THE INTERACTIVE INFLUENCE OF FAMILIAL

APPEARANCE-RELATED MESSAGES AND FAMILY

HEALTH CLIMATE ON BODY SATISFACTION

By

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Abstract: This study was designed to explore the ways in which family contributes to body image development through both familial appearance-related messages (both direct influence and modeling) and family health climate (both nutrition and physical activity) in childhood/adolescence, as well as any interactive associations between the two. A total of 292 adults in the US were recruited to complete an online questionnaire, which included demographic items, the Parental Influence Questionnaire (PIQ) (to measure familial appearance-related messages), the Family Health Climate Scale (FHC-Scale), and the Appearance Evaluation (AE) and Body Areas Satisfaction (BASS) subscales of the Multidimensional Body-Self Relations Questionnaire (MBSRQ) (to measure body satisfaction). The data were analyzed using multiple regression models. Both measures of familial appearance-related messages (direct influence ($t(1) = -2.64$, p-value = 0.01) and modeling ($t(1) = -2.03$, $p = 0.04$)) significantly predicted body satisfaction. Neither measure of family health climate (physical activity and nutrition) significantly predicted body satisfaction in the final model. No significant interactions were found between measures of familial appearance-related messages and family health climate. Self-classified weight status was a consistent and strong predictor of body satisfaction ($t(1) = -6.66$, p-value < 0.0001). Post-hoc analyses were conducted to provide directions for future research regarding the role that family health climate may play in body image development. Findings from this study reinforce past findings of the influence that familial appearance-related messages have on body image development and provide novel evidence of a potential connection between family health climate and body image. Implications and limitations are discussed, as well as clinical applications for prevention and intervention methods.

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CHAPTER I

INTRODUCTION

Body image affects overall mental health and quality of life and thus is an
important research topic to aid in the development of prevention and treatment methods.
The construct of body image has been defined as our overall attitudes towards our body,
especially related to its appearance (Cash & Pruzinsky, 1990). While the terms body
image, body satisfaction, and body dissatisfaction are not interchangeable, different terms
are used in this review based on what the cited study used. Body dissatisfaction refers to
the disliking and disparaging of one's body (Wilson et al., 2013). The experience of
having a negative body image has been associated with several mental health concerns,
including, but not limited to, poor self-esteem, depression, self-consciousness, social
anxiety, sexual difficulties, and body dysmorphia (Hartmann et al., 2013; Thompson,
1990). Researchers have identified body dissatisfaction as a predictor for both mental and
physical health-related quality of life (Muennig et al., 2008; Sarwer et al., 2005; Wilson
et al., 2013). Body dissatisfaction is very common and has been estimated to affect
around 50% of girls and young women in Western cultures (Grabe et al., 2008). Although
commonly considered to be a female concern (Feingold & Mazella, 1998), recent
evidence reveals an increasing prevalence of body dissatisfaction in males (Dakanalis et
al., 2015; Dye, 2015; Halliwell & Harvey, 2010; McCabe & Ricciardelli, 2003; Rodgers

et al., 2009). Body dissatisfaction is often conceptualized as culturally bound, given different

prevalence rates among racial/ethnic groups (Wildes et al., 2001). It appears to be more prevalent

in westernized cultures and occurs frequently during adolescence and early adulthood (Holmqvist

& Frisén, 2010; Neumark-Sztainer et al., 2006).

CHAPTER II

REVIEW OF LITERATURE

Body Image Influence Models

In order to develop effective treatment and prevention methods for body image-related concerns, it is critical to first understand the factors that contribute to body image development by examining the literature. Researchers have identified numerous factors as developmental influences for body image, of which sociocultural factors are among the most heavily researched. One sociocultural model that has been used in the literature to explain how body image disturbance develops is objectification theory, which asserts that in a society in which women are highly (or primarily) valued for their appearance, frequent exposure to sexual objectification from others results in women adopting these appearance ideals and viewing their own bodies from a third-person perspective, commonly referred to as self-objectification (Fredrickson & Roberts, 1997). They begin to perceive, monitor, and evaluate their own appearance against the idealized appearance standard, which in many cultures emphasizes being thin (the "thin ideal"), and because this is unrealistic for many women to achieve, evaluating their appearance leads to feeling shameful and dissatisfied (Culbert et al., 2015; Keel & Forney, 2013; Moradi & Huang, 2008). Conversely, self-objectification can be decreased by being exposed to

environments that encourage a focus on aspects of the body other than appearance (such as what the body can do and health) (Frisén & Holmqvist, 2010; Menzel & Levine, 2011). The Tripartite Influence Model expands on the objectification theory by identifying specific sociocultural influences that lead to internalization and pursuit of appearance standards (Thompson et al., 1999).

Tripartite Influence Model

The Tripartite Influence Model can be effectively utilized to understand the sociocultural factors that influence body image development (see Figure B1). This model proposes three formative influences that affect body image and eating disturbance: media, peers, and family (Thompson et al., 1999). These influences can occur directly, via comments about weight/appearance, indirectly, through popular media portrayals and associations between appearance and success, happiness, confidence, and romantic potentiality, and through modeling of maladaptive behaviors including weight/shape concerns, weight control mechanisms, and negative attitudes about appearance (Carey et al., 2013; Engeln-Maddox, 2006; Mills & Fuller-Tyszkiewicz, 2017; Rodgers et al., 2009). This model also extends beyond objectification theory because it can be readily applied to males as well, highlighting that males are not immune to these sociocultural influences (Field et al., 2001; Hausenblas et al., 2013; McCabe & Ricciardelli, 2005; Presnell et al., 2004; Ricciardelli & McCabe, 2003). Research findings on this model support its viability as a useful framework for understanding processes that contribute to the development of body image disturbances, as well as eating disturbances (Keery et al., 2004; Menzel et al., 2011). Because of its multidimensional nature, research support, and application to males as well as females, this model can be used as a framework for

conceptualizing and explaining the different factors that contribute to body image development.

