AMERICAN UNIVERSITY OF BEIRUT

DIMENSIONS OF RELIGIOSITY AS PREDICTORS OF BODY IMAGE DISSATISFACTION AND DISORDERED EATING IN A UNIVERSITY SAMPLE IN LEBANON

by
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ABSTRACT
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Disordered eating is recognized as a significant risk factor for developing clinical eating disorders, which can pose severe mental and physical health risks and may be life-threatening. The risk of eating disorders is particularly high during late adolescence and early adulthood, underscoring the importance of identifying both protective and risk factors associated with disordered eating for this age group. Although sociocultural risk and protective factors of disordered eating have been corroborated, the role of religiosity has been overlooked, especially within the Lebanese context. The present study examined the unique role of multiple dimensions of religiosity, including religious orientation (intrinsic and extrinsic), attachment to God (anxious and avoidant), religious coping (positive and negative), body sanctification, and body acceptance by God in relation to body image dissatisfaction and disordered eating in a sample of undergraduates in Lebanon. The role of body image dissatisfaction as a mediator was also explored.

Results showed that religious orientation, attachment to God, and religious coping did not have significant relationships with body image dissatisfaction and disordered eating beyond the bivariate level. Multiple regression analyses showed that nontheistic body sanctification and body acceptance by God significantly negatively predicted body image dissatisfaction while considering the effects of established factors including gender and body mass index, and body acceptance by God significantly negatively predicted disordered eating while considering the effects of gender, socioeconomic status, and body mass index. A mediation analysis showed that body image dissatisfaction mediated the relationship between body acceptance by God and disordered eating. The results provide evidence of the protective role of nontheistic body sanctification and body acceptance by God in relation to body image and disordered eating outcomes among university students in Lebanon. Findings are discussed within the context of existing literature, and practical implications and recommendations are offered in consideration of the limitations of the present study.

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ABBREVIATIONS

1. DSM-5-TR: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision
2. APA: American Psychiatric Association
3. ROS: Religious Orientation Scale
4. I/E-R: Intrinsic/Extrinsic-Revised Scale
5. EDI: Eating Disorder Inventory
6. EAT-26: Eating Attitudes Test
7. BSQ: Body Shape Questionnaire
8. DUREL: Duke University Religion Index
9. AGS: Attachment to God Scale
10. AGI: Attachment to God Inventory
11. Brief RCOPE: Brief Religious Coping Scale
12. BMI: Body mass index
13. MGBS: Manifestation of God in the Body Scale
14. SQBS: Sacred Qualities of the Body Scale
15. EDI-BD: Eating Disorder Inventory - Body Dissatisfaction Subscale
16. SCOFF: Sick, Control, One, Fat, Food
17. EDE-Q: Eating Disorder Examination Questionnaire
18. BAOS: Body Acceptance by Others Scale
19. SES: Socioeconomic status
20. ORA: Organizational religious activity
21. NORA: Non-organizational religious activity

CHAPTER I

INTRODUCTION

Research on sociocultural predictors of eating disorders has often overlooked the role of religiosity, despite growing evidence of its relevance. Studies that have explored religiosity in relation to body image and eating pathology have not captured its multidimensional nature, resulting in a limited understanding of the complex relationship between these factors. In an effort to identify and clarify the specific aspects of religiosity that relate to body image and eating-related pathology, the present study considers a thorough measurement of the major dimensions of religiosity, grounded in a well-defined conceptual model. These dimensions include religious orientation, attachment to God, religious coping, body sanctification, and body acceptance by God. In doing so, this research seeks to provide insights that could benefit university students who are at high risk of developing body image issues and eating-related pathology.

First, eating disorders will be defined, followed by the rationale for focusing on disordered eating among university students. The study then outlines the conceptual model used to define the multiple aspects of religiosity, followed by a synthesis of the literature on their relationship with body image dissatisfaction and disordered eating. Next, the study aims and hypotheses are outlined, followed by the methodology, results, and discussion.

A. Eating Disorders: A Health Concern

Eating disorders are mental health conditions marked by unhealthy eating habits and an intense preoccupation with food, body weight, and shape, typically leading to

adverse physical and psychological effects. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR; American Psychiatric Association [APA], 2022) defines feeding and eating disorders as "a persistent disturbance of eating or eating-related behavior that results in the altered consumption or absorption of food and that significantly impairs physical health or psychosocial functioning" (p. 371). According to the DSM-5-TR, eating disorders include anorexia nervosa, bulimia nervosa, binge-eating disorder, other specified feeding or eating disorder, and unspecified feeding or eating disorder (APA, 2022). A transdiagnostic approach to eating disorders views that the aforementioned eating disorders share, at their core, an overvaluation of control over body shape, weight, and eating, in addition to having a negative body image, a high drive for thinness, and a low self-esteem, among other features (Levine & Smolak, 2021).

Not only are eating disorders debilitating in and of themselves, but they are also related to multiple physical health complications, some of which are life-threatening (APA, 2022). Eating disorders are associated with suicidality (Xu et al., 2023) and are highly comorbid with other psychiatric disorders, including mood, anxiety, obsessive-compulsive, and substance use disorders (APA, 2022). Compared to other psychiatric disorders, eating disorders have among the highest associated death rates (e.g., Arcelus et al., 2011; Demmler et al., 2020).

Eating-related pathology is disproportionately prevalent in women as compared to men, but there is increasing evidence that disordered eating has been overlooked among men (Striegel-Moore et al., 2009), including a recent study in Lebanon done on a university sample of men (Doumit et al., 2018). In addition, although eating disorders can develop as early as childhood, a particular age range that is considered at high risk

is late adolescence to early adulthood, between ages 17 and 22 (Solmi et al., 2022). There are many factors that contribute to the risk around this age; these include the transition to university, which comes with a host of pressures related to body ideals, romantic expectations, comparisons with peers, social media influences, and academic demands, among others (Alhaj et al., 2022; Howard et al., 2020). Based on the associated mental and physical health issues, eating disorders among university students have come to be viewed as a health concern for which prevention efforts should be prioritized (Alhaj et al., 2022; Grammer et al., 2020).

Over the years, risk and protective factors associated with eating disorders and disordered eating have been identified (Culbert et al., 2015; Keel & Forney, 2013; Levine & Smolak, 2016; Stice, 2002). The present research aims to contribute to this body of research by specifically exploring sociocultural predictors of disordered eating, particularly dimensions of religiosity, among both women and men university students in Lebanon. A few words are due about the difference between eating disorders and disordered eating and the rationale for focusing on disordered eating.

B. Eating Disorders vs. Disordered Eating

Eating-related pathology has been conceptualized within two models: the continuity and discontinuity models (Levine & Smolak, 2021). The continuity model views eating-related pathology as existing on a spectrum ranging from disordered eating patterns to the full-blown clinical eating disorders previously mentioned, with the difference on the spectrum lying mainly in severity and frequency of symptoms or behaviors (Levine & Smolak, 2021). Importantly, there is evidence from longitudinal research that individuals who suffer from disordered eating are at a greater risk of

developing full-blown eating disorders (Kotler et al., 2001), which is why disordered eating is commonly seen to be synonymous with being "at risk" of clinical eating disorders (Alhaj et al., 2022). In contrast, the discontinuity model posits that disordered eating is different not only in frequency and severity but also in quality and organization when compared to eating disorders in such a way that there is an abrupt rather than a linear increase in psychopathology and disordered behaviors and attitudes when comparing clinical and non-clinical samples (Levine & Smolak, 2021).

Research evidence has shown validity for both models, which led authors such as Levine and Smolak (2021) to define a partial continuum approach that states that, while some aspects of eating disorders are dimensional (e.g., weight-control practices and behaviors), certain characteristics related to personality (e.g., mistrust in relationships, social insecurity, impulse control) can be seen as discontinuous in that they qualitatively set apart clinical samples from non-clinical ones. The distinction between these models has implications for eating disorder research. Prevention research on eating disorders, as opposed to intervention studies, generally adopts the continuity model given the focus on identifying risk and protective factors that would disrupt the pathway to eating disorders (Levine & Smolak, 2021). In light of this, the present study focuses on body image dissatisfaction and disordered eating, defined further below.

1. Disordered Eating

Disordered eating encompasses a wide range of pathological attitudinal, emotional, and behavioral aspects related to eating. Shisslak et al. (1995) defined disordered eating as: (1) having a negative/disturbed body image or eating concerns and (2) engaging in weight-control practices and behaviors such as dieting, fasting, skipping

meals, using laxatives, diet pills, or diuretics, excessive exercising, or self-induced vomiting. More recently, Levine and Smolak (2021) outlined nine forms of disordered eating attitudes and behaviors that constitute disordered eating, including having a negative body image, overvaluing perceived shape and weight, holding unrealistic standards, experiencing anxiety and eating concerns, having a fear of fat, feeling body or eating-related shame or guilt, and engaging in weight control practices, binge eating, and body checking or social comparison. Notably, a key component of disordered eating is having a negative body image, or body image dissatisfaction, defined next.

C. Body Image Dissatisfaction

Slade (1994) initially conceptualized body image dissatisfaction to encompass both an individual's misperception of their body size and their negative emotions and judgments towards their own body. Body image dissatisfaction has been highlighted as a risk factor for disordered eating (Levine & Smolak, 2021) and as one of the more consistent and robust risk and maintenance factors of eating pathology (Brannan & Petrie, 2008; Stice, 2002). Established sociocultural frameworks consider body image dissatisfaction as a mediator between sociocultural factors and disordered eating because it provides a psychological mechanism that explains how external influences, such as media and peer pressure, lead to harmful eating behaviors. These frameworks suggest that the internalization of societal beauty standards lead to body image dissatisfaction, which in turn drives individuals to engage in disordered eating as a means to achieve or maintain the ideal body shape (e.g., Thompson et al., 1999). Numerous studies have also examined body image dissatisfaction as an outcome in its own right, with the mediating factors being self-esteem, thin-ideal internalization, and

appearance comparison, among others (e.g., Akrawi et al., 2015; Thompson et al., 1999). In light of this, the present study considers body image dissatisfaction as an outcome variable alongside disordered eating and as a mediator.

D. Religiosity as a Predictor of Body Image Dissatisfaction and Disordered Eating

There are numerous factors that contribute to disordered eating, and these include psychological, biological, and sociocultural factors. These factors interplay and collectively contribute to the development of disordered eating. The present investigation focuses on religiosity, a key sociocultural factor that has been increasingly shown to play a role in shaping individuals' relationships with their bodies and disordered eating behaviors (e.g., Akrawi et al., 2015; Boyatzis & Quinlan, 2008; Hall & Boyatzis, 2016). Religiosity is a crucial sociocultural factor in relation to body image and disordered eating for multiple reasons. It can serve as a resource for coping with stress and can provide a sense of self-worth that counters external threats, among other functions (Akrawi et al., 2015). Despite this, there are no sociocultural frameworks that integrate the role of religiosity in the study of body image dissatisfaction and disordered eating. For example, the Tripartite Influence Model (Pennesi & Wade, 2016; Thompson et al., 1999), a widely recognized sociocultural model, only emphasizes the role of family, peers, and media on body image dissatisfaction and disordered eating.

It also relevant to point out that studies that explored religiosity as a predictor of body image dissatisfaction and disordered eating vary in how they defined and measured the construct (Akrawi et al., 2015; Boyatzis & Quinlan, 2008), leading to inconsistent conclusions regarding the role of religiosity. This is because the concept of religiosity is multifaceted and extends well beyond mere affiliation with organized

religions, such as Islam, Christianity, or Judaism. In fact, religiosity includes several layers and dimensions of religious beliefs, behaviors, motivations, and experiences that differ both between and within religious affiliations (Koenig et al., 2015). For example, religiosity includes participation in organized activity within group settings, like attending church or mosque gatherings, as well as engaging in non-organizational activity in private, such as prayer and the study of religious texts (Koenig et al., 2015). According to Koenig et al. (2015), in addition to the organizational and non-organizational religious activity, a thorough measurement of major aspects of religiosity includes the following dimensions: religious orientation (i.e., intrinsic and extrinsic), religious coping (i.e., positive and negative), and attachment to God (i.e., avoidant and anxious).

Other dimensions related to religiosity that are of particular relevance to the research question of this study include body sanctification (i.e., theistic and nontheistic) and body acceptance by God (Tylka & Wood-Barcalow, 2015; Webb et al., 2015).

Considered together, these variables allow for a nuanced exploration beyond the traditional view of religiosity as a unidimensional construct, which historically restricted religiosity to aspects such as religious affiliation, religious activity, or self-rated religiosity. The aforementioned religiosity variables will be defined in more detail in the literature review below.

CHAPTER II

LITERATURE REVIEW

Research on the relationship between multiple aspects of religiosity on the one hand and body image dissatisfaction and disordered eating on the other hand is limited. To date, only one systematic review has been conducted on the topic. The review, by Akrawi et al. (2015), substantiated findings from individual studies and contributed to a comprehensive understanding of how different dimensions of religiosity relate to these outcomes. Specifically, Akrawi et al. (2015) found that intrinsic religiosity, secure attachment to God, and body sanctification were associated with lower body image dissatisfaction and disordered eating, while extrinsic religiosity, anxious attachment to God, and negative religious coping were associated with more body image dissatisfaction and disordered eating.

Despite its significant contribution to the literature, the review by Akrawi et al. (2015) did not meta-analyze findings across studies and therefore did not examine how the effect of each dimension might change when considered together with other religiosity dimensions in a single model, such as in a multiple regression. To date, the only study that has examined multiple aspects of religiosity together in a single model is that by Goulet et al. (2017), which was conducted on 168 adult women from a Catholic university in the United States. The authors found that when various dimensions of religiosity were analyzed together in a regression model, only body sanctification significantly predicted body dissatisfaction and disordered eating, while religious coping was not significant beyond the bivariate level (Goulet et al., 2017). Although the study did not base its selection of religiosity measures on a well-defined conceptual framework, it was nonetheless the first and the only study to highlight the importance of

considering multiple aspects of religiosity within a single model. This approach provides a nuanced understanding of how specific religiosity aspects uniquely contribute to body image dissatisfaction and disordered eating. That said, the study by Goulet et al. (2017) points to another major limitation in the literature, which largely focuses on Judeo-Christian samples of women within Western contexts, overlooking body image and disordered eating in men and individuals from non-Western cultures.

The following literature review takes into account the multiple dimensions of religiosity that have been considered in recent research on body image dissatisfaction and disordered eating. These include religious orientation (intrinsic and extrinsic), religious coping (positive and negative), attachment to God (avoidant and anxious), body sanctification (theistic and nontheistic), and body acceptance by God. Specifically, the review focuses on studies conducted with non-clinical samples, aligning with the rationale of the present investigation.

A. Religious Orientation

The concept of religious orientation, first coined by Allport and Ross (1967), marked a pivotal departure from viewing religiosity as a singular dimension. They identified two distinct types of religious motivation: intrinsic and extrinsic religious orientations. An intrinsic orientation involves the internalization of religious beliefs to guide personal life, where individuals view their faith as an integral and authentic aspect of their identity. Conversely, those with an extrinsic orientation use their faith as a means to achieve external rewards such as status, social support, or a sense of security. This conceptualization aimed to provide a nuanced understanding of how individuals engage with their religious beliefs and practices. Allport and Ross (1967) developed the

Religious Orientation Scale (ROS) to measure both dimensions of religious orientation. Another scale that is commonly used to measure religious orientation is the Intrinsic/Extrinsic-Revised Scale (I/E-R; Gorsuch & McPherson, 1989), which is a revised version of the ROS.

The overall literature on religious orientation and disordered eating, elaborated on in more detail below, suggests that individuals who are particularly attuned to societal expectations and feel motivated to engage in religious practices for external and social reasons (i.e., are extrinsically religious) may be more vulnerable to the societal pressures that can contribute to issues related to body image and disordered eating compared to those who "live their religion" (i.e., are intrinsically religious).

Forthun and colleagues (2003) were among the first few scholars who explored religious orientation in relation to disordered eating. Their study was conducted with the primary aim of investigating whether religious orientation had a moderating role in the relationship between family risk (i.e., dysfunction in family processes) and disordered eating. The study was conducted on a university sample of 896 women of varied religious affiliations in the southwest of the United States and found that both religious orientations moderated the relationship between dysfunction in family processes and disordered eating. Although no causality or directionality between the variables could be determined given the cross-sectional design of the study, the authors described intrinsic orientation as a protective factor and extrinsic religiosity as a vulnerability factor in the relationship between family dysfunction and disordered eating.

The findings by Forthun et al. (2003) served as a foundation for subsequent research across diverse samples. In a mostly Christian nonclinical sample of 129 undergraduate women in the United States, despite having no direct effects, Smith and

colleagues (2004) found an interaction whereby low intrinsic and high extrinsic religiosity together predicted disordered eating, measured using the Eating Attitudes Test (EAT-26; Garner et al., 1982). A series of studies by Weinberger-Litman et al. (2008, 2016, 2018) found support for the protective role of intrinsic religiosity and vulnerability effect of extrinsic religiosity on both, body image and disordered eating, in Jewish samples. In their study conducted on a sample of 301 young Jewish women, Weinberger-Litman et al. (2008) found that those who were intrinsically religious had more body satisfaction, measured by the Body Shape Questionnaire (BSQ; Cooper et al., 1987), and less disordered eating, measured by the EAT-26, compared to those who were extrinsically religious. In subsequent studies, Weinberger-Litman et al. (2016, 2018) also found evidence for a mediation pathway relating religious orientation and disordered eating pathology through body image dissatisfaction.

Although research done on Muslim samples is limited, a recent study by Pahlevan Sharif et al. (2019) that explored body image alone found that intrinsic religiosity among 1,000 Muslim Iranian women was protective against body image dissatisfaction, similar to findings from aforementioned studies on Christian and Jewish samples. The study by Pahlevan Sharif et al. (2019) yielded findings regarding intrinsic religiosity only, as they used the Duke University Religion Index (DUREL; Koenig et al., 1997), which does not measure extrinsic religiosity. In addition, a notable cross-sectional study conducted by Doumit et al. (2017) examined the role of religious orientation in a sample of 949 Lebanese women university students with diverse religious affiliations (i.e., Muslim and Christian). The findings revealed that a combination of intrinsic religiosity and lower anxiety reduced the likelihood of

disordered eating, whereas extrinsic religiosity showed no such relationship (Doumit et al., 2017).

The prevailing consensus in existing literature suggests that an intrinsic religious orientation is generally considered protective, while an extrinsic religious orientation is perceived as posing a risk to both body image and the development of disordered eating (Akrawi et al., 2015; Forthun et al., 2003; Doumit et al., 2017; Pahlevan Sharif et al., 2019; Smith et al., 2004; Weinberger-Litman et al., 2008, 2016, 2018). However, some studies did not establish significance for these relationships, particularly when considering other dimensions of religiosity such as religious coping (Hannani, 2021) and body sanctification (Homan & Boyatzis, 2009). For example, in the study by Homan and Boyatzis (2009), despite showing a significant correlation with body image satisfaction, both intrinsic and extrinsic religious orientations did not emerge as significant predictors when body sanctification was considered alongside religious orientation in the same regression model.

B. Attachment to God

Attachment theory posits that infants develop attachment bonds to their primary caregivers who can act as both a safe haven when danger arises and secure base for exploration when there are no threats (Ainsworth, 1978; Bowlby, 1969, 1973, 1980). This foundational bond subsequently shapes infants' cognitive models and impacts their expectations and behaviors in adult relationships (Hazan & Shaver, 1994). In general, attachment theory has provided a robust framework that has been used to understand adult relationships and their associations with health, including mental health; in particular, the two dimensions of attachment, anxiety and avoidance, have shown

positive associations with negative affect, including psychopathology indicators such as depression and anxiety (see Zhang et al., 2022 for a systematic review and meta-analysis).

According to Kirkpatrick (1998, 1999), an individual's perceived relationship with God meets the defining criteria of an attachment bond that can act as both a safe haven and secure base. Indeed, several scholars (Beck & McDonald, 2004; Rowatt & Kirkpatrick, 2002) defined two dimensions of attachment to God consistent with the anxiety and avoidance dimensions of attachment theory (Shaver & Hazan, 1987; Mikulincer et al., 2009). These scholars defined anxious attachment to God to be characterized by viewing God as inconsistent or unclear and avoidant attachment to God to be characterized by viewing God as impersonal, distant, and uncaring (Rowatt & Kirkpatrick, 2002). Two scales that measure attachment to God exist in the literature, the Attachment to God Scale (AGS; Rowatt & Kirkpatrick, 2002) and the Attachment to God Inventory (AGI; Beck & McDonald, 2004), both of which have shown evidence of good psychometric properties.

Overall, the rationale behind the literature investigating the relationship of attachment to God with body image and disordered eating, elaborated on in more detail below, is that a secure attachment to God would reflect in an internalized self-worth and therefore less vulnerability to external pressures related to body ideals (Buser & Gibson, 2016; Homan & Boyatzis, 2010; Homan, 2012; Homan & Cavanaugh, 2013; Homan & Lemmon, 2014; Strenger et al., 2016). In a series of investigations, Homan and other researchers explored attachment to God, measured using the AGI, in relation to body image and disordered eating in samples of mostly Christian undergraduate women in the United States (Homan & Boyatzis, 2010; Homan, 2012; Homan & Cavanaugh,

2013; Homan & Lemmon, 2014). One of these studies was a cross-sectional and prospective longitudinal study conducted on a sample of 231 undergraduate women that found that the anxious and avoidant attachment to God dimensions were both positively associated with body image dissatisfaction, and only the anxiety dimension was associated with dieting practices (Homan & Boyatzis, 2010). In their study, Homan and Boyatzis (2010) explained that women who had a secure (non-anxious) attachment to God were less sensitive to sociocultural pressures related to body image, and the authors attributed this finding to these women's self-evaluation being influenced by their perception of God's love and approval, rather than by societal judgments.

This was further supported by Homan (2012), who conducted an experimental study that tested whether a secure (non-anxious) attachment to God would buffer against the effect of the exposure to the thin ideal on body dissatisfaction in a sample of 92 undergraduate women. Indeed, compared to women with an anxious attachment to God, women with a secure attachment to God had lower body dissatisfaction after being exposed to images of women displaying the thin ideal. Homan (2012) proceeded to conclude that the perception of a God who is loving is a protective religious dimension that provides a sense of safety in the face of negative influences and threats to body image. Other researchers found further support for this explanation, whereby anxious attachment to God moderated the relationship between societal pressures and disordered eating in a sample of 102 adult American women (Strenger et al., 2016). In another study by Homan and Cavanaugh (2013), the role of a secure attachment to God was highlighted not only in protecting against a negative body image, but also in supporting the development of positive body image (i.e., body appreciation, functional orientation, intuitive eating, etc.). Similarly, a more recent investigation by Kusina and Exline

(2021), which was conducted on a sample of emerging adult women and men in the United States, found that both anxious and avoidant attachment to God were associated with less body appreciation.

C. Religious Coping

Religious individuals often turn to their religion to cope or deal with stress. Religious coping reflects a person's religious disposition in dealing with circumstances, expressed in relation to significant or stressful life events (Pargament et al., 2011). It is described as a dynamic process that serves multiple functions for the individual and involves thoughts, behaviors, emotions, and relationships with others, leading to helpful or harmful outcomes (Pargament et al., 2011). Pargament et al. (2011) defined two valences of religious coping. Positive religious coping refers to coping that stems from a mostly secure relationship with God, whereas negative religious coping refers to coping that stems from tension or conflict with God (Pargament et al., 2011). Negative religious coping has also been referred to as spiritual struggle with God, which entails emotional strain in one's connection with God, such as experiencing anger or feeling as though one is being punished by God (Pargament et al., 2005). Positive and negative religious coping are most commonly measured using the Brief Religious Coping Scale (Brief RCOPE; Pargament et al., 1998), which is based on the RCOPE initially developed by Pargament et al. (2000).

In general, meta-analyses have found that positive and negative religious coping are associated with positive (e.g., life satisfaction, resilience, self-esteem) and negative (e.g., anxiety, perceived stress, hopelessness) psychological adjustment, respectively (e.g., Ano & Vasconcelles, 2005). Specifically, several research investigations have

shown that positive religious coping is negatively associated with body image dissatisfaction and disordered eating, whereas negative religious coping is positively associated with these outcomes. For instance, an investigation by Kim (2006) found that positive religious coping positively predicted body satisfaction, whereas negative religious coping negatively predicted it in a sample of 546 Catholic and Protestant women and men in the United States, after controlling for body mass index (BMI) and other demographic factors.

Buser and Bernard (2013) were one of the first few to explore the relationships between religious coping and disordered eating, measured through bulimic symptomatology. In their sample of mostly Catholic undergraduate women, the researchers found that spiritual discontent, a dimension of negative religious coping characterized by uncertainty in the relationship with God while facing challenges, was positively associated with bulimic symptomatology after controlling for body image dissatisfaction (Buser & Bernard, 2013). More recently, a study conducted on a Christian and Jewish sample of 114 young women in the United States showed that positive and negative religious coping were associated with disordered eating, measured by the EAT-26 (Hannani, 2021). Negative religious coping was also found to be related to disordered eating in a study that was done on a sample of 102 late adolescent Orthodox Jewish girls (Latzer et al., 2015).

D. Body Sanctification and Body Acceptance by God

In the early 2000s, a notable shift in the body image literature, influenced by positive psychology, prompted researchers to investigate positive body image as a multifaceted construct distinct from its negative counterpart (i.e., negative body image

or body image dissatisfaction) and characterized by aspects such as body appreciation and compassion (Cash & Pruzinsky, 2002; Mills et al., 2022; Tylka & Wood-Barcalow, 2015; Webb et al., 2015). Positive body image has garnered attention as a protective factor against body dissatisfaction and disordered eating due to its association with resilience in the face of societal pressures, reduced comparison with others, and a focus on body functionality over appearance, among other factors (Levine & Smolak, 2016; Piran, 2015; Tylka & Wood-Barcalow, 2015). Some constructs within positive body image have been considered in the literature as dimensions of religiosity, as they are directly related to the 'Transcendent,' and these include body sanctification (Boyatzis et al., 2007; Goulet et al., 2017; Jacobson et al., 2013, 2016; Mahoney et al., 2005; Webb et al., 2015; Wood-Barcalow et al., 2010) and body acceptance by God (Homan & Boyatzis, 2010, 2013; Tiggemann & Hage, 2019; Tylka & Wood-Barcalow, 2015; Wood-Barcalow et al., 2010), discussed further below.

1. Body Sanctification

Mahoney and colleagues (2005) initially set out to explore which aspect of religion was driving general health-related behaviors and attitudes including those related to eating, such as body satisfaction, unhealthy dieting, and binge eating, among others. Based on prior studies that showed that people are inclined to think and behave in manners that safeguard and preserve what they considered to be sacred, they proposed that sanctification, defined as "perceiving aspects of life as having divine significance and character" (p. 223), can also be applied to the human body, both theistically and nontheistically. They described theistic body sanctification, or the concept of manifestation of God in the body, as the extent to which one's body is

viewed and experienced as an expression of God (e.g., God is present in my body). They described nontheistic body sanctification as the attribution of general sacred qualities to the body (e.g., blessed). In the literature, both theistic and nontheistic body sanctification have been commonly measured using the Manifestation of God in the Body Scale (MGBS) and Sacred Qualities of the Body Scale (SQBS), respectively, developed by Mahoney et al. (2005).

In their study, Mahoney and colleagues (2005) proposed that body sanctification would be related to an increased engagement in health-promoting behaviors and attitudes and an avoidance of those that are health-compromising. Their study was done on a largely Christian sample of 289 students, including both women and men, from a Midwestern university in the United States. Indeed, the researchers found that both theistic and nontheistic body sanctification were positively related to body satisfaction and negatively related to unhealthy dieting, among other health outcomes. Nontheistic body sanctification, in particular, was also related to decreased levels of binge eating (Mahoney et al., 2005).

Following this initial investigation, Boyatzis and colleagues (2007) conducted a study that provided experimental evidence in relation to the influence of body sanctification on body image. The researchers randomly assigned 125 mostly Christian college women from the United States into three equivalent groups that differed in their exposure to messages about their bodies: a group that was exposed to theistic body affirmations, a group that was exposed to nontheistic positive affirmations (with no mention of God), and a control group that read campus-related sentences that were unrelated to body image. After this exposure, all groups viewed pictures that portrayed the thin ideal. This experiment followed a pretest-posttest design, whereby all

participants reported on their body image using the Body Esteem Scale (Mendelson et al., 2001), with higher scores indicating more positive feelings about their appearance and weight, both a week before the experiment and immediately after. Boyatzis et al. (2007) found that participants' positive feelings about their body image increased significantly more for women who read theistic affirmations and marginally more for those who read nontheistic affirmations, as compared to women in the control group, whose positive feelings decreased following exposure to the thin ideal. The study by Boyatzis et al. (2007) provided strong support for a causal relationship between body sanctification and body image dissatisfaction, and findings were replicated in another experimental study that followed a similar setup on a sample of 98 university women from the United States (Inman et al., 2016).

It is noteworthy that gender may be a moderator of the relationship between body sanctification and body image, and this is evidenced by a similarly designed experimental study by Inman (2014) that did not find comparable results in a sample of 56 university men. In that study, reading religious body affirmations had no protective effects on the sample's body image. Gender differences have also been noted in other studies exploring body sanctification. For example, Homan and Boyatzis (2009) found different outcomes for women and men regarding the relationship between body sanctification and body satisfaction. In their subsample of older men, both theistic and nontheistic sanctification positively correlated with body satisfaction, and only theistic sanctification positively predicted body satisfaction after controlling for age, education, church attendance, and self-rated religiosity (Homan & Boyatzis, 2009). Interestingly, body sanctification did not predict body satisfaction in older women, and the authors attributed this to the differential impact of age on body image for women and men,

whereby women's concerns about their body image generally decrease as they grow older, making religiosity less relevant (Homan & Boyatzis, 2009). These findings highlight the importance of considering samples of both women and men in studying relationships between religiosity, body image, and disordered eating, as well as considering the role of age, which could also moderate these relationships.

Finally, some inconsistencies were found in a study by Jacobson et al. (2013) that explored the relationships between body sanctification and body satisfaction in a sample of 187 Christian college women and men in the United States. In their study, it was the nontheistic rather than theistic body sanctification that was positively associated with and predicted body satisfaction over and above religious commitment, and this was true for both genders. The authors attributed the insignificant findings related to theistic sanctification to the potential lack of the sample's familiarity with the particular religious texts (e.g., "My body is bonded to the everlasting Spirit of God") captured by the measure used (the MGBS). However, in a subsequent study by Jacobson and colleagues (2016), both types of body sanctification were associated with body satisfaction in a sample of adult women and men. With that said, it remains necessary to investigate whether similar patterns for both measures of body sanctification will emerge in the context of the present study.

2. Body Acceptance by God

Thus far, the concept of body acceptance by God has been discussed in the literature but has not been directly assessed. It draws on the idea of body acceptance by others, which refers to perceiving one's body to be accepted by significant others, including family, friends, or society (Tylka & Wood-Barcalow, 2015). Tylka and

Wood-Barcalow (2015) proposed that this acceptance could also extend to a higher power like God.

This proposition is based on a qualitative study by Wood-Barcalow et al. (2010), which aimed to provide a thorough understanding of positive body image. In that study, 15 women identified as having a positive body image were selected from a Midwestern college in the United States. Through semi-structured interviews, they were asked about their perceptions, experiences, and attitudes toward their bodies, including perceived external influences (e.g., society, the media). While there were no direct questions about the experience of body acceptance by God, a set of relevant inter-related religious ideas emerged in the participants' responses. These included: a belief that a higher power created their bodies as unique and special, wanting to respect their higher power by caring for their bodies and a connection between spirituality and a sense of being more connected to their bodies.

E. Control Variables

The incorporation of variables that have shown consistent relationships with body image and disordered eating as control variables is paramount for the present investigation.

According to a recently conducted systematic review and meta-analysis of studies from 40 countries including Lebanon by Alhaj et al. (2022), it was found that disordered eating among university students was disproportionately higher in women compared to men and was significantly, positively associated with BMI. Similar results were found for disordered eating among university students in Lebanon, across studies

(e.g., Bizri et al., 2020; El Ayoubi et al., 2022; Hoteit et al., 2022). Accordingly, the present study controls for gender and BMI.

The present study also controls for the effects of other sociodemographic variables, such as age and socioeconomic status. Considering that the target sample of university students will have a relatively narrow age range, controlling for age may have limited impact. As for socioeconomic status, its role on body image dissatisfaction and disordered eating in university students in Lebanon is limited. El Ayoubi et al. (2022) found in their study on Lebanese university students that a higher household income was associated with night eating syndrome, which is disordered eating that consists of large consumption of food at night and a negative impact on sleep. Given that socioeconomic status may have a significant effect, it will also be controlled for in the present study.

Finally, the present study controls for religious affiliation, self-rated religiosity, and religious activity with the purpose of going beyond the traditional view of religiosity and assessing the unique effects of its multiple dimensions.

CHAPTER III

THE PRESENT STUDY

Taken together, findings from previous studies show that intrinsic religiosity, positive religious coping, and theistic and nontheistic body sanctification are negatively associated with body image dissatisfaction and disordered eating, whereas extrinsic religiosity, anxious and avoidant attachment to God, and negative religious coping are positively associated with them. However, with the exception of a single study conducted on a sample of women in the United States (Goulet et al., 2017), the literature has not considered multiple dimensions of religiosity together in a single model. Therefore, little is known about the unique effects of these religiosity dimensions in predicting body image dissatisfaction and disordered eating. In addition, the literature largely focuses on Judeo-Christian samples of women within Western contexts and often overlooks body image and disordered eating in men and individuals from non-Western contexts.

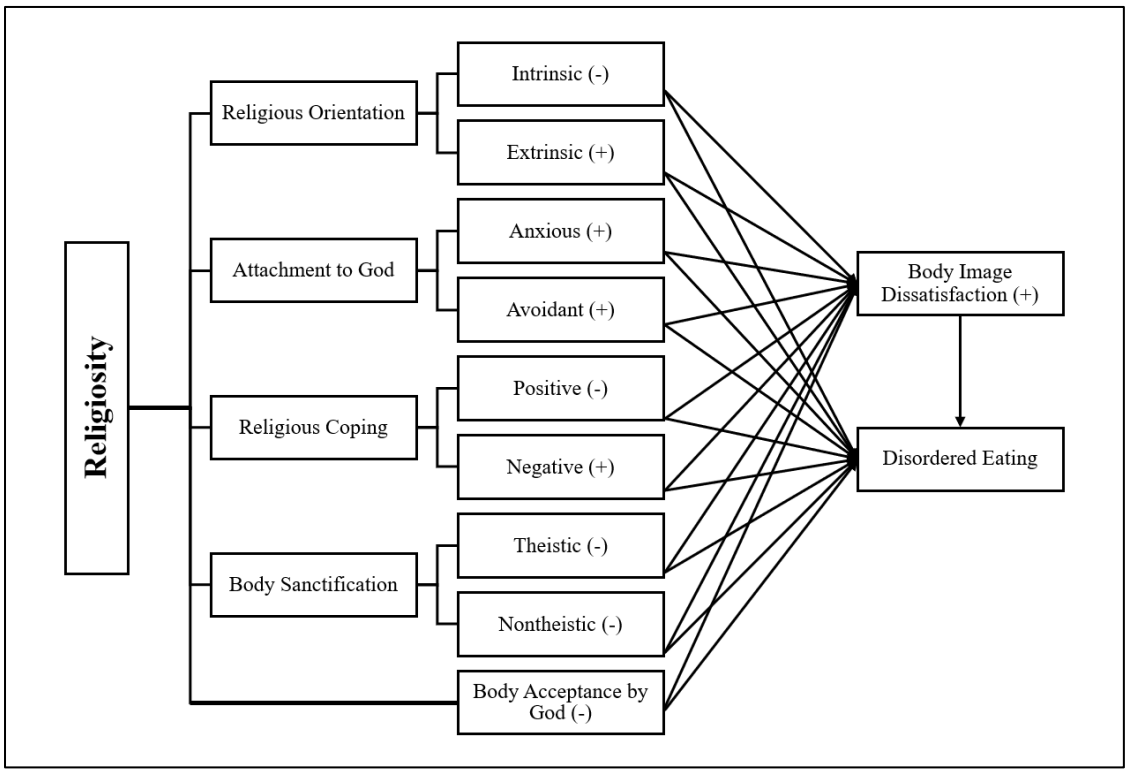
A. Aims

The primary aim of this study is to explore unique effects of different religious dimensions on body image and disordered eating among university students in Lebanon. Specifically, the study examines various aspects of religiosity that are grounded in a well-defined conceptual model, including religious orientation, attachment to God, religious coping, body sanctification, and body acceptance by God, to predict body image dissatisfaction and disordered eating. Additionally, based on the large body of research that identified body image dissatisfaction as one of the more consistent and robust risk and maintenance factors of eating pathology, the study investigates the

mediating role of body image dissatisfaction (e.g., Stice et al., 2002; Thomson et al., 1999). Figure 1 summarizes the expected relationships in the present study. By focusing on a diverse university sample of both women and men from various religious affiliations in a non-Western context, this study aims to address some of the limitations present in the existing literature. Ultimately, this research seeks to provide insights that could benefit university students who are at high risk of developing body image issues and eating-related pathology.

Figure 1

Expected Relationships Between Present Study Variables



Note. (-): expected to negatively predict outcome variables; (+): expected to positively predict outcome variables.

B. Hypotheses

Based on the review of the literature and the aims of the present study, the following hypotheses will be tested.

1. Hypothesis 1

The unique contribution of each dimension of religiosity to the variance of each of body image dissatisfaction and disordered eating will be investigated through separate multiple regressions, while controlling for age, gender, socioeconomic status, BMI, religious affiliation, self-rated religiosity, and religious activity.

- **(H1a):** Intrinsic religiosity, positive religious coping, body sanctification, and body acceptance by God will negatively predict body image dissatisfaction.
- **(H1b):** Extrinsic religiosity, anxious attachment to God, avoidant attachment to God, and negative religious coping will positively predict body image dissatisfaction.
- **(H1c):** Intrinsic religiosity, positive religious coping, body sanctification, and body acceptance by God will negatively predict disordered eating.
- **(H1d):** Extrinsic religiosity, anxious attachment to God, avoidant attachment to God, and negative religious coping will positively predict disordered eating.

2. Hypothesis 2

Body image dissatisfaction is expected to mediate the relationships between dimensions of religiosity and disordered eating, controlling for age, gender, socioeconomic status, BMI, religious affiliation, self-rated religiosity, and religious activity.

- **(H2):** Body image dissatisfaction will mediate the relationship between religiosity dimensions and disordered eating.

CHAPTER IV

METHODOLOGY

A. Research Design

The present study followed a cross-sectional survey design with dimensions of religiosity (i.e., religious orientation, attachment to God, religious coping, body sanctification, and body acceptance by God) as predictors and body image dissatisfaction and disordered eating as outcomes. The role of body image dissatisfaction as a mediator is also explored. Age, gender, socioeconomic status, BMI, religious affiliation, self-rated religiosity, and religious activity were measured as control variables.

B. Participants

The present study aimed to reach a sample of undergraduate students enrolled in introductory courses of psychology (PSYC201). The criterion for inclusion was being 18 years or older. Accordingly, PSYC201 undergraduate students of age 18 or above were included in the study. Those who were younger than 18 were excluded from the study.

An a priori sample size calculation was conducted for a multiple regression analysis with 16 predictors using G*Power 3.1.9.7 to determine the number of participants needed to achieve a statistical power of .80 with a probability level of 95% (α = .05) and medium effect size (Cohen's f^2 = 0.15; Faul et al., 2009). The appropriate target sample size was found to be N = 143.

The final sample consisted of 150 participants (95 women, 54 men, 1 non-binary), with ages ranging from 18 to 22 (M = 19.00, SD = 0.84; see Table 1). In terms of socioeconomic status, 50% reported that their household income covers their needs well, and they can save from it, 32.7% reported that they cannot save from it, and 6.7% reported difficulties in meeting their needs. As PSYC201 students, participants were from various majors, the majority being from Biology (58.7%), followed by Nutrition (12.0%), and Engineering (5.3%). 58% of participants were in their first academic year (Sophomore), and 83% were in their second year (Junior).

In terms of religious affiliation, 56.0% of participants were Muslim, 34.7% were Christian, and 9.4% were Other (Druze, Agnostic/Atheist, or Prefer not to say). Most participants reported themselves to be religious, the majority (52.0%) being moderately religious. Only three participants reported having an eating disorder diagnosis: one with avoidant/restrictive food intake disorder and two with binge eating disorder. BMI ranged between 15.81 and 33.95 (M = 22.86; SD = 3.38).

Table 1

Demographics

Variable	*N*	*%*	*M*	*SD*
Age			19.00	0.84
Gender				
Woman	95	63.3		
Man	54	36.0		
Non-binary	1	0.7		
Socioeconomic Status				
Our household income does not cover our needs, and we face difficulties meeting those needs	10	6.7		
Our household income covers our needs, but we	49	32.7		

cannot save from it				
Our household income covers our needs well, and we can save from it	75	50.0		
Other (I prefer not to answer, I don't know)	16	10.7		
Religious Affiliation				
Muslim	84	56.0		
Christian	52	34.7		
Other (Druze, Agnostic/Atheist, Prefer not to answer)	14	9.4		
Major				
Biology	88	58.7		
Nutrition	18	12.0		
Engineering	8	5.3		
Other	36	24.0		
Academic Year				
Freshman	1	0.7		
Sophomore	58	38.7		
Junior	83	55.3		
Senior	8	5.3		
Self-rated Religiosity				
Not religious at all	14	9.3		
Slightly religious	23	15.3		
Moderately religious	78	52.0		
Very religious	35	23.3		
BMI			22.86	3.38
Eating Disorder Diagnosis				
Avoidant/restrictive food intake disorder	1	0.7		
Binge eating disorder	2	1.3		

C. Measures

The survey included a sociodemographic questionnaire (Appendix A). In addition, nine questionnaires were administered to measure body image dissatisfaction, disordered eating, and religiosity dimensions (Appendices B through J). The study measures were administered in the order specified below, all in English, consistent with the primary language used at the American University of Beirut.

1. Sociodemographic Questionnaire

The sociodemographic questionnaire was developed for the purpose of the present study. The first part was concerned with questions that verified that participants met the age inclusion criterion. The second part included the remaining sociodemographic questions, including age, gender, socioeconomic status, religious affiliation, major, academic year, self-rated religiosity, weight and height information for BMI calculation, and eating disorder diagnosis (Appendix A).

2. Body Image Dissatisfaction

The Body Dissatisfaction subscale of the EDI (Garner et al., 1983) is one the more succinct measures of body image dissatisfaction that can be used to measure body dissatisfaction in non-clinical samples of both women and men, as intended in the present study (Appendix B).

a. Eating Disorder Inventory - Body Dissatisfaction Subscale (EDI-BD; Garner et al., 1983)

The EDI-BD is a 9-item scale designed to assess body dissatisfaction. Items are rated on a 4-point Likert scale, ranging from 0 (Never) to 3 (Always). Sample items include “I feel satisfied with the shape of my body” and “I think my hips are too big.” Higher scores on the EDI-BD indicate greater levels of body image dissatisfaction. The scale has shown good validity evidence (Garner et al., 1983). Internal reliability of the EDI-BD is good, with Cronbach’s alpha in the original control sample of women from the United States being α = .91 (Garner et al., 1983). The EDI-BD has shown invariance across gender in undergraduate women and men from the United States (Spillane et al., 2004). Based on available information to date, the English version of the EDI-BD subscale has not been used in Lebanon.

3. Disordered Eating

Multiple self-report assessment tools have been developed for the purpose of measuring disordered eating. According to a systematic review and meta-analysis done by Alfalahi et al. (2021), some of the more widely used tools in Western Asia are the EAT-26 (Garner et al. 1982), followed by the Sick, Control, One, Fat, Food (SCOFF; Morgan et al., 1999), and the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994), among others. The present study used the EAT-26 as a thorough measure of disordered eating attitudes and behaviors in a non-clinical sample (Appendix C).

a. <u>The Eating Attitudes Test (EAT-26; Garner et al., 1982)</u>

The EAT-26 is a self-report questionnaire that has been widely used to assess attitudes related to disordered eating and eating disorders risk (Alhaj et al., 2022). It consists of 26 items that are factored into one of three subscales, including over-estimation of body size (e.g., "I am preoccupied with the thought of having fat on my body"), bulimia and food preoccupation (e.g., "I vomit after I have eaten"), and oral control (e.g., "I avoid eating when I am hungry"). Only the total score was considered in the present study. Items are rated on a six-point Likert scale, ranging from 1 (Never) to 6 (Always). Scoring gives a value of zero for the options "never," "rarely," and "sometimes," one point for "often," two for "usually," and three for "always." The total score can go between zero and 78, whereby higher scores indicate greater levels of disordered eating. A participant is considered at risk of developing an eating disorder if they score 20 or higher. The EAT-26 has shown good psychometric properties, with a high initial internal consistency of a Cronbach's alpha of .90 in a Canadian sample (Garner et al., 1982). The English version of the EAT-26 has been previously used with Lebanese samples and has shown good reliability, with Cronbach's alpha ranging between α = .89 and α = .93 (Hage, 2019; Naamani & El Jamil, 2021).

4. Religious Activity

As suggested by Koenig et al. (2015), a thorough measurement of religiosity and its dimensions includes organizational and non-organizational religious activities, which include activities that religious individuals engage in both in group settings and in private, respectively (Appendix D).

a. <u>The Duke University Religion Index (DUREL; Koenig et al., 1997)</u>

The DUREL is a 5-item scale that measures organizational religious activity, non-organizational religious activity, and intrinsic religiosity. Following the recommendations by Koenig et al. (2015), only the first two items of the DUREL, which assess organizational and non-organizational religious activity, will be used after being adapted to fit the various religious backgrounds of the sample. To assess organizational religious activity, the question: "How often do you attend church or other religious meetings?" was reworded to the following: "How often do you attend group religious services and gatherings (i.e., church, mosque, or other religious meetings)?" To assess non-organizational research activity, the question: "How often do you spend time in private religious activities, such as prayer, meditation or Bible study?" was reworded to the following: "How often do you spend time in private religious activities, such as prayer, meditation, or study of religious text (e.g., Bible, Qur'an)?" Items are rated on a 6-point Likert scale, including 1 (Never), 2 (Once a year or less), 3 (A few times a year), 4 (A few times a month), 5 (Once a week), and 6 (More than once/week) for organizational religious activity and 1 (Rarely or never), 2 (A few times a month), 3 (Once a week), 4 (Two or more times/week), 5 (Daily), and 6 (More than once a day) for non-organizational religious activity. The DUREL has shown high internal consistency across samples from the United States, ranging from $\alpha = .78$ to $\alpha = .91$ (Koenig & Büssing, 2010). Based on available information to date, the DUREL has not been used in Lebanon.

5. Religious Orientation

The original scale developed to measure religious orientation is the ROS by Allport and Ross (1967). The revised version of the ROS, the I/E-R (Gorsuch & McPherson, 1989), was used in the present investigation (Appendix E).

a. Intrinsic/Extrinsic-Revised Scale (I/E-R; Gorsuch & McPherson, 1989)

The I/E-R is a 14-item scale that is used to measure intrinsic (eight items) and extrinsic (six items) religious orientations. Items are rated on a 5-point Likert scale, ranging from 1 (Strongly disagree) to 5 (Strongly agree). Sample items include "I enjoy reading about my religion" from the intrinsic subscale and "I pray mainly to gain relief and protection" from the extrinsic subscale. Three items that include the word "church" were changed to "place of worship (i.e., church, mosque, etc.)" to consider the religious diversity of the sample. The I/E-R scale has demonstrated a high initial internal consistency of α = .83 for the intrinsic subscale and α = .65 for the extrinsic subscale in student samples in the United States (Gorsuch & McPherson, 1989). The Arabic I/E-R has been used in Lebanon with low reliability for the extrinsic dimension (α < .7) and good reliability for the intrinsic dimension (α = .78). However, to date, the English version of the I/E-R has not been used in Lebanon.

6. Attachment to God

The 9-item AGS (Rowatt & Kirkpatrick, 2002) and 28-item AGI (Beck & McDonald, 2004) were developed to measure attachment to God. The present study assesses attachment to God using the AGS based on the recommendations by Koenig et al. (2015) and the conciseness of the AGS (Appendix F).

a. Attachment to God Scale (AGS; Rowatt & Kirkpatrick, 2002)

The AGS is a 9-item measure that is used to measure anxious (three items) and avoidant (six items) attachment to God. Items are rated on a 7-point Likert scale, ranging from 1 (Not characteristic of me) to 7 (Characteristic of me). Sample items include "I have a warm relationship with God" from the avoidance subscale and "God's reactions to me seem to be inconsistent" from the anxiety subscale. Lower scores on the anxiety dimension refer to an attachment that is safe and secure rather than anxious and insecure, whereas lower scores on the avoidance dimension refer to an attachment that is warm and close, rather than distant or avoidant. The scale has shown good psychometric properties, with an internal consistency of α = .80 for the anxiety dimension and α = .92 for the avoidance dimension in community and undergraduate samples in the United States (Rowatt & Kirkpatrick, 2002). In Lebanon, to date, the AGS has not yet been used, and the construct of attachment to God has not yet been investigated.

7. Religious Coping

The Brief RCOPE (Pargament et al., 1998) is based on the longer RCOPE initially developed by Pargament et al. (2000). The Brief RCOPE was used in the present study to measure religious coping (Appendix F).

a. Brief Religious Coping Scale (Brief RCOPE; Pargament et al., 1998)

The Brief RCOPE is a 14-item scale that is widely used to measure both positive (seven items) and negative (seven items) religious coping. Items are rated on a 4-point

Likert scale, ranging from 1 (Not at all) to 4 (A great deal). Sample items include "I looked for a stronger connection with God" from the positive religious coping subscale and "I wondered whether God had abandoned me" from the negative religious coping subscale. Item 12, "I wondered whether my church had abandoned me" was changed to "I wondered whether my religion had abandoned me" in consideration of the religious diversity of the sample. Higher scores on both subscales indicate a more frequent use of the respective coping style. The Brief RCOPE has shown good validity evidence and high internal consistency reliability, with α = .92 for the positive religious coping subscale and α = .81 for the negative religious coping subscale in samples from the United States (Pargament et al., 2011). The English version of the Brief RCOPE has been used in Lebanon (Grey et al. 2023), although no reliability indices were reported in that study.

8. Body Sanctification

The present study used both, the MGBS and SQBS to assess body sanctification, as has been done in previous studies (e.g., Jacobson et al., 2016; Appendices H & I).

a. Manifestation of God in the Body Scale (MGBS; Mahoney et al., 2005)

The MGBS is a 12-item scale that is used to measure body sanctification through participants' view of their body as a manifestation of God. Items are rated on a 7-point Likert scale, ranging from 1 (Strongly disagree) to 7 (Strongly agree). Sample items include "God is present in my body" and "My body is an instrument of God." The MGBS has shown high internal reliability of α = .98 in a sample of university students

from the United States (Mahoney et al., 2005). To date, the MGBS has not been used in Lebanon.

b. Sacred Qualities of the Body Scale (SQBS; Mahoney et al., 2005)

The SQBS is a 10-item scale through which participants report the degree to which certain qualities that refer to sanctification apply to their body, with no mention of God. Items are rated on a 7-point Likert scale, ranging from 1 (Does not describe at all) to 7 (Very closely describes). Sample items include "blessed" and "holy." The SQBS has shown high internal reliability of α = .95 in a sample of university students from the United States (Mahoney et al., 2005). To date, the SQBS has not been used in Lebanon.

9. Body Acceptance by God

Body acceptance by God has been mentioned in the literature, yet to date, it has not been quantified nor measured using a scale. Therefore, a short measure of body acceptance by God was adapted for the purposes of the present study (see Appendix J).

a. Body Acceptance by God Scale (Adapted from Avalos & Tylka, 2006)

The Body Acceptance by God Scale is a two-item scale that is based on the Body Acceptance by Others Scale (BAOS) developed by Avalos and Tylka (2006). The BAOS uses two items to measure body acceptance from multiple significant others (e.g., family and friends). Items are rated on a 5-point Likert scale, ranging from 1 (Never) to 5 (Always). The two items adapted for this study are "I have felt acceptance from God regarding my body shape and/or weight" and "God has sent me the message

that my body shape and weight are fine." Higher scores on both items indicate a higher level of experience of body acceptance by God. The BAOS has shown high reliability of α = .90 in the original sample of university women from the United States (Avalos & Tylka, 2006). For the purposes of the present study, the adapted items of the BAOS were piloted with nine graduate students in psychology, who suggested no modifications to the scale.

D. Procedure

Ethical approval was obtained from the American University of Beirut Institutional Review Board (SBS-2024-0030). The survey was piloted with nine graduate students in psychology, who received an invitation to participate with a link leading to the survey on Qualtrics (Appendix K). The students were asked to offer feedback on the survey's structure, language, relevance, and coherence. Students who participated in the pilot were not required to submit their responses and were not considered in the data analysis. Overall, graduate students reported that there were no issues with the survey. Accordingly, no modifications were made.

Following the pilot, the primary sample for this study was obtained through convenience sampling, specifically from the PSYC201 pool at the university. The psychology course coordinator facilitated recruitment by sending out an invitation to participate in the study (Appendix L). Students were incentivized with the opportunity to earn extra credit for their involvement. To mitigate any potential coercion, students were also given the option to submit a brief report as an alternative to receiving extra credit. Upon accessing the invitation link, students were directed to an online consent form (Appendix M) and survey hosted on Qualtrics. Participation required providing

consent and meeting the inclusion criterion of being 18 years or older. Those who did not provide consent or were younger than 18 were redirected outside of the survey. Participants who did complete the survey were directed to an information sheet (Appendix N) which provided them with a unique code, information on signs of disordered eating, and helpful resources to seek help. To gain extra credit, participants provided their unique codes to their course instructor. Codes obtained from survey responses and those sent via email were independently matched to uphold anonymity. Overall, participation in the study took approximately 20 minutes.

CHAPTER V

RESULTS

A. Data Analysis

Data was analyzed using IBM SPSS v21. Preliminary analyses included case exclusion based on study participation criteria, analysis of missing values, factor and reliability analyses of study measures, assessment of univariate and multivariate outliers, and tests for the normality of study variables. Gender differences on religiosity variables were examined through independent samples t-tests, and a Pearson correlation analysis was conducted to examine the associations between the study variables. Next, to test the study hypotheses, two multiple regression analyses were run, each with body image dissatisfaction or disordered eating as the dependent variable and the dimensions of religiosity as predictors, while controlling for age, gender, socioeconomic status, BMI, self-rated religiosity, and religious activity[1]. Finally, the mediating role of body image dissatisfaction was examined through the PROCESS macro in version 4.2 (Hayes, 2022).

[1] Religious affiliation was not included in the multiple regression and mediation analyses as a control variable as there were more than two religious affiliations in the sample. Dichotomizing the variable to only include the two most prevalent affiliations (i.e., Muslims and Christians) would lead to a loss of data. To avoid potential bias in the decision to exclude religious affiliation as a control variable, independent samples t-tests were run to compare body image dissatisfaction and disordered eating between Muslims and Christians. No significant differences were found between the two groups on either outcome variable.

B. Preliminary Analyses

1. Participant Exclusion

In total, 156 survey attempts were recorded on Qualtrics. However, one response was excluded due to the participant not providing consent, and another five responses were excluded due to participants being younger than 18, as per the study exclusion criteria. The final sample size was $N = 150$.

2. Missing Value Analysis

The response option "other" for gender, as well as the options "prefer not to say" and "I don't know" for socioeconomic status, were treated as missing values. A Missing Value Analysis showed that all variables in the dataset had less than 5% missing values, except for socioeconomic status (10.7%). The missing values for socioeconomic status could be attributed to the sensitivity of these questions, especially in light of the socioeconomic crisis that Lebanon is currently experiencing, which may cause respondents to be uncertain about their current socioeconomic status. However, Little's MCAR test was not significant ($\chi^2(1197) = 1209.02$, $p = .398$), indicating that values were missing completely at random. To preserve statistical power in the sample, the mean was used to replace missing values (Tabachnick & Fidell, 2013)[2].

[2] Analyses were repeated with listwise exclusion of cases with missing values on socioeconomic status. For the regression model predicting body image dissatisfaction, age showed significance in the model ($\beta = -.16$, $p = .027$). Results of the regression model predicting disordered eating and the mediation analysis were the same.

3. Factor Analysis

A factor analysis was run on each of the Intrinsic/Extrinsic-Revised Scale (I/E-R), the Attachment to God Scale (AGS), and the Brief Religious Coping Scale (Brief RCOPE). All pattern matrices can be found in Appendix O.

a. Statistical Assumptions of Factor Analyses

i. Bartlett's Test of Sphericity

Bartlett's test of sphericity assesses whether the strengths of item correlations within a scale are adequate for factor analysis (Field, 2017). This test yielded significant results for all the scales in this study: I/E-R ($\chi^2(91) = 1247.476$, $p < .001$), AGS ($\chi^2(36) = 1072.995$, $p < .001$), and Brief RCOPE ($\chi^2(91) = 1393.658$, $p < .001$). These results confirm that the assumption of sphericity is satisfied.

ii. Kaiser-Meyer-Olkin Test

The Kaiser-Meyer-Olkin (KMO) test measures the proportion of variance in scale items that could be attributed to an underlying factor. For the I/E-R, AGS, and Brief RCOPE scales, the KMO values were .884, .813, and .896, respectively. These values exceed the threshold of .7, indicating that the samples are suitable for conducting factor analyses (Field, 2017).

iii. Determinant

The determinant of the correlation matrix of the items of each scale is important for detecting multicollinearity. A determinant greater than .00001 denotes that there are no issues of multicollinearity (Field, 2017). The determinant for the AGS was greater

than .00001, which means that there were no issues of multicollinearity. The determinant for the I/E-R and Brief RCOPE scales were less than .00001, which means that there might be high inter-item correlations. A closer examination of the correlation matrices of the items of the I/E-R and Brief RCOPE shows that there were no inter-item correlations that exceeded .80, except for the second and third items of the Brief RCOPE, which correlated at .81. Nonetheless, the items of the scales were considered to be factorable, especially that the other factor analysis assumptions were met.

b. Factor Analysis Results

i. Intrinsic/Extrinsic-Revised Scale

A factor analysis was conducted using the Maximum-Likelihood method, two-factor forced extraction, and Direct Oblimin rotation on the 14 items of the I/E-R. The two extracted factors explained 59.46% of the total variance. Hypothetically, the two factors should represent intrinsic and extrinsic religiosity. Items #6, #8, and #9 did not load properly on the hypothetical factor structure of the I/E-R, item #2 cross-loaded on both factors, and item #10 did not load on any factor. However, the items were retained as the two religious orientation dimensions had good Cronbach's alpha reliability (see Table 2).

ii. Attachment to God Scale

A factor analysis was conducted using the Maximum-Likelihood method, two-factor forced extraction, and Direct Oblimin rotation on the nine items of the AGS. The two extracted factors explained 72.72% of the total variance. Items #1 and #2 did not load properly on the hypothetical factor structure of the AGS, item #3 cross-loaded on

both factors, and item #7 did not load on any factor. However, the items were retained as the two attachment dimensions had good Cronbach's alpha reliability (see Table 2).

iii. Brief Religious Coping Scale

A factor analysis was conducted using the Maximum-Likelihood method, two-factor forced extraction, and Direct Oblimin rotation on the 14 items of the Brief RCOPE. The two extracted factors explained 66.05% of the total variance. Hypothetically, the two factors should represent positive and negative religious coping. All items loaded properly on their theoretical dimension, except for item #14, which cross-loaded on both factors. The two dimensions had high internal reliability (see Table 2).

4. Reliability Analysis

A reliability analysis was conducted on all study scales and subscales (see Table 2). Cronbach's alpha (α) was greater than the criterion of .70 for all scales and subscales, indicating high internal consistency reliability.

Table 2

Internal Consistency Reliability of Study Scales and Subscales

Scales and Subscales	Number of Items	Cronbach's Alpha (α)
Eating Disorder Inventory - Body Dissatisfaction Subscale	9	.87
The Eating Attitudes Test	26	.92
Intrinsic/Extrinsic-Revised Scale	14	.89
Intrinsic Orientation	8	.85
Extrinsic Orientation	6	.79

Attachment to God Scale	9	.84
Anxious Attachment	3	.72
Avoidant Attachment	6	.92
Brief Religious Coping Scale	14	.82
Positive Religious Coping	7	.94
Negative Religious Coping	7	.85
Manifestation of God in the Body Scale	12	.95
Sacred Qualities of the Body Scale	10	.93
Body Acceptance by God Scale	2	.75

5. Univariate and Multivariate Analysis

Univariate outliers on the scale variables were checked using z-scores. The criterion was that a case with a z-score above |3.29| would be considered to be a univariate outlier. Results showed that there were two univariate outliers on disordered eating (cases #1 and #131). Multivariate outliers were checked using Mahalanobis distances. Results showed that there was one multivariate outlier (case #150) with $\chi^2(9) = 45.13$, $p < .001$. Because no cases were identified as both univariate and multivariate outliers, all instances of univariate and multivariate outliers were included in the final dataset.

6. Normality Tests

Normality of the study variables was examined through histograms and the skewness/kurtosis of z-scores. The skewness and kurtosis of z-scores for disordered eating did not fall between -1.96 and +1.96, indicating a highly skewed (2.04) and kurtotic (4.28) distribution for this variable. Further exploration of the histogram for

disordered eating revealed that the distribution showed positive skewness and was leptokurtic (see Appendix P). Because normality is not required for the main analyses of this study, this violation was not a concern.

C. Descriptive Statistics

1. Scale Descriptives

The means, standard deviations, and ranges of the scores on the independent and dependent variables are shown in Table 3. In terms of eating disorder risk, the sample scored an average $M = 11.53$ ($SD = 13.07$) on the EAT-26, well below the cut-off score of 20 (Garner et al., 1982). 18% of participants scored 20 or above, indicating eating disorder risk. Compared to the midpoint of the respective scales, the sample had relatively high levels of body image dissatisfaction, intrinsic religiosity, extrinsic religiosity, positive religious coping, body sanctification, and body acceptance by God, and low levels of anxious and avoidant attachment to God and negative religious coping.

Table 3

Scale Descriptives

Variable	*N*	*M*	*SD*	Min.	Max.
Body Image Dissatisfaction	150	21.02	6.42	9	36
Disordered Eating	150	11.53	13.07	0	70
Intrinsic Religiosity	150	27.32	6.83	8	40
Extrinsic Religiosity	150	17.59	4.62	6	29
Anxious Attachment to God	150	9.63	4.52	3	21
Avoidant Attachment to God	150	15.20	9.42	6	42
Positive Religious Coping	150	22.40	5.87	7	28

Negative Religious Coping	150	12.44	5.01	7	28
Body Sanctification – Theistic	150	46.54	21.64	12	84
Body Sanctification – Nontheistic	150	43.45	14.91	10	70
Body Acceptance by God	150	5.94	2.62	2	10

2. Gender Differences

Gender differences in the religiosity variables were investigated using independent samples t-tests. For extrinsic religiosity ($t(147) = 2.10$, $p = .038$)), women ($M = 18.25$, $SD = 4.58$) were found to score significantly higher than men ($M = 16.65$, $SD = 4.31$). In terms of negative religious coping ($t(147) = -2.53$, $p = .012$)), men ($M = 13.69$, $SD = 5.34$) were found to score significantly higher than women ($M = 11.60$, $SD = 4.51$). With regard to nontheistic body sanctification ($t(147) = 2.51$, $p = .013$)), women ($M = 45.91$, $SD = 14.05$) were found to score significantly higher than men ($M = 39.72$, $SD = 15.21$). Levene's test for equality of variances was not significant for any of these comparisons, indicating that the assumption of equal variances was met. No gender differences were found in the other religiosity variables: religious activity, self-rated religiosity, intrinsic religious orientation, anxious and avoidant attachment to God, positive religious coping, theistic body sanctification, and body acceptance by God.

3. Correlation Analysis

A correlation analysis was conducted to examine the associations between the study variables (see Table 4). A significant, positive relationship was found between body image dissatisfaction and disordered eating ($r = .50$, $p < .01$). Body image dissatisfaction was found to have significant, negative relationships with intrinsic religiosity ($r = -.24$, $p < .01$), positive religious coping ($r = -.24$, $p < .01$), nontheistic

body sanctification (r = -.23, p < .01), and body acceptance by God (r = -.39, p < .01). However, body image dissatisfaction was not found to correlate with theistic body sanctification. Body image dissatisfaction was found to have significant, positive relationships with anxious attachment to God (r = .19, p < .05), avoidant attachment to God (r = .28, p < .01), and negative religious coping (r = .18, p < .05). However, body image dissatisfaction was not found to correlate with extrinsic religiosity.

Disordered eating was found to correlate negatively with body acceptance by God (r = -.29, p < .01) and positively with avoidant attachment to God (r = .18, p < .05) and negative religious coping (r = .26, p < .01). However, no significant correlations were found between disordered eating and intrinsic religiosity, positive religious coping, body sanctification, extrinsic religiosity, and anxious attachment to God.

In regard to control variables, body image dissatisfaction was found to correlate negatively with age (r = -.19, p < .05), organizational religious activity (r = -.18, p < .05), and non-organizational religious activity (r = -.21, p < .05) and positively with BMI (r = .45, p < .01). Disordered eating was found to correlate negatively with socioeconomic status (r = -.24, p < .01) and positively with BMI (r = .18, p < .05). Self-rated religiosity was not found to be associated with body image dissatisfaction or disordered eating.

Table 4

Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Body Image Dissatisfaction	1	.50**	-.24**	-.15	.19*	.28**	-.24**	.18*	-.14	-.23**	-.39**	-.19*	-.07	.45**	-.11	-.18*	-.21*
2	Disordered Eating		1	-.11	-.13	.08	.18*	-.02	.26**	-.04	-.03	-.29**	-.07	-.24**	.18*	-.03	-.16	-.13
3	Intrinsic Religiosity			1	.66**	-.14	-.76**	.75**	-.19*	.43**	.61**	.43**	.15	.09	-.19*	.77**	.50**	.69**
4	Extrinsic Religiosity				1	-.01	-.64**	.68**	-.20*	.47**	.55**	.41**	.06	.08	-.07	.63**	.47**	.50**
5	Anxious Attachment					1	.20*	.03	.37**	.04	-.01	-.05	-.05	.05	.07	-.06	-.02	-.11
6	Avoidant Attachment						1	-.74**	.32**	-.51**	-.58**	-.50**	-.04	-.05	.15	-.71**	-.38**	-.66**
7	Positive Religious Coping							1	-.05	.49**	.58**	.41**	.14	.10	-.15	.70**	.44**	.64**
8	Negative Religious Coping								1	.03	-.02	-.15	.01	-.12	.11	-.13	-.18*	-.22**
9	Theistic Body Sanctification									1	.66**	.42**	.05	-.01	-.14	.46**	.37**	.24**
10	Nontheistic Body Sanctification										1	.46**	.05	.03	-.15	.54**	.35**	.46**
11	Body Acceptance by God											1	-.00	.07	-.19*	.40**	.26**	.29**
12	Age												1	.09	-.07	.04	.17*	.09
13	SES													1	-.21*	.09	.05	.13
14	BMI														1	-.13	-.03	-.14
15	Self-rated Religiosity															1	.48**	.63**
16	ORA																1	.37**
17	NORA																	1

Note. *$p < 0.05$ (2-tailed); **$p < 0.01$ (2-tailed); SES = Socioeconomic Status; BMI = Body Mass Index; ORA = Organizational Religious Activity; NORA = Non-organizational Religious Activity. $N = 150$ except for SES ($N = 134$) due to pairwise exclusion of missing values.

D. Multiple Regression Analyses

Two independent multiple regression analyses were run using the Enter method. The first model included the dimensions of religiosity as the independent variables and body image dissatisfaction as the dependent variable. The second model included the dimensions of religiosity as the independent variables and disordered eating as the dependent variable. Both models controlled for age, gender, socioeconomic status, BMI, self-rated religiosity, and religious activity.

1. Statistical Assumptions

Prior to conducting multiple regression analyses, it was essential to ensure that the statistical assumptions of regression are not violated (Field, 2017). Statistical assumptions for both multiple regression models were examined.

a. Assumptions for the Model Predicting Body Image Dissatisfaction

i. Influential Cases

An examination of Cook's distance and standardized DFBeta values showed that none exceeded 1, indicating no influential cases were present in the data.

ii. Linearity and Homoscedasticity Assumptions

The scatterplots of ZPRED vs ZRESID were inspected to examine the assumptions of linearity and homoscedasticity of errors (see Appendix Q). There were no curves in the scatterplot; therefore, the errors were assumed to be linear. In addition, the dots in the scatterplot were scattered arbitrarily across the graph, indicating homoscedasticity in the data.

iii. Independence of Errors Assumption

The Durbin-Watson test statistic was examined for the assumption of independence of errors. The value of the test statistics for the model was 2.055, which is between 1 and 3. Therefore, the assumption of independent errors was met.

iv. Multicollinearity Assumption

To test for multicollinearity, the correlation matrix among predictors was checked, in addition to the variance inflation factor (VIF) and tolerance values. All correlations between independent variables were below .8. The VIF values were less than 5, and the tolerance values were greater than .10, indicating no issues of multicollinearity in the data.

v. Normality of Errors Assumption

To examine the assumption of normality of errors, histograms and P-P plots were used. The histogram showed that the errors followed a normal distribution, and the P-P plot showed that the dots were located along the probability line, indicating that residuals did not deviate from normality.

b. Assumptions for the Model Predicting Disordered Eating

i. Influential Cases

An examination of Cook's distance and standardized DFBeta values showed that none exceeded 1, indicating no influential cases were present in the data.

ii. Linearity and Homoscedasticity Assumptions

The scatterplots of ZPRED vs ZRESID were inspected to examine the assumptions of linearity and homoscedasticity of errors (see Appendix Q). The scatterplot was curved, and the dots were not arbitrarily scattered across the graph, pointing to non-linearity and heteroscedasticity in the data.

iii. Independence of Errors Assumption

The Durbin-Watson test statistic was examined for the assumption of independence of errors. The value of the test statistics was 2.012, which is between 1 and 3. Therefore, the assumption of independent errors was met.

iv. Multicollinearity Assumption

To test for multicollinearity, the correlation matrix among predictors was checked, in addition to the variance inflation factor (VIF) and tolerance values. All correlations between independent variables were below .8. The VIF values were less than 5, and the tolerance values were greater than .10, indicating no issues of multicollinearity in the data.

v. Normality of Errors Assumption

To examine the assumption of normality of errors, histograms and P-P plots were used. The histogram showed a non-normal distribution, and the dots in the P-P plot were not fully adhered to the probability line, indicating a deviation from normality.

2. Addressing Violations of Statistical Assumptions

The assumptions of linearity, homoscedasticity, and normality of errors were not met for the model predicting disordered eating. To account for the violations in these assumptions, bootstrapping was used when running the regression analysis. The bootstrapping method is a statistical technique used to estimate statistical values, standard errors, and confidence intervals by resampling from the original data (Field, 2017). In this study, the following bootstrapping settings were set: bootstrap samples = 2000; bias-corrected (BC) 95% confidence intervals.

3. Results

a. Model 1: Body Image Dissatisfaction

First, an unadjusted regression model predicting body image dissatisfaction was run without the control variables. The overall model was found to be significant ($F(9, 140) = 4.27$, $p < .001$) and was found to account for 21.6% of the variance ($R^2 = .216$) in body image dissatisfaction. In that model, only body acceptance by God was found to be a significant negative predictor of body image dissatisfaction ($\beta = -0.35$, $p < .001$). The other religiosity dimensions were not found to be significant predictors. The coefficients, significance values, and confidence intervals of the regression model can be found in Table 5.

Table 5

Unadjusted Regression Analysis Predicting Body Image Dissatisfaction

Variable					95% Confidence Interval	
	B	β	*t*	*p*	Lower	Upper
Intrinsic Religiosity	0.02	0.02	0.18	.861	-0.227	0.272

Extrinsic Religiosity	0.22	0.16	1.41	.161	-0.089	0.534
Anxious Attachment	0.20	0.14	1.71	.090	-0.032	0.437
Avoidant Attachment	-0.03	-0.04	-0.26	.799	-0.221	0.170
Positive Religious Coping	-0.25	-0.23	-1.65	.101	-0.547	0.049
Negative Religious Coping	0.14	0.11	1.20	.231	-0.089	0.363
Theistic Body Sanctification	0.02	0.08	0.78	.437	-0.037	0.086
Nontheistic Body Sanctification	-0.05	-0.11	-0.95	.342	-0.146	0.051
Body Acceptance by God	-0.87	-0.35	-3.92	.000***	-1.302	-0.429

Note. ***$p < .001$; B = Unstandardized Coefficients; β = Standardized Coefficients.

When the model controlled for age, gender, socioeconomic status, BMI, self-rated religiosity, and religious activity, it was also found to be statistically significant ($F(16, 133) = 8.33$, $p < .001$) and was found to account for 50% of the variance ($R^2 = .500$) in body image dissatisfaction. The coefficients, significance values, and confidence intervals of the regression model can be found in Table 6.

Regarding hypothesis H1a, nontheistic body sanctification ($\beta = -0.21$, $p = .033$) and body acceptance by God ($\beta = -0.26$, $p < .001$) were found to be significant negative predictors of body image dissatisfaction, whereas intrinsic religiosity and positive religious coping were not found to be significant. Extrinsic religiosity, anxious attachment to God, avoidant attachment to God, and negative religious coping were not found to show significance, thus hypothesis H1b was not supported.

The control variables gender ($\beta = -4.97$, $p < .001$) and BMI ($\beta = 0.86$, $p < .001$) were found to be significant predictors of body image dissatisfaction, indicating significantly higher scores of body image dissatisfaction among women as compared to men and higher scores among individuals with higher BMI. Age, socioeconomic status, self-rated religiosity, and religious activity were not found to be significant.

Table 6

Regression Analysis Predicting Body Image Dissatisfaction

Variable					95% Confidence Interval	
	B	*β*	*t*	*p*	Lower	Upper
Intrinsic Religiosity	0.08	0.08	0.66	.510	-0.156	0.312
Extrinsic Religiosity	0.01	0.01	0.08	.939	-0.254	0.274
Anxious Attachment	0.14	0.10	1.46	.147	-0.051	0.337
Avoidant Attachment	0.06	0.09	0.74	.462	-0.107	0.235
Positive Religious Coping	-0.15	-0.14	-1.17	.242	-0.404	0.103
Negative Religious Coping	0.15	0.12	1.52	.130	-0.045	0.346
Theistic Body Sanctification	0.05	0.16	1.72	.088	-0.007	0.099
Nontheistic Body Sanctification	-0.09	-0.21	-2.15	.033*	-0.174	-0.007
Body Acceptance by God	-0.64	-0.26	-3.44	.001***	-1.001	-0.270
Age	-0.86	-0.11	-1.74	.084	-1.838	0.118
Gender	-4.97	-0.37	-5.31	.000***	-6.819	-3.117
SES	0.19	0.02	0.27	.786	-1.173	1.547
BMI	0.86	0.45	6.81	.000***	0.611	1.111
Self-rated Religiosity	1.43	0.19	1.79	.075	-0.147	3.012
ORA	-0.06	-0.01	-0.16	.876	-0.770	0.657
NORA	-0.16	-0.05	-0.52	.605	-0.768	0.449

Note. *$p < 0.05$; ***$p < .001$; B = Unstandardized Coefficients; β = Standardized Coefficients; SES = Socioeconomic Status; BMI = Body Mass Index; ORA = Organizational Religious Activity; NORA = Non-organizational Religious Activity.

b. Model 2: Disordered Eating

First, an unadjusted regression model predicting disordered eating was run without the control variables. The overall model was found to be significant ($F(9, 140) = 3.01$, $p = .003$) and was found to account for 16.2% of the variance ($R^2 = .162$) in

disordered eating. In that model, only body acceptance by God was found to be a significant negative predictor of disordered eating (B = -1.50, p = .002). The other religiosity dimensions were not found to be significant predictors. The bootstrap coefficients, significance values, and confidence intervals of the regression model can be found in Table 7.

Table 7

Unadjusted Regression Analysis Predicting Disordered Eating

Variable			BC 95% Confidence Interval	
	B	*p*	Lower	Upper
Intrinsic Religiosity	-0.07	.793	-0.625	0.412
Extrinsic Religiosity	-0.28	.426	-0.965	0.472
Anxious Attachment	-0.11	.647	-0.570	0.354
Avoidant Attachment	0.20	.478	-0.375	0.873
Positive Religious Coping	0.52	.250	-0.265	1.671
Negative Religious Coping	0.44	.142	-0.091	1.010
Theistic Body Sanctification	0.02	.718	-0.091	0.134
Nontheistic Body Sanctification	0.09	.395	-0.123	0.295
Body Acceptance by God	-1.50	.002**	-2.525	-0.563

Note. **p < 0.01; B = Unstandardized Coefficients.

When the model controlled for age, gender, socioeconomic status, BMI, self-rated religiosity, and religious activity, it was also found to be statistically significant (F(16, 132) = 3.79, p < .001) and was found to account for 31.5% of the variance (R^2 = .315) in disordered eating. The bootstrap coefficients, significance values, and confidence intervals of the regression model can be found in Table 8. The bootstrapping method provided only unstandardized regression coefficients, so it was not possible to assess the relative strengths of the various predictor variables in the model.

Regarding hypothesis H1c, only body acceptance by God (B = -1.22, p = .006) emerged as a significant negative predictor of disordered eating. None of the other dimensions of religiosity were significant, thus hypothesis H1d was not supported.

The control variables gender (B = -8.17, p = .002), socioeconomic status (B = -4.03, p = .044), and BMI (B = 0.70, p = .029) were significant predictors of disordered eating, indicating significantly higher levels among women as compared to men and higher scores among individuals with lower socioeconomic status and higher BMI. Age, self-rated religiosity, and religious activity were not significant.

Table 8

Regression Analysis Predicting Disordered Eating

Variable			BC 95% Confidence Interval	
	B	*p*	Lower	Upper
Intrinsic Religiosity	0.00	.987	-0.598	0.541
Extrinsic Religiosity	-0.51	.122	-1.183	0.162
Anxious Attachment	-0.12	.567	-0.583	0.291
Avoidant Attachment	0.33	.196	-0.203	0.870
Positive Religious Coping	0.75	.070	0.042	1.754
Negative Religious Coping	0.37	.149	-0.128	0.939
Theistic Body Sanctification	0.04	.615	-0.108	0.187
Nontheistic Body Sanctification	0.03	.766	-0.197	0.241
Body Acceptance by God	-1.22	.006**	-2.084	-0.314
Age	-0.82	.459	-3.102	1.481
Gender	-8.17	.002**	-12.591	-3.182
SES	-4.03	.044*	-7.916	0.152
BMI	0.70	.029*	0.116	1.225
Self-rated Religiosity	2.94	.180	-1.304	6.693

ORA	-0.52	.547	-2.348	1.299
NORA	-0.85	.271	-2.333	0.565

Note. $*p < 0.05$; $**p < 0.01$; B = Unstandardized Coefficients; SES = Socioeconomic Status; BMI = Body Mass Index; ORA = Organizational Religious Activity; NORA = Non-organizational Religious Activity.

E. Mediation Analysis

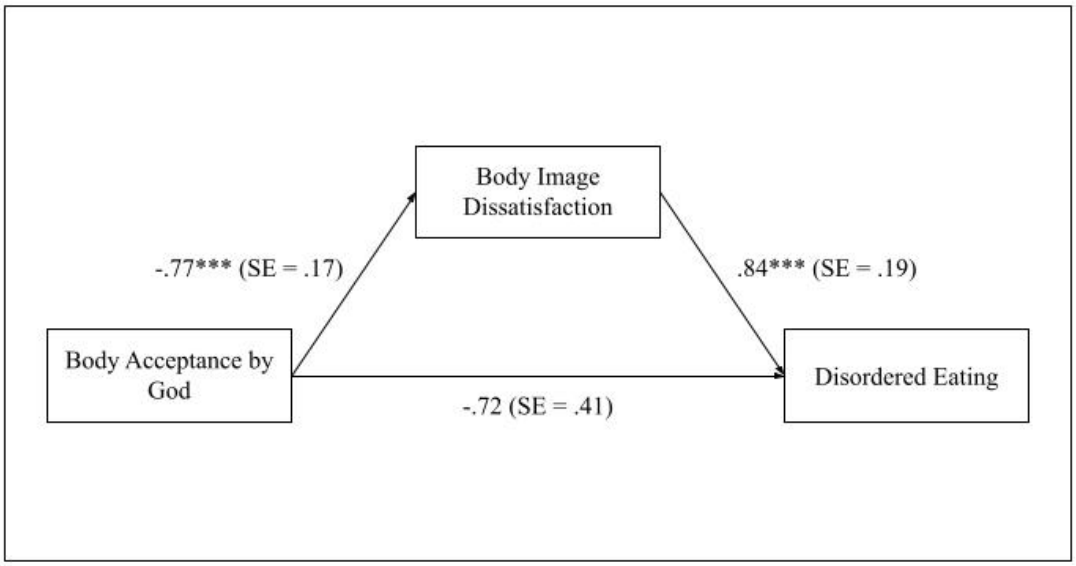
As shown in the previous regression model, body acceptance by God was found to be the only significant predictor of disordered eating. To check whether body image dissatisfaction mediated the relationship between body acceptance by God and disordered eating, a simple mediation analysis was conducted using model 4 of the PROCESS macro version 4.2 (Hayes, 2022). PROCESS employs bootstrapping, which Hayes (2022) recommends for testing mediations in the presence of non-normality, as is the case for disordered eating in this study. Effects were calculated using bias-corrected 95% confidence intervals derived from 5000 bootstrap samples.

The mediation analysis included body acceptance by God as the independent variable and the control variables, age, gender, socioeconomic status, BMI, self-rated religiosity, and religious activity, as covariates. Body image dissatisfaction was considered as the mediator and disordered eating as the outcome ($N = 149$).

The indirect effect of body acceptance by God was tested using nonparametric bootstrapping. The upper and lower bound of the 95% confidence interval was examined to check if it includes zero. Body acceptance by God (IE = -.65; 95% CI [-1.05, -.29]) had a significant negative indirect effect. This indicates that body image dissatisfaction mediated the relationship between body acceptance by God and disordered eating, providing support for hypothesis H2 (see Figure 2).

Figure 2

Body Image Dissatisfaction as a Mediator Between Body Acceptance by God and Disordered Eating



Note. ***$p < .001$; SE = Standard Error. Age, gender, socioeconomic status, BMI, self-rated religiosity, and religious activity were considered as covariates in this analysis.

CHAPTER VI

DISCUSSION

Religiosity is a key sociocultural factor to consider for examining predictors of eating disorders, especially among high-risk populations such as university students. Previous studies have found that intrinsic religiosity, positive religious coping, and theistic and nontheistic body sanctification are negatively associated with body image dissatisfaction and disordered eating, whereas extrinsic religiosity, anxious and avoidant attachment to God, and negative religious coping are positively associated with them (e.g., Akrawi et al., 2015). However, little is known about the effect of each religiosity dimension in predicting body image dissatisfaction and disordered eating when considered together with other religiosity dimensions in a single model. This study aimed to examine how different dimensions of religiosity uniquely predict body image dissatisfaction and disordered eating among Lebanese university students.

A. Summary of Results

Religious orientation, attachment to God, and religious coping were not found to have significant relationships with body image dissatisfaction and disordered eating beyond the bivariate level. When dimensions of religiosity were considered together in a regression model predicting body image dissatisfaction, nontheistic body sanctification and body acceptance by God were found to be the only significant predictors alongside gender and BMI. In the regression model predicting disordered eating, body acceptance by God was found to be the only significant predictor alongside gender, socioeconomic status, and BMI. Body image dissatisfaction was found to mediate the relationship between body acceptance by God and disordered eating,

controlling for age, gender, socioeconomic status, BMI, self-rated religiosity, and religious activity.

B. Interpretation of Findings

1. Correlation Analysis

The bivariate associations between dimensions of religiosity, body image dissatisfaction, and disordered eating were generally consistent with the literature (e.g., Akrawi et al., 2015). Interestingly, some religiosity variables (i.e., intrinsic religiosity, anxious attachment to God, positive religious coping, and nontheistic body sanctification) showed associations with body image dissatisfaction but not with disordered eating. Disordered eating is a broad construct that not only consists of a negative body image but also other attitudes and behaviors such as holding unrealistic standards, experiencing feelings of anxiety, shame, and guilt around eating, and engaging in weight control practices (Levine & Smolak, 2021). Accordingly, the religiosity dimensions in question might be more tightly associated with body image dissatisfaction and not the broader, more complex attitudes and behaviors involved in disordered eating, which are likely connected to a wider range of factors not considered in this study such as the degree of exposure to and internalization of Western media ideals or cultural ideas and pressures about dieting and thinness.

In regard to extrinsic religiosity, no associations were found with body image dissatisfaction and disordered eating, contrary to the literature in general (Akrawi et al., 2015; Forthun et al., 2003; Weinberger-Litman et al., 2008, 2016, 2018). Interestingly, however, the only other study conducted in Lebanon by Doumit et al. (2017) also found no relationship between extrinsic religiosity and disordered eating. These findings

suggest that cultural context may influence how this outward, socially driven form of religiosity relates to adherence to cultural norms and obligations, which may not constitute a vulnerability to societal pressures as it might in other contexts.

Theistic body sanctification also showed no relationships with body image dissatisfaction or disordered eating in the present study. In light of a previous study by Jacobson et al. (2013), the lack of significant findings for theistic sanctification may be explained through the lack of the sample's affinity with the particular religious expressions captured by the measure used. Specifically, Muslims in the sample (56%), may prefer a different language for expressing the notion of body sanctification. The expressions of the MGBS (Mahoney et al., 2005) may be more specific to the Christian faith (e.g., "My body is created in God's image")[3].

2. Multiple Regression Analyses

The multiple regression analyses highlighted the unique role of different religiosity dimensions in predicting body image dissatisfaction and disordered eating. Notably, the findings suggest that religious orientation, attachment to God, and religious coping may be less relevant to body image dissatisfaction and disordered eating when the effects of other factors, such as nontheistic body sanctification and body acceptance by God, are considered. This reduced relevance may be due to the more specific and direct relationship that nontheistic body sanctification and body acceptance by God could have with how individuals perceive and relate to their bodies. Given their direct

[3] To investigate this further, an independent samples t-test was conducted to compare Muslim and Christian religious affiliations on theistic sanctification. Results showed significant differences between the groups, whereby Christians (M = 58.01, SD = 20.78) were found to score significantly higher than Muslims (M = 42.27, SD = 18.19) on theistic sanctification, $t(134) = 4.64$, $p < .001$). No significant differences in nontheistic sanctification were found between the two groups.

connection to the body, these factors may be more contextually pertinent to body image concerns compared to the other religiosity dimensions, which may be broader or more general. Moreover, the shared variance between these constructs and other religiosity dimensions may further account for the absent effect of religious orientation, attachment to God, and religious coping.

In terms of religiosity dimensions that were found to be significant, findings from the present study suggest that university students who view their bodies as sacred may be less likely to experience dissatisfaction with their body image, even when considering other well-established predictors such as gender and BMI. These findings align with those by Goulet et al. (2017), who found nontheistic body sanctification to be the only significant negative predictor of body image dissatisfaction and disordered eating among other religiosity variables while controlling for demographic and psychosocial factors (e.g., age, BMI, self-esteem). Taken together, the findings add to the evidence of the protective role of nontheistic body sanctification on body image dissatisfaction.

The present study also provides a contribution to the literature by identifying body acceptance by God as a significant negative predictor of both body image dissatisfaction and disordered eating among other religiosity dimensions while considering the effects of gender, socioeconomic status, and BMI. The findings suggest that university students who perceive their bodies to be accepted and valued by God may experience less body image dissatisfaction and engage in fewer disordered eating behaviors. As Homan and Cavanaugh (2013) proposed, the experience of body acceptance by God may shift one's focus from societal standards to divine acceptance, which could serve as a buffer against body image dissatisfaction and disordered eating.

Given that this study is the first to measure body acceptance by God, this finding provides preliminary evidence for its protective role on body image and disordered eating outcomes, building on ideas previously put forth by scholars (Homan & Boyatzis, 2010; Homan & Cavanaugh, 2013; Tylka & Wood-Barcalow, 2015).

Importantly, the inclusion of gender and BMI as predictors in the regression models increased the explained variance for both outcomes. Consistent with findings from systematic reviews and meta-analyses (e.g., Alhaj et al., 2022), the present study found that body image dissatisfaction and disordered eating were significantly higher among women compared to men and among individuals with higher BMI. These gender differences are linked to societal body ideals and pressures that emphasize thinness and attractiveness for women (e.g., Turel et al., 2018). The findings suggest that such ideals and pressures are also present in the Lebanese context, echoing results from previous studies in Lebanon (e.g., Bizri et al., 2020; Hoteit et al., 2022). Furthermore, the positive association between BMI and the outcomes may reflect societal emphasis on thinness, leading individuals with higher BMI to experience greater body dissatisfaction and engage in unhealthy eating behaviors in an attempt to conform to these ideals (Radwan et al., 2019). With that said, both gender and BMI continue to be some of the most consistent and robust predictors of body image dissatisfaction and disordered eating, further reinforcing their importance in understanding these outcomes across diverse cultural contexts.

Relatedly, findings from the present study emphasize the need to consider religiosity aspects such as nontheistic body sanctification and body acceptance by God alongside other established sociocultural factors such as those outlined in the Tripartite Influence Model (Thompson et al., 1999), including the role of family, friends, and the

media, in addition to appearance comparison and thin-ideal internalization, to further understand the effects of sociocultural variables in relation to body image dissatisfaction and disordered eating.

3. Mediation Analysis

The findings of the present study found support for the mediating role of body image dissatisfaction in the relationship between body acceptance by God and disordered eating. This finding is consistent with the literature that identifies body image dissatisfaction as one of the more consistent and robust risk and maintenance factors of eating pathology (e.g., Brannan & Petrie, 2008; Stice, 2002) and as a mechanism through which sociocultural factors predict disordered eating (e.g., Thompson et al., 1999). By identifying body image dissatisfaction as a mediating factor, the mechanism through which body acceptance by God is related to disordered eating is better understood. More specifically, in this study body acceptance by God appeared to have a protective role on body image dissatisfaction, which then contributes to less disordered eating. As this study was the first to measure body acceptance by God, further research is needed to replicate these findings and explore other mechanisms behind this relationship.

C. Practical and Clinical Implications

Given the significant role body image dissatisfaction played in disordered eating as shown in the present study and supported by previous research (e.g., Brannan & Petrie, 2008; Stice, 2002), interventions that focus on body image remain fundamental to both preventing and mitigating disordered eating. These interventions may focus not

only on reducing body image dissatisfaction, but also on promoting a positive body image (Tylka & Wood-Barcalow, 2015; Wood-Barcalow et al., 2010).

Additionally, findings from the present study suggest that interventions focusing on enhancing the perception of sacred qualities of the body and body acceptance by God could be particularly beneficial for university students struggling with body image issues and disordered eating in Lebanon. Psychoeducation programs that include discussions on the inherent value and sanctity of the body as opposed to dominant societal standards, could be effective. These programs could be delivered through workshops, counseling sessions, or integrated into broader wellness programs on campuses. To account for individuals' varied religious and spiritual sensibilities, the inherent value of the body as sacred and deserving of care and respect may be advocated through the use of terminology tailored to different types of audience. Also, drawing on previous experimental studies (e.g., Boyatzis et al., 2007), intervention programs can incorporate reflective exercises and group discussions that integrate ideas related to the inherent value of the body into broader spiritual interventions for clinical eating disorders (Richards et al., 2020).

Given that this study was conducted on a nonclinical sample of university students, future research should explore the applicability of these findings to clinical populations. Moreover, the potential for these interventions to be adapted for culturally diverse contexts warrants further investigation, ensuring that the approach remains sensitive to the specific religious and cultural beliefs of the target population.

D. Limitations and Future Directions

Several limitations should be considered when interpreting the findings of this study. First, although the overall sample size met the requirements for conducting the main study analyses, it was not enough for the factor analysis, indicating a potential lack of robustness in the factor analysis results. The sample size was also insufficient for the mediation analysis; however, the mediation analysis yielded robust results, showing significant findings even after controlling for age, gender, socioeconomic status, BMI, self-rated religiosity, and religious activity.

Second, the findings from this study may not be generalizable to all undergraduate students in Lebanon, as the present sample was selected from only one university in Beirut. Future studies should aim to replicate these findings across multiple universities across various geographic locations in Lebanon and other cultures to strengthen the external validity of the findings for university students in general.

Third, the cross-sectional design of the study limited the possibility of establishing causal relationships between variables. Experimental and longitudinal studies could explore whether changes in perceived sacred qualities of the body and acceptance by God may lead to improvements in body image and eating behaviors, and how these can change over time.

Fourth, the scales used in the present study were originally developed and validated in Western contexts and have not yet undergone validation in Lebanon, limiting their cross-cultural applicability and potentially impacting the accuracy of measurement within the Lebanese cultural context. Future research should prioritize adapting and validating these scales for use in Lebanese populations to ensure their reliability and validity in assessing religiosity and related constructs accurately.

Relatedly, some of the scales used may have been more relevant to a particular religious faith. For example, the MGBS was based on expressions associated with the Christian faith. Moreover, organizational religious activity may not be applicable to Muslim women, who may be religious but rarely go to the Mosque. Future studies should be designed to include measures that are sensitive to the diverse religious practices and expressions within Lebanon. This includes developing or adapting scales that can capture the nuances of different religious traditions and their specific religious expressions and practices (see Koenig et al., 2015 for a review on measures of religiosity).

Finally, a major limitation can be noted regarding the body acceptance by God scale used in this study, which assessed the construct using two adapted items from the Body Appreciation Scale developed by Avalos and Tylka (2006). Although the items were piloted along with the other scales of the present study, the scale warrants further piloting to ensure its construct validity especially in light of the fact that it emerged to be a key negative predictor of both body image dissatisfaction and disordered eating. With that said, the significant role that body acceptance by God showed in relation to both body image dissatisfaction and disordered eating in this study needs to be interpreted cautiously, as it might have measured self-body acceptance rather than acceptance from God. Future research should consider developing this construct further and assessing its validity. In light of previous qualitative studies (Wood-Barcalow et al., 2010), the following questions may be considered in the development of a scale that can thoroughly assess body acceptance by God: “I believe that God unconditionally accepts me the way I am, including my body,” “God created me unique and special, and this

also applies to the body He chose for me," "Respecting God entails that I care for myself, including my body," and "My faith helps me feel more connected to my body."

APPENDIX A
SOCIODEMOGRAPHIC QUESTIONNAIRE

Question for Inclusion/Exclusion:

Are you older than 18?
- **No**
- **Yes**

Sociodemographic Questionnaire:

What is your age? _____

What is your gender?
- Woman
- Man
- Other, please specify: _____

Which of the below best describes your household income?
- Our household income covers our needs well, and we can save from it
- Our household income covers our needs, but we cannot save from it
- Our household income does not cover our needs, and we face difficulties meeting those needs
- I prefer not to answer
- I don't know

What is your religious identity or affiliation?
- Christian
- Muslim
- Druze
- Jewish
- Buddhist
- Agnostic/Atheist
- If not mentioned above, please specify: _____

What is your major? _____

In which year of your academic program are you currently enrolled?
- Freshman
- Sophomore (1st year)
- Junior (2nd year)
- Senior (3rd year)

To what extent do you consider yourself to be a religious person?
- Not religious at all
- Slightly religious
- Moderately religious

- Very religious

What is your weight (in kilograms)? _____

What is your height (in centimeters)? _____

Are you currently diagnosed with any eating disorder by a mental health professional?

- No
- Yes, specify: _____

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APPENDIX B
EATING DISORDER INVENTORY - BODY DISSATISFACTION SCALE (EDI-BD)

Instructions: This is a scale which measures attitudes and feelings about your body. There are no right or wrong answers, so try very hard to be completely honest in your answers. Results are completely confidential. Read each question and choose the option which applies best for you. Please answer each question very carefully. Thank you.

0	**1**	**2**	**3**
Never	**Rarely**	**Sometimes**	**Always**

1) I think that my stomach is too big.	**0**	**1**	**2**	**3**
2) I think that my thighs are too large.	**0**	**1**	**2**	**3**
3) I think that my stomach is just the right size.	**0**	**1**	**2**	**3**
4) I feel satisfied with the shape of my body.	**0**	**1**	**2**	**3**
5) I like the shape of my buttocks.	**0**	**1**	**2**	**3**
6) I think my hips are too big.	**0**	**1**	**2**	**3**
7) I think that my thighs are just the right size.	**0**	**1**	**2**	**3**
8) I think my buttocks are too large.	**0**	**1**	**2**	**3**
9) I think that my hips are just the right size.	**0**	**1**	**2**	**3**

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APPENDIX C
EATING ATTITUDES TEST (EAT-26)

Instructions: Carefully read each of the items listed below, and record the number that best describes how frequently the statements describe you.

1 **Never**	2 **Rarely**	3 **Sometimes**	4 **Often**	5 **Usually**	6 **Always**

1) I am terrified about being overweight.	**1**	**2**	**3**	**4**	**5**	**6**
2) I avoid eating when I am hungry.	**1**	**2**	**3**	**4**	**5**	**6**
3) I find myself preoccupied with food.	**1**	**2**	**3**	**4**	**5**	**6**
4) I have gone on eating binges where I feel that I may not be able to stop.	**1**	**2**	**3**	**4**	**5**	**6**
5) I cut my food into small pieces.	**1**	**2**	**3**	**4**	**5**	**6**
6) I am aware of the calorie content of foods that I eat.	**1**	**2**	**3**	**4**	**5**	**6**
7) I particularly avoid food with a high carbohydrate content (i.e., bread, rice, potatoes, etc.).	**1**	**2**	**3**	**4**	**5**	**6**
8) I feel that others would prefer I ate more.	**1**	**2**	**3**	**4**	**5**	**6**
9) I vomit after I have eaten.	**1**	**2**	**3**	**4**	**5**	**6**
10) I feel extremely guilty after eating.	**1**	**2**	**3**	**4**	**5**	**6**
11) I am preoccupied with a desire to be thinner.	**1**	**2**	**3**	**4**	**5**	**6**
12) I think about burning up calories when I exercise.	**1**	**2**	**3**	**4**	**5**	**6**
13) Other people think I am too thin.	**1**	**2**	**3**	**4**	**5**	**6**
14) I am preoccupied with the thought of having fat on my body.	**1**	**2**	**3**	**4**	**5**	**6**
15) I take longer than others to eat my meals.	**1**	**2**	**3**	**4**	**5**	**6**
16) I avoid foods with sugar in them.	**1**	**2**	**3**	**4**	**5**	**6**
17) I eat diet foods.	**1**	**2**	**3**	**4**	**5**	**6**
18) I feel that food controls my life.	**1**	**2**	**3**	**4**	**5**	**6**
19) I display self-control around food.	**1**	**2**	**3**	**4**	**5**	**6**
20) I feel that others pressure me to eat.	**1**	**2**	**3**	**4**	**5**	**6**
21) I give too much time and thought to food.	**1**	**2**	**3**	**4**	**5**	**6**

22) I feel uncomfortable after eating sweets.	**1**	**2**	**3**	**4**	**5**	**6**
23) I engage in dieting behavior.	**1**	**2**	**3**	**4**	**5**	**6**
24) I like my stomach to be empty.	**1**	**2**	**3**	**4**	**5**	**6**
25) I have the impulse to vomit after meals.	**1**	**2**	**3**	**4**	**5**	**6**
26) I enjoy trying new rich foods.	**1**	**2**	**3**	**4**	**5**	**6**

Please be aware that if you have answered "Usually" or "Always" to most questions, or if your score is greater than 20 on this questionnaire, it may indicate the need for further investigation by a qualified professional. Even scores below 20 can still indicate significant concerns with eating behaviors.

Should you score 20 or above, or if you have any concerns regarding your eating attitudes or other mental health matters, you are strongly encouraged to reach out to the AUB Counseling Center, which offers free counseling for AUB students (counselingcenter@aub.edu.lb, +9611350000 ext. 3196, West Hall, Room 210). You can also reach out to the Family Medicine Clinic (ext. 3000) or the Psychiatry Department (ext. 5650) at AUBMC. Other resources include the 24/7 Embrace national hotline for emotional support and suicide prevention (1564).

APPENDIX D
THE DUKE UNIVERSITY RELIGION INDEX (DUREL)

Instructions: Please choose the number for each item that most accurately describes your usual behavior.

1	2	3	4	5	6
Never	**Once a year or less**	**A few times a year**	**A few times a month**	**Once a week**	**More than once/week**

How often do you attend group religious services and gatherings (i.e., Church, Mosque, or other religious meetings)?	**1**	**2**	**3**	**4**	**5**	**6**

1	2	3	4	5	6
Rarely or never	**A few times a month**	**Once a week**	**Two or more times/week**	**Daily**	**More than once a day**

How often do you spend time in private religious activities, such as prayer, meditation, or study of religious text (e.g., Bible, Qur'an)?	**1**	**2**	**3**	**4**	**5**	**6**

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APPENDIX E
INTRINSIC/EXTRINSIC-REVISED QUESTIONNAIRE (I/E-R)

Instructions: Please indicate the extent to which each item applies to you based on the response options provided.

1	2	3	4	5
Strongly disagree	**Disagree**	**Undecided**	**Agree**	**Strongly agree**

1) I enjoy reading about my religion.	**1**	**2**	**3**	**4**	**5**
2) I go to my place of worship (i.e., church, mosque, etc.) because it helps me to make friends.	**1**	**2**	**3**	**4**	**5**
3) It doesn't matter much what I believe as long as I am good.	**1**	**2**	**3**	**4**	**5**
4) It is important to me to spend time in private thought and prayer.	**1**	**2**	**3**	**4**	**5**
5) I have often had a strong sense of God's presence.	**1**	**2**	**3**	**4**	**5**
6) I pray mainly to gain relief and protection.	**1**	**2**	**3**	**4**	**5**
7) I try hard to live all my life according to my religious beliefs.	**1**	**2**	**3**	**4**	**5**
8) What religion offers me most is comfort in times of trouble and sorrow.	**1**	**2**	**3**	**4**	**5**
9) Prayer is for peace and happiness.	**1**	**2**	**3**	**4**	**5**
10) Although I am religious, I don't let it affect my daily life.	**1**	**2**	**3**	**4**	**5**
11) I go to my place of worship (i.e., church, mosque, etc.) to spend time with my friends.	**1**	**2**	**3**	**4**	**5**
12) My whole approach to life is based on my religion.	**1**	**2**	**3**	**4**	**5**
13) I go to my place of worship (i.e., church, mosque, etc.) mainly because I enjoy seeing people I know there.	**1**	**2**	**3**	**4**	**5**
14) Although I believe in my religion, many other things are more important in life.	**1**	**2**	**3**	**4**	**5**

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APPENDIX F
ATTACHMENT TO GOD SCALE (AGS)

Instructions: Below are some items that describe your relationship with God. Please rate them using the response options according to the degree to which they apply to you.

1 **Not at all characteristic of me**	**2**	**3**	**4**	**5**	**6**	**7** **Very characteristic of me**

1) God seems impersonal to me.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2) God seems to have little or no interest in my personal problems.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3) God seems to have little or no interest in my personal affairs.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4) I have a warm relationship with God.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5) God knows when I need support.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6) I feel that God is generally responsive to me.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7) God sometimes seems responsive to my needs, but sometimes not.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8) God's reactions to me seem to be inconsistent.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9) God sometimes seems very warm and other times very cold to me.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

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APPENDIX G
BRIEF RELIGIOUS COPING SCALE (BRIEF RCOPE)

Instructions: Think about how you try to understand and deal with major problems in your life. To what extent is each of the following involved in the way you cope?

1 **Not at all**	2 **Somewhat**	3 **Quite a bit**	4 **A great deal**

1) I looked for a stronger connection with God.	**1**	**2**	**3**	**4**
2) I sought love and care from God.	**1**	**2**	**3**	**4**
3) I sought help from God in letting go of my anger.	**1**	**2**	**3**	**4**
4) I tried to put my plans into action together with God.	**1**	**2**	**3**	**4**
5) I tried to see how God might be trying to strengthen me in this situation.	**1**	**2**	**3**	**4**
6) I asked for forgiveness for my sins.	**1**	**2**	**3**	**4**
7) I focused on religion to stop worrying about my problems.	**1**	**2**	**3**	**4**
8) I wondered whether God had abandoned me.	**1**	**2**	**3**	**4**
9) I felt punished by God for my lack of devotion.	**1**	**2**	**3**	**4**
10) I wondered what I did for God to punish me.	**1**	**2**	**3**	**4**
11) I questioned God's love for me.	**1**	**2**	**3**	**4**
12) I wondered whether my religion had abandoned me.	**1**	**2**	**3**	**4**
13) I believed that the devil made this happen.	**1**	**2**	**3**	**4**
14) I questioned the power of God.	**1**	**2**	**3**	**4**

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APPENDIX H
MANIFESTATION OF GOD IN THE BODY SCALE (MGBS)

Instructions: Please indicate the degree to which you agree with each of the statements below using the following scale.

1 **Strongly disagree**	2	3	4	5	6	7 **Strongly agree**

1) My body is a temple of God.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2) My body is created in God's image.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3) My body is a gift from God.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4) God is present in my body.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5) God uses my body to do God's will.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6) My body is united with God.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7) My body is bonded to the everlasting Spirit of God.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8) A spark of the divine resides in my body.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9) God lives through my body.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10) God is glorified through my body.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
11) My body is an instrument of God.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
12) The power of God moves through my body.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

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APPENDIX I
SACRED QUALITIES OF THE BODY SCALE (SQBS)

Instructions: Please indicate the degree to which you feel each word applies to your body using the following scale.

1 **Does not describe at all**	**2**	**3**	**4**	**5**	**6**	**7** **Very closely describes**

1) Blessed.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2) Holy.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3) Sacred.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4) Spiritual.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5) Miraculous.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6) Divine.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7) Hallowed.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8) Spirit-filled.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9) Heavenly.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10) Religious.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

If you have any concerns about your eating attitudes or any other mental health issues, you are strongly encouraged to reach out to the AUB Counseling Center, which offers free counseling for AUB students (counselingcenter@aub.edu.lb, +9611350000 ext. 3196, West Hall, Room 210). You can also reach out to the Family Medicine Clinic (ext. 3000) or the Psychiatry Department (ext. 5650) at AUBMC. Other resources include the 24/7 Embrace national hotline for emotional support and suicide prevention (1564).

APPENDIX J
BODY ACCEPTANCE BY GOD SCALE

Instructions: Please rate the following items using the scale below.

1 **Never**	**2**	**3**	**4**	**5** **Always**

1) I have felt acceptance from God regarding my body shape and/or weight.	**1**	**2**	**3**	**4**	**5**
2) God has sent me the message that my body shape and weight are fine.	**1**	**2**	**3**	**4**	**5**

If you have any concerns about your eating attitudes or any other mental health issues, you are strongly encouraged to reach out to the AUB Counseling Center, which offers free counseling for AUB students (counselingcenter@aub.edu.lb, +9611350000 ext. 3196, West Hall, Room 210). You can also reach out to the Family Medicine Clinic (ext. 3000) or the Psychiatry Department (ext. 5650) at AUBMC. Other resources include the 24/7 Embrace national hotline for emotional support and suicide prevention (1564).

APPENDIX K
PILOT STUDY INVITATION

Invitation to Participate in the Pilot of a Research Study on Eating Disorders
This notice is for an AUB-IRB Approved Research Study
****It is not an Official Message from AUB****

Dear Psychology Graduate Students,

I hope this message finds you well. I am reaching out to invite you to participate in piloting the research study "Dimensions of Religiosity as Predictors of Disordered Eating in Lebanese Undergraduates." I am the study's principal investigator (PI), Dr. Tania Bosqui is the interim PI, and the study is part of Ms. Tatiana Khalaf's thesis project, who is a fellow M.A. psychology student. The study aims to investigate the relationships between aspects of religiosity, body image, and disordered eating in undergraduate students in Lebanon. Through this investigation, we hope to better inform the prevention of eating disorders.

I am seeking you out as participants to engage in a pilot testing phase to gather feedback on the survey's clarity, relevance, and overall structure. As a graduate student in psychology, your insights would be valuable. Your feedback will play a vital role in refining the survey before its official distribution. This process will involve:

- Reviewing the survey questions for clarity and understanding.
- Providing feedback on the relevance of the questions to the research topic.
- Suggesting any additional questions or modifications that could enhance the survey.

Participation in this pilot testing will not only contribute to the advancement of this research but also offer you the opportunity to engage with the survey development process.

If you are willing to participate, please click on the following link to access the survey: [SURVEY LINK HERE]

You do not need to submit your responses on the survey platform. If possible, submit your feedback in a Word document by sending an email to Ms. Tatiana Khalaf at twk06@mail.aub.edu.

Should you have any questions or require further information, please feel free to reach out.
Thank you very much for considering this invitation. Your contribution to this research endeavor is greatly appreciated.

APPENDIX L
PSYC201 STUDY INVITATION

Invitation to Participate in a Research Study on Eating Disorders
This notice is for an AUB-IRB Approved Research Study **It is not an Official Message from AUB**

You are invited to participate in a research study titled "Dimensions of Religiosity as Predictors of Disordered Eating in Lebanese Undergraduates." The study's principal investigator is Dr. Ghena Ismail. Dr. Tania Bosqui is currently the interim principal investigator. Collaborators include Ms. Tatiana Khalaf, M.A. psychology student.

Purpose of the study: We are investigating the relationships between aspects of religiosity, body image, and disordered eating in undergraduate students in Lebanon. Through this investigation, we hope to better inform the prevention of eating disorders. If you choose to participate, you will be kindly asked to complete an anonymous online survey that explores aspects of your religiosity and views towards your body as well as eating related attitudes and behaviors.
The estimated time to complete this survey is 35 minutes.

Inclusion Criteria: Being enrolled in PSYC101/201 class at AUB and being older than 18.

Risks: There are no known risks to your participation in this research study. You may experience discomfort when reflecting on your body image, eating attitudes and behaviors, and relationship with God in the process of completing the questionnaires. However, this discomfort will not likely exceed what you may experience in your daily living as a result of being exposed to conversations about any of these topics.

Benefits: As a PSYC101/201 student, you can benefit from additional course credit for participating in this study. There is no other direct benefit from taking part in this study. However, this study may help inform future prevention programs for eating disorders.

Alternatives: If you do not wish to participate in the study, you have the possibility to obtain the extra credit through an alternative activity that consists of writing a brief report on a topic to be determined with your course instructor.

Your participation in this study is voluntary and you may decide not to participate.

To participate, please click on the link below:
[SURVEY LINK HERE]

If you have any questions about this study, you may contact the investigator/research team (Dr. Ghena Ismail, gi14@aub.edu.lb, +961-1-350000 ext: 4376; Dr. Tania Bosqui, tb33@aub.edu.lb, ext: 4927; Tatiana Khalaf, twk06@mail.aub.edu).

APPENDIX M
INFORMED CONSENT FORM

Consent to Participate in an Online Research Study
This notice is for an AUB-IRB Approved Research Study for
Dr. Ghena Ismail AUB (Jesup Hall, 108).
****It is not an Official Message from AUB****

You are invited to participate in a research study titled "Dimensions of Religiosity as Predictors of Disordered Eating in Lebanese Undergraduates" conducted by Dr. Ghena Ismail, Faculty of Arts and Sciences, at the American University of Beirut. Interim principal investigator: Dr. Tania Bosqui.
The conduct of this study will adhere to the IRB-approved protocol.
The IRB-approved method for approaching subjects is through your university professors. The purpose of the study is to investigate the relationship between aspects of religiosity, body image, and disordered eating in undergraduate students in Lebanon.

PROCEDURES:
Read the consent document and decide whether you want to be involved in the study.

- Participation is completely voluntary.
- Completing the questionnaire will take around 35 minutes.
- Only the data you provide in the questionnaire will be collected and analyzed. The research team will not have access to your name or contact details.
- The results of the survey will be published in the AUB student theses repository that will be available electronically at AUB Libraries.
- The inclusion and exclusion criteria: You are eligible to participate if you are a PSYC101/201 student at AUB who is older than 18. Individuals who are not PSYC101/201 students or who are under 18 will be excluded.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY:
As a PSYC101/201 student, you can benefit from additional course credit for participating in this study. There is no other direct benefit from taking part in this study. However, this study may help inform future prevention programs for eating disorders. If you do not wish to participate in the study, you have the possibility to obtain the extra credit through an alternative activity that consists of writing a brief report on a topic to be determined with your course instructor.

POTENTIAL RISKS TO SUBJECTS AND/OR SOCIETY:
The risks of the study are minimal. You may experience distress when answering some of the questions, as some ask about your body image, your eating attitudes and behaviors, and your relationship with God. If you have any concerns about your eating attitudes or any other mental health issues, you are strongly encouraged to reach out to the AUB Counseling Center, which offers free counseling for AUB students (counselingcenter@aub.edu.lb, +9611350000 ext. 3196, West Hall, Room 210). You can also reach out to the Family Medicine Clinic (ext. 3000) or the Psychiatry Department (ext. 5650) at AUBMC.
Other resources include the 24/7 Embrace national hotline for emotional support and suicide prevention (1564).

CONFIDENTIALITY:
The collected data will remain confidential and anonymous.
Records will be monitored and may be audited by the IRB while assuring confidentiality.

PARTICIPATION AND WITHDRAWAL:
If you voluntarily consent to take part in this study, you can change your mind and withdraw at any time without consequences of any kind.
Refusal to participate or withdrawal from the study will involve no penalty or loss of benefits to which the subject is otherwise entitled, and neither will it affect their relationship with their organization and AUB/AUBMC.

QUESTIONS ABOUT THE STUDY:
If you have any questions about the study, you can contact the research team (Dr. Ghena Ismail, gi14@aub.edu.lb, +961-1-350000 ext: 4376; Dr. Tania Bosqui, tb33@aub.edu.lb, ext: 4927; Tatiana Khalaf, twk06@mail.aub.edu).

CONCERNS OR QUESTIONS ABOUT YOUR RIGHTS:
If you have concerns about the study or questions about your rights as a participant, you can contact the AUB IRB Office at irb@aub.edu.lb or 5445.

ACCESS TO THE SURVEY:
If after reading the consent document and having your questions answered, you voluntarily agree to take part in the study; you can proceed by ticking the consent box below.

APPENDIX N
INFORMATION SHEET

End of Survey

Thank you for your participation. To gain extra credit, please write down your uniquely generated code and send it in an email to your course professor. This code will not link your responses to you:
[CODE HERE]

Once you have copied the code, remember to click submit below to complete the survey.

If you have any questions about this study, you may contact the investigator/research team (Dr. Ghena Ismail, gi14@aub.edu.lb, +961-1-350000 ext: 4376; Dr. Tania Bosqui, tb33@aub.edu.lb, ext: 4927; Tatiana Khalaf, twk06@mail.aub.edu).

Information on Disordered Eating

Recognizing Symptoms:

Disordered eating can manifest in many ways. Some common signs include:

- Lack of appetite.
- Weight loss or chronic weight fluctuations.
- Upset stomach, abdominal pain or other gastrointestinal issues.
- Picky eating and/or limited range of preferred foods.
- Frequent dieting associated with specific foods or meal skipping.
- Rigid rituals and routines surrounding food and exercise.
- Feelings of guilt and shame associated with eating.
- Preoccupation with food, weight and body image that negatively impacts quality of life.
- A feeling of loss of control around food, including compulsive eating habits.
- Using exercise, food restriction, fasting or purging to "make up for bad foods" consumed.
- Headaches.
- Nausea.
- Concentration difficulties.
- Fatigue.

Importance of Seeking Help:

Taking care of your mental and physical health is important. It is crucial to address disordered eating for both physical and mental well-being. While many people who have disordered eating patterns may fit the criteria for an eating disorder, it is also possible to have disordered eating behaviors that do not fit within the diagnostic criteria for an eating disorder. Nonetheless, disordered eating behaviors may turn into more problematic eating disorders and put individuals at risk of serious health problems.

Seeking help is a positive step towards recovery and a healthier relationship with food and body.

Resources for Support:

If you or someone you know is struggling with disordered eating, you are not alone. Help and support are available, please consider reaching out to the AUB Counseling Center, which offers free counseling for AUB students (counselingcenter@aub.edu.lb, +9611350000 ext. 3196, West Hall, Room 210). You can also reach out to the Family Medicine Clinic (ext. 3000) or the Psychiatry Department (ext. 5650) at AUBMC. Other resources include the 24/7 Embrace national hotline for emotional support and suicide prevention (1564).

APPENDIX O
FACTOR ANALYSIS

Table 9

Pattern Matrix for the Intrinsic/Extrinsic-Revised Scale (I/E-R)

	Factor	
	1	2
1) I enjoy reading about my religion.	.847	
2) I go to my place of worship (i.e., church, mosque, etc.) because it helps me to make friends.	.446	-.498
3) It doesn't matter much what I believe as long as I am good.	.575	
4) It is important to me to spend time in private thought and prayer.	.836	
5) I have often had a strong sense of God's presence.	.794	
6) I pray mainly to gain relief and protection.	.652	
7) I try hard to live all my life according to my religious beliefs.	.780	
8) What religion offers me most is comfort in times of trouble and sorrow.	.827	
9) Prayer is for peace and happiness.	.734	
10) Although I am religious, I don't let it affect my daily life.		
11) I go to my place of worship (i.e., church, mosque, etc.) to spend time with my friends.		-.900
12) My whole approach to life is based on my religion.	.796	
13) I go to my place of worship (i.e., church, mosque, etc.) mainly because I enjoy seeing people I know there.		-.770
14) Although I believe in my religion, many other things are more important in life.	.351	

Table 10

Pattern Matrix for the Attachment to God Scale (AGS)

	Factor	
	1	2
1) God seems impersonal to me.	.314	
2) God seems to have little or no interest in my personal problems.	.833	
3) God seems to have little or no interest in my personal affairs.	.782	.308
4) I have a warm relationship with God.		.875
5) God knows when I need support.		.872
6) I feel that God is generally responsive to me.		.801
7) God sometimes seems responsive to my needs, but sometimes not.		
8) God's reactions to me seem to be inconsistent.	.364	
9) God sometimes seems very warm and other times very cold to me.	.323	

Table 11

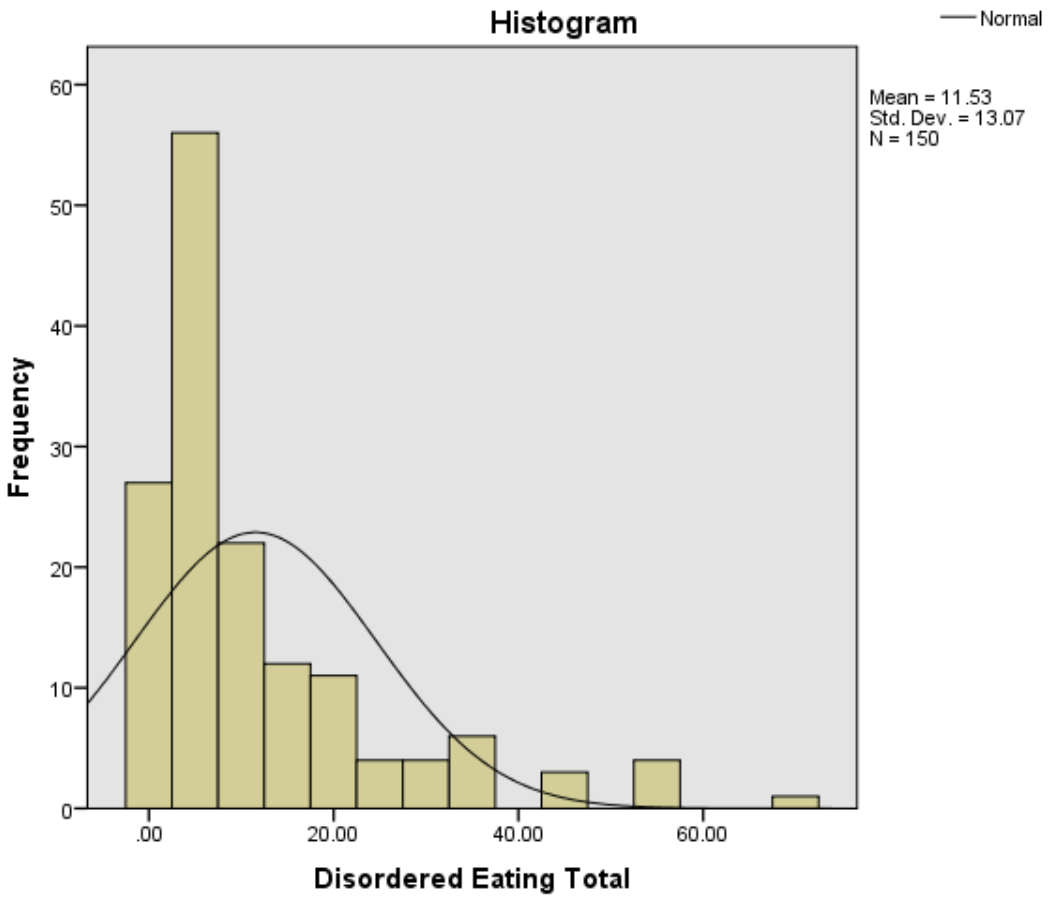
Pattern Matrix for the Brief Religious Coping Scale (Brief RCOPE)

	Factor	
	1	2
1) I looked for a stronger connection with God.	.744	
2) I sought love and care from God.	.916	
3) I sought help from God in letting go of my anger.	.877	
4) I tried to put my plans into action together with God.	.825	
5) I tried to see how God might be trying to strengthen me in this situation.	.830	
6) I asked for forgiveness for my sins.	.841	
7) I focused on religion to stop worrying about my problems.	.759	
8) I wondered whether God had abandoned me.		.754
9) I felt punished by God for my lack of devotion.		.689
10) I wondered what I did for God to punish me.		.795
11) I questioned God's love for me.		.782
12) I wondered whether my religion had abandoned me.		.855
13) I believed that the devil made this happen.		.310
14) I questioned the power of God.	-.412	.541

APPENDIX P
NORMALITY TEST HISTOGRAM

Figure 3

Histogram for Disordered Eating



APPENDIX Q
MULTIPLE REGRESSION ASSUMPTIONS

Figure 4

Scatterplot of ZPRED vs ZRESID of the Model Predicting Body Image Dissatisfaction

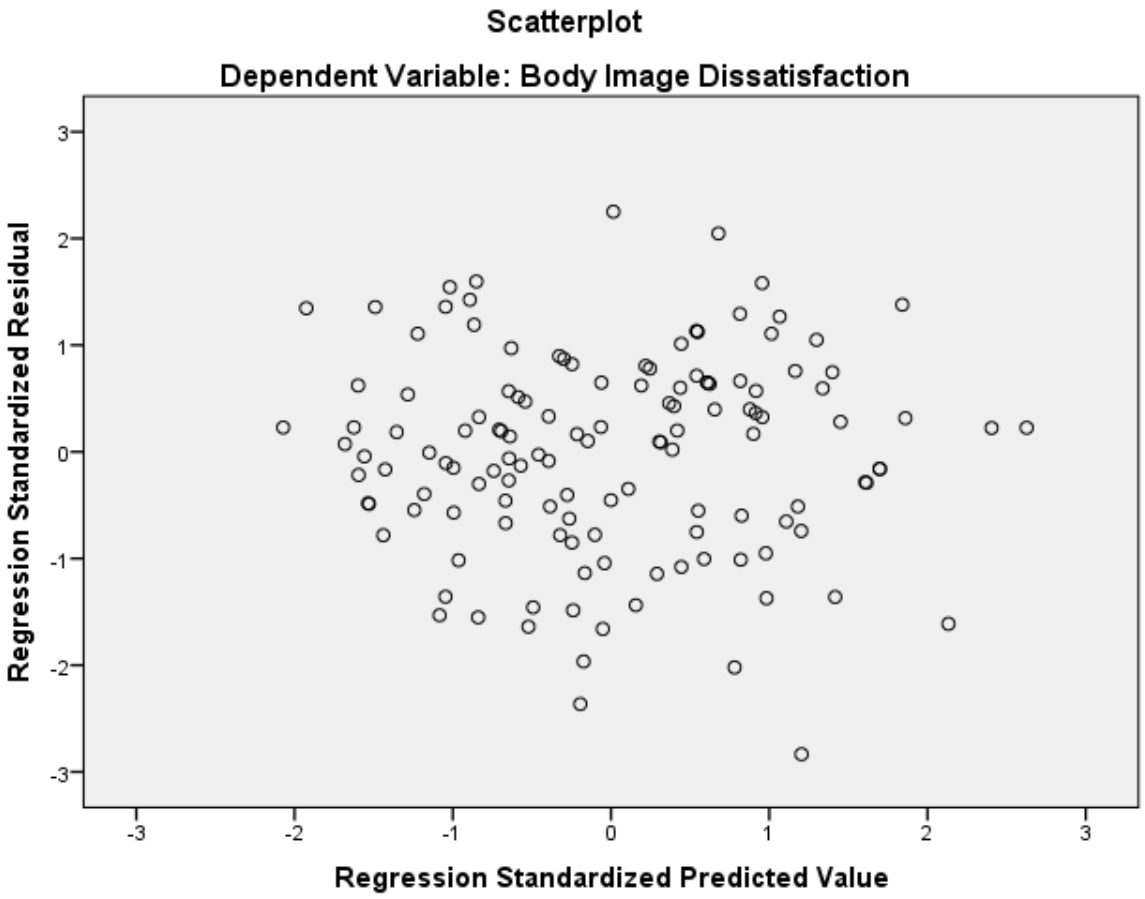


Figure 5

Histogram of Residuals for the Model Predicting Body Image Dissatisfaction

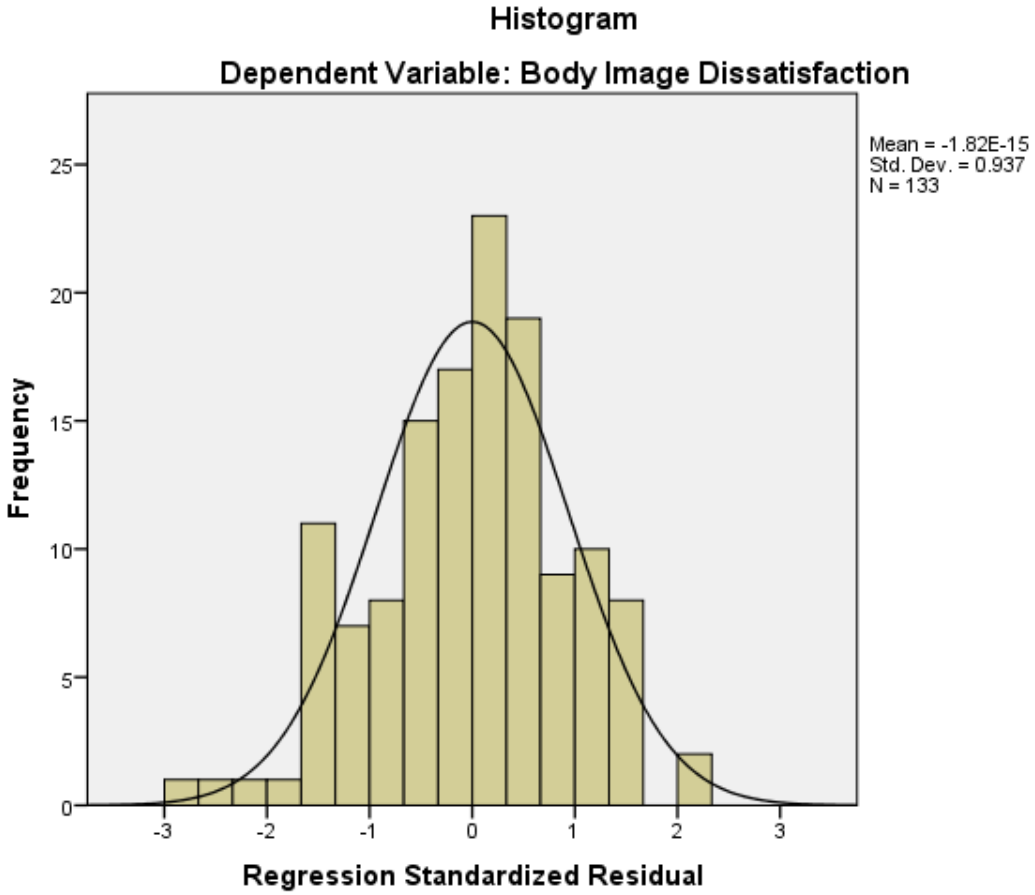


Figure 6

P-P of Residuals of Model Predicting Body Image Dissatisfaction

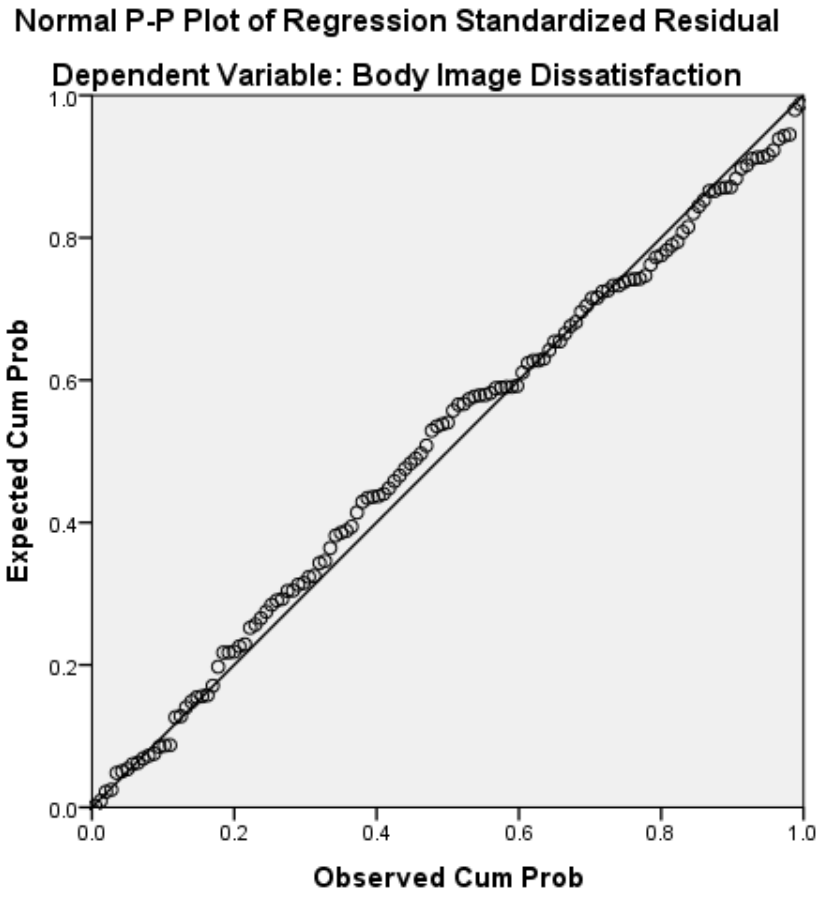


Figure 7

Scatterplot of ZPRED vs ZRESID of the Model Predicting Disordered Eating

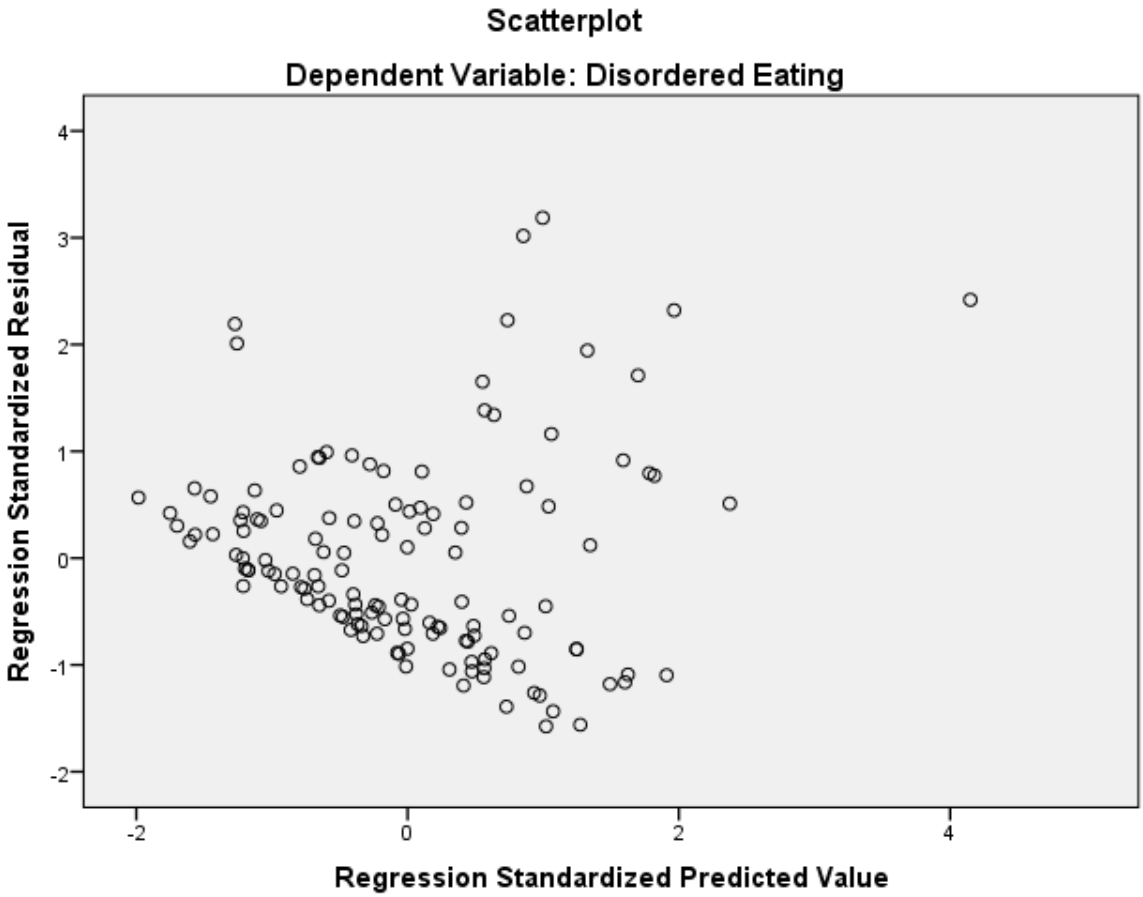


Figure 8

Histogram of Residuals for the Model Predicting Disordered Eating

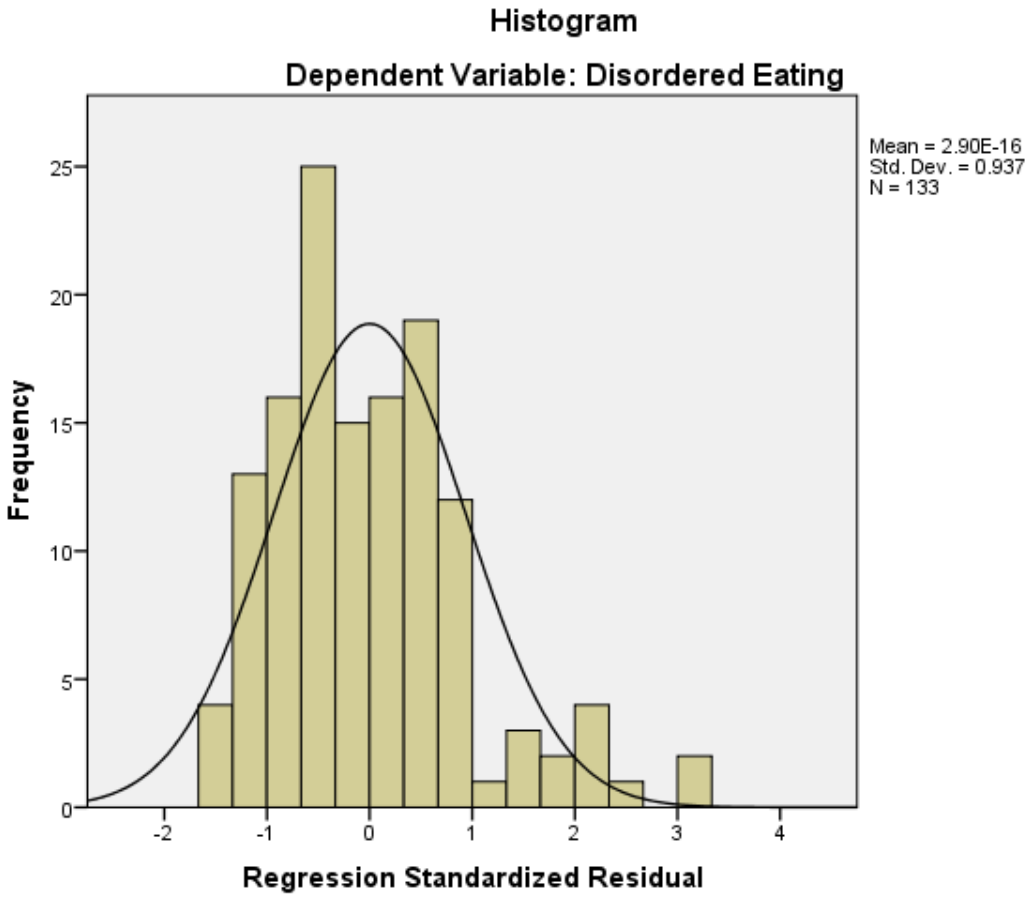
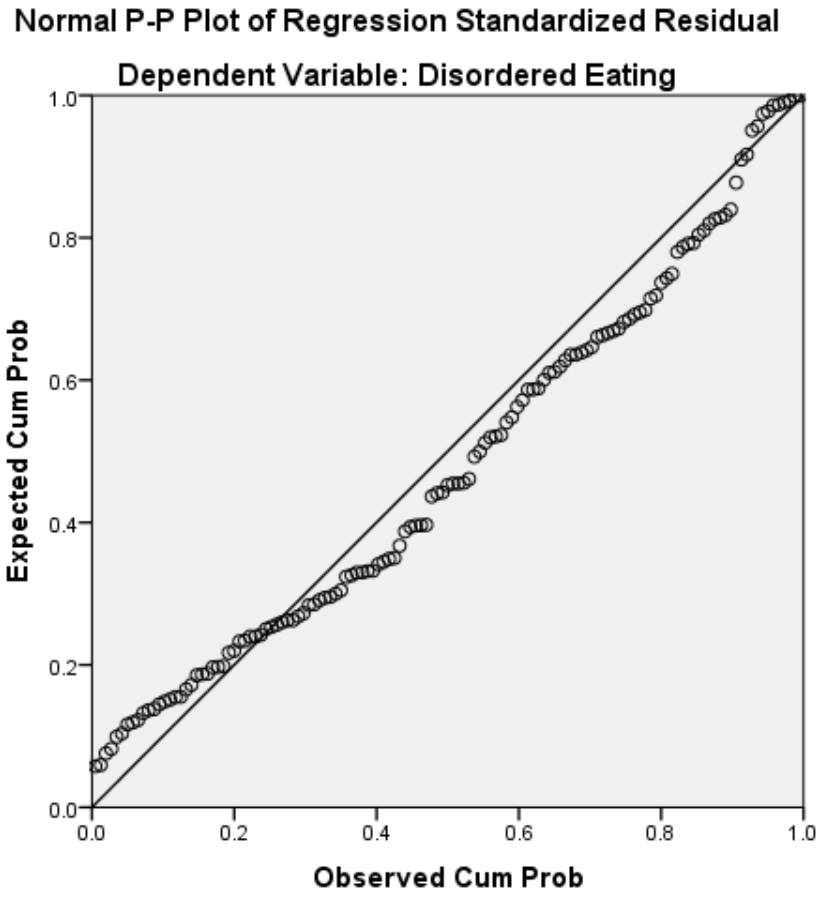


Figure 9

P-P of Residuals of Model Predicting Disordered Eating



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