and purging among others are reported to be common in UAE (Schulte, 2016).

2.3.1 Binge eating

Binge eating behavior which forms part of this study as a disordered eating habit among college females and is defined by the American Psychiatric Association (2013) as the attitude of consuming food in large quantities over a short period of time while experiencing a loss of control overeating. Binge eating is a commonly reported disordered eating behavior and a defining characteristic of bulimia nervosa and anorexia nervosa purging subtype. A study conducted by Schulte (2016) on the predictors of binge eating among the youth in UAE revealed that, binge eating was a common problem among both genders of the youth with the prevalence rate like that of Western samples. In addition, Schulte (2016) reported that binge eating may operate
as a maladaptive coping strategy by alleviating negative emotions which include boredom and loneliness.

Another study conducted by Phillip, Kelly-Weeder and Farrell (2015) indicated that female college students reported stress more often than male students as antecedents to binge eating episode. The authors mentioned that women associated stress inducing activities such as conflict, school and finance as a trigger to binge eating. Women also indicated boredom and negative emotional states as feeling antecedents to binge more often than did men (Phillips et al., 2015). Other findings revealed that depressive symptoms and low self-esteem were related to binge eating among college women without binge eating disorder (Reslan & Saules, 2011). However, other correlates of binge eating that have been widely identified in studies include body mass, negative affect, depression, emotional eating, body dissatisfaction and boredom (Mason & Lewis, 2014).

In addition, psychological distress such as depression has been identified as triggers of binge eating (Rosenbaum & White, 2015). According to Schulte (2016) emotional eating is the strongest predictor of binge eating, however, individuals who engage in emotional eating tend to engage in binge eating as well. Schulte (2016) further reported that depressive symptoms were correlates of binge but not predictor variables. Although findings reported by Mason and Lewis (2014) were inconsistent, Schulte (2016) findings are appealing for this present study because, the possible mediation of depression and low self-esteem are examined.
2.3.2 Dieting

Dieting on the other hand is the tendency of individuals to cognitively manage their weight by controlling their food intake (Ruderman, 1986). Previous studies have linked restrained eating to the risk of developing obesity in pre-adolescents and an increase in body weight in adults (French & Jeffery, 1994). Additionally, a twin study conducted in the United State by Schur, Heckbert & Goldberg (2010) revealed a strong relationship between restrained eating and higher body mass index. The authors also reported an association between restrained eating and weight gain.

2.3.3 Correlation between body dissatisfaction and disordered eating

Body dissatisfaction is a problem which is associated with disordered eating attitudes among adolescents (Brechan & Kvalem, 2015; Schulte & Thomas, 2013) and young adults (Cruz-Saez, Pascual, Wlodarczyk & Echeburua, 2018). A study conducted by Lim and You (2017) on the effects of self-esteem and depression on abnormal eating behavior among Korean female college students, indicated a positive correlation between body dissatisfaction and disordered eating. Also, Cruz-Saez et al., (2018) reported a highly positive association between body dissatisfaction and disordered eating among their study participants. This means that participants who reported higher levels of body dissatisfaction tended to have higher levels of disordered eating behaviors. On the contrary, Jonstang (2009) reported a strong negative correlation between body dissatisfaction and general eating disorder symptoms. This shows that participants whose scores were low on body dissatisfaction happened to have higher scores on disordered eating symptom.
However, extensive research has been conducted in the area of disordered eating using Western samples in comparison to a few studies in the gulf region and particularly in the UAE. Moreover, factors that promote and maintain disordered eating have been identified in previous literature (Yu & Perez, 2019; Stice, 2002) with college women reporting disordered eating behaviors and attitudes (Midlarsky & Nitzburg, 2008).

Considering all the findings on disordered eating, it is suggested that more research is needed to identify the contributing factors for disordered eating among college women. In addition to the etiological implications, research of this sort may contribute to the development of effective prevention and intervention programs for college women and females in general.

2.3.4 Body dissatisfaction and low self-esteem

According to Wood-Barcalow, Tylka and Augustus-Horvath (2010) individuals tend to have a positive body image when they appreciate and respect the features of their body. Thus, people with a positive body image who tend to resist the internalization of negative media information, are less prone to disordered eating behavior and have better self-esteem (Wood-Barcalow et al., 2010). A study by Wendell, Masudo, and Le (2012) indicated that rigid body image has an association with disordered eating attitudes. Thus, an understanding of the appearance flexibility concept may be useful in handling disordered eating behavior complications (Wendell, et al., 2012).

A study by Vartanian and Dey (2013) also reported that low self-esteem contributed to appearance issues because it increases women’s susceptibility to thin
internalization and appearance comparison propensities. Women who had an established intellectual schema that associated being thinner with positive attitudes reported more disordered eating behaviors (Ahern, Bennett & Hetherington, 2008). Ahern et al. (2008) further found that thin internalization significantly correlated with body dissatisfaction, drive for thinness, and restrained eating.

Moreover, low self-esteem has been described as a psychological characteristic of disordered eating. This is because individuals’ tendency to judge (negatively) their self-worth, exclusively in terms of their body shape/size, impacts on the effectiveness of treatment outcome (Murphy, Straebler & Fairburn, 2010). On the other hand, there appears to be a reduction in the relationship between body dissatisfaction and disordered eating symptoms in college-age women who tend to have high self-esteem (Dakanalis, Zanetti, Riva & Clerici, 2013). The interpretation of these findings could imply that, people with high self-esteem might be motivated to preserve their self-image by consciously rejecting comparisons with media standards of attractiveness than their low self-esteem counterparts (Aubrey, 2006). In addition, it is argued that, if high self-esteem individuals regardless of their gender tried to change their bodies, they are likely to use healthy methods (Twamley & Davis, 1999).

A more recent study conducted by Dakanalis et al. (2015) supported the findings of Dakanalis et al. (2013) where self-esteem acted as a buffer to disordered eating symptomatology was discussed. The results of Dakanalis et al. (2015), reported that despite gender differences in body image concerns in young adults, those who show higher levels of self-esteem seem to be able to dismiss their negative body image. This is because their other perceived strengths decrease the physiological need and related maladaptive eating and body shape control behaviors in an attempt to reach the
societal ideal body shape as a means of enhancing their overall self-worth (Aubrey, 2006; Twamley & Davis, 1999).

2.3.5 Body dissatisfaction and sociocultural factors

The sociocultural pressures regarding ideal body type are important influences on body dissatisfaction and body change behaviors (Xu, Mellor, Kiehne & Xu, 2010). The social comparison theory proposes that people have the tendency to compare themselves to others they consider to be superior, which explains why females compare themselves with thin models. The upward comparison usually results in negative feelings especially for those who are heavier than the model (Swami, Taylor & Carvalho, 2011). On the contrary, sociocultural factors are considered to be paramount in the development of disordered eating (Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999).

According to the sociocultural theory (Thompson et al., 1999), the beauty ideals of women are reinforced and transmitted by three sociocultural influences; family, peers and the media. Hence this account is referred to as the “tripartite influence model” (Shroff & Thompson, 2006). This model explains how the ideal female body is so excessively thin as to be virtually unattainable, leading many women to experience body dissatisfaction.

Eapen et al. (2006) found an association between disordered eating and having a family member with weight related problems or mental health problems. This is consistent with findings of Moorhead, Stashwick, Reinherz & Paradis (2003). who observed that, below the age of 15, families of children with disordered eating have histories of depression and eating problems. A Twin study by Klump, McGue &
Iacono (2000) revealed that disordered eating attitudes are not only familial but are genetically influenced and that this genetic influence is greater in 17-year-old twins. This can however be an interaction between biology, environment and behavioral risk factors in the development of eating disorders.