Media and Peer Influence

The first factor in the Tripartite Influence Model, media, has been well-established in the literature as having a significant impact on body image development (Cash & Brown, 1989; DeBraganza & Hausenblas, 2010; Engeln-Maddox, 2005; Engeln-Maddox & Miller, 2008; Fitzsimmons-Craft et al., 2012; Groesz et al., 2002; Harrison, 2001; Jung & Lennon, 2003; Levine & Harrison, 2004; Stice et al., 2001; Stice et al., 2013; Vaughan & Fouts, 2003). Research findings have consistently supported the hypothesis that body image is affected by the failure to measure up to cultural standards and ideal images portrayed by media (Arbour & Ginis, 2006; Brownell, 1991; Cho & Lee, 2013; Cramblitt & Pritchard, 2013; Jacobi & Cash, 1994; Jung & Lennon, 2003). Peers, the second factor in the Tripartite Influence Model, are another well-studied factor in body image development with substantial supporting evidence (Ferguson, et al. 2014; Gondoli et al., 2011; Helfert & Warschburger, 2011; Mukai, 1996; Schutz et al., 2002; Vincent & McCabe, 2000). Appearance is one of the most common focuses of interpersonal teasing in childhood and adolescence and the effects can also last into adulthood (Cash, 1995; Cattarin & Thompson, 1994; Shapiro et al., 1991).

Familial Influence

Unfortunately, peers are not the only source of appearance-related teasing. Family members are also guilty of teasing and making negative comments about body image in general. Family, the third factor in the Tripartite Influence Model, has been consistently identified as a strong predictor of body image, with a particular emphasis on maternal

influence. Parental influence appears to be one of the most salient sociocultural factors in body image development and disordered eating (Ata et al., 2007; Eli et al., 2014; Rodgers & Chabrol, 2009; Rodgers et al., 2009), and consequently one of the most commonly examined of all the sociocultural influences (Smolak et al., 1999; Thelen & Cormier, 1995). Some argue that parents and caregivers are the most important source of social influence in children and adolescents (Rodgers & Chabrol, 2009) and the literature seems to support this argument (Ata et al., 2007; Dunkley et al., 2001; Field et al., 2001; Rogers et al., 2017; van den Berg, Thompson, et al., 2002; van den Berg, Wertheim, et al., 2002). One main reason for this is that parents are typically the first sources of socialization (McCabe & Ricciardelli, 2003). Although mothers are the most frequently studied caregiver on this topic (Cooley et al., 2008; Snoek et al., 2009; Usmiani & Daniluk, 1997; Wertheim et al., 1999), there have been some studies that include fathers as well, such as one longitudinal study that revealed that encouragement from both mother and fathers to lose weight predicted increased body dissatisfaction among adolescent daughters one year later (Helfert & Warschburger, 2011). It has been suggested that parents influence the development of body image and eating disturbances by reinforcing societal messages of the importance of being thin (Mills & Miller, 2007; Neziroglu et al., 2008). The active influence perspective asserts that parental influence is one of the strongest sociocultural factors in body image development as a result of parent-child communications and interactions (Thompson et al., 1999). Appearance-related comments from family members have been demonstrated to predict body dissatisfaction and disordered eating in young women and female and male adolescents (Bauer et al., 2013; Keery et al., 2005; Rodgers et al., 2009; Schwartz et al., 1999). Parents likely make these comments with

their child's best interests in mind without realizing how harmful they can be (Rodgers &

Chabrol, 2009). Additionally, family influence can impact body image in different stages

of life (Hart et al., 2014; Keery et al., 2005; Oliveira et al., 2019; Oliveira et al., 2018;

Rieves & Cash, 1996; Rogers et al., 2019; Ruffman et al., 2016). These findings provide

evidence for not only how one's family can help shape their body image as a child and

adolescent, but also how these outcomes can last into adulthood. Therefore, studying

parent behavior and the body-image outcomes for their children is of utmost importance

for developing appropriate and effective prevention and intervention methods.

Familial Appearance-Related Messages

Familial appearance-related messages can be conceptualized by two dimensions:

Direct Influence and Modeling (Abraczinskas et al., 2012). Direct influence includes

parental behaviors such as discussing and encouraging dieting with their children, as well

as any other attempts to control their child's weight including negative appearance-

related comments and teasing. Modeling involves parental dieting, parental expression of

body dissatisfaction, or other observable actions the parent takes to reduce or maintain

their own weight (Abraczinskas et al., 2012). There has been consistent research support

for direct influence as a strong predictor of body dissatisfaction, as well as dieting

behaviors (Smolak et al., 1999; Vincent & McCabe, 2000; Wertheim et al., 1999; Young

et al., 2004). Additionally, parental modeling is also a predictor for child/adolescent body

dissatisfaction and maladaptive eating behaviors. By discussing their own body

dissatisfaction and overtly trying to lose weight, parents appear to be indirectly sending

messages to their child that reinforce the thin ideal (MacDonald et al., 2015; Pike &

Rodin, 1991; Wertheim et al., 1999). "Fat talk conversations" are also common in

families (Lydecker et al., 2018). Fat talk conversations encompass negative, self-focused appearance-related remarks (e.g., "I look so fat in these jeans.") in the presence of others. Fat talk in families has been associated with reinforcing self-objectification, poor body image, disordered eating, thin-ideal internalization, depressive symptoms, and upward social comparison (Arroyo & Andersen, 2016; Chow & Tan, 2018; Greer et al., 2015; Mills & Fuller-Tyszkiewicz, 2018; Rogers et al., 2017; Shannon & Mills, 2015; Webb et al., 2018). Furthermore, both direct and indirect parental messages influence body image development for individuals of many racial/ethnic backgrounds (Boveda, 2018). Although some authors use different terms, the identification of these two modes of familial influence (direct influence and modeling) is seen frequently throughout the literature. These terms will be used in the current study.

Weight Status and Health Behaviors

In addition to sociocultural factors, weight status and health behaviors are also associated with body image. Body Mass Index (BMI), an indirect measure of body fat determined by height and weight, has been identified as a strong predictor of body dissatisfaction. Research has provided evidence that individuals who are overweight tend to experience greater body dissatisfaction, a desire to be thin, and a fear of being overweight (Pingitore et al., 1997). Females who are overweight tend to have more weight anxiety, negative body image, and dieting behaviors than their normal weight peers (Cash, 1993; Cash et al., 1990). Although this pattern is generally stronger for females, it applies to males as well, with the exception that males who are underweight tend to have higher body dissatisfaction as well (Calzo et al., 2012). BMI and weight status are heavily influenced by health behaviors such as nutritional and physical activity

habits. This suggests that health behaviors could also be a predictor of body dissatisfaction, which has been supported in the literature (Annesi et al., 2014). When people engage in healthy behaviors, they are more likely to have a BMI that falls in a healthy range, which would get them closer to meeting the internalized appearance standards given to them by their family, peers, and the media. Given what has already been discussed about the factors that contribute to body image, this would likely result in greater body satisfaction. Because sociocultural factors and health behaviors both play a role in body image development, it is important to understand how these factors intersect to have a more complete understanding of how body image develops.

