

DISORDERED EATING AMONG AFRICAN AMERICAN GIRLS: THE IMPACT OF
RACISM, DEPRESSION, AND SPIRITUAL WELL-BEING

by

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(Under the Direction of Rheeda L. Walker)

ABSTRACT

Despite lore that eating disorders do not affect underrepresented ethnic groups (e.g., Smolak & Striegel-Moore, 2001), epidemiological data suggests that African American girls are vulnerable to eating disorder pathology (e.g., Swanson et al., 2011). Growing evidence suggests that racial discrimination may be a predictor of maladaptive eating behaviors among African American women (e.g., Brodish et al., 2011). However, no known study to date has examined the association between racism and eating disorder pathology among African American girls, or tested a model to explain this association. The present study investigated the relations between experiences with racial discrimination, depressive symptoms, and eating behaviors among African American adolescent girls, as well as the potential buffering role of spiritual well-being. Participants ($n = 249$, $M_{age} = 16.13$ years) completed measures of racial discrimination, eating disorder pathology, depressive symptoms, and spiritual well-being. Results indicated that girls who reported experiences with racial discrimination may be more likely to endorse bulimic and binge-eating pathology than those who denied similar experiences. However, this association was not influenced by depressive symptoms or spiritual well-being. Results are discussed in

terms of the risk and protective factors that may be associated with the development and maintenance of eating pathology among African American adolescent girls.

INDEX WORDS: African American, girls, racism, eating disorders

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CHAPTER 1

INTRODUCTION

In the United States, approximately 0.3%, 1.3%, and 2.3% of adolescent girls aged 13 to 18-years-old meet full diagnostic criteria for anorexia nervosa (AN), bulimia nervosa (BN), and binge-eating disorder (BED), respectively (Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011). Despite lore that eating disorders do not affect underrepresented ethnic groups (e.g., Akan & Grilo, 1995; Smolak & Striegel-Moore, 2001), adolescent girls from diverse ethnic backgrounds are also vulnerable to developing eating pathology. Epidemiological prevalence rates from the National Comorbidity Survey Replication Adolescent Supplement (Swanson et al., 2011) and the Survey of American Life (Taylor, Caldwell, Baser, Faison, & Jackson, 2007) estimate that 0.1%, 0.43% to 1%, and 1.47% to 1.5% of African American girls meet diagnostic criteria for AN, BN, and BED, respectively.

Individuals with an eating disorder are more likely to experience depressed mood (e.g., Berkman, Lohr, & Bulik, 2007; Marmorstein, von Ranson, Iacono, & Malone, 2008; Mangweth et al., 2003; Reagan & Hersch, 2005) and be diagnosed with an anxiety disorder (e.g., Berkman et al., 2007; Kaye, Bulik, Thornton, Barbarich, & Masters, 2004; Silberg & Bulik, 2005; Treasure, Claudino, & Zucker, 2010) than individuals without an eating disorder. AN also has the highest mortality rate of any of mental disorder (e.g., Hoek, 2006; Nielsen, 2001; Sullivan, 1995; Zipfel, Lowe, Reas, Deter, & Herzog, 2000). Due to the increased risk of life-threatening medical problems, premature death, and suicide (e.g., Berkman et al., 2007; Keel et al., 2003; Polivy & Herman, 2002), the World Health Organization has identified eating disorders as a

priority mental illness for children and adolescents (World Health Organization [WHO], 2005). Yet, African American adolescents are disproportionately less likely to receive treatment for an eating disorder than their European American counterparts (e.g., Becker, Hadley-Arrindell, Perloe, Fay, & Striegel-Moore, 2010; Becker, Franko, Speck, & Herzog, 2003; Franko, Becker, Thomas, & Herzog, 2007; George & Franko, 2010; Gordon, Brattole, Wingate, & Joiner, 2006; Gordon, Perez, & Joiner, 2002). Further, the factors that coincide with eating disorders in this population are grossly understudied. As a result, the goal of the present study is to examine a culturally-centered model of risk and resilience for eating pathology among African American girls.

Prevalence of Eating Pathology

Disordered eating encompasses a wide variety of disturbed eating habits including restrictive dieting, emotional over-eating, and habitual over-exercising (e.g., George & Franko, 2010; Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004; Linde, Wall, Haines, & Neumark-Sztainer, 2009). Research estimates that as many as 60% of adolescent girls may engage in maladaptive eating behaviors (e.g., Eichen, Conner, Daly, & Fauber, 2012; Forman-Hoffman, 2004; Krowchuk, Kreiter, Woods, Sinal, & DuRant, 1998; Linde et al., 2009; Pisetesky, Chao, Dierker, May, & Striegel-Moore, 2008). In a nationally representative sample of adolescent girls, Ackard and colleagues (2007) found that 36.4% viewed weight and shape as important, 41.5% identified body image disturbances, 11% endorsed subclinical binge eating, and 9.4% reported recurrent purging behaviors. Further, Thompson and colleagues' (2003) findings suggest that 45% to 55% of African American girls in the 3rd, 5th, 8th, and 11th grade engage in unhealthy weight control behaviors. These findings are particularly meaningful given that African Americans utilize outpatient mental health services at disproportionately lower rates (Gabbidon

& Peterson, 2006), express more pervasive mistrust of mental health and medical settings (LaVeist, Nickerson, & Bowie, 2000; Whaley, 2001), and are less likely to receive treatment for an eating disorder than their European American counterparts (e.g., Becker et al., 2010; George & Franko, 2010; Gordon et al., 2006; Gordon et al., 2002). As a result, the available eating disorder prevalence rates for African American adolescents are likely an underestimate.

When maladaptive eating behaviors reach the clinical threshold set forth in the Diagnostic and Statistical Manual for Mental Disorders (DSM-5; American Psychiatric Association, 2013), they are classified as AN, BN, BED, and/or Other Specified Feeding and Eating Disorder (OSFED). AN is the restriction of caloric intake that leads to low body weight and is associated with an intense fear of gaining weight, body image disturbances, and amenorrhea. Conversely, BN is characterized by patterns of binge eating (i.e., eating an objectively large amount of food in a discrete time period while experiencing a subjective lack of control) and compensatory behaviors (e.g., self-induced vomiting, laxative misuse, fasting, or excessive exercise), accompanied with self-evaluation that is unduly influenced by body shape and weight. Further, BED is defined as the presence of binge eating and the associated distress in the absence of compensatory behaviors. The remaining diagnostic category, OSFED, accounts for individuals with subthreshold variants of AN, BN, and/or BED who still exhibit clinically significant impairment and distress.

Previous research has consistently demonstrated that AN and BN typically occur during adolescence. According to the DSM-IV-TR (APA, 2000), the mean age of individuals with AN is 17-years-old, with bimodal peaks in the distribution of these ages at 14 and 18 years. Similarly, the majority of individuals experience eating symptomatology demonstrative of BN during late adolescence (APA, 2000). On the other hand, data from the National Comorbidity

Survey Replication suggest that the onset of BED is sometime in late adolescence or adulthood (Hudson, Hiripi, Pope, & Kessler, 2007). Of note, diagnostic crossover between eating disorders is a fairly common phenomenon, particularly from AN to BN (Eddy et al., 2002; 2008; Keel, Dorer, Franko, Jackson, & Herzog, 2005; Tozzi et al., 2005) and from BN to BED (Fichter, Quadflieg, & Hedlund, 2006).

The available literature examining potential ethnic-group differences in the prevalence, etiology, and manifestation of eating disorders has generated some notable inconsistencies. Some studies have found that African American and European American girls manifest differences in certain types of eating pathology (e.g., drive for thinness), but not others (e.g., BN and binge eating) (e.g., George & Franko, 2010; Johnson, Rohan, & Kirk, 2002; O'Neill, 2003; Pernick et al., 2006; Robinson, Chang, Haydel, & Killen, 2001; Striegel-Moore et al., 2000; 2003). On the other hand, Shaw and colleagues (2004) combined data from four separate research projects conducted with middle school, high school, and college students to examine ethnic group differences in eating pathology and found no differences in eating disorder symptoms in a sample of Asian American ($n = 64$), African American ($n = 49$), Hispanic ($n = 108$), or European American ($n = 564$) adolescents and young adults. They found that ethnicity did not moderate the relations between risk factors for eating pathology and the actual presence of eating disorder symptoms (Shaw et al., 2004). These results seem to suggest the absence of ethnic-group differences in the etiology of eating disorders. However, non-European Americans were markedly underrepresented in their sample, making it difficult to determine whether the results were reflective of actual similarities across ethnic groups or insufficient statistical power to reveal existing differences. As a result, there is a need for more definitive investigations of eating

pathology among adolescent girls using either entirely African American samples or equally representative multi-ethnic samples.

Risk Factors for Eating Disorders

A considerable amount of research has been conducted to understand the etiology of eating disorders. These investigations have illuminated numerous demographic, psychological, intrapsychic, behavioral, and socio-environmental risk factors associated with the onset and persistence of eating disorders among adolescent girls. With respect to demographic variables, studies have repeatedly highlighted the potential link between maladaptive eating habits and age, pubertal development, and onset of menarche. Some findings indicate that older age, more advanced pubertal development, and earlier menarche are related to the development of weight concerns and eating pathology among girls in elementary, middle, and high school (e.g., Day et al., 2011; Field et al., 1999; Graber, Lewinsohn, Seeley, & Brooks-Gunn, 1997; Hayward et al., 1997; Stice, Presnell, & Bearman, 2001; Thompson et al., 2003). However, Thompson and colleagues (2003) highlighted an interaction between age and race on eating pathology, such that the correlation between age and weight concerns was greater for European American girls than African American girls. Further, neither a comprehensive review (Jacobi et al., 2004) nor a meta-analysis (Stice, 2002) identified pubertal development and early menarche as risk factors or correlates of disordered eating among adolescent girls from any ethnic background.