Furthermore, evidence from research conducted by Viernes, Zaidan, Dorvlo & Kumano (2007) showed that there is a difference in deliberate food restriction and dieting behavior among different cultural groups. The authors further suggested that non-Western adolescents had more tendencies for deliberate food restriction and dieting behavior than adolescents from Western cultures. Viernes et al. (2007) however concluded that preoccupation with food and dieting behavior in non-Western cultures is as common as those observed in Western cultures.

Viernes et al. (2007) used a sub scale from the Eating Disorder Inventory (Garner, Olmsted, Bohr & Garfinkel, 1982), the drive for thinness index to measure the presence or absence of fat phobia. The authors observed that perception of the body image is different in different cultures. For example, most of their sample, Euro-American teenagers, had strong desire or preoccupation with weight and body shape suggesting morbid fear of weight gain, excessive concern with dieting or a strong desire for thinness. This ideology was different for sample teenagers from Oman and the Philippines (Viernes et al., 2007).

2.3.6 The media as a source of body dissatisfaction and disordered eating

The intense pressure faced by women to look slender has led to a culture where negative body image and attempts to lose weight are high (Cash & Henry, 1995; Frederick, Forbes, Grigorian & Jarcho, 2007). Literature suggest that the mass media
and Western influences serve as risk factors for developing eating disorders, as adolescents and young adults’ model someone close to them who is on a regime to lose weight. Those exposed to Westernization in developing countries are more at risk of disordered eating than those who are not exposed, despite their cultural background (Nasser, 1986; Viernes et al., 2007). Studies with developed countries have shown that eating disorders are increasing at an alarming rate and thus posing health problems (Eapen et al., 2006).

A study conducted by Slevec and Tiggermann (2011) indicated media exposure to positively correlate with disordered eating and body image concerns. Television viewing and internet addiction was significantly associated with negative body image and disordered eating (Schooter & Trinh, 2011; Rodgers, Melioli, Laconi, Bui & Chabrol, 2013). The reading of a fashion magazine was also shown to have an impact on the internalization of the thin ideal, but not necessarily an impact on body dissatisfaction and disordered eating behavior (Rogers et al., 2013). In contrast, Levine and Murnen (2009) found magazine exposure to be more detrimental as compared to television viewing in their correlations with disordered eating and negative body image. Even though the media was found to have a contributing factor in the development of negative body image and disordered eating, Tiggermann, Verri & Scaravaggi (2005) suggested that, family structure, eating environment and cultural norms are additional factors that may impact vulnerability or resistance to media images.

Studies conducted in Egypt indicated that the more the women were exposed to TV fashion programs and magazines, the more they disliked their body shape (Regab, 2007). This finding revealed that media exposure was greatly associated with
body dissatisfaction among Egyptian women. In Jordan, Madanat, Brown & Hawks (2007) reported that media show cased the thin ideal in a way which negatively influenced body image and self-esteem. In Chile, Mellor, McCabe, Ricciardelli & Meino (2008) found that girls were not pressured from the media to look thin than their male counterparts who felt pressured from their peers to lose weight.

2.3.7 Mediating variables between body dissatisfaction and disordered eating

According to research data, body dissatisfaction, low self-esteem and depression are risk factors for the development and maintenance of disordered eating in both clinical and non-clinical samples (Cruz-Saez et al., 2018; Stice & Shaw, 2002). These findings imply that body dissatisfaction may directly or indirectly contribute to disordered eating behaviours among female university students. The incidence of depression and low self-esteem are also significant predictors of disordered eating (Cruz-Saez et al., 2018; Liechty & Lee, 2013). Additionally, the results of a study conducted in the UAE by Schulte & Thomas (2013) indicated that body dissatisfaction was linked to low self-esteem and depression, depression was a significant predictor of disordered eating in both males and females. However, Cruz-Saez et al. (2018) reported that, in addition to an indirect effect, through low self-esteem and depression, body dissatisfaction had a direct effect on disordered eating. Additionally, Wardle, Waller and Rapoport (2001) found a direct effect of body dissatisfaction on disordered eating in their study making dissatisfaction with one’s body, a unique significant risk factor in predicting eating disorders in females.

Moreover, a study conducted by Siegel (2002) on a sample of teenagers and a study by Brechan and Kvalem (2015) on university students suggested that low self-esteem and depression had a significant mediation effect in the relationship.
the other hand, Brechan and Kvalem (2015) did not find a direct effect of body dissatisfaction on restraint eating and binge eating. Thus, the authors finding can be explained by the cognitive behavioural theory (Fairburn, 2008; Fairburn, Shafran & Cooper, 1999). This theory thus, indicate the role of self-esteem and depression as mediators in the link between body dissatisfaction and disordered eating. This simply illustrate how serious body dissatisfaction is in predicting the onset and maintenance of low self-esteem, depressive symptoms and disordered eating among female university students.

Another study by Beatrix, Gyöngyi, Róbert & Zsolt (2013) on a sample of young adults (14-31 years) reported self-esteem to partially mediate the link between body dissatisfaction and anxiety, and completely mediated the relationship between body dissatisfaction and depression. Also, Duchesne, Dion, Lalande and McDuf (2017) found that the mediating effect of self-esteem was full for both variables. Hence, female university students who develops low self-esteem as a result of not being dissatisfied with their body, have the tendency of developing anxiety related issues and depressive symptoms.

A study conducted by Courtney, Gamboz and Johnson (2008) on a sample of adolescents with low self-esteem and depressive symptoms, indicated that the relationship between low self-esteem and disordered eating habits was partially mediated by depressive symptoms in subjects of both genders. Thus, regarding the literature, even though body dissatisfaction could be a risk factor, it is not a unique risk factor for the development of disordered eating behaviours.

There are research providing significant evidence supporting the notion that depression and self-esteem mediate the relationship between body dissatisfaction and
disordered eating (Cruz-Saez et al., 2018; Brechan & Kvalem, 2015; Jonstang, 2009). However, McCabe and Ricciardelli (2006) findings did not support this mediatory role of depression and self-esteem in predicting disordered eating in longitudinal studies. This inconsistency in the finding of research may, perhaps be explained by methodological limitations (Jonstang, 2009). One purpose of this study partly is to examine the correlation between body dissatisfaction and disordered eating and to investigate the mediatory role of depression and self-esteem in the relationship between body dissatisfaction and disordered eating.

2.4 Significance of the study

This present study is significant because, it may assist clinicians or counsellors at university clinics, to identify students who are at risk of developing disordered eating, after assessing for body dissatisfaction. It will also help clinicians or counsellors to understand which mediating variables (depression and low self-esteem) to assess, in order to identify at risk students. This area of research will add to the body of literature in exploring how variables interact to predict disordered eating symptomatology as most studies examine merely correlates of disordered eating (Kashubeck-West & Mintz, 2001). Additionally, the findings of this study may be included in the abnormal psychology courses for undergraduate students and advanced psychopathology courses for master’s in clinical psychology students. In doing so, there will be an increase in the awareness creation on the dangers involved with developing body dissatisfaction and disordered eating behaviors.
Chapter 3: Methods

3.1 Research method

The objectives of this study were to examine the relationship between body dissatisfaction and disordered eating, and to examine whether depression and self-esteem will mediate the relationship between body dissatisfaction and disordered eating attitudes among female young adults (18-30 years). It is a quantitative, questionnaire-based study where a survey design was employed. According to Maree (2011) a quantitative research is a systematic and objective process in which numerical data obtained from a selected subgroup of a population are collected to generalize the findings to the population that is being studied.

3.2 Research design

A survey was employed in the current study to examine the attitudes and emotions of participants regarding their body image concerns, emotions and attitudes towards food. McMillan and Schumacher (2001, p. 602) defined a survey research as “the assessment of the current status, opinions, beliefs, and attitudes by questionnaires or interviews from a known population”.