Social Learning Theory

In Social Learning Theory, Albert Bandura proposed that behaviors can be developed by observing and imitating others (Bandura, 1971). Bandura's Social Learning Theory can be used to understand how sociocultural factors can influence health behaviors. According to Social-Learning Theory, a person's behaviors, including health behaviors, are developed by learning from environmental and social contexts (Bandura, 1986). Family is arguably one of the most influential social environmental dimensions that shapes an individual's health behavior and has a long-lasting effect (Bandura, 1986; Ornelas et al., 2007). The family's role in shaping nutrition and activity behavior involves direct influences such as encouragement, support, monitoring, and modeling (Pearson et al., 2009; Pugliese, & Tinsley, 2007). Social Learning Theory, as well as the supporting research evidence, highlights the importance of examining how individuals develop their health behaviors from their family.

Family Health Climate

Examining the health climate within family systems can aid in further understanding of the role that family plays in shaping an individual's health behaviors. Family health climate, defined as "shared perceptions and cognitions concerning health and health behavior," further highlights the familial role in the development of health behaviors by revealing the individual experience of daily life within the family values and expectations related to health attitudes and behaviors, and behavioral patterns within the family (Niermann et al., 2014, p. 2). The Family Health Climate Scale (FHC-Scale) is designed to determine the health-related skills that people develop, as well as how they value and interpret their own behavior and the behavior of others. A positive family health climate is defined as an environment where eating healthfully and being physically active is highly valued and an integral part of the family's everyday life (Niermann et al., 2014). family health climate has been demonstrated to affect the weekly physical activity and the consumption of nutritious foods in adolescents and children (Gerards et al., 2016; Niermann et al., 2015). The family health climate model can be utilized to understand how an individual's family can shape their health behaviors, as evidenced by this support in the literature.

Interaction of Familial Appearance-Related Messages and Family Health Climate

When considering family as both a sociocultural factor and an influence on health behaviors, it becomes evident that family is an important influence on body image development in many ways. The appearance-related messages that caregivers provide, both direct comments and modeling, can directly affect body image (Abraczinskas et al., 2012). Family health climate has been demonstrated to determine health behaviors and attitudes, which affects BMI, which in turn affects body image (Annesi et al., 2014;

Niermann et al., 2014). Although both of these ideas are fairly well established in the literature, the interaction between these two familial influences has yet to be thoroughly investigated. However, there are some findings that suggest that this interaction may be important. For example, one group of researchers found that maternal diet talk that involves discussing proper nutrition and healthy exercise levels was associated with lower body dissatisfaction in daughters, even when the mother is directly encouraging her daughter to lose weight (Hillard et al., 2016). Additionally, parents who encourage family meals tend to have children with less disordered eating, even when they engage in direct appearance related messages, such as encouragement to diet (Fulkerson et al., 2006; Neumark-Sztainer et al., 2004; Rodgers & Chabrol, 2009). These preliminary findings highlight the need to further explore the interaction between appearance-related messages and family health climate and the outcomes on body image.

Current Study

To further investigate these findings and fill a gap in the literature, the current study was designed to examine the interactive influence of both appearance-related messages from caregivers and family health climate on the development of body image. The current study was designed to determine if this interaction would have a greater impact on body dissatisfaction than the two factors would separately. Based on the above cited research findings, it is likely that these factors would influence body satisfaction separately. However, there are different ways in which they could interact. First, an individual could be raised in a family that has a positive family health climate and a high amount of negative appearance-related messages. An individual could be raised in a family that has a negative family health climate and a low amount of negative

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appearance-related messages. An individual could also be raised in a family that has a positive family health climate and a low amount of negative appearance-related messages, which would likely result in greater body satisfaction. Lastly, someone could be raised in a family with a negative family health climate and a high amount of negative appearance-related messages, which would likely result in lower body satisfaction. Due to these possibilities, this study was designed to investigate the following research questions:

Research Questions

1. Do familial appearance-related messages (both direct influence and modeling) and family health climate (both nutrition and physical activity) in childhood and adolescence predict body satisfaction in adulthood when controlling for demographic variables?

2. Does the interaction of familial appearance-related messages (both direct influence and modeling) and family health climate (both nutrition and physical activity) in childhood and adolescence significantly predict body satisfaction in adulthood when controlling for demographic variables?

Hypotheses

1. H_A: Familial appearance-related messages (both direct influence and modeling) and family health climate (both nutrition and physical activity) in childhood and adolescence significantly predict body satisfaction in adulthood when controlling for demographic variables (See Figure C1 for visual representation).

2. H_A: The interaction of familial appearance-related messages (both direct influence and modeling) and family health climate (both nutrition and physical activity) in

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childhood and adolescence significantly predicts body satisfaction in adulthood

when controlling for demographic variables and for the main effects of each (See

Figure C2 for visual representation).

CHAPTER III

METHODOLOGY

Participants

The target population for this study was adults in the United States. Participants were recruited from various social networking sites and applications (Facebook, Listservs, etc.) in an effort to recruit a diverse participant sample with regard to gender, age, race/ethnicity, geographic location, and sexual orientation. Individuals had to be 18 years old or older to participate. After the initial recruitment, a second recruitment was used targeting males, given the high ratio of female to male participants initially. Participation was entirely voluntary and confidential. Confidentiality was ensured by using Qualtrics to collect the data, which is a secure and password-protected research and experience software system. Qualtrics assigned each participant a numerical code de-identifying the data to further ensure anonymity. Incentives to participate in the study included an option to submit an email address to be entered into a drawing to win 1 out of 4 $50 Amazon gift cards, which have since been distributed. The Informed Consent Document can be found in Appendix D. The Debriefing Statement can be found in Appendix E.