Previous research has also identified several psychological and intrapsychic variables as risk factors for eating disorders among adolescent girls. The available literature suggests that negative affect is associated with increases in eating disorder pathology in this population (e.g., Wertheim, Koerner, & Paxton, 2001; Wichstrom, 2000), especially bulimic symptomatology (Field et al., 1999; Killen et al., 1996; Stice, 2001; Stice & Agras, 1998). Girls who report dietary

restraint and binge are more depressed and anxious than girls with healthy eating habits (e.g., Ferreiro, Seoane, & Senra, 2012; Johnson et al., 2002; Linde et al., 2009; White & Grilo, 2005). Low self-esteem and perfectionism are also related to the development and maintenance of eating pathology (Ferreiro et al., 2012; Killen et al., 1994; Linde et al., 2009; Santonastaso et al., 1999). Furthermore, Vander Wal and Thomas (2004) used well-validated measures to examine eating disorders among African American ($n = 69$) and Hispanic ($n = 55$) girls in the 4th and 5th grade. Results revealed a positive association between disturbed eating attitudes and behaviors and body image dissatisfaction, fears of negative evaluation, cognitive avoidance, and behavioral avoidance in the entire sample, as well as specifically among African American participants.

Among intrapsychic vulnerabilities for eating disorders, there is compelling evidence that body image dissatisfaction is related to the onset (e.g., Fairburn, Cooper, Doll, & Davies, 2005; Ferreiro, Seoane, G., & Senra, 2012; Killen et al., 1994, 1996; McVey, Pepler, Davis, Flett, & Abdolell, 2002; Linde et al., 2009; Stice & Agras, 1998; Stice & Shaw, 2002), increase (e.g., Graber, Brooks-Gunn, Paikoff, & Warren, 1994; Leon, Fulkerson, Perry, Keel, & Klump, 1999; Stice, 2001; Wertheim et al., 2001; Wichstrom, 2000), and maintenance (Linde et al., 2009; Stice & Agras, 1998) of eating disorder pathology among adolescent girls. Additionally, thin-ideal internalization (e.g., Field et al., 1999; Stice, 2001; Stice & Agras, 1998; Stice, Presnell, & Spangler, 2002; Wichstrom, 2000), as well as preoccupation with, concerns about, and importance of weight and shape (e.g., Fairburn et al., 2005; Field et al., 1999; Linde et al., 2009; McVey et al., 2002) are associated with disordered eating. For African American girls, White and Grilo (2005) found that body image dissatisfaction was also associated with dietary restraint.

Stice and colleagues (2011) examined the relation between body image dissatisfaction and eating disorder pathology using a multiethnic sample of 496 middle school girls (2%

Asian/Pacific Islander, 7% African American, 68% European American, 18% Hispanic, 1% Native American, and 4% other/mixed). They found that girls who endorsed high levels of body image dissatisfaction were four times more likely to develop an eating disorder than their peers with low levels of dissatisfaction. Among girls with high levels of body image dissatisfaction, those who also endorsed high levels of depression had a 2.9-fold increase in the likelihood of the onset of an eating disorder, and those who reported more dieting behaviors had a 3.6-fold increase in likelihood of the onset of an eating disorder compared to their same-aged peers who reported low levels of depression and fewer dieting behaviors (respectively) (Stice et al., 2011). However, despite the multiethnic composition of their sample, they did not equally represent adolescents from each ethnic group, conduct any between ethnic-group analyses, or examine these relations within the African American subset of the sample. Research also suggests that that the overestimation of weight among normal weight girls and accurate perceptions of weight among overweight girls are associated with the increased likelihood of fasting, diet pill use, and purging behaviors (Eichen et al., 2012).

Studies have investigated the relation between unhealthy habits (e.g., maladaptive eating behaviors and substance use) and eating disorders as well. A variety of subclinical eating disturbances, including extreme dieting, binge eating, and diet pill and laxative use, have been linked to the development of diagnostic eating disorders among adolescent girls (e.g., Fairburn, Agras, Walsh, Wilson, & Stice, 2004; George & Franko, 2010; Jacobi et al., 2004; Linde et al., 2009). Findings suggest that dieting is associated with the increase and maintenance of eating pathology (Leon et al., 1999; Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990; Santonastaso et al., 1999), especially BN symptoms (Field et al., 1999; Killen et al., 1994; 1996; Stice, 2001; Stice & Agras, 1998). Among symptom-clusters, dietary restraint and the

consumption of high-fat foods are associated with binge eating, whereas dietary restraint and binge eating are associated with purging behaviors (e.g., Field et al., 1999; Johnson et al., 2002). Fairburn and colleagues (2004) found that female adolescent dieters who developed an eating disorder reported higher levels of preoccupation with food and eating, desire to have an empty stomach, and fear of losing control over eating than their counterparts. Further, White and Grilo (2005) explored ethnic group differences in eating and body image disturbances among European American ($n = 320$), Latina ($n = 53$), and African American ($n = 54$) female adolescent psychiatric inpatients and found that only dietary restraint predicted purging behaviors among African American participants aged 12-20 years. With respect to alcohol and substance use, research indicates that girls who report binge drinking, smoking cigarettes, and/or using cocaine or inhalants are more likely to fast, purge, and use diet pills and laxatives than those who do not endorse substance use (e.g., Eichen et al., 2012; Pisetesky et al., 2008).

To examine the socio-environmental risk factors for unhealthy weight control behaviors (e.g., skipping meals and taking diet pills) among adolescents, Linde and colleagues' (2009) analyzed data from Project EAT (Eating among Teens) (Neumark-Sztainer et al., 1999). Project EAT was a research collaboration that utilized a sample of 4,746 adolescents recruited from 31 middle and high schools in the Midwestern region of the United States. Participants were between the ages of 11 and 18-years-old at Time 1 (16 to 23-years-old at Time 2) and represented an ethnically diverse sample of adolescents (48.5% White, 19.0% African-American, 19.2% Asian, 5.8% Hispanic, 3.5% Native American and 3.9% mixed or other race). Analyses of data from Project EAT revealed that the initiation and persistence of unhealthy weight control behaviors among female participants between Time 1 and Time 2 was associated with less family connectedness and more parental concerns about weight, peer dieting, and weight loss

article reading. Greater endorsement of peer teasing also predicted the persistence of unhealthy weight control behaviors between Time 1 and Time 2. Together, these variables accounted for 26% and 19% of the variance in the initiation and persistence of unhealthy weight control behaviors among female participants (respectively), with weight loss article reading having the highest predictive value (Linde et al., 2009).

Other research has supported these findings and emphasized parental, peer, and media influences as predictors of eating disorders among adolescent girls. Studies have found that perceptions of family concerns (Thompson et al., 2003), parental thin-ideal internalization (e.g., Davis, Shuster, Blackmore, & Fox, 2004; Linville, Stice, Gau, & O'Neil, 2011; Stice, 1998), and parental modeling (Stice, 1998; Stice et al., 2002) are positively associated with AN and BN symptoms, body image dissatisfaction, and weight concerns. Further, family discord and high parental demands (e.g., Striegel-Moore et al., 2005), high expressed emotion in families (e.g., Kyriacou, Treasure, & Schmidt, 2008), parent-child conflict (e.g., McVey et al., 2002; Spanos, Klump, Burt, McGue, & Iacono, 2010), and childhood sexual abuse (e.g., Polivy & Herman, 2002; White & Grilo, 2005; Wonderlich et al., 2001) may also be related to the onset of eating pathology.

With respect to peer and media influences, perceptions of friends' weight concerns and friends' desire for thinness, peer bulimic symptomatology, and peer thin ideal internalization are identified risk factors for disordered eating in this population (e.g., Field et al., 1999; Linville et al., 2011; Shomaker & Furman, 2009; Stice et al., 2002; Thompson et al., 2003; Vincent & McCabe, 2000). Peer insecurity is also positively associated with binge eating among African American girls (White & Grilo, 2005). Additionally, Field and colleagues (1999) found that trying to look like female actresses and models in movies, in magazines, or on television

accounted for 30% to 40% in the variance in the onset of purging behavior among girls between the ages of 9 and 14-years-old. Thus, sociocultural pressures to be thin may also be associated with increases in eating disorder symptomatology (e.g., Cattarin & Thompson, 1994; Field et al., 2001; Stice, 2001; Stice & Agras, 1998; Stice & Bearman, 2001; Stice et al., 2002; Wertheim et al., 2001).

Stice (2002) conducted a meta-analytic review of the research examining demographic, psychological, intrapsychic, behavioral, and socio-environmental risk and maintained factors for eating pathology. To achieve this goal, he combined and analyzed data from all available prospective and empirical studies of eating pathology conducted between 1980 and 2001. Findings highlighted perceived pressure to be thin, modeling of body image and eating disturbances by family members and peers, internalization of the thin ideal, body image dissatisfaction, negative affect, perfectionism, and impulsivity as risk factors for the development of eating pathology. Accordingly, adolescent girls who develop eating disorders report experiencing more familial and peer modeling of body image and eating disturbances, and endorse higher levels of perceived pressure to be thin, internalization of the thin ideal, body image dissatisfaction, negative affect, perfectionism, and impulsivity than those who do not develop eating disorders. Internalization of the thin ideal, body image dissatisfaction, negative affect, and perfectionism were also identified as maintenance factors for eating pathology. This study, however, did not examine ethnic differences risk and maintenance factors for disordered eating or specifically highlight any studies with entirely African American samples of adolescent girls.

In sum, previous research has identified a plethora of risk factors for the development and persistence of eating disorders and subthreshold eating pathology among adolescent girls

including negative affect, image dissatisfaction, and parental, peer, and media influences. However, the overwhelming majority of this research has involved entirely or predominately European American samples, and those conducted with multiethnic samples of adolescent girls have drastically underrepresented African Americans participants. As a result, the factors that predispose African American adolescent girls to the development of subclinical and clinical maladaptive eating attitudes and behaviors remain grossly understudied. Despite this marked dearth in the available literature, epidemiological data indicate that African American girls are vulnerable to eating pathology (Swanson et al., 2011; Taylor et al., 2007). Therefore, research using emic approaches to identify culturally-specific models of disordered eating for African American girls are warranted.

Perceived Racism and Eating Disorders

African American adolescents and adults often cope with stress by engaging in unhealthy behaviors, including emotional over-eating (e.g., Brodish, Cogburn, & Eccles, 2011; Jackson, Knight, & Rafferty, 2010; Smyth & Yarandi, 1996). Moreover, maladaptive eating behaviors may function as a method for African Americans to cope with trauma related to experiences of oppression and racism (Gilbert, 2003; Harrington, Crowther, Henrickson, & Mickelson, 2006; Thompson, 1994; 1996; Wagner et al., 2011). Qualitative examinations of this phenomenon have shown that many African American women with eating disorders attribute the recurrent experience of stressful life events, particularly racism, to both the onset and maintenance of their eating pathology (Thompson, 1994; 1996). Additionally, female African American participants in one study specifically reported engaging in maladaptive eating behaviors (i.e., eating unhealthy food choices and portions) to cope with racist events (Wagner et al., 2011).

Empirical investigations of the relation between racial discrimination and eating disorders have yielded inconsistent findings. Striegel-Moore and colleagues (2002) examined ethnic discrimination as a risk factor for binge eating and found that the experience of perceived discrimination does not distinguish African American women with BED from matched healthy controls. Alternately, other research findings suggest that the experience of racial discrimination may be associated with the onset and maintenance of eating pathology. Harrington and colleagues (2006) explored the influence of racial discrimination on eating pathology among African American women in college and found that high levels of discriminatory stress were associated with increased frequency of binge eating. Similarly, Brodish and colleagues (2012) found that cumulative perceived racial discrimination during adolescence is positively related to unhealthy eating behaviors in adulthood among African American women.

Despite these findings with college and adult samples, no known study to date has examined racism and discrimination as race-specific vulnerability factors for eating disorders among African American adolescent girls. Though, the results of research conducted with predominately European American samples has yielded promising findings that link both emotional abuse and bullying to disordered eating among adolescent girls. Jaite and colleagues (2012) investigated the etiological role of emotional trauma in AN and found that histories of childhood emotional abuse and neglect are more common among adolescent psychiatric inpatients with an eating disorder than healthy controls (Jaite et al., 2012). Farrow and Fox (2011) also identified that experiences with verbal and social bullying are positively associated with dietary restraint and body image dissatisfaction among girls 11- to 14-years-old. Additionally, one study conducted with Latina adolescents highlighted emotional abuse as a risk factor for weight concerns in this population (Hodson, Newcomb, Locke, & Goodyear, 2006).

Together, this research suggests that African American women and both European American and Latina adolescent girls who experience interpersonal stress (i.e., emotional abuse, bullying, and/or racial discrimination) often engage in maladaptive patterns of eating and report having body image and weight concerns. These findings suggest that African American girls may also use disordered eating to cope with psychological distress, emotional pain, and interpersonal stress, especially that which is specifically related to their race/ethnicity. Furthermore, the experience of acculturative stress and repeated instances of racism and discrimination may ultimately predispose African American girls to the onset, worsening, and/or maintenance of clinical levels of eating pathology. Empirical examinations, however, are necessary to substantiate the hypothesized association between perceived racial discrimination and eating disorders, and to identify variables that may mediate this link.

Racism, Eating Disorders, and Depression

One psychological factor that may explain the relation between racial discrimination and eating disorders is depression. Racism is conceptualized as “a special form of ostracism in which phenotypic or cultural characteristics are used to assign individuals to an outcast status, rendering them targets of social exclusion, harassment, and unfair treatment” (Brondolo et al., 2009, p. 65). Research suggests that African American adolescents are aware of racism, and are able to describe personal and observed experiences with racial discrimination (e.g., Gaylord-Harden & Cunningham, 2009; Sellers, Copeland-Linder, Martin, & Lewis, 2006; Verkuyten, Kinkett, & van der Wielen, 1997; Wong, Eccles, & Sameroff, 2003). According to some cognitive theories, depressed mood among African Americans is the result of low self-esteem, feelings of powerlessness, and hopelessness that are directly linked to historical oppression (Hammack, 2003; Harrell, 1979; Jackson & Neighbors, 1996; Landrum-Brown, 1990). Landrum-Brown

(1990) proposed that exposure to oppression and marginalization from the dominant culture among African American adolescents leads to the internalization of distorted self-schemas that reflect racist ideologies in the dominant culture. Perceived racial discrimination (including the false perception of racism in the environment) reinforces these distorted self-schemas and attributes to the development of the anti-self beliefs and self-hatred (Landrum-Brown, 1990). Clark and colleagues (1999) emphasize that perception is central to understanding reactions to racial discrimination and the subsequent psychological stress responses. Therefore, it is both the experience of racism and the perception of systematic exclusion from mainstream society that attribute to self-hatred and depression.

Similarly, Harrell (1979) posited that African Americans who use “historically aware cognitive flexibility” to cope with racial discrimination are more likely to experience depression than those who use other methods of coping. “Historically aware cognitive flexibility” is the acknowledgment of the historical struggle of African Americans and recognition of continued racism in the dominant culture. As such, African Americans who adopt this cognitive style inherently expand their awareness of prejudice and racial discrimination in society, which in turn can lead to pessimism, hopelessness, and depressed mood (Harrell, 1979). Together, these theories suggest that African American adolescents may be particularly vulnerable to depression, due to historical oppression and continued racism in the United States.

Cross-sectional investigations of racism and prejudice have provided further evidence of a relation between racial discrimination and depression. Seaton and colleagues’ (2010) analysis of nationally representative data from the National Survey of American Life (NSAL; Jackson et al., 2004) indicated that perceptions of discrimination are linked to increased depressive symptoms and decreased self-esteem and life satisfaction among African American adolescents

in middle school and high school. Other research has corroborated these findings with samples of African Americans in middle school (Deardorff, Gonzales, & Sandler, 2003; Lambert, Herman, Bynum, & Ialongo, 2009; Sellers et al., 2006), high school (Clark, Coleman, & Novak, 2004; Tynes, Giang, Williams, & Thompson, 2008), and college (Prelow, Mosher, & Bowman, 2006). Further, one study found that stress specifically related to discrimination was associated with a unique proportion of the variance in depressed mood among African American 6th, 7th, and 8th graders, above and beyond the effects of peer stress, family stress, school stress, economic stress, and exposure to violence (Gaylord-Harden & Cunningham, 2009). Thus, racial discrimination may even be more predictive of depression among African American adolescents than other commonly experienced life stressors.

Longitudinal research has obtained similar results. Wong and colleagues (2003) examined data collected from African American 7th graders (293 female, 336 male) enrolled in the Maryland Adolescents' Development in Context study (MADIC; Cook et al., 1999). They found that perceived racial discrimination by peers and teachers were positively related to anger, depression, and problem behaviors, and negatively related to achievement motivation, beliefs of self-competency, psychological resilience, and self-esteem among African American adolescents (Wong et al., 2003). These findings indicate that racism is associated with both the presence and development of depressive symptoms.

The available literature has also identified a relation between depression and eating disorder symptoms. Depressed mood is positively correlated with current eating attitudes (Santos, Richards, & Bleckley, 2007), binge eating (e.g., Johnson et al., 2002), dietary restraint (e.g., White & Grilo, 2005), and overall eating disorder pathology (e.g., Ferreiro et al., 2012; Linde et al., 2009) in ethnically diverse samples of girls in middle school and high school.

However, the overwhelming majority of these studies underrepresented African American girls in their samples and failed to conduct both stratified between ethnic-group analyses and within ethnic-group analyses among African American participants. The severity of eating disorder symptoms is associated with worsening depressed mood (Ackard et al., 2011). Accordingly, adolescent girls with threshold eating disorder symptoms endorse higher levels of depression than those with subthreshold eating disorder symptoms, who endorse higher levels of depression than girls with no eating disorder symptoms. Additionally, Skinner and colleagues' (2012) analysis of nationally representative, prospective data collected for the Growing Up Today Study (Gillman et al., 2001) revealed that self-reported depressive affect at Time 1 was related to a 2-fold increase in the likelihood of initiating over-eating and/or binge eating two years later at Time 2.

Though similar research investigating the relation between these variables has not been conducted with entirely African American samples of adolescent girls, examinations with African American women in college have produced promising findings. Blue and Berkel (2010) found that overall negative affect predicted the presence of eating pathology among female African American college students. Likewise, other studies have demonstrated a positive association between depressive symptoms and both binge eating (Mitchell & Mazzeo, 2004) and bulimic pathology (Lester & Petrie, 1998). As a result, it is likely that depressed mood and disordered eating are also related among African American adolescent girls.

Collectively, previous findings that establish associations between racial discrimination, depression, and eating disorder pathology are indicative of a mediational model regarding the influence of depressed mood on the experience of racism and eating disorder symptoms. African American girls who experience racial discrimination (including both accurate and false

perceptions of racist events) are likely to internalize distorted self-schemas and develop symptoms of depression. This depression, in turn, may influence the need for new coping strategies and promote the development of maladaptive eating behaviors and, ultimately, eating disorders. Hence, depressed mood may mediate the relation between perceived racial discrimination and eating pathology among African American adolescent girls.

Buffers against Eating Disorders

In addition to understanding the pathways by which the experience of perceived racial discrimination may lead to eating pathology among African American adolescent girls, it is also essential to identify environmental variables that differentiate individuals within this population who engage in disordered eating following racist events from those who do not. The cultural and environmental influence of religiosity and spirituality may promote resilience for African Americans adolescent girls who encounter racial discrimination.

Spirituality is defined as the internalization of positive values, where by individuals believe in the powers of a larger, interconnected universe and strive to live life based on their values (e.g., Dowling et al., 2004; Mattis, 2000; Reich et al, 1999). On the other hand, religiosity is used to describe institutional affiliation, participation in organized worship practices, and dedication to religious faith (Dowling et al., 2004; Mattis, 2000; Reich et al, 1999). Spirituality and religiosity function as protective factors against psychological distress (e.g., Brown-Reid & Harrell, 2002; Lesniak, Rudman, Rector, & Elkin, 2006; Lewis-Coles & Constantine, 2006; Mattis, 2002; Shorter-Gooden, 2004; Smith, McCullough, & Poll, 2003). Evidence suggests that religious commitment and involvement are particularly beneficial for the psychological well-being of African Americans (Bierman, 2006; Jang & Johnson, 2004; Schieman, Pudrovsk, Pearlman, & Ellison, 2006). Further, religious faith and participation are central coping strategies

for African American women (Broman, 1996; Christian et al., 2000; Ellison & Taylor, 1996; Mattis, 2002) and girls (Milevsky & Levitt, 2004). Pargament (1997) posited that religious coping is essential for altering individuals' appraisals and perceptions of stressors. As a result, given that perceptions of racial discrimination greatly influence psychological reactions (Clark et al., 1999), it is likely that religiosity and spirituality may mitigate the negative consequences of racism among African American girls.

Williams and colleagues (1991) explored the relation between religiosity, stress, and psychological outcomes in a community sample and found that religious attendance lessens the harmful effects of stress on psychological well-being. With respect to empirical investigations of the moderating influence of religiosity and spirituality, Brown-Reid and Harrell (2002) found that African American college students who endorsed low levels of spirituality experienced greater increases in symptoms of depression following a stressful racist encounter than their more spiritual counterparts. Similarly, Ellison and colleagues (2008) analyzed data from the National Survey of Black Americans (NSBA; Taylor, Chatters, & Jackson, 1997), a nationally representative survey of African American adults ($n = 645$), and found that high levels of religious guidance and religious attendance buffered against the negative effects of racism on psychological distress. These findings provide preliminary evidence of a buffering effect of religiosity and spirituality on the relation between racial discrimination and the development of psychopathology. However, there were notable flaws in these studies' methodologies. For instance, Ellison and colleagues (2008) used an aggregate measure of psychological distress, which hindered the independent examination of the influence of religiosity on each dimension of psychological distress (i.e., depression, anxiety, hopelessness, etc.). Moreover, Brown-Reid and Harrell's (2002) sample of African American women was recruited from a historically black

college, thus reducing the generalizability of their results to other populations of African Americans, including African American girls.

Research conducted with African American adolescents has generated similar results. Scott (2003) found that spirituality predicted self-reliance and the use of adaptive problem-solving strategies to cope with perceived discrimination among African American adolescents aged 14 to 18 years. Milevsky and Levitt (2004) examined intrinsic and extrinsic religiosity in an ethnically diverse sample of 6th, 7th, and 8th graders [African American ($n = 220$); European American ($n = 193$); Hispanic ($n = 281$)], where intrinsic religiosity is defined as the internalization of religious beliefs and extrinsic religiosity represents involvement in religious activities for external reasons. Results indicated that adolescents with high levels of both intrinsic and extrinsic religiosity, as well as only high levels of intrinsic religiosity, exhibited healthier psychological adjustment than non-religious adolescents. Likewise, Greening and Stoppelbein (2002) found that depressive symptomatology and hopelessness were negatively associated with intrinsic religiosity, attendance of religious services/classes, and orthodoxy (or commitment to core beliefs) among African American high school students. Findings from the National Longitudinal Study of Adolescent Health (Add Health) indicate that baseline religiousness negatively predicts symptoms of depression one year later among African American middle and high school students (Le, Tov, & Taylor, 2007). Despite these promising findings, there is limited research specifically investigating religiosity and spirituality as coping strategies for African American adolescent girls experiencing the stress of racial discrimination. Further, there are no known studies that explore the potential buffering effect of these variables on the relation between perceived racism and the development of eating pathology in this population. As a

result, empirical examinations of these relations among African American adolescent girls are needed.

Together this research suggests that spiritual well-being, a construct that encompasses both a sense of well-being in relation to God (i.e., religiosity) and a sense of life purpose and life satisfaction (i.e., spirituality), may serve as a culturally-specific moderator of the relations between perceived racism, depression, and disordered eating. As such, African American girls with high levels of spiritual well-being who experience racial discrimination are likely to seek church-support and find strength in prayer, which promotes a cathartic release of negative emotions and buffers against symptoms of depression. Furthermore, if these girls do experience any symptoms of depression, they are likely to continue using religious and spiritual coping strategies, which mitigates the need to identify new coping strategies and, ultimately, prevents the development of maladaptive eating behaviors. Thus, spiritual well-being may moderate the effect of both perceived discrimination on symptoms of depression and the effect of symptoms of depression on disordered eating pathology among African American adolescent girls.

CHAPTER 2

RATIONALE AND HYPOTHESES

Given the dearth of available literature examining culturally-specific risk factors associated with eating disorders among African American adolescent girls, the main goal of the present study was to examine the relations between racism, depressed mood, and eating disorder pathology in this population, as well as the potential buffering role of spiritual well-being. To achieve the explicit goals of the present study, I first investigated the potential relationship between perceived racial discrimination and disordered eating pathology. Then, I examined the potential meditational role of symptoms of depression on the relation between perceived racial discrimination and disordered eating pathology. Furthermore, I investigated spiritual well-being as a potential moderator of the relations between perceived racial discrimination and symptoms of depression, and symptoms of depression and disordered eating pathology. Given the likely influence of age in both perceptions of racial discrimination (e.g., Carroll, 1997; McCoy, 1998; Way, 1998; Verkuyten et al., 1997) and the onset of eating pathology (e.g., APA, 2000; Hudson et al., 2007; Striegel-Moore & Bulik, 2007; Thompson et al., 2003), I controlled for this variable in all analyses. Family risk status was also controlled for in all analyses.

Significance

Understanding the etiology of eating pathology among African American adolescent girls is essential for identifying vulnerable individuals and developing culturally-sensitive intervention and prevention strategies. Specifically, if racial discrimination does contribute to eating pathology, it may be helpful for middle and high schools to develop programs that highlight the

deleterious effects of racial discrimination and encourage youth to utilize the available resources to cope with the associated stress. Further, if spiritual well-being mitigates the relation between racism and eating disorders, then mental health practitioners could incorporate more discussions of spirituality in treatment programs and community-based interventions for African American adolescent girls who exhibit disordered eating.

Hypothesis

Given the goals of the present study, the specific hypotheses were:

- (1) Perceived racial discrimination would be related to eating disorder pathology, such that participants who reported more instances of racial discrimination would endorse more eating disorder pathology than their counterparts.
- (2) Symptoms of depression would mediate the association between racial discrimination and eating disorder pathology, such that more experiences with racial discrimination would lead to eating disorder pathology through increases in depressive symptomatology.
- (3) Spiritual well-being would moderate the both the effect of discrimination on eating disorder pathology, and the effect of symptoms of depression on eating disorder pathology, such that the aforementioned associations would only be significant for participants who endorsed low levels of spiritual well-being.

CHAPTER 3

METHOD

Participants and Procedure

Participants in the present study are African American girls ($n = 249$) between the ages of 13- and 19-years-old who were recruited for the Missouri Family Study (MOFAM; Edens, Glowinski, Pergadia, Lessov-Schlaggar, & Bucholz, 2010; Calvert, Keenan Bucholz, & Steger-May, 2010). MOFAM is an ongoing ethnically diverse, prospective family study designed to examine the consequences of parental alcohol abuse and dependence on offspring outcomes. African American and European American families were randomly selected from the general population using Missouri birth records, with a particular goal of over-sampling both African American families and families with two or more children. After identifying families with offspring aged 13, 15, 17, or 19 at the time of the baseline interview, a member of the MOFAM research team contacted each mother to conduct a telephone screen. The primary aim of the telephone screen was to gather information about the offspring's father's history of alcohol use. Families were classified as high risk ($n_{AA} = 150$; $n_{EA} = 79$) if the mother described the father as an "excessive drinker," and low risk ($n_{AA} = 84$; $n_{EA} = 150$) if she did not. Further, families were classified as very high risk ($n_{AA} = 149$; $n_{EA} = 154$) if driving records revealed that the father had been convicted of Driving While Intoxicated (DWI) on two or more occasions. Informed consent was obtained from all mothers (and fathers, when available) prior to enrollment in MOFAM. Offspring, mothers, and fathers were administered a comprehensive psychiatric interview via telephone at Time 1 and mailed a follow-up questionnaire packet. Offspring were re-interviewed

at 2-year intervals following the initial interview. All participants received monetary compensation for their participation in MOFAM. They received \$30 per hour for completing the comprehensive psychiatric telephone interview, as well as \$20 for completing and returning the mailed questionnaire packet. Participants who chose to donate a DNA sample were given an additional \$20. Furthermore, individuals who completed the telephone interview on their first scheduled appointment time (as opposed to canceling and re-scheduling numerous times) were awarded a \$20 bonus. All data used in the present study will be from female, African American offspring at Time 1 (61.8% of total sample).

Semi-Structured Interview

Demographic Information. Participants were asked to provide detailed demographic information related to a variety of domains including age, current level of education, family relationships, religious affiliation, and mental health history.

Eating Disorders. Eating pathology was measured using the Semi-Structured Assessment for the Genetics of Alcoholism-II (SSAGA-II; Kuperman, Schlosser, Lindral, & Reich, 1999; Calvert et al., 2010). The original SSAGA (Bucholz et al., 1994) was a psychiatric interview developed by the Midwest Alcoholism Research Center for the Collaborative Study on the Genetics of Alcoholism (COGA; Begleiter et al., 1995; Nurnberger et al., 2004) to assess lifetime and current symptoms of alcohol and substance abuse/dependence, and other related psychiatric disorders (e.g., depressive disorders, anxiety disorders, and eating disorders). SSAGA items were derived from Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition (DSM-III-R; American Psychiatric Association [APA], 1987) diagnostic criteria for various psychiatric disorders, in addition to other well-validated psychiatric assessment interviews, including the Diagnostic Interview Schedule (DIS; Robins et al., 1985), SADS (Endicott &

Spitzer, 1978) and SCID (Spitzer, Williams, Gibbon, & First, 1992). The current version of the SSAGA (i.e., SSAGA-II; Kuperman et al., 1999; Calvert et al., 2010) was revised to reflect changes in the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV; APA, 2000) and provide poly-diagnostic data (e.g., ICD-10 and DSM-IV). The SSAGA demonstrates good test-retest reliability and construct validity for a comprehensive range of mental disorders (including major depression, AN, and BN) with samples of European Americans and African Americans (Bucholz et al., 1994; 1995; Hesselbrock, Easton, Bucholz, Schuckit, & Hesselbrock, 1999).

The eating disorder section of the SSAGA-II is composed of questions that are primarily consistent with DSM-IV (APA, 2000) diagnostic criteria for Anorexia Nervosa and Bulimia Nervosa. In general, items reflect body image dissatisfaction, weight and shape concerns, binge eating, compulsory behaviors, and attempts to intentionally lose weight. Examples include the following: “Did you ever lose a lot of weight on purpose?” and “Has there ever been a time in your life when you have binged on food – that is, eaten a really large amount of food in a short period of time, usually less than 2 hours?”

Depression. Depressive symptomatology was assessed using the SSAGA-II (Kuperman et al., 1999; Calvert et al., 2010). The depression section of the SSAGA-II reflects DSM-IV (APA, 2000) diagnostic criteria for Major Depressive Disorder and includes items that inquire about depressed mood, anhedonia, irritability, changes in appetite, sleep disturbances, psychomotor retardation and agitation, fatigue, feelings of guilt and worthlessness, difficulties with concentration and making decisions, and suicidal thoughts. Examples include the following: “Has there ever been a time when you felt depressed, down, or empty most of the day and nearly every day for two weeks or more?” and “During that period of time (that began when you were

____ years old)...Did you have more trouble sleeping than usual?" For all analyses, a continuous symptom count variable was created based on *DSM-5* (APA, 2013) diagnostic criteria for major depressive disorder.

Racial Discrimination. Self-reported experiences with racism, discrimination, and prejudice were evaluated using the Experience of Discrimination (EOD; Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005). The EOD is a 9-item questionnaire that asks respondents about experiences with discrimination and/or unfair treatment in seven specified domains (e.g., at school, home, or work), as well as their usual response to discrimination. Items measuring the occurrence and frequency of experiences with racial discrimination are on a 4-point scale ranging from 0 (*never*) to 3 (*often*). The EOD also includes an additional item that inquires about respondents' emotional reaction to experiences of racial discrimination (i.e., "How upset were you by (that/those) experiences?"), where responses range from 1 (*not at all upset*) to 3 (*very upset*). Per Krieger and colleagues (2010), a sum of the number of domains that each participant reported experiencing racial discrimination was calculated in the current study and used to create a EOD situation variable with the following categories: 0 domains = no discrimination, 1 to 2 domains = moderate discrimination, and 3 -7 = high discrimination. Further, response to discrimination was coded as either passive ("accept it as a fact of life" and "keep it to yourself"), moderate ("accept it as a fact of life" and "talk to other people about it," or "keep it to yourself" and "try to do something about it" and) or engaged ("try to do something about it" and "talk to other people about it"). The EOD has demonstrated good internal consistency reliability, test-retest reliability, and construct validity with African American samples (Krieger et al., 2005).

Self-Report Measures

Spiritual Well-Being. To assess individuals' "relationship with God, self, [the] community, and environments that nurture and celebrate wholeness" (National Interfaith Coalition on Aging, 1975; p. 1), the Spiritual Well-Being Scale (SWBS; Ellison, 1983) was used. The SWBS is a self-report questionnaire composed of two subscales with 10 items each: Religious Well-Being (RWB) and Existential Well-Being (EWB). The RWB subscale contains all items that specifically contain a reference to God (e.g., "My relationship with God helps me not to feel lonely), and the remaining items (e.g., "I believe there is some real purpose for my life") comprise the EWB subscale. All item responses use a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), where total scores can range from 20 to 120 and higher scores indicate more spirituality. This measure has excellent test-retest reliability and internal consistency with European American (Ellison, 1983) and African American samples (Brome, Owens, Allen, & Vevaina, 2000; Kaslow et al., 2004), as well as good convergent validity with measures of similar constructs (Bufford, Paloutzian, & Ellison, 1991; Ellison, 1983). Cronbach's alpha for the current study ($\alpha = .72$) was relatively low compared to estimations in previous research, potentially due to the significant lower age of participants in the present study compared to those in the available literature.

CHAPTER 4

RESULTS

Descriptive Data

Participants in the present study were African American females ($n = 249$) between the ages of 13 and 19-years-old ($M = 16.13$, $SD = 1.96$). The sample included 199 families, whereby the sample included one daughter from 60 percent of the families and either two or three daughters were included from the remaining families ($n = 42$, 33.7%; $n = 4$, 4.8%; respectively). More than half of the sample was enrolled in middle or high school ($n = 183$, 73.5%), employed either part-time or full-time in the past 12 months ($n = 125$, 50.2%), and in a romantic relationship ($n = 101$, 40.6%) (see Table 1). Among participants who lived with either of their biological parents for at least four years between the ages of 6- and- 13-years-old ($n_{mother} = 244$; $n_{father} = 133$), the majority reported having very close relationships with their mother ($n = 169$, 69.3%) or father ($n = 60$, 45.1%) and growing up in a household with consistent rules about completing chores and doing homework ($n_{mother} = 220$, 90.2%; $n_{father} = 102$, 76.7%). Further, among participants who lived with both of their biological parents between the ages of 6- and- 13-years-old ($n = 171$), the majority denied frequently witnessing conflict between their parents ($n = 151$, 88.3%) (see Table 2). Nearly 90 percent of the sample described themselves as Protestant ($n = 213$, 85.5%), and the remaining participants identified as Catholic ($n = 2$, 0.8%), Jehovah's Witness ($n = 2$, 0.8%), another religion ($n = 6$, 2.4%), or having no religious affiliation ($n = 26$, 10.4%). With respect to mental health variables, approximately one-quarter of the participants reported a history of mental health treatment ($n = 62$, 24.9%) and more than one-

third endorsed depressive symptoms ($n = 96, 38.6\%$) (see Table 3). Over two-thirds of the sample reported eating disorder symptomatology ($n = 172, 69.1\%$), among which the most common symptoms included weight and shape concerns ($n = 116, 46.6\%$), compensatory behaviors ($n = 68, 27.3\%$), and binge eating ($n = 62, 24.9\%$) (see Table 4). Furthermore, nearly 40 percent of participants ($n = 96$) reported experiencing racial discrimination in at least one domain (see Table 5).

Preliminary Analyses

Based on paternal histories of alcohol use, approximately 60 percent of participants' families were classified as either high risk ($n = 77, 30.9\%$) or very high risk ($n = 73, 29.3\%$). The remaining participants' families were classified as low risk ($n = 99, 39.8\%$). One-way ANOVAs and chi-square tests were conducted to investigate potential demographic differences between participants based on family risk status. One-way ANOVAs revealed that girls in the very high risk group were significantly younger [$F(2, 246) = 4.16, p < .05$] and endorsed lower levels of educational attainment [$F(2, 226) = 4.73, p < .05$] than those in the high risk group. They also reported witnessing significantly more conflict and tension between their parents than those in the low risk group [$F(2, 168) = 3.67, p < .05$]. Chi-square analysis indicated that participants in the high risk group were significantly more likely to be in a romantic relationship than those in the very high risk group [$\chi^2(2, n = 249) = 20.23, p < .001$].

Family risk status was not significantly correlated with eating disorder pathology. However, family conflict was associated with disordered eating. Girls who endorsed having more conflict with their mothers ($r = -.19, p < .01$) and fathers ($r = -.22, p < .05$), witnessing more arguments between their parents ($r = -.22, p < .01$), and witnessing more tension between their parents ($r = -.18, p < .05$) reported more eating disorder symptomatology than their counterparts

who endorsed less family conflict. Relationship closeness was also related to eating disorder symptomatology ($r = .17, p < .01$), such that girls who denied having a close relationship with their mothers reported more eating pathology than those who reported having a very close maternal relationship. Furthermore, participants who described their mothers as more strict than their peers' mothers endorsed more eating disorder symptomatology than participants who reported that their mothers were more lenient ($r = .13, p < .05$).

Correlations among Variables

To examine the relations between eating pathology (assessed via the modified SSAGA) and key study variables, three continuous symptom count variables were created using the *DSM-5* (APA, 2013) diagnostic criteria for anorexia nervosa, bulimia nervosa, and binge eating disorder. A fourth variable (i.e., overall eating pathology) was also created to encompass the total number of symptoms endorsed by participants between specific eating disorders. Then, bivariate correlations were evaluated (see Table 6). Frequency of racial discrimination was positively correlated with eating disorder pathology, such that endorsement of experiences of racism in more situations was associated with more symptoms of AN, BN, and BED, and more overall eating disorder symptomatology. However, symptoms of depression were not related to frequency of racial discrimination, and neither feelings associated with experiences of racial discrimination nor response to unfair treatment were significantly related to depressive symptomatology or eating disorder symptomatology. Moreover, neither SWBS scores nor Jessor's Religiosity Scale scores were significantly correlated with symptoms of depression, eating disorder pathology, or experiences with racial discrimination.

Two-Step Cluster Analysis

The three eating disorder-specific symptom count variables were submitted to a two-step cluster analysis to further investigate the nature of eating pathology in the current sample. The two-step cluster analysis procedure for SPSS uses a log-likelihood distance measure and Schwarz's Bayesian Information Criterion (BIC) to explore naturally occurring groups and generate cluster models based on variables measured within a given sample. The two steps involved in this procedure are: (1) pre-cluster all cases into small subclusters and (2) cluster the resulting subclusters into final clusters using a stepwise, hierarchical approach. No number of clusters was specified a priori. The BIC was used to judge the adequacy of the final cluster solution (cf. Dumlu et al., 2011).

Two-step cluster analysis revealed three naturally occurring groups with unique profiles (see Table 7). The ratio of largest to smallest cluster was 3:1 (cluster 1, $n = 146$, 58.6%; cluster 2, $n = 56$, 22.5%; cluster 3, $n = 47$, 18.9%). Over half of participants were assigned to cluster 1 ('Unaffected'), which consisted of girls who did not report any significant eating pathology. Cluster 2 ('Dieters') represented average-weight girls who endorsed symptoms of anorexia nervosa, such as weight and shape disturbance ($n = 42$, 75%), weight and shape concerns ($n = 39$, 69.6%), drive for thinness ($n = 29$, 51.8%), and compensatory behaviors ($n = 26$, 46.4%). The remaining participants were assigned to cluster 3 ('Binge-Purge'). Girls in this cluster endorsed high levels of bulimia nervosa and binge eating disorder symptomatology; all ($n = 47$, 100%) reported engaging in overeating and most reported weight and shape concerns ($n = 30$, 63.8%) and compensatory behaviors ($n = 27$, 57.4%).

Hypothesis Testing

To test the first hypothesis that perceived racial discrimination would be related to eating disorder pathology (controlling for age and family risk status), multinomial logistic regression was conducted. Multinomial logistic regression is an extension of binary logistic regression that enables the examination of outcome variables with two or more discrete categories. Eating pathology cluster membership was the dependent variable for this analysis, and cluster 1 ('Unaffected') was identified as the reference group. Then, age, family risk status, arguments/fights between parents, tension/conflict between parents, and EOD situations were simultaneously examined as covariates in the regression analysis. The current model predicting eating pathology cluster membership approached significance, $\chi^2(12) = 20.56, p = .06$. Specifically, results indicated experiences with racial discrimination increased the odds of participants being assigned to cluster 3 versus cluster 1 ('Binge-Purge' versus 'Unaffected'; OR = 1.81, 95% CI [.94, 3.49], but not cluster 2 versus cluster 1 ('Dieters' versus 'Unaffected'; OR = 1.60, 95% CI [.87, 2.95]) (see Table 8).

To test the second hypothesis that symptoms of depression would influence the association between perceived racial discrimination and eating disorder pathology, mediation analyses were conducted. Theoretically, an intervening variable mediates the relation between an independent variable (IV) and an outcome when the IV causes the intervening variable, which in turn influences the outcome variable. Early presentations of mediation in research stipulated that significant relations between the IV, mediator, and outcome must be established before testing for statistical mediation (e.g., Baron & Kenny, 1986; Judd & Kenny, 1981). However, contemporary analysts posit that it is not essential for a significant relation to exist between the IV and outcome before conducting mediation analysis (e.g., MacKinnon, Fairchild, & Fritz, 2007; Shrout & Bolger, 2002). As a result, before testing the proposed mediation model, point

biserial correlation coefficients were evaluated to examine the relation between depressive symptoms and eating disorder pathology. Findings indicated that symptoms of depression were not significantly related to eating pathology for girls in the ‘Unaffected’ group ($r_{pb} = .08, p = .23$), ‘Dieters’ group ($r_{pb} = -.02, p = .75$), or ‘Binge-Purge’ group ($r_{pb} = -.08, p = .24$). Similarly, bivariate correlation coefficients did not indicate a significant relation for depressive symptoms and any of the eating disorder symptom count variables (see Table 6).

Though relations were not established between depressive symptoms and either experiences of racial discrimination or eating disorder clusters, exploratory analyses were conducted with Hayes’ (2012) PROCOESS macro for the SPSS (model 4 = simple mediation) to investigate the potential joint effects of symptoms of depression and perceived racial discrimination on the presence of eating pathology. PROCESS uses an ordinary least squares regression-based path analysis approach to estimate moderation and mediation models, in addition to conditional process models (e.g., moderated mediation and mediated moderation models; Hayes and Preacher, in press). For simple mediation models with continuous outcome variables, PROCESS provides estimates of both the direct and indirect effect and generates bias-corrected bootstrap confidence intervals for the indirect effect using 5,000 bootstrap samples, while simultaneously permitting commands to control for any covariates. All of the current analyses controlled for age, family risk status, arguments/fights between parents, and tension/conflict between parents. Depressive symptoms did not mediate the relation between experiences with racial discrimination and eating pathology cluster 2 (‘Dieters’; $B = .01, SE = .04, CI = -.04, .12$) or cluster 3 (‘Binge-Purge’; $B = .04, SE = .06, CI = -.03, .26$) membership. However, the intervening effect of depressive symptoms on the relation between experiences with racism and cluster 1 membership (‘Unaffected’) demonstrated a non-significant trend ($B = -$

.03, $SE = .04$, $CI = -.17, .02$). As such, though the indirect effect of depressive symptomatology was not significantly different from zero, the influence of experiences with racism on cluster 1 membership was no longer significant when symptoms of depression were included in the model (see Figure 1). Thus, this finding is indicative of partial mediation.

In effort to better understand the relations between these variables in the current sample, additional mediation analyses were conducted with eating disorder symptom counts as the dependent variables (i.e., AN, BN, and BED symptoms). Depressive symptomatology did not mediate the association between experiences with racial discrimination and AN symptoms ($\beta = -.00$, $SE = .02$, $CI = -.07, .02$), BN symptoms ($\beta = .01$, $SE = .02$, $CI = -.02, .08$) or BED symptoms ($\beta = .01$, $SE = .02$, $CI = -.01, .07$). Similarly, with respect to overall eating pathology, the indirect effect of symptoms of depression was not significant ($\beta = .01$, $SE = .05$, $CI = -.06, .17$).

Finally, it was hypothesized that spiritual well-being would moderate the both the effect of discrimination on eating disorder pathology, and the effect of symptoms of depressive symptoms on eating disorder pathology. This hypothesis was based on the a priori presumption that symptoms of depression would mediate the effect of experiences with racial discrimination on eating disorder pathology. Given the non-significant findings related to this mediation model, the hypothesis that spiritual well-being would otherwise influence the effect of discrimination on eating disorder pathology was explored. Point biserial correlation analysis determined that spiritual well-being was not associated with eating disorder cluster membership (cluster 1: $r_{pb} = .06$, $p = .34$; cluster 2: $r_{pb} = -.01$, $p = .84$; cluster 3: $r_{pb} = -.06$, $p = .33$). Similarly, bivariate correlation coefficients did not indicate a significant relation for SWBS scores and any of the eating disorder symptom count variables (see Table 6). As a result, further analyses examining the role of spiritual well-being were not conducted.

CHAPTER 5

DISCUSSION

The purpose of the present study was to investigate the relations between perceived racism, depressed mood, and eating disorder pathology in a sample of African American adolescent girls, as well as the potential buffering role of spiritual well-being. As such, it represents a departure from the available literature on eating pathology, which has neglected culturally-relevant risk and protective factors that are essential for identifying vulnerable among African American girls and developing culturally-sensitive intervention and prevention programs for this population. Furthermore, although previous research has examined classes of eating pathology in European American and mixed-race samples (e.g., Bulik, Sullivan, & Kendler, 2000; Crow et al., 2012; Duncan et al., 2007; Keel et al., 2004; Striegel-Moore et al., 2005), the present study used a within-group research design to investigate categories of maladaptive eating behaviors in a sample of only African American girls.

The current sample included African American adolescent girls whose families were recruited for a larger research study on the influence of parental alcohol abuse and dependence on offspring outcomes. As such, participants represented a subgroup of African American girls who may be at higher risk for the development of psychopathology and experiencing significant life stressors. Nearly half of the girls in this study denied consistently living in the same home as their biological father during their childhood, and only half of those girls (or one-quarter of the total sample in the present study) reported having a close relationship with their biological father. Furthermore, a notable portion of the sample endorsed eating disorder symptoms (particularly

associated with BN pathology). However, the variability in both self-reported depressive symptoms and experiences with racial discrimination was limited, perhaps due to the young age of the participants. Though one-third of the sample reported depressive pathology, participants on average only endorsed two discrete symptoms of depression. Additionally, only one-third of participants reported experiences with racial discrimination in any of the assessed domains, among whom the overwhelming majority only described experiences with racism in one or two domains (most commonly at school and on the street/in public setting).

Before testing the three main hypotheses of the present study, preliminary analyses were conducted to evaluate potential group differences based on family risk status, as well as the correlations between scales. Significant differences emerged between participants from families that were categorized as low risk, high risk, and very high risk on several demographic variables. Additionally, family risk, arguments/fights between parents, and family tension/conflict were related to eating disorder pathology. These results are consistent with previous research, which has reliably found that family discord (e.g., Striegel-Moore et al., 2005), high expressed emotion in families (e.g., Kyriacou, Treasure, & Schmidt, 2008), and parent-child conflict (e.g., McVey et al., 2002; Spanos, Klump, Burt, McGue, & Iacono, 2010) are predictors of the onset, maintenance, and worsening of eating disorder symptomatology.

With respect to bivariate correlation coefficients, all subtypes of eating disorder pathology were significantly correlated, such that greater endorsement of AN symptoms was associated with greater endorsement of both BN and BED symptoms as well. Further, as anticipated, experiences with racial discrimination were associated with higher scores on all symptom count variables. However, neither feelings related to experiences with racism nor response to racial discrimination was related to eating disorder pathology. Additionally, the

associations between experiences with racism and maladaptive eating behaviors and both depressive symptoms and all indicators of spirituality (including SWBS) were non-significant. This finding is particularly surprising given the abundance of research supporting a relation between negative affectivity (particularly depression) and eating disorder symptomatology among adolescent girls (e.g., Ferreiro et al., 2012; Linde et al., 2009; Johnson et al., 2002; Santos et al., 2007; Skinner et al., 2012; White & Grilo, 2005). As a result, this finding may be attributed to the nature of the sample, measurement error, and/or limited variability in depressive symptoms.

Two-step cluster analysis was also used to identify underlying categories of eating pathology to serve as the outcome variable for all regression and path analyses. This analysis revealed three groups of eating disorder pathology in the current sample: 'Unaffected,' 'Dieters,' and 'Binge-Purge.' As expected, over half of the sample was assigned to the 'Unaffected' group, and the remaining participants were assigned to the 'Dieters' or 'Binge-Purge' group (respectively). The identified categories of eating pathology in the current sample are fairly similar to those found in previous studies with predominately European American or multi-ethnic samples (e.g., Bulik, Sullivan, & Kendler, 2000; Duncan et al., 2007; Turner & Bryant-Waugh, 2004; Turner, Bryant-Waugh, & Peveler, 2010). However, there are a couple of notable differences. First, due to larger sample sizes, past studies using latent class analysis or cluster analysis revealed between four and six categories of eating pathology (versus three). Additionally, only one study included females who denied eating disorder symptoms in the analysis and, therefore, was able to identify a subgroup of participants who did not exhibit any notable symptomatology (e.g., 'Unaffected' cluster) (Duncan et al., 2007).

After preliminary analyses were conducted, the hypotheses were examined. The first hypothesis was that perceived racial discrimination would be related to eating disorder pathology, such that participants who reported more instances of racial discrimination would endorse more eating disorder pathology than their counterparts with fewer experiences with racism. Although there were no significant differences between participants in each eating disorder cluster, this model approached significance, such that experiences with racial discrimination were associated with 81% greater odds of participants endorsing bulimic symptoms versus no eating disorder symptoms. These results indicate that, despite the a priori power analyses for a medium effect size, this effect is likely small and, therefore, there was not sufficient power to detect the statistical difference between the groups.

The second hypothesis was unsupported. The second hypothesis was that symptoms of depression would mediate the association between racial discrimination and eating disorder pathology, such that more experiences with racial discrimination would lead to eating disorder pathology through increases in depressive symptomatology. Initial investigations of the association between depressive symptomatology and eating disorder pathology did not reveal a significant relation between depressive symptoms and any of the eating pathology clusters or symptoms of AN, BN, or BED. Similarly, none of the mediation models exploring the joint effects of symptoms of depression and experiences with racial discrimination on eating pathology were significant. Results of the mediation model predicting membership to the 'Unaffected' group demonstrated a non-significant trend. However, these findings indicated that depressive symptomatology may influence the association between racial discrimination and eating pathology in the opposite direction than hypothesized, such that more experiences with racism may lead to decreases in depressive symptoms which, in turn, may lead to increases in

disordered eating. Given that over half of participants denied depressive symptoms and eating disorder pathology, as well as experiences with racial discrimination, these findings may be attributed to the limited variability in psychopathology in the current sample. The hypothesized mediation model might be statistically significant and occur in the expected direction in a sample with greater depressive symptomatology.

The third and final hypothesis was that spiritual well-being would moderate both the effect of discrimination on eating disorder pathology, and the effect of symptoms of depressive symptoms on eating disorder pathology. The hypothesized moderated-mediational model was not examined because of null findings from preceding tests of mediation. Furthermore, exploration of the hypothesis that spiritual well-being could otherwise influence the effect of experiences with racism on eating pathology did not reveal a significant relation between these variables. Given the limited variability in psychopathology and the relatively low reliability of the SWBS with the current sample compared to findings with African American adults, it was not surprising that spiritual well-being did not buffer the effects of racial discrimination and depressive symptoms on the presence of eating disorder pathology. Additionally, perhaps more robust findings could have been detected with a specific measure of race-related stress or distress directly associated with racism, rather than a measure predominantly assessing the frequency of experiences with racial discrimination.

Limitations and Future Directions

There were several limitations in the current study. The first limitation is related to the nature of the sample. Per the research screening procedure, families were randomly selected for involvement in MOFAM with the particular goal of over-sampling families with two or more children. Nearly forty percent of participants in the current study had at least one sister who was

also included in the sample. Consequently, given that analyses were not conducted to account for the non-independence of the observations, the standard errors within all regression analyses were too small. Similarly, due to the primary objectives of the larger research study, families were classified as low risk, high risk, or very high risk based on the offspring's father's history of alcohol use and sampling procedures were used to attain a comparable number of families in each risk category. As a result, despite the inclusion family risk variables as covariates in all analyses, the current findings may not be generalizable to all African American girls. Future studies examining eating pathology in this population should collect larger samples and use hierarchical modeling procedures to account for non-independence of families. Future studies should also include a random sample of African American adolescent girls that are not selected for participation based on their father's history of alcohol use.

The current study was also limited by the relatively small sample size, which precluded the statistical power necessary for latent class analysis. Though latent class analysis is fairly comparable to two-step cluster analysis, it possesses several advantages over traditional two-step procedure models. First, latent class analysis examines data using probability modeling. As such, in contrast to traditional clustering procedures that assign cases to classes, latent class analysis produces likelihood statistics that estimate the probability of membership to each class for all cases (e.g., Kendler et al., 1998; McLachlan & Peel, 2000; Neuman et al., 2001). Latent class analysis also includes procedures for handling missing data, which increases the sample size available for segmentation and reduces the rate of misclassification (e.g., Horn & Huang, 2009; McLachlan & Peel, 2000). Given the increased statistical flexibility with latent class analysis versus two-step clustering procedures, future studies should replicate the current study with a

larger sample size to further examine classes of eating disorder symptomatology among African American adolescent girls.

Another limitation of the current study was the cross-sectional nature of the sample utilized for hypothesis testing. The overarching goal of the present study was to examine the associations between racism, depressed mood, spiritual well-being, and eating pathology, with the hopes of identifying culturally-relevant predictors and buffers related to the development and maintenance of eating disorder pathology among African American adolescent girls. However, mediational analyses and combined conditional process analyses (including moderated-mediation) implicitly assume a temporal direction of relations, which cannot be demonstrated with the current sample. Additionally, the measures of both depressive symptoms and experiences of racial discrimination assessed for lifetime, versus current, prevalence of these constructs. To more accurately establish connections between these constructs, future studies should be conducted using longitudinal data.

In addition to limitations due to sampling procedures and sample size, the current study was limited by issues related to measurement of the variables of interest. Perceptions of racial discrimination were measured using the EOD (Krieger et al., 2005). However, the EOD was originally developed and validated for use with adult samples, and it fails to ask about experiences with racism in domains that may be particularly relevant for adolescents, such as trying out for an athletic team, applying for college, and getting invited to a school dance. Future studies investigating the effects of racism should create, validate, and utilize an instrument specifically developed for use with adolescent samples.

Measurement issues with the depression section of the SSAGA-II (Kuperman et al., 1999; Calvert et al., 2010) also could have impacted the findings of the current study. The

depression section of the SSAGA-II reflects DSM-5 (APA, 2013) diagnostic criteria for major depressive disorder. However, in contrast to the eating disorders section, skip-outs were not removed from this section to provide participants with the opportunity to respond to all items included on the diagnostic interview. Therefore, participants who denied dysphoria, anhedonia, or irritability (if below the age of 18) lasting most of the day and nearly every day for at least two weeks were not asked any other questions related to depressive symptomatology and were given a score of 0. Given the desire to assess depressive symptoms in relation to a discrete syndrome of depression, skip-outs were included in the development of the SAGA-II. However, the inclusion of skip-outs in this section likely limited the variability of scores and the capacity to fully assess symptoms of depression, and ultimately could have impacted the current study findings. Future studies should either remove the skip-outs from this section of the SSAGA-II or include a dimensional, self-report measure of depressive symptoms.

Conclusions and Implications

The present study investigated the relations between racial discrimination, depressive symptomatology, eating disorder pathology, and spiritual well-being in effort to better understand risk and protective factors for maladaptive eating behaviors among African American adolescent girls. The results indicate that experiences with racism may be associated with the development of bulimic and binge-eating pathology among African American girls. The results also indicate that symptoms of depression may partially mediate the effect of racial discrimination on eating disorder pathology.

The current findings add to the existing literature on eating disorders among African American adolescent girls by demonstrating a direct relationship between maladaptive eating behaviors and perceived racial discrimination, as well as suggesting a potential indirect

relationship through depressive symptoms. They also provide support for racial discrimination as a culturally-relevant predictor of eating pathology among African American adolescent girls which may, in turn, facilitate the identification African American girls that are at the highest risk for developing pathological eating habits (i.e., bingeing and purging). These findings highlight the need for more research to be conducted with this population in order to more fully understand racism and prejudice as risk factors for maladaptive eating behaviors. This research should focus on the development and enhancement of specialized mental health care services that help African American girls to effectively cope with racism and prevent the onset and/or worsening of eating disorder pathology. This research should also explore community-level programs for reducing and providing education about the implications of racial discrimination among African American adolescents. Furthermore, after understanding the role of experiences with racial discrimination and how to incorporate strategies for coping with racism in intervention programs for this population, research should focus on the possibility of expanding this knowledge to benefit adolescent girls of other ethnic backgrounds.

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Table 1

Demographic Frequencies and Percentages: Education, Employment, and Relationship Status

	<i>n</i>	%
Education		
Home School	2	0.8
Elementary School	3	1.2
Junior High/Middle School	50	20.1
High School	133	53.4
GED Program	2	0.8
Job Corp	1	0.4
Vocational/Technical School	1	0.4
2-Year College	15	6.0
4-Year College	19	7.6
Currently Not Enrolled in School	23	9.2
Employment (past 12 months)		
Mowing Lawns, Babysitting, Pet-Sitting, etc.	125	50.2
Paying Job	109	43.8
Relationship Status		
Married	0	0.0
Cohabiting	6	2.4
Steady Boyfriend/Girlfriend	95	38.2

Table 2

Demographic Frequencies and Percentages: Biological Parents

	Mother		Father	
	<i>n</i>	%	<i>n</i>	%
Parent-Child Relationship (child aged 6-13) ^a				
Very Close Relationship with Parent	169	69.3	60	45.1
Rarely or Never Conflict with Parent	139	57.0	74	55.6
Discipline and Structure (child aged 6-13) ^a				
Rules About Chores/Homework	220	90.2	102	76.7
More Strict Than Most Parents	88	36.1	48	36.1
Consistent About Rules	193	79.4	98	74.2
		<i>n</i>		%
Parents' Relationship (child aged 6-13) ^b				
Often Fights/Arguments		20		11.7
A lot of Conflict/Tension		23		13.5

^a Missing data represents participants who did not live with mother/father for at least four years from 6- to- 13-years-old.

^b Missing data represents participants with one parent absent from 6- to- 13-years-old.

Table 3

Demographic Frequencies and Percentages: Mental Health History

	<i>n</i>	%
Any Disorder-Specific Mental Health Treatment	62	24.9
Oppositional Defiant Disorder	42	16.9
Conduct Disorder	7	2.8
Specific Phobias and/or Social Phobia	9	3.6
Generalized Anxiety Disorder	7	2.8
Agoraphobia	0	0.0
Posttraumatic Stress Disorder	7	2.8
Depressive Disorder	25	10.0
Suicidal Behavior	6	2.4
Alcohol Abuse	0	0.0
Substance Abuse	1	0.4
Eating Disorder	2	0.8
Current Eating Disorder Symptoms	172	69.1
AN Symptoms	103	41.4
BN Symptoms	154	61.8
BED Symptoms	57	21.7
Current Depressive Symptoms	96	38.6

Table 4

Eating Disorder Pathology

	<i>n</i>	%
Anorexia Nervosa Symptoms		
Lost a lot of weight on purpose	36	14.5
Felt fat even though thin	50	20.1
Not thin enough	58	23.3
Too thin at lowest weight	2	0.8
Weight-shape disturbance	52	20.9
Fear of weight gain or becoming fat	0	0
Amenorrhea	10	4.0
Bulimia Nervosa Symptoms		
Overeat	62	24.9
Loss of control	30	12.0
Binge eat more than once a week for 3+ months	10	4.0
Compensatory behavior	68	27.3
Compensatory behavior often or sometimes	68	27.3
Weight only thing that matters	0	0
Weight-shape concerns	116	46.6
Binge Eating Disorder Symptoms		
Eat faster than normal	36	10.4
Stomach ache	42	16.9
Eat when not hungry	36	14.5
Eat alone because embarrassed	11	4.4
Felt disgusted, depressed, or guilty	22	8.8

Table 5

Experiences with Racial Discrimination

	<i>n</i>	%
Domains		
At School	56	22.5
Getting a Job	14	5.6
At Work	11	4.4
At Home	2	0.8
Getting Medical Care	5	2.0
On the Street or in Public Setting	52	21.0
From the Police or in the Courts	16	6.4
Frequency/Situations		
None (No Discrimination)	153	61.4
One or Two Domains (Moderate Discrimination)	82	32.9
Three or More Domains (High Discrimination)	14	5.6
Upset About Experiences ^a	45	46.9
Response to Unfair Treatment		
Passive	63	25.6
Moderate	161	65.4
Engaged	22	8.9

^aMissing data represents participants who denied experiences with racial discrimination.

Table 6

Bivariate Correlations for Primary Measures

Scale	1	2	3	4	5	6	7	8	9	10	11	12
1	1											
2	.39***	1										
3	.24***	.68***	1									
4	.66***	.90***	.80***	1								
5	-.01	-.06	-.10	-.07	1							
6	.17**	.22***	.20**	.25***	-.01	1						
7	-.04	-.04	.04	-.02	-.06	-.02	1					
8	-.01	-.06	.01	-.03	.02	-.01	.05	1				
9	-.06	-.10	-.02	-.08	.03	.06	-.03	.00	1			
10	-.02	-.08	-.09	-.08	-.00	.10	-.00	-.18**	.30***	1		
11	.08	.07	.03	.08	-.02	.10	.00	-.14*	.22**	.53***	1	
12	.05	.06	.06	.07	.04	.08	.01	-.14*	.19**	.42***	.41***	1

Note. 1 = AN Symptoms; 2 = BN Symptoms; 3 = BED Symptoms; 4 = Overall Eating Pathology; 5 = Depressive Symptoms; 6 = EOD-Situations; 7 = EOD-Upset; 8 = EOD-Response; 9 = SWBS-Total; 10 = Time Spent on Religious/Spiritual Practices; 11 = Rating of Religious/Spiritual Orientation; 12 = Religious Service Attendance

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7

Eating Disorder Symptom Clusters

	Cluster 1		Cluster 2		Cluster 3	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Lost weight on purpose	7	4.8	16	28.6	13	27.7
Felt fat even though thin	0	0	40	71.4	10	21.3
Not thin enough	16	11	29	51.8	13	27.7
Too thin at lowest weight	0	0	2	3.6	0	0
Weight-shape disturbance	0	0	42	75	10	21.3
Fear of weight gain or becoming fat	0	0	0	0	0	0
Amenorrhea	0	0	4	7.1	6	12.8
Overeat	7	4.8	8	14.3	47	100
Loss of control	1	0.7	3	5.4	26	55.3
Binge eat at least 1/week for 3+ months	0	0	0	0	10	21.3
Compensatory behavior	15	10.3	26	46.4	27	57.4
Compensatory behavior often or sometimes	15	10.3	26	46.4	20	42.6
Weight only thing that matters	0	0	0	0	0	0
Weight-shape concerns	47	32.2	39	69.6	30	63.8
Eat faster than normal	1	0.7	3	5.4	32	68.1
Eat until stomach ache	1	0.7	5	8.9	36	76.6
Eat when not hungry	0	0	3	5.4	33	70.2
Eat alone because embarrassed	0	0	0	0	11	23.4
Felt disgusted, depressed, or guilty	0	0	1	1.8	21	44.7
	Cluster 1 ('Unaffected')				<i>n</i> = 146	
	Cluster 2 ('Dieters')				<i>n</i> = 56	
	Cluster 3 ('Binge-Purge')				<i>n</i> = 47	

Table 8

Multinomial Regression Analysis Predicting Eating Disorder Clusters

	χ^2	<i>p</i>	Cluster 2 OR (95% CI)	Cluster 3 OR (95% CI)
Age	4.99	.08	1.20 (.98 – 1.47)	1.22 (.97 – 1.53)
Family Risk Status: High	.19	.91	.87 (.36 – 2.11)	1.11 (.38 – 3.21)
Family Risk Status: Very High	2.37	.31	2.04 (.76 – 5.43)	.99 (.37 – 2.65)
Parents: Fights/Arguments ^a	.97	.62	.75 (.42 – 1.34)	.85 (.45 – 1.63)
Parents: Conflict/Tension ^b	.29	.87	.92 (.52 – 1.64)	.84 (.45 – 1.59)
EOD Situation	4.00	.14	1.60 (.87 – 2.95)	1.81 (.94 – 3.49) ^c

Note: The reference group is: Cluster 1 ('Unaffected')

^a Frequency of fights or arguments between parents when child aged 6-13 years

^b Amount of conflict and tension between parents when child aged 6-13 years

^c Cluster 1 ('Unaffected') vs. Cluster 3 odds ratio, *p* = .07

Figure 1

Mediational Analysis Predicting Eating Pathology Cluster 1