3.2.1 Participants

The study sample composed of a total of 186 non-clinical (students not clinically diagnosed of having either Anorexia nervosa or Bulimia nervosa) undergraduate and master’s female students between the ages of 18 and 30 years. This sample size was selected in order to attain an adequate statistical power during the analysis of the data. Thus, test statistics are usually influenced by sample size as they perform poorly on smaller samples (Hu & Bentler, 1998). Convenience sampling method was used to
select the study participants. This sampling method was chosen because, it enabled the selection of participants, who could provide information required for the study. In this case female UAEU students from the psychology and other academic departments, constituted the study population.

The participants were non-randomly selected and contacted either individually or in groups at the cafeteria or lecture halls, from the various academic departments at UAEU. All participants were requested to provide demographic information such as age, nationality, year of study, marital status, and socio-economic status. They were also requested to complete, standardized questionnaires (Body-image ideals questionnaire, eating attitude test, Rosenberg self-esteem scale and Beck depression inventory), which were used in the collection of data.

3.3 Data collection

3.3.1 Materials

A battery of self-report measures were used to collect data on participant’s level of body image dissatisfaction, disordered eating attitudes, global self-esteem and depression. The battery consisted of the following instruments:

3.3.2 Body-Image Ideals Questionnaire (BIQ)

Body dissatisfaction was measured with the expanded version of the BIQ (Appendix A) by Szymanski and Cash (1995). The BIQ consist of 21-items and assesses the self-perceived discrepancies from, and importance of, internalized ideals for 10 physical characteristics (e.g., height, weight, and muscle tone) and overall physical appearance. The self-discrepancy subscale of the BIQ was used to assess body dissatisfaction (Brechan & Kvalem, 2015). The scale was scored based on a four-point
Likert scale ranging from 0 (Exactly as I am), 1 (Almost as I am), 2 (Fairly unlike me) and 3 (Very unlike me). However, 0 is scored as -1 on the BIQ. The mean score of the 11-item Body-Image Discrepancy subscale was used as a measure of body dissatisfaction (Brechan & Kvalem, 2015). Score above 22 was regarded as having body dissatisfaction. The importance of each ideal is scored on a four-point Likert scale from 0 (Not important), 1 (Somewhat important), 2 (Moderately important) and 3 (Very important). However, body importance was not assessed in this study, thus the body importance subscale of the BIQ was not used.

According to Szymanski and Cash (1995) the reliability and validity of the 21-item measure were examined for 284 college women, the results indicated that the BIQ consists of two relatively distinct and internally consistent Discrepancy and Importance subscales. The BIQ is considered and demonstrated to have satisfactory reliability, with a reported alpha coefficient values ranging from 0.75 to 0.95 (Cash & Szymanski, 1995; Szymanski & Cash, 1995) and more recently an alpha coefficient values of 0.75 and 0.76 for women and men respectively (Lee, 2016). The pilot study with a sample size of 20, yielded Cronbach alpha values of 0.80 whereas the actual study yielded Cronbach alpha values of 0.78 for the self-discrepancy subscale. This therefore makes the BIQ self-discrepancy subscale reliable for assessing, body dissatisfaction in the population of this study.

3.3.3 Eating Attitude Test-26 (EAT-26)

Disordered eating was measured using the 26-item self-report Eating Attitude Test (EAT-26) (Garner, Olmsted, Bohr & Garfinkel, 1982). This test was originally developed to assess for symptoms of anorexia. The EAT-26 is widely used in research with clinical and non-clinical samples. It is also used as a screening tool for eating
disorders and has an accuracy of 90% when measured against diagnostic interview based on DSM (IV) criteria (Mintz & O’Halloran, 2000). The EAT-26 scale (Appendix B) has been correlated with other scales and established to have internal validity regarding its usefulness in identifying eating disorders. Although many studies examine a variety of variables and their association with EAT-26, depression scores (Beck Depression Inventory (BDI)) appear to be the most widely utilized (Gitimu et al., 2016). Studies suggest that a positive relationship exist between depressive symptoms (using the BDI) and eating disorders demonstrated by higher scores on the EAT-26 (Ahmadi, Moloodi, Zarbaksh & Ghaderi, 2014; Erol, Toprak & Yazici, 2006).

The EAT-26 is extensively used as a measure of identifying the presence of symptoms that are consistent with either a possible eating disorder or disordered eating behavior. It comprises four dimensions, which include dieting, bulimia, food preoccupation and oral control. An example of a question in EAT-26 is “I have gone on eating binges where I feel that I may not be able to stop”. The scale has 26 items scored on a 6-point Likert scale with Always (scored 3), Usually (scored 2), Often (scored 1), Sometimes (0), Rarely (0) and Never (0). Only item 25 was reversed. A total score at or above 20, indicates potentially problematic eating disturbances (Park & Beaudet, 2007). An individual’s total score of the EAT-26 was used to obtain his/her disordered eating attitude (Garner et al., 1982). The EAT-26 has been tested to a high degree with a correlation coefficient of .90 (Garner et al., 1982). The EAT-26 has also established adequate internal consistency, Cronbach’s alpha value of 0.90 and correlate with EAT- 40 (r = 0.98), (Garner et al., 1982). The present study reported Cronbach’s alpha value of 0.91 for the pilot study and 0.87 for the actual study. This indicates that, the EAT-26 is reliable for the population in the study.
3.3.4 Rosenberg Self-Esteem Scale (SES)

The Rosenberg Self-Esteem Scale (SES) was used to measure global self-esteem (Rosenberg, 1965). This scale is a 10-item questionnaire (Appendix C). Previous studies have found satisfactory internal consistency reliability with Cronbach’s coefficient alpha of, for example, 0.81 (Bosson, Pinel & Thompson, 2008), 0.88 (Jarry & Kossert, 2007) and 0.92 (Rosenberg, 1979). Recently, Lee (2016) reported an alpha coefficient value of 0.89 and 0.88 for women and men respectively. In addition, this study found Cronbach alpha values of 0.88 for the pilot study and 0.82 for the actual study. The Test-retest reliability for a two-week interval, was calculated at 0.85, and a seven-month interval calculated at 0.63 (Shorkey & White, 1978). Also, a one-week test-retest reliability coefficient value of 0.82 was reported by Fleming & Courtney (1984).

Participants indicate their level of agreement or disagreement with each item along a four-point Likert scale, with scores ranging from Strongly Disagree (0), Disagree (1), Agree (2) and Strongly Agree (3). Sample items include “I feel that I have a number of good qualities” and “I feel I do not have much to be proud of”. Items 3, 5, 8, 9 and 10 were reversed. The total score on the SES was used to assess an individual’s global self-esteem. A low score (SES < 15) indicate low self-esteem while a higher score (SES > 15) depicts high self-esteem.

3.3.5 Beck Depression Inventory (BDI)

The BDI is a 21-item self-report scale (Appendix D) designed to measure various affective, cognitive, physical, and behavioral indices of depression (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Respondents are asked to evaluate their
experiences in these domains over the past two weeks and rate the intensity of their experiences on a scale from 0 to 3. The total scores for the BDI was used as a measure of depressive symptoms. Higher scores (21-30) are indicative of more depressive symptoms. The BDI has shown high construct validity with the medical symptoms it measures. Beck study reported a coefficient alpha rating of 0.92 for outpatients and .93 for college student samples. The BDI positively correlated with the Hamilton depression scale, $r = 0.71$, had a week test-retest reliability of $r = 0.93$ and an internal consistency of alpha 0.91. The present study also identified Cronbash’s alpha value of 0.91 for the pilot study and 0.91 for the actual study, making the BDI to be highly reliable for use with the population in this study. Refer to appendices attached for samples of instruments for measurement of variables.

### 3.3.6 Procedure

A research proposal was first submitted online to the UAEU Ethical Committee for approval before the commencement of the study (Appendix E). This was to ensure that the study complied with the university’s ethical guidelines. After the approval of the study, participants were contacted either individually or in groups at the cafeteria or their classrooms after their lecture. The participants were briefed about the nature of the study. They were also informed about the voluntary nature of the study, as they were free to withdraw their participation at any stage of the study. No incentives were provided to motivate students to participate and those who failed to participate were not penalized. Issues regarding confidentiality were discussed and the anonymity of the participants were maintained as they were not required to provide their names.

The participants were requested to complete a consent form before they could participate in the study (Appendix F). These consents were to ensure that the UAEU
is not held responsible for any allegations following the completion of the survey. Upon receipt of the consent forms, participants were provided with a pocket containing a sheet for demographic information, and the standardized measures to complete. The measures were: Body Image-Ideal Questionnaire (BIQ), Eating Attitude Test (EAT-26), the Rosenberg self-esteem scale and the Beck’s depression inventory. Data collected were kept safely for analysis.
Chapter 4: Results

4.1 Introduction

The data was analyzed using the Structural Equation Model (SEM) using Linear Structural Relations (LISREL) 8.8 software. The analysis that was performed on the data, to obtain the results included the correlation and mediation analysis. The correlation analysis was done to determine, whether there was a relationship between body dissatisfaction and disordered eating according to the first hypothesis. Secondly, SEM was performed to determine whether there was a mediating effect of low self-esteem and depression on disordered eating, among female university students according to the second and third hypothesis.

The results in this study were analyzed and presented using both descriptive and inferential statistics. Descriptive statistics according to Maree and Pietersen (2011, p.183) is a collective name for several statistical methods that are used to organize and summarize data in a meaningful way, which serves to enhance the understanding of the properties of the data. Inferential statistics on the other hand, according to (Pretorius, 2007, p. 204) is statistics which is concerned with generalizing from the sample to the population, a field of statistics that relies heavily on probability theory. Thus, it is by means of probability statements that inferences are made as one cannot report anything about a whole population with certainty, if it is only based on the sample (Maree & Pietersen, 2011, p.145).
4.2 Preliminary analysis

4.2.1 Participant demographic information

Participants of the present study constituted a total of 186 undergraduate and master’s female students, from the various academic departments of UAEU. The 186 participants completed all items on the questionnaires presented to them. The completed questionnaires were used to organize and analyze the data. Out of the total number of 186 participants, 168 (90.3%) were between the ages of 18-24 years, whereas 18 (9.7%) participants were between the ages of 25-30 years. In terms of nationality, 152 (81.7%) of the study sample were Emiratis, whereas 34 (18.3%) participants constituted other nationalities.

Out of the 186 participants, 37 (19.9%) were in their first year of study, 26 (14%) were in their second year of study, 37 (19.9%) were in their third year of study, 70 (37.6%) were in their fourth year of study and 16 (8.6%) constituted Masters students. In addition, 157 (84.4%) of the study participants were singles (not married), 23 (12.4%) were married, 2 (1.1%) were divorced and 4 (2.2%) were widowed. Also 25 (13.4%) of the study participants were from a high-income family background, 151 (81.2%) were from a middle-income family background and 10 (5.4%) were from a low-income background.

4.2.2 Descriptive results

The mean score of the 11-item Body-Image Discrepancy subscale was used as a measure of body dissatisfaction (Brechan & Kvalem, 2015) in the analysis of data. Scores greater than 22 (score < 22) were considered as body dissatisfaction. The mean score of the study participants on the BIQ was (M = 9.74, SD = 7.66) The score
indicates that, the majority of the study participants reported satisfaction with their bodies. The top four concerns of the body that participants endorsed as being dissatisfied with, were weight (12.92%), physical strength (12.91%), muscle tone (12.43%), hair texture and thickness (9.7%). See Table 1.

Table 1: The four most body image concern

<table>
<thead>
<tr>
<th>Body image concern</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>12.92</td>
</tr>
<tr>
<td>Physical strength</td>
<td>12.91</td>
</tr>
<tr>
<td>Muscle tone</td>
<td>12.43</td>
</tr>
<tr>
<td>Hair texture and thickness</td>
<td>9.70</td>
</tr>
</tbody>
</table>

Scores for the Eating Attitudes Test-26 (EAT-26), representing an individual’s disordered eating behavior was computed by obtaining a total score of the 26-items (Garner et al., 1982). The sample yielded a mean score of (M=20.65, SD =13.45). Thus, score >20, indicates majority of the study participants may be engaging in unhealthy eating practices. In addition, the total scores for the Beck Depression Inventory (BDI) was used as a measure of depressive symptoms. The BDI yielded a mean score of (M=16.89, SD=11.43) for the sample. The sample mean score of 16.89 on the BDI, fell within borderline clinical depression range (i.e. 17-20). Finally, the total score on the Rosenberg Self-esteem Scale (SES) was used to assess an individual’s level of global self-esteem. The mean score of participants on the SES was (M=19.11, SD = 5.9). indicating high self-esteem (i.e. score >15). In other words, most participants are said to have high self-esteem. See Table 2.
Table 2: Descriptive results for respondents on research measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (M)</th>
<th>Standard Deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIQ $^1$</td>
<td>9.74</td>
<td>7.66</td>
</tr>
<tr>
<td>EAT-26$^2$</td>
<td>20.65</td>
<td>13.45</td>
</tr>
<tr>
<td>BDI$^3$</td>
<td>16.89</td>
<td>11.43</td>
</tr>
<tr>
<td>SES$^4$</td>
<td>19.11</td>
<td>5.90</td>
</tr>
</tbody>
</table>

$^1$Scores above 22 indicates body dissatisfaction whereas scores below 22 depicts satisfaction with the body.

$^2$Scores above 20 on the EAT-26, denotes disordered eating attitude and below 20 denotes normal eating attitudes.

$^3$Scores in the range of 17-20 on the BDI implies borderline clinical depression.

$^4$Scores below 15 on the SES indicates low self-esteem and above 15 high self-esteem.

4.3 Inferential statistics results

4.3.1 Correlation between body dissatisfaction, self-esteem, depression and disordered eating

The correlation was conducted to ascertain the associations between all the research variables (body dissatisfaction, self-esteem, depression and disordered eating). Correlations were two tailed, and p-values < 0.05 were considered to be statistically significant (See Table 3). The correlations result in Table 3 revealed that, there were statistically significant ($p < 0.05$) correlations between body dissatisfaction and all the three measures, namely self-esteem, depression and disordered eating.
4.3.2 Correlation between body dissatisfaction and disordered eating (Hypothesis 1)

There was a statistically significant positive relationship ($r (184) = 0.19$, $p < 0.05$) between body dissatisfaction and disordered eating (Table 3). This finding confirmed the first hypothesis, though the correlation was low. This implies that, the more an individual becomes dissatisfied with her body, the more probable she will engage in disordered eating behavior.

Correlation between body dissatisfaction and self-esteem: A significant negative correlation ($r (184) = -0.23$, $p < 0.01$) did exist between body dissatisfaction and self-esteem, meaning that, the higher the self-esteem of an individual, the lesser the probability that, the person will be dissatisfied with the body (Table 3).

Correlation between body dissatisfaction and depression: Furthermore, a significant positive correlation ($r (184) = 0.16$, $p < 0.05$) exist between body dissatisfaction and depression, which indicate that, the more dissatisfied an individual is with her body, the more probable depressed she will become.

Correlation between depression and disordered eating: Additionally, a moderate positive significant relationship ($r (184) = 0.45$, $p < 0.01$) between depressive symptoms and disordered eating symptomatology was observed (Table 3). This shows that, the more depressed a person is, the higher the likelihood that, she will engage in disordered eating.

Correlation between self-esteem and disordered eating: Moreover, the correlation between self-esteem and disordered eating was significant and negative ($r (184) = -0.19$, $p < 0.01$) thus, the higher the self-esteem of a person, the lesser the likelihood that the person will engage in disordered eating behaviors.
Table 3: Results of the Correlations between body dissatisfaction, depression, self-esteem and disordered eating

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body dissatisfaction</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disordered eating</td>
<td>.19*</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>.16*</td>
<td>.45**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Self-esteem</td>
<td>-.23**</td>
<td>-.19**</td>
<td>-.50**</td>
<td></td>
</tr>
</tbody>
</table>

**Correlation is significant, p < 0.01 (2-tailed)    *Correlation is significant, p < 0.05 (2-tailed)

Correlation between self-esteem and depression: It can also be observed from table 3 that, there was a moderate negative significant relationship ($r (184) = -0.50, p < 0.01$) between depressive symptoms and self-esteem, which was the highest among all the correlations, implying that, the higher the self-esteem of an individual, the less likely depressed she will be.

4.3.3 Predicting disordered eating symptoms using structural equation modeling

The mediation analysis of the research data was carried out based on the Structural Equation Model (SEM). The research model in Figure 2, was based on the hypothesis that, self-esteem and depression will significantly mediate the relationship between body dissatisfaction and disordered eating. This means that, when an individual becomes dissatisfied with her body, there is the tendency for this fellow to develop low self-esteem or depressive symptoms, which will probably cause her to engage in disordered eating behaviors. This however represents the proposed model for the SEM (Figure 2), and the chi-square goodness-of-fit test, of the model was
The chi-square goodness-of-fit test is a statistical method that uses the chi-square test statistic, to evaluate the tenability of a null hypothesis (Denis, 2016, p.92). 

In order to study the model fitness, the absolute fit indices that is the Chi-square ($X^2$), Chi-square to degree of freedom ($X^2/df$), Goodness of Fit Index (GFI), Adjusted fitness index (AGFI) and the Root Mean Square Error of Approximation (RMSEA) were used. The Chi-square index to degree of freedom, values of less than 2.5 represent the goodness of fit of the model (Kakhki, Rajabi, Naji, Aseman Doreh & Harati, 2019). The RMSEA between 0.05 and 0.08 have goodness of fit within the data, while the model with RMSEA more than 0.10 have poor fitness. Goodness of Fit Index (GFI) and Adjusted Fitness Index (AGFI) range from zero to one, and coefficients above 0.9 are acceptable (Hooman, 2005). Table 4 shows the values of the model fit indices.

Figure 2: The proposed research structural equation model

Body dissatisfaction

Low self-esteem

Disordered eating

Depression
Table 4: The fit indicators of the research model

<table>
<thead>
<tr>
<th>Factor</th>
<th>Obtained value</th>
<th>Accepted value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>X²/df</td>
<td>18.71</td>
<td>Less than 2.5</td>
<td>Poor</td>
</tr>
<tr>
<td>fit</td>
<td>RMSEA</td>
<td>Less than 0.08</td>
<td>Poor</td>
</tr>
<tr>
<td>GFI</td>
<td>0.89</td>
<td>Greater than 0.90</td>
<td>Poor</td>
</tr>
<tr>
<td>AGFI</td>
<td>-0.06</td>
<td>Greater than 0.90</td>
<td>Poor</td>
</tr>
</tbody>
</table>

Observations made from the fit indices of the research model (Table 4), shows the absolute indices of fit of the model was (18.71) and the RMSEA was 0.16. Based on this output, the desired model was not confirmed. In addition, according to the value obtained from the RMSEA index, which was greater than the recommended value of 0.08. it was concluded that the degree of approximation in the population was very large, so the model was not confirmed.

The reason for this could be due to the instruments used in the collection of data. Even though the instruments were standardized, and pilot studied before use, they were not normed for the Arabic population but for western samples. In addition, self-disclosure is not an acceptable behavior in an Arab culture (Al-Darmaki, 2003). This could probably have had an influence in the way participants responded to the measures, which taps into people’s personal and emotional issues. The Arab culture encourages that one’s emotional and personal concerns should be shared with families only, and not with outsiders (Al-Darmaki, 2003).
On the other hand, Table 5 and Figure 3 shows the information obtained from the direct coefficients, indirect coefficients and the T-values of all the variables (body dissatisfaction, low self-esteem, depression and disordered eating) in the research model. According to Stevens (1996), T-values greater than 2 or smaller than -2, are considered to be significant.

Table 5: Direct and indirect effects of variables in the research model

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Dependent variable</th>
<th>Direct effect</th>
<th>Indirect effect</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body dissatisfaction</td>
<td>Disordered eating</td>
<td>0.12</td>
<td></td>
<td>1.87</td>
</tr>
<tr>
<td></td>
<td>Low self-esteem*</td>
<td>-0.01</td>
<td></td>
<td>1.44</td>
</tr>
<tr>
<td></td>
<td>Depression*</td>
<td>0.23</td>
<td></td>
<td>4.89</td>
</tr>
<tr>
<td></td>
<td>Low self-esteem</td>
<td>-0.22</td>
<td></td>
<td>-3.17</td>
</tr>
<tr>
<td></td>
<td>Depression</td>
<td>0.16</td>
<td></td>
<td>2.14</td>
</tr>
<tr>
<td>Low self-esteem</td>
<td>Disordered eating</td>
<td>0.07</td>
<td></td>
<td>1.05</td>
</tr>
<tr>
<td>Depression</td>
<td>Disordered eating</td>
<td>0.47</td>
<td></td>
<td>6.71</td>
</tr>
</tbody>
</table>

*Mediation variables

Thus, from the results of the structural equation, as shown in Table 5 and figure 3, the prediction of Body dissatisfaction on disordered eating with coefficient value of 0.12 (T= 1.87) was not significant. Hence body dissatisfaction did not predict disordered eating. Moreover, body dissatisfaction, did predict low self-esteem as the T-value was greater than 2 with a coefficient value of -0.22 (T= -3.17). On the other hand, low self-esteem did not predict disordered eating, as the T-value was not significant, coefficient value of 0.07 (T= 1.05). Body dissatisfaction, predicted
depression with coefficient value of 0.16 (T= 2.14) and depression in turn, predicted disordered eating, with coefficient value 0.47 (T= 6.71). Thus, the indirect effect of low self-esteem, in the relationship between body dissatisfaction and disordered eating had a coefficient value of 0.01 (T= 1.43), hence it was not significant. However, the indirect effect of depression in the relationship, yielded a coefficient value of 0.23 (T= 4.88), which is significant. The prediction of depression on disordered eating had the most effect than body dissatisfaction and self-esteem.

The research model therefore showed that, body dissatisfaction did not have significant direct effect on disordered eating. This imply that body dissatisfaction does not necessarily predict disordered eating. Hence when a person has body image concerns, there is the likelihood that she will not engage in disordered eating. Additionally, body dissatisfaction did not have an indirect effect on disordered eating through self-esteem. Even though body dissatisfaction predicted low self-esteem, low self-esteem in turn did not predict disordered eating. Thus, self-esteem did not mediate the relationship between body dissatisfaction and disordered eating.

![Figure 3: The model of the research structural equation (path coefficients)](image-url)
This however imply that; an individual is likely to develop low self-esteem as a result of not being satisfied with her body image. On the other hand, there is the likelihood that, this individual who have developed low self-esteem as a result of negative body image, may not engage in disordered eating behaviors. This finding is not consistent with other studies (Brechan & Kvalem, 2015; Jonstang, 2009) and could be as a result of the differences in culture or differences in methodology used in the analysis of data.

On the other hand, body dissatisfaction had an indirect effect on disordered eating through depression. Thus, body dissatisfaction predicted depressive symptoms and depression in turn predicted disordered eating. Hence, depression was found to be a mediator in the link between body dissatisfaction and disordered eating. This finding, however, indicates that individuals who are dissatisfied with their body, are likely to experience depressive symptoms, which are likely to cause them to engage in disordered eating habits.
Chapter 5: Discussion

5.1 Discussions

The present study examined the correlation between body dissatisfaction and disordered eating symptomatology and the direct and indirect effect of body dissatisfaction on disordered eating through low self-esteem and depression. Body dissatisfaction was found to significantly correlate with all the variables (self-esteem, depression and disordered eating). There was also a significant relationship between the mediating variables (low self-esteem and depression) and disordered eating.

Moreover, depression significantly predicted disordered eating symptoms more than low self-esteem and body dissatisfaction. Depression therefore explained significantly more of the variance in disordered eating symptoms than body dissatisfaction and low self-esteem. Thus, female university students who experienced depressive symptoms as a result of negative perceptions about their bodies were likely to engage in harmful eating habits.

5.2 Relationship between body dissatisfaction and disordered eating

The findings in this present study show a positive significant relationship between body dissatisfaction and disordered eating symptomatology. Therefore, the first hypothesis in this study, stating that “There is a significant relationship between body dissatisfaction and disordered eating” is accepted. This result supports several previous studies but do not support Brechan & Kvalem (2015). For instance, body dissatisfaction was extensively established to be significantly correlated with disordered eating among females (Yu & Perez, 2019; Cruz-Saez et al., 2018; Lim & You, 2017). Hence participants in this study who reported higher body image concerns
could probably be engaging in unhealthy eating habits such as restraint eating, binging or purging. This result could also explain why body dissatisfaction is a greater risk factor for engaging in disordered eating behaviors among female adolescents and young adults (Yu & Perez, 2019; Brechan & Kvalem, 2015).

Moreover, the reason why higher levels of body dissatisfaction in female university students in developing countries like the UAE, is associated with higher levels of unhealthy eating behaviors (e.g. fasting, binge eating, purging) could be due to their exposure to western cultures, whereby such practices are used to attain the thin ideal body size which is considered as attractive (Doumit et al., 2018; Radwan et al., 2018; Rodgers et al., 2013; Slevec & Tiggermann, 2011; Schooter & Trinh, 2011). For example, in Egypt, which is an Arab nation and a developing country, Regab (2007) found that television fashion programs, caused a high level of discrepancy between the actual and ideal self of women.

This finding supports the social comparison theory (Festinger, 1954). This theory explains that participants might be involved with upward comparison, as they compare their body shapes to that of thin models, portrayed on television as beauty and thus in turn become dissatisfied with their body. Thus, in order to attain the standards of the thin ideal body, and to address the problem with body dissatisfaction, one is likely to engage in disordered eating attitudes. However, there are factors that can serve as a buffer against media influences which promote the development of body dissatisfaction and disordered eating. These factors may include the family structure, eating environment and cultural norms which may have an influence on the vulnerability of a person to media images (Tiggermann et al., 2005).
5.3 Direct effect of body dissatisfaction on disordered eating

In the present study, body dissatisfaction did not have direct effect on disordered eating. This finding was consistent with Brechan and Kvalem (2015) and inconsistent with other previous studies (Cruz-Saez et al., 2018; Turel et al., 2018; Schulte, 2016). Thus, in the sample of UAE female university students, having body image concerns did not cause participants to engage in disordered eating. However, the conclusion of this result further confirms the cognitive behavioral theory (Fairburn, 2008; Fairburn et al., 1999). The theory stipulates that the effect of body dissatisfaction on disordered eating behavior is an indirect effect mediated through self-esteem and depression. Hence participants may only be involved with unhealthy eating practices only if they develop depressive symptoms and low self-esteem. This finding should however be interpreted with caution as non-clinical female students comprised the study sample.

5.4 The role of body dissatisfaction in predicting low self-esteem

In the present study, it was found that body dissatisfaction predicted low self-esteem. This confirmed both the theory of self-discrepancy (Haggins, 1987) and other previous studies (Schulte & Thomas, 2013; Duchesne et al., 2017; Brechan & Kvalem, 2015; Beatrix et al., 2013; Gitimu et al., 2016; Dakanalis et al., 2015; Vartanian & Dey, 2013). The self-discrepancy theory postulates that a conflict between an individual’s actual and ideal appearance may led to low self-esteem. However, Vartanian and Dey (2013) suggested that, appearance issues contribute to low self-esteem because it increases women’s susceptibility to thin internalization and appearance comparison. These findings imply that female university students are likely to develop low self-esteem, as they struggle to meet the standards of individuals, they consider to be ideal, when they engage in appearance comparison.
5.4.1 The role of low self-esteem in predicting disordered eating attitudes

It was found in this study that, low self-esteem did not predict disordered eating which was inconsistent with other findings (Cruz-Saez et al., 2018; Brechan & Kvalem, 2015; Liechty & Lee, 2013). The reason for this result could be because, most of the participants had high self-esteem as the average score on the SES was above 15 (SES > 15). Thus, according to Dakanalis et al. (2013) there is a reduction in the relationship between body dissatisfaction and disordered eating symptoms among college students who have high self-esteem. However low self-esteem has been found by previous literature (Puccio et al., 2016; Jung-Hee et al., 2001) to correlate with disordered eating attitudes and thus considered to be a risk factor in disordered eating behaviors.

5.4.2 Mediating effect of low self-esteem in the relationship between body dissatisfaction and disordered eating

The results of the present study found body image concerns to predict low self-esteem but on the contrary, low self-esteem did not predict unhealthy eating behaviors. Hence in consideration of the sequential hypothetical model, low self-esteem did not mediate the link between body dissatisfaction and disordered eating. This imply that body dissatisfaction did not have an indirect effect on disordered eating through low self-esteem Thus, the second hypothesis was not confirmed and therefore rejected. This result is similar to that of Dakanalis et al. (2015), and contradicted others (Cruz-Saez et al., 2018; Brechan & Kvalem, 2015; Beatrix et al., 2013). In regard to the present finding, the reason for the difference could be that low self-esteem reported by participants could be due to other unknown factors, other than being dissatisfied with their body. The result could also be attributed to the differences in the types of methods.
used. Further studies are required to explore the contributing factors of low self-esteem in UAE female students in order to provide good intervention strategies.

5.5 The role of body dissatisfaction in predicting depression

This study found that body dissatisfaction predicted depressive symptoms. This implies that body dissatisfaction has the tendency of inducing depressive symptoms in participants. This finding confirms several previous studies (Cruz-Saez et al., 2018; Doumit et al., 2018; Turel et al., 2018; Liechty & Lee, 2013; Schulte & Thomas, 2013). For instance, Schulte & Thomas (2013) found in their UAE study participants that, those who reported having body image concerns also reported depressive symptoms. In this regard, Cash (2002) suggested that negative body image do not only promote disordered eating habits, which was not found in this study, but also provokes depressive symptoms. However, result reported by Davison & McCabe (2006) contradicts this finding, suggesting body dissatisfaction to be unrelated to depressive symptomatology. The contrast in Davison & McCabe (2006) findings and the result in this study may be attributed to the gender difference in the study samples, as the authors included both males and females. In support of this argument, Davison & McCabe (2006) indicated that females experienced more depressive symptoms than males in relation to body dissatisfaction (Davison & McCabe, 2006).

5.5.1 The role of depression in predicting disordered eating

Depression was found to predict disordered eating in the present study. This finding confirms previous body of literature which argued that depressive symptomatology predicts disordered eating (Cruz-Saez et al., 2018; Turel et al., 2018; Doumit et al., 2018; Schulte & Thomas, 2013; Liechty & Lee, 2013). Similarly, Phillip
et al. (2015) discovered that female university students reported their disordered eating attitudes to be as a result of stress. In addition, other studies showed that boredom and negative emotional state, were reported by women to be the cause of their engagement with disordered eating behaviors (Phillips et al., 2015). Furthermore, depression is said to be the key feature of disordered eating among female college women (Mason & Lewis, 2014; Reslan & Saules, 2011).

5.5.2 Mediating effect of depression in the relationship between body dissatisfaction and disordered eating

The results of this present study indicate that body dissatisfaction predicts depression. This finding is consistent with several studies on the subject (Cruz-Saez et al., 2018; Johnson & Wardle, 2005; Tiggemann, 2004; Cooley & Toray, 2001). However, Davison & McCabe (2006) reported contradictory findings indicating that body dissatisfaction does not predict depression among females and males. This contradiction suggests that the present finding should be studied over time to establish the persistent role of body dissatisfaction on depression. Moreover, it was found that depression predicts disordered eating. This is also consistent with previous research which indicated that depressive symptoms have direct effect on disordered eating (Cruz-Saez et al., 2018; Brechan & Kvalen, 2015; Liechty & Lee, 2013; Schulte & Thomas, 2013).

As a result, this study further points to the fact that depression has a mediation effect on the relationship between body dissatisfaction and disordered eating. This implies that body dissatisfaction has an indirect effect on disordered eating through depression. Thus, participants became depressed after developing negative body image which later lead them into unhealthy eating habits. This result affirms the third
hypothesis that “depression will have a mediation effect on the relationship between body dissatisfaction and disordered eating”. The finding is consistent with previous studies (Cruz-Saez et al., 2018; Brechan & Kvalem, 2015; Liechty & Lee, 2013). It therefore suggests that depression is a stronger mediator variable in predicting disordered eating in female university students. Thus, in an effort to provide intervention strategies for disordered eating, counselors and therapist can first start by treating depressive symptoms of female university students.

5.6 Conclusion, implications and recommendations

5.6.1 Recap of key findings

The aim of this study was to investigate the relationship between body dissatisfaction and disordered eating and to determine whether low self-esteem and depression mediated this relationship. The key findings in this study were as follows:

- Body dissatisfaction positively correlated with disordered eating:

This implies that body dissatisfaction has a relationship with disordered eating. That is the higher the level of dissatisfaction a participant has with his/her body, the higher the likelihood that he/she may engage in disordered eating. This finding is supported by many previous studies (Johnson & Wardle, 2005; Tiggemann, 2004; Cooley & Toray, 2001). This may explain why body dissatisfaction is a greater risk factor for engaging in disordered eating among females than in males (Ricciardelli & McCabe, 2004). However, Davison & McCabe (2006) found no correlation between body dissatisfaction and disordered eating.
• Low self-esteem did not mediate the relationship between body dissatisfaction and disordered eating

There is no mediation effect of low self-esteem in predicting disordered eating. This conclusion confirmed findings of Dakanalis et al. (2015). However, other studies reported significant evidence in support of the mediating effect of low self-esteem in the relationship between body dissatisfaction and disordered eating (Cruz-Saez et al., 2018; Brechan & Kvalem, 2015; Beatrix et al., 2013).

• Depression had a mediation effect on the relationship between body dissatisfaction and disordered eating

The effect of mediation for depression was found to be complete in predicting disordered eating. This result suggests that depression is a stronger mediator variable in predicting disordered eating. This means that if a participant is depressed, he/she is likely going to engage in disordered eating. Similarly, Brechan and Kvalem (2015) though found no correlation between body dissatisfaction and disordered eating, yet they argued that body dissatisfaction had an indirect effect on disordered eating through depression.

5.6.2 Applications and implications of the study findings

Empirical studies in the field of body dissatisfaction and disordered eating remain limited in UAE and in the Arab world in general (Schulte, 2016). Research on mediation effect of depression and self-esteem is extremely scarce. This is the major weakness in the literature, a gap that this study has successfully addressed with striking empirical evidence.
Furthermore, the significance of this research is premised in its contribution to the development of effective prevention and intervention programs for college female students and women in the UAE and the Arab world in general. For instance, a major finding in this study reveals that depression completely mediates, the relationship between body dissatisfaction and disordered eating habits whereas self-esteem did not have a mediation effect. This implies that depressive symptoms can be a major target in the treatment of body dissatisfaction and disordered eating.

This study will also assist in creating awareness among UAE female university students on how body image concerns can lead to the development of depressive symptoms, which in turn will lead to unhealthy eating habits. The awareness creation will focus on how the media can influence people to be dissatisfied with their body, which can lead to the development of depressive symptoms and disordered eating habits.

5.6.3 Limitations of the study

There are some limitations in this study that may have influenced the results. The use of self-report measures maybe a limiting factor, considering that participants may be hesitant to report symptoms of body dissatisfaction, self-esteem, depression and disordered eating. This may be of importance to Arab samples where past research has pointed out towards higher barriers in terms of self-disclosure (Al-Darmaki, 2003). Although all questionnaire used in the study were standardized, adding face-to-face interview would have helped to minimize biases linked to self-report measures. However, given the limited scope in time, it was difficult to conduct face to face interview with participants. Another limitation of this study is that, the findings cannot
be applied to clinical cases, as the study sample was made up of non-clinical female students.

5.6.4 Recommendations and suggestions for further research

It is recommended that individuals particularly female students in the UAE, should be educated on the dangers involved in trying to model the western ideology of thinness portrayed as beauty and attractiveness. Exposing female students to healthy images and accurate information about the media can help them to develop a positive attitude towards their bodies (Owen & Spencer, 2013). Thus, this suggestion will prevent the development of depressive symptoms leading to disordered eating behaviors. In addition, the strong association between depression and disordered eating behavior implies that teaching skills for managing depressive symptoms can be an effective aid for the prevention of disordered eating.

Furthermore, it is recommended that the subject on body dissatisfaction and disordered eating be included in the curricula of abnormal psychology for undergraduate students and advanced psychopathology courses for master’s in clinical psychology students. This will increase the awareness creation on the dangers involved in being dissatisfied with one’s body, which has a link with depression and disordered eating attitudes.

5.6.5 Conclusion

In this study, the relationship between body dissatisfaction and disordered eating, and the mediation effects of depression and low self-esteem were investigated. The results reported in this study reveals that female participants were more concern about their body weight and dissatisfied with their physical strength, muscle tone and
hair texture and thickness. Also, the findings show a significant positive correlation between body dissatisfaction and disordered eating. Furthermore, depression was found to contribute more to the onset of disordered eating symptoms than body dissatisfaction and low self-esteem. In addition, a mediation effect of depression was found between body dissatisfaction and disordered eating whereas low self-esteem did not mediate this relationship.

These findings in this study are extremely significant for (1) addressing the gap of limited empirical research in UAE and in the Arab world in general (Schulte, 2016), and (2) informing practice and promoting better understanding among clinicians or counsellors in targeting depression for the prevention and intervention of disordered eating among female university students.

Finally, it is recommended that, awareness should be created among female students regarding the dangers involved in trying to modal western culture of thinness as the ideal beauty standard.

This will help them to develop a positive attitude towards their bodies (Owen & Spencer, 2013). Moreover, the subject on body dissatisfaction and disordered eating may be included in the curricula of the abnormal psychology and advanced psychopathology courses for students.
References


Appendix

Appendix A: Sample page of the Body Image Questionnaire (BIQ)

THE BIQ

Instructions. Please read carefully:

Each item on this questionnaire deals with a different physical characteristic. For each characteristic, think about how you would describe yourself as you actually are. Then think about how you wish you were. The difference between the two reveals how close you come to your personal ideal. In some instances, your looks may closely match your ideal. In other instances, they may differ considerably. On Part A of each item, rate how much you resemble your personal physical ideal by circling a number from 0 to 3.

Your physical ideals may differ in their importance to you, regardless of how close you come to them. You may feel strongly that some ideals embody the way you want to look or to be. In other areas, your ideals may be less important to you. On Part B of each item, rate how important your ideal is to you by circling a number on the 0 to 3 scale.

1. A. My ideal height is:

   0 1 2 3
   Exactly As I Am Almost As I Am Fairly Unlike Me Very Unlike Me

   B. How important to you is your ideal height?

   0 1 2 3
   Not Important Somewhat Important Moderately Important Very Important

2. A. My ideal skin complexion is:

   0 1 2 3
   Exactly As I Am Almost As I Am Fairly Unlike Me Very Unlike Me

   B. How important to you is your ideal skin complexion?

   0 1 2 3
   Not Important Somewhat Important Moderately Important Very Important
Appendix B: Sample page of the Eating Attitude Test (EAT-26)

EATING ATTITUDES TEST
(EAT-26)

Height
Current Weight
Highest Weight (excluding pregnancy)
Lowest Adult Weight
Do you participate in athletics at any of the following level:
- O Intramural
- O Inter-Collegiate
- O Recreational
- O High School teams

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Am terrified about being overweight</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2. Avoid eating when I am hungry</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>3. Find myself preoccupied with food</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>4. Have gone on eating binges where I feel that I may not be able to stop</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>5. Cut my food into small pieces</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>6. Aware of the calorie content of foods that I eat</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7. Particularly avoid foods with a high carbohydrate content (i.e. bread, rice, potatoes, etc.)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>8. Feel that others would prefer if I ate more</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>9. Vomit after I have eaten</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>10. Feel extremely guilty after eating</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>11. Am preoccupied with a desire to be thinner</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>12. Think about burning up calories when I exercise</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>13. Other people think that I am too thin</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>14. Am preoccupied with the thought of having fat on my body</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>15. Take longer than others to eat my meals</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>16. Avoid foods with sugar in them</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>17. Eat diet foods</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>18. Feel that food controls my life</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>19. Display self-control around food</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>20. Feel that others pressure me to eat</td>
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<td>0</td>
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<tr>
<td>21. Give too much time and thought to food</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>22. Feel uncomfortable after eating sweets</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>23. Engage in dieting behavior</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>24. Like my stomach to be empty</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>25. Enjoy trying new rich foods</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>26. Have the impulse to vomit after meals</td>
<td>0</td>
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Total Score (see below for scoring instructions)

Appendix C: Sample page of the Rosenberg Self-esteem Scale (RSE)

Rosenberg self-esteem scale

Please read each statement and record a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past two weeks. There are no right or wrong answers. Do not spend too much time on any one statement. This assessment is not intended to be a diagnosis. If you are concerned about your results in any way, please speak with a qualified health professional.

0 = Strongly disagree  1 = Disagree  2 = Agree  3 = Strongly agree

1  I feel that I am a person of worth, at least on an equal plane with others

2  I feel that I have a number of good qualities

3  All in all, I am inclined to feel that I am a failure (R)

4  I am able to do things as well as most people

5  I feel I do not have much to be proud of (R)

6  I take a positive attitude toward myself

7  On the whole, I am satisfied with myself

8  I wish I could have more respect for myself (R)

9  I certainly feel useless at times (R)

10 At times I think that I am no good at all (R)

Total score =
Appendix D: Sample page of the Beck’s Depression Inventory (BDI)

Beck’s Depression Inventory
This depression inventory can be self-scored. The scoring scale is at the end of the questionnaire.

1. 0 I do not feel sad.
   1 I feel sad
   2 I am sad all the time and I can't snap out of it.
   3 I am so sad and unhappy that I can't stand it.

2. 0 I am not particularly discouraged about the future.
   1 I feel discouraged about the future.
   2 I feel I have nothing to look forward to.
   3 I feel the future is hopeless and that things cannot improve.

3. 0 I do not feel like a failure.
   1 I feel I have failed more than the average person.
   2 As I look back on my life, all I can see is a lot of failures.
   3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
   1 I don't enjoy things the way I used to.
   2 I don't get real satisfaction out of anything anymore.
   3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty
   1 I feel guilty a good part of the time.
   2 I feel quite guilty most of the time.
   3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
   1 I feel I may be punished.
   2 I expect to be punished.
   3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
   1 I am disappointed in myself.
   2 I am disgusted with myself.
   3 I hate myself.

8. 0 I don't feel I am any worse than anybody else.
   1 I am critical of myself for my weaknesses or mistakes.
   2 I blame myself all the time for my faults.
   3 I blame myself for everything bad that happens.

9. 0 I don't have any thoughts of killing myself.
   1 I have thoughts of killing myself, but I would not carry them out.
   2 I would like to kill myself.
   3 I would kill myself if I had the chance.

10. 0 I don't cry any more than usual.
    1 I cry more now than I used to.
    2 I cry all the time now.
    3 I used to be able to cry, but now I can't cry even though I want to.
## Appendix E: Research Ethical Clearance and Approval

### Division of Research and Graduate Studies

#### Ethics Approval System

You are Logged in as: Agatha Teni Wunyala-Bukari

<table>
<thead>
<tr>
<th>Ref No</th>
<th>Subject</th>
<th>Request Type</th>
<th>Request Status</th>
<th>Submit Date</th>
<th>View Documents / Provide Feedback</th>
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<td>The relationship between body dissatisfaction and disordered eating; mediating effect of depression in non clinical female university students</td>
<td>Social Sciences Ethics Committee - Research</td>
<td>Approved</td>
<td>23/01/19</td>
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</tbody>
</table>

Menu
- How to Submit
- View My Submissions
- User Guide
- Change Password

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Appendix F: *Informed Consent Form*

**Consent to Participate in a Research Study**

Please read carefully before signing the Consent Form!

Relationship between body dissatisfaction and disordered eating: Mediating effect of depression and self-esteem.

*You will be asked to provide or deny consent after reading this form.*

You have been invited to take part in a study to investigate the relationship between body dissatisfaction and disordered eating with depression and self-esteem as mediating variables.

This study will be conducted by Agatha Teni Wunyala-Bukari with Dr. Fadwa M. B. Al Mughairbi, Dr. Abdullah, Saif Abdullah and Dr. Maria Campo-Redondo Iglesias in Psychology and counselling department at the United Arab Emirates University.

The study will take place at the United Arab Emirates University, College of Humanities and Social Science, located in Al Ain, United Arab Emirates.

Participation in this study will take 20 minutes, 5 minutes for explanation, 10 minutes for the questionnaire itself, and 5 minutes for a discussion with the researcher afterwards.

**Benefit of the research**

Even though you will receive no direct benefits from this study, this research will help us better understand how body image concerns, self-esteem and depressive symptoms can lead to disordered eating.

**Procedure/setting**

The procedure will involve the completion of consent forms, demographic information and questionnaires.

**Confidentiality and Privacy Information**

Information that you provide during this study will be kept confidential and your identity will be kept anonymous as you will not be required to provide your name.

**Rights to Withdraw**

Participation in this study is voluntary, and you will be free to withdraw from the study at any stage without being penalized.
Informed Consent

1. I confirm that I have read and understood the above information sheet and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw.
3. I understand that my data will be kept confidential and if published, the data will not be identifiable as mine.

I agree to take part in this study:

(Name and signature of participant)  (Date)

(Name and signature of person taking consent)  (Date)

(Name and signature of witness (if participant unable to read/write))  (Date)