A statistical power analysis was performed using the program *G*Power 3.1.9.2* (Faul et al., 2009) to determine an estimation of sample size. An a priori power analysis

was utilized, which provides an estimation of the sample size needed to find a level of significant effect (i.e., p-values). The *Linear multiple regression: Fixed model, R² deviation from zero* statistical test was selected along with the following parameters: f^2 = .15, alpha = .05, power = .95, and number of predictors = 2. This information yielded a projected sample size of approximately 107. However, the sample size goal for this study was 150 to help offset the participants who do not complete all items or miss the validity checks.

Measures

An 88-item questionnaire was administered via the researcher's Qualtrics account, which participants were able to access through a URL provided through recruitment efforts. The survey included items related to participants' perception of the familial appearance-related messages they received and their family's nutrition and physical activity behaviors while they were growing up. The questionnaire also included items to measure their current level of body satisfaction. The questionnaire included a brief demographic questionnaire, and it was estimated to take 30 minutes or less to complete. The entire questionnaire can be found in Appendix F.

Demographic Questionnaire

The goal of this questionnaire was to obtain information on participants' age, race/ethnicity, gender, sexual orientation, weight status (measured by BMI and self-perception of weight category), history of body image related concerns/disorders, how long it has been (in years) since they have lived at home with their family of origin, and the type of community (rural, urban, suburban) in which their family of origin lives. The Index of Relative Rurality (IRR) was used to measure the type of community in which participants spent most of their time with their family of origin. The IRR is a continuous, multidimensional measure of rurality based on four dimensions of rurality: population,

population density, extent of urbanization, and distance to the nearest metro area. The index is scaled from 0 to 1, with 0 representing the most urban area and 1 representing the most rural area (Waldorf & Kim, 2018). BMI was calculated by dividing participants' weight in kilograms by the square of their height in meters. According to the Centers for Disease Control and Prevention (CDC), adult BMI cannot be calculated based on age and sex specific data as it can be for children. The CDC recognizes that BMI does not measure body fat directly, but states that it is moderately correlated with more direct measures of body fat obtained from skinfold thickness measurements, bioelectrical impedance, densitometry, and dual energy x-ray absorptiometry (Centers for Disease Control and Prevention, 2017). BMI is the standard measure used in self-report studies and, despite some criticism, it has been found to be a clinically important measure, even more so than total adiposity measures assessed by accurate, complex, and expensive measures (Ortega et al., 2016). Self-perception of weight category was measured by the Self-Classified Weight subscale of the Multidimensional Body-Self Relations Questionnaire (MBSRQ). The Self-Classified Weight (SCW) subscale reflects how one perceives and labels one's weight, from very underweight to very overweight. It consists of two questions, the first about how participants view themselves and the second about how they believe others view them regarding weight status. This subscale utilizes a 5-point Likert scale (1=Very Underweight, 2=Somewhat Underweight, 3=Normal Weight, 4=Somewhat Overweight, and 5=Very Overweight). During its development, the internal consistency for this subscale (measured with coefficient alpha) was .70 for males and .89 for females. Test-retest reliability was .86 for males and .74 for females (Cash, 2000).

Parental Influence Questionnaire (PIQ)

The Parental Influence Questionnaire (PIQ) was used to measure familial appearance related messages. The PIQ was designed to be a comprehensive measure of parental influence based on 22 previously developed measures to analyze the underlying dimensions of parental influence. It also aimed to determine the degree to which parental influence relates to body image and dysfunctional weight concerns. The questionnaire consists of 28 items with two subscales that include the two previously discussed dimensions of parental influence: Direct Influence and Modeling. Direct Influence includes weight and eating-related content. Modeling includes parental modeling of dieting and related behavior. During the developmental study of this questionnaire, both of these dimensions were significantly related to eating disturbance, including a drive for thinness and symptoms of Bulimia Nervosa even after controlling for peer and media influence. Modeling was associated with body dissatisfaction. Direct Influence was associated with BMI. Items are rated on a 5-point Likert scale (1 = Strongly Disagree, 2 = Somewhat Agree, 3 = Neither Agree nor Disagree, 4 = Somewhat Agree, and 5 = Strongly Agree). An example item from the Direct Influence subscale is *"I perceived a strong message from my parents to have a slender figure."* An example item from the Modeling subscale is *"My parents commented on each other's weight."* A high score on the PIQ subscales indicates a greater amount of negative appearance related messages, either through direct influence or modeling. During the development of the questionnaire, the internal consistency for both subscales, Direct Influence and Modeling, as measured with coefficient alpha, was .93 and .89, respectively (Abraczinskas et al., 2012). For the current study, the internal consistency for both subscales, Direct Influence and Modeling, as measured with coefficient alpha, was .95 and .88, respectively.

Family Health Climate Scale (FHC-Scale)

  Family health climate was measured using the Family Health Climate Scale (FHC-Scale). The FHC-Scale consists of two subscales: Family Health Climate-Physical Activity (FCH-PA) and Family Health Climate-Nutrition (FCH-NU). The FHC-PA Scale is comprised of three subscales (value, cohesion, and information) with a total of 14 items. The value subscale consists of items reflecting the importance of being physically active for the whole family. The cohesion subscale reflects joint physical activities and having fun together during these activities. The information subscale covers the search, sharing, and use of information related to sports and exercise. During the development of the scale, all three subscales showed good internal consistencies ranging from .81 to .91 (Niermann et al., 2014). FHC-PA was positively correlated with intrinsic and identified self-determined physical activity and negatively correlated with amotivation for exercise for the individual and interrelated family members. It was also positively correlated with the frequency of joint activities and social support between family members. A high score on the FHC-PA indicates a high amount of value, cohesion, and information regarding physical activity within the family. For the current study, the internal consistency for FHC-PA, as measured with coefficient alpha, was .92. The FHC-NU Scale consists of four subscales (value, cohesion, communication, and consensus) with a total of 17 items. The value subscale captures the family's emphasis on a health enhancing nutrition in daily life. The cohesion subscale reflects common family meals and the importance of eating together with other family members. The communication subscale assesses the extent to which nutrition is a natural content of conversations and that family members support each other concerning a balanced diet. The consensus scale reflects that family

members agree with each other in aspects related to daily eating behavior. During the development of the scale, the subscales had good internal consistency, ranging from .74 to .90 (Niermann et al., 2014). FHC-NU was positively correlated with intrinsic and identified self-determined healthy eating and negatively correlated with amotivation for healthy eating for the individual and interrelated family members. It was positively correlated to more frequent joint meals and more availability of vegetables and negatively correlated to availability of soft drinks. It was also positively related to social support amongst family members. A high score on the FHC-NU indicates a high amount of value, cohesion, communication, and consensus regarding nutrition within the family. For the current study, the internal consistency for FHC-NU, as measured with coefficient alpha, was .91. The FHC-Scale uses a 4-point Likert scale (0 = definitely false, 1 = rather false, 2 = rather true, 3 = definitely true) (Niermann et al., 2014).

Appearance Evaluation (AE) and Body Areas Satisfaction (BASS) subscales of the Multidimensional Body-Self Relations Questionnaire (MBSRQ)

Body satisfaction was measured using the Appearance Evaluation (AE) and Body Areas Satisfaction (BASS) subscales of the Multidimensional Body-Self Relations Questionnaire (MBSRQ). A cross-validated principal-components analysis of the original database supports the conceptual components of this instrument (Brown et al., 1990). The Appearance Evaluation subscale, which consists of 7 items, measures feelings of physical attractiveness or unattractiveness, i.e., satisfaction or dissatisfaction with one's looks. Scoring high on this subscale indicates positive feelings and satisfaction with one's appearance, whereas a low score indicates general unhappiness with one's appearance. This subscale utilizes a 5-point Likert scale (1=Definitely Disagree, 2=Mostly Disagree,

3=Neither Agree or Disagree, 4=Mostly Agree, and 5=Definitely Agree). During its development, the internal consistency for this subscale (measured with coefficient alpha) was .88 for both males and females. Test-retest reliability was .81 for males and .91 for females (Cash, 2000). The Body Areas Satisfaction subscale, which consists of 9 items, is similar to the AE subscale, except it measures satisfaction with discrete aspects of one's appearance. Scoring high on this subscale indicates being generally content with most areas of one's body, whereas a low score indicates being unhappy with the size or appearance of several areas of one's body. This subscale utilizes the same Likert scale as the AE subscale. During its development, internal consistency for this subscale (measured with coefficient alpha) was .77 for males and .73 for females. Test-retest reliability was .86 for males and .74 for females (Cash, 2000). The BASS has been shown to predict overall body satisfaction (Cash, 1989). Numerous studies have confirmed the validity of the MBSRQ subscales (Cash, 2000). The developers of the MBSRQ find it permissible to combine these two subscales because they are both body-image evaluation indices and are highly correlated (usually .7 to .8). However, they instruct that the score combination should average the normalized (z) scores of each scale instead of averaging the raw scores (Cash, 2000; Cash et al., 1985; Cash et al., 1986). For the current study, the internal consistency for the combination of the AE and BASS subscales, as measured with coefficient alpha, was .80.

Procedure

The researcher sought and obtained approval for this study from the researcher's dissertation committee and the OSU Institutional Review Board (IRB). Modifications were made according to the committee and IRB's feedback. Copies of the IRB study

approval and modification approvals can be found in Appendix G. The researcher sought

guidance from the dissertation committee while carrying out this study.

Participants were directed to the researcher's Qualtrics account, which was

utilized to collect and store the data. This account is secure and password-protected.

Qualtrics assigned each participant a numerical code to further ensure anonymity. They

then completed an informed consent form to participate in the study. The informed

consent provided participants with a description of the study, potential benefits and risks,

incentives (drawings for Amazon gift cards), and contact information for the principal

investigator. Once they gave their consent to participate in the study, they were allowed

to access the measures. Each participant completed the demographic questionnaire, PIQ,

FHC-Scale, and the AE, BASS, and SCW subscales of the MBSRQ. Once the

participants finished responding to the items, they were once again provided with contact

information for the principal investigator in case they had questions or wanted to request

a copy of the results of the study and thanked for their time.

Data Analysis

The data were analyzed using multiple linear regression models. The body

satisfaction score, which was represented by a single numeric value derived from the

combination of the AE and BASS scores as per the scoring instructions from the MBSRQ

manual, was used as the outcome variable. The subscale scores for FHC-NU and FHC-

PA and the subscale scores for PIQ-Direct Influence and PIQ-Modeling were included in

the model as predictor variables. The interaction between family health climate and

familial appearance-related messages was represented by four two-way interaction terms:

1) FHC-NU by PIQ-Direct Influence, 2) FHC-NU by PIQ-Modeling, 3) FHC-PA by PIQ-

Direct Influence, and 4) FHC-PA by PIQ-Modeling. Based on the review of the literature, it is known or suspected that rurality, gender, ethnicity, years since lived at home, BMI, self-classified weight, and sexual orientation have relationships with body satisfaction. Therefore, these variables were also included in the model in order to control for their effects and to potentially get more accurate results for the nutrition, physical activity, direct influence, and familial appearance-related messages variables, as well as potentially identify any between group differences. Age and years since lived at home were highly correlated with each other ($r = .94$), therefore only years since lived at home was included in the model given its greater relevance to connection to family of origin. It is important to note that while BMI and self-classified weight were strongly correlated ($r = .77$), all variance inflation factors for the models were less than 5, which does not indicate multicollinearity. A level of significance of $\alpha = 0.05$ was used to assess statistical significance.

CHAPTER IV

RESULTS

The model assumptions of linearity, homogeneity of variances, and normality of

error terms were visually assessed via scatterplots and histograms and appeared to be

met. Linear regression also assumes independence of observations. Each participant is

only represented once in the data set and meets that aspect of this assumption. However,

due to the sampling method it is possible that participants had some common factors.

Therefore, these findings can only be generalized to groups with similar common factors.

This issue is discussed in greater detail in the limitations section. The internal consistency

of the entire questionnaire (excluding demographic questions), including PIQ-Direct

Influence, PIQ-Modeling, FHC-NU, FHC-PA, AE, and BASS was measured with

coefficient alpha, which was .85 and indicates good reliability of the questionnaire

(Tavakol & Dennick, 2011). Internal consistency data for these subscales can be found in

Table I1. All regression tables can be found in Appendix H.

Description of Participants

The total number of participants who completed the full questionnaire and passed

all validity checks was 292. Regarding gender identity, 77.7% ($n = 227$) identified as

female, 19.2% ($n = 56$) identified as male, and 3.1% ($n = 9$) identified as transgender or

nonbinary. Regarding race/ethnicity, 81.8% ($n = 239$) of participants identified as White,

not of Hispanic origin, 4.8% (*n* = 14) identified as Hispanic/Latino, 3.8% (*n* = 11)

identified as American Indian/Alaskan Native, 3.8% (*n* = 11) identified as Bi-

Racial/Multi-Racial, 2.7% (*n* = 8) identified as Black/African American, 1.7% (*n* = 5)

identified as Another Race, and 1.4% (*n* = 4) identified as Asian/Pacific Islander.

Participants ranged from 18 to 70 years old with a mean age of 34.65. The mean number

of years that participants had lived away from the home of their family of origin was 14.

Regarding sexual orientation, 72.9% (*n* = 213) of participants identified as straight,

13.4% (*n* = 39) identified as bisexual, 5.5% (*n* = 16) identified as pansexual/omnisexual,

3.8% (*n* = 11) identified as gay, 3.8% (*n* = 11) identified as lesbian, and 0.7% (*n* = 2)

identified as asexual. Participants reported being raised in a variety of geographic

locations with respect to degree of rurality. Participants reported a range of BMIs from

underweight to obese, with the mean BMI falling to the overweight category. However,

the mean Self-Classified Weight status was normal weight to somewhat overweight. This

difference is likely explained due to age, gender, and muscle mass not being a part of the

BMI formula. The number of participants that reported having current body image

concerns was 70.2% and 74% reported having a history of body image concerns, which is

only slightly lower than the relevant population. The majority of participants in this study

were young adult women in the U.S. Among that population, over 80% experience body

image concerns at some point in their lives (Ipsos Public Affairs, 2018). Finally, 8.6% of

participants reported being diagnosed with a body image related disorder (such as an

eating disorder or body dysmorphic disorder). For comparison, among U.S. adults, Body

Dysmorphic Disorder has a prevalence rate of 2.4% (American Psychiatric Association,

2013). Anorexia Nervosa has a prevalence rate of 0.9% among American women

(Hudson et al., 2007). Bulimia Nervosa has a prevalence rate of 1.5% in American women (Hudson et al., 2007). Appendix I contains descriptive statistics and visual representations of frequencies for all variables.

Zero-Order Correlation Matrix

There were several significant correlations between variables. PIQ Direct Influence (r = -.44) had a moderate, negative correlation with Body Satisfaction. Body Satisfaction also had moderate, negative correlations with both BMI (r = -.43) and Self-Classified Weight (r = -.59). FHC Nutrition and FHC Physical Activity were moderately, positively correlated (r = .59). PIQ Direct Influence and PIQ Modeling were moderately, positively correlated (r = .46). PIQ Direct Influence had a moderate, positive correlation with Self-Classified Weight (r = .44). There was a strong, positive correlation between BMI and Self-Classified Weight (r = .77) (Evans, 1996). The full correlation matrix for all continuous variables can be found in Appendix J.

Hypothesis 1

H_A: Familial appearance-related messages (both direct influence and modeling) and family health climate (both nutrition and physical activity) in childhood and adolescence significantly predict body satisfaction in adulthood.

A model with no interactions was run to assess the potential main effects of direct influence, modeling, nutrition, and physical activity on body satisfaction. For the overall F-test, there was strong evidence to suggest that at least one of the predictor variables has a statistically significant relationship with body satisfaction (R^2 = .44, $F(21, 270)$ = 9.99, p < 0.0001). The results are shown in Table H1. This table includes p-values, test statistics, standard errors, and parameter estimates in the form of unstandardized

coefficients. For continuous variables (FHC Nutrition, FHC Physical Activity, PIQ Modeling, PIQ Direct Influence, BMI, Self-Classified Weight, Rurality, and Years Since Moved Out), the estimates are interpreted as the mean change in body satisfaction per unit increase in the given predictor variable. For categorical variables (gender, race, and sexual orientation), one of the categories was left out of the model (and therefore not listed on the table) and used as the reference level to which all other categories of that variable are compared. Female was the reference level for gender, Caucasian was the reference level for race/ethnicity, and straight is the reference level for sexual orientation, due to these being the most frequently occurring categories for each variable. The estimate in these instances is the mean difference in body satisfaction between the given category and the reference category. The intercept term is the predicted value when all variables are set to zero. Since this has no real world meaning here (i.e., it is impossible to have a BMI of zero), it is not interpreted even though it has a significant p-value. It is simply used to orient the model.

There was strong evidence to suggest there is a significant linear relationship between PIQ Modeling and Body Satisfaction scores (b = -0.12, $t(1)$ = -2.03, p = 0.04). The estimated coefficient for PIQ Modeling was -0.12. This means that for every one-point increase in PIQ Modeling, on average, Body Satisfaction scores decreased by 0.12 points, with all other variables held constant. There was also strong evidence to suggest there is a significant linear relationship between PIQ Direct Influence and Body Satisfaction scores (b = -0.15, $t(1)$ = -2.64, p = 0.01). For every one-point increase in PIQ Direct Influence, on average, Body Satisfaction scores decreased by 0.15 points, with all other variables held constant.

FHC Nutrition and FHC Physical Activity were both statistically significant predictors of body satisfaction when they were the only two variables in the model, but after adding the other variables neither FHC Nutrition nor FHC Physical Activity provided a significant amount of additional meaningful information. Therefore, only part of the null hypothesis can be rejected due to only familial appearance-related messages (both direct influence and modeling) significantly predicting body satisfaction, while family health climate (both nutrition and physical activity) did not when all variables were in the model.

Based on early decisions in the study, power was calculated in the previously described manner, with the intention of combining FHC Nutrition and FHC Physical Activity to make a total FHC score and PIQ Direct Influence and PIQ Modeling to make a total PIQ score. The demographic variables were also not included in the power analysis because they were going to be used to describe the sample and to investigate any differences among groups in a separate analysis, but would not be included in the main model that investigated interaction and main effects of FHC & PIQ. However, upon further reflection after the data were collected, it was decided that it would be better to keep the FHC and PIQ subscales separated and include demographic variables in the main model to control for their influence. Therefore, the power analysis should have been performed with number of predictors = 25, instead of number of predictors = 2. Unfortunately, running a post-hoc power analyses is frowned upon and not useful from a theoretical standpoint (Levine & Ensom, 2001). However, the model had a large effect size ($f^2 = .78$). The linear combination of all predictor variables in the model accounted for 44% of the variance in body satisfaction scores ($R^2 = .44$).

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Hypothesis 2

H_A: The interaction of familial appearance-related messages (both direct influence and modeling) and family health climate (both nutrition and physical activity) in childhood and adolescence significantly predicts body satisfaction in adulthood.

A model including all four interaction terms was run and none of the interactions were significant. To allow for the possibility that some p-values may become significant after removing one or more of the non-significant interaction terms, the interaction terms were removed one at a time and the regression was re-run, with the term having largest p-value being removed at each iteration. First, the interaction between physical activity and direct influence was removed, due to non-significance ($b = 0.05$, $t(1) = 0.49$, $p = 0.63$). After running the model a second time, the interaction between nutrition and modeling was removed, due to non-significance ($b = 0.15$, $t(1) = 1.23$, $p = 0.22$). The interaction between physical activity and modeling was removed third, due to non-significance ($b = -0.05$, $t(1) = -0.62$, $p = 0.53$). Finally, the interaction between nutrition and direct influence was removed, due to non-significance ($b = -0.11$, $t(1) = -1.39$, $p = 0.17$). Since none of the interaction terms are statistically significant, there is not sufficient evidence to suggest there is a significant interaction between familial appearance-related messages and family health climate when predicting body satisfaction in adulthood, with all other variables held constant. Therefore, the null hypothesis must be retained.

Demographic Data

Only one demographic variable significantly predicted body satisfaction. There was strong evidence to suggest there is a significant linear relationship between Self-Classified Weight and Body Satisfaction scores ($b = -0.66$, $t(1) = -6.66$, $p < 0.0001$). For

every one-point increase in Self-Classified Weight, on average, Body Satisfaction scores decreased by 0.66 points, with all other variables held constant. BMI was highly significant when Self-Classified Weight was excluded from the model, however, after adjusting for the information provided by Self-Classified Weight, BMI did not add enough meaningful information to be significant.

Post-Hoc Analyses

Due to Self-Classified Weight being a consistent predictor of Body Satisfaction scores in all models, a separate analysis was conducted to determine if any measures of family health climate or appearance-related messages were significant predictors of Self-Classified Weight. The results can be found in Table H2. There was evidence to suggest there is a significant linear relationship between FHC Physical Activity and Self-Classified Weight ($b = -0.21$, $t(1) = -2.64$, $p = 0.01$). For every one-point increase in FHC Physical Activity, on average, Self-Classified Weight scores decreased by 0.21 points. There was also evidence to suggest there is a significant linear relationship between PIQ Direct Influence and Self-Classified Weight ($b = 0.33$, $t(1) = 7.45$, $p < 0.0001$). For every one-point increase in PIQ Direct Influence, on average, Self-Classified Weight scores increased by 0.33 points.

To determine if there are any interactions between Self-Classified Weight and measures of family health climate or appearance-related messages that significantly predict body satisfaction, these four interaction terms were added to the model. To allow for the possibility that some p-values may become significant after removing one or more of the non-significant interaction terms, the interaction terms were removed one at a time and the regression was re-run, with the term having largest p-value being removed at

each iteration. The results can be found in Table H3. The interaction between Self

Classified Weight and PIQ Direct Influence was a significant predictor of Body

Satisfaction scores (b = -0.13, $t(1)$ = -2.22, p = 0.03). PIQ Modeling also continued to be

a significant predictor of Body Satisfaction scores in this model (b = -0.12, $t(1)$ = -2.15, p

= 0.03). Findings from post-hoc analyses are reported only for discussion and

suggestions for future research.

CHAPTER V

DISCUSSION

Findings

In this sample, there was no significant interaction between family health climate and familial appearance-related messages that was significantly associated with body satisfaction. It is possible that such an interaction truly does not exist in the population. It is also possible that such an interaction was not able to be captured due to problems with the sample itself, such as potentially having a low sample size due to an incorrect initial power analysis or poor sampling design. Both of these issues will be discussed further when addressing the limitations of the study. The regression weights would have the following interpretation if this model is a true representation of the phenomena.

Based on previously reviewed literature, it is clear that family is an important influence on body image development as both a sociocultural factor (one-third of the Tripartite Influence Model) and an influence on health behaviors (which influences weight status, a known predictor of body image). Therefore, it is important to understand if and how these two modes of familial influence interact to have a more thorough understanding of familial influence on body image development and, to date, no other studies have directly examined this potential interaction. However, previously reviewed

findings suggest that this interaction may be important, which highlights the need to further explore this possible interactive influence. Therefore, findings from this study will not only be discussed regarding how they each relate to previous literature, but also in the context of how they may provide an explanation as to why this potential interaction was not found in this study and how future studies could continue investigating this topic.

Both measures of familial appearance-related messages (direct influence and modeling) were significantly associated with body satisfaction in this sample, such that as the amount of familial appearance-related messages in childhood/adolescence increased, body satisfaction in adulthood decreased. This provides further evidence that familial appearance related messages do impact body image development. It also further indicates that these messages can continue to have an impact on body image into adulthood. Although this does not introduce novel information to the body of literature on this topic, it reemphasizes the importance of targeting the family system when developing prevention and intervention strategies for body image-related concerns and disorders.

Neither measure of family health climate (physical activity and nutrition) was significantly associated with body satisfaction in the final model. However, when they were the only two variables in the model, they were both significantly associated with body satisfaction. They were also both significantly positively correlated with body satisfaction, meaning that, within this sample, a greater emphasis placed on physical activity and nutrition within the family system as a child/adolescent was associated with having higher body satisfaction as an adult. However, this association was weak. This provides evidences that family health climate likely does have an impact on body image development, but one that is not very meaningful when compared to other factors (such

as familial appearance-related messages, self-classified weight status, and possibly other factors that were not included in this study).

To better understand this effect, more information is needed on how family health climate during childhood/adolescence affects health attitudes and behaviors in adulthood. The original FHC-Scale measures one's current family health climate and has been found to predict physical activity, nutrition behaviors, and weight status in children/adolescents while they are currently still living with their family of origin (Gerards et al., 2016; Niermann et al., 2014, Niermann et al., 2015). However, to date, there have not been any reported findings on how family health climate in childhood/adolescence influences health attitudes and behaviors in adulthood. The current study did not investigate this connection, but it would be very beneficial for future studies to help determine how family health climate from one's family of origin impacts adult health attitudes and behaviors, as well as adult weight status. To date, there have been no other reported findings on an association between family health climate and body image (in either childhood/adolescence or adulthood). Therefore, this study provides novel information that such a connection likely exists, but does not provide enough information to explain this connection. It is possible that family health climate from one's family of origin has more of an indirect influence on body image as an adult by influencing adult health behaviors and weight status.

As previously discussed, weight status and health behaviors have consistently been established as predictors of body image. In the current study, self-classified weight status was significantly associated with body satisfaction. The other measure of weight status, BMI, was a significant predictor of body satisfaction only when self-classified

weight status was not included in the model. This provides evidence that self-perception is more influential to body image than the more objective measure of just height and weight that does not factor in age, sex, adiposity, muscularity, or cultural perceptions of weight.

Because weight status has a significant impact on body image, one could argue that different factors that influence weight status would then have an indirect influence on body image. Therefore, if family health climate from one's family of origin influences weight status as an adult, then it could be considered an indirect influence on body image development. Future investigation on this topic is needed to better understand this prospective indirect influence, including any potential connection between family health climate from one's family of origin and current health behaviors as an adult (as health behaviors impact weight status).

Although current health behaviors were not measured in this study, family health climate from one's family of origin and current weight status were examined. Weight status was originally only gathered as a demographic variable to describe the sample. However, after noticing the strong relationship between self-classified weight status and body satisfaction, as well as keeping in mind the gap in the literature on family health climate and body image, it became clear that self-classified weight status may be helpful in attempts to fill this gap. Therefore, post-hoc analyses were conducted to potentially identify any relationships that could provide more information about the association between family health climate and body satisfaction as directions for future research. A post-hoc analysis on potential predictors of current weight status revealed that FHC Physical Activity was significantly associated with self-classified weight status. The

participants who reported being raised in a family with a greater emphasis on physical health were more likely to have a lower weight status. This provides some evidence that family health climate from one's family of origin may influence weight status as an adult. Additionally, this analysis revealed that PIQ Direct Influence was also significantly associated with self-classified weight status. Participants who reported more negative appearance-related messages about their body from their family were more likely to have a higher weight status. A second post-hoc analysis on possible interactions between self-classified weight status and both family health climate and familial appearance-related messages revealed that an interaction between self-classified weight status and PIQ Direct Influence was significantly associated with body satisfaction. These findings may indicate that weight status (particularly self-classified weight status) could potentially be a mediating variable between family health climate and body satisfaction. If this is true, it would provide a reasonable explanation for the significant interaction found between a measure of familial appearance-related messages (PIQ Direct Influence) and self-classified weight status, instead of between a measure of appearance-related messages and family health climate. However, because the current study was not designed to discern a relationship between these factors, future research is needed to determine the presence of a potential mediation relationship and the potential interaction regarding body satisfaction.

There were also a few potentially meaningful correlations that are important to highlight that relate to a possible relationship between family health climate and familial appearance-related messages and possible relationships between both family health climate and familial appearance-related messages and weight status. However, it is

critical to keep in mind that these correlations are not controlling for any other variables and should be interpreted with caution. First, FHC Nutrition had weak negative correlations with both PIQ Modeling and PIQ Direct Influence. FHC Physical Activity also had a weak negative correlation with PIQ Direct Influence. This could possibly indicate that individuals in this sample whose families placed more of an emphasis on health behaviors were slightly less likely to engage in negative appearance-related messages. Second, both FHC Nutrition and FHC Physical Activity had weak negative correlations with both BMI and Self-Classified Weight. This may provide some additional evidence that individuals in this sample whose families placed more of an emphasis on health behaviors were slightly more likely to have a lower weight status as adults. Third, PIQ Direct Influence had a weak positive correlation with BMI and a moderate positive correlation with Self-Classified Weight. This could further indicate that individuals in this sample whose families engaged more in negative appearance-related messages were slightly more likely to have a higher perceived weight status as adults. The magnitude of these correlations indicate enough of a relationship that they are worth pursuing in future research, particularly where these correlations coincide with other literature. The implications of these correlations for future research will be discussed below.

Limitations

One limitation in this study is the low representation of some demographic categories, which prevented the ability to make comparisons among groups. Unfortunately, the vast majority of participants were White, female, and straight. While there was more diversity regarding age and years since lived with family of origin, most

participants were under 35 years old and had only moved out of their family of origin's home in the last 10 years. The method of sampling in this study was chosen in an effort to obtain a more diverse pool of participants. The target population (adults living in the US) was intentionally broad for this purpose. Instead of recruiting participants using geographically limited resources, participants were recruited from various social networking sites and applications (Facebook, Listservs, etc.) in hopes of reaching a variety of individuals. A second recruitment effort targeted males, given the high ratio of female to male participants initially.

Unfortunately, not only did this not produce the desired outcome, but it essentially became what is known as snowball sampling, which is another limitation of the study. Individuals were not only asked to participate, but to share the recruitment flyer with others, which creates a kind of chain referral system. While snowball sampling can potentially result in reaching a variety of individuals, and is frequently used for this purpose (Balter & Brunet, 2012), there is little control over this sampling method. The newly obtained participants rely mainly on the previous participants that share the recruitment flyer. Therefore, representativeness of the sample is not guaranteed. Sampling bias can also be an issue when using this sampling technique. Since initial participants tend to share the recruitment information with people or groups that they know well, it is highly possible that the participants share similar traits and characteristics (Biernacki & Waldorf, 1981). Therefore, it is possible that the obtained sample is only a small subgroup of the entire population. This is, of course, in addition to the underlying biases that can influence who chooses to respond to any voluntary response survey. Additionally, all participants had to have access to the internet to complete the survey,

which further limited accessibility. Consequently, this limits the generalizability of the results of this study.

As previously described, the a priori power analysis for this study was incorrect due to erroneously excluding the correct number of variables to determine the appropriate sample size, which is another limitation of the study. Unfortunately, running a post-hoc power analyses to determine if the sample size was actually too low is frowned upon and not useful from a theoretical standpoint (Levine & Ensom, 2001). However, it is important to note that the a priori analysis that was run suggested a sample size of 107 and that the actual number of participants was 292. Additionally, the final model (with no interaction terms) had a large effect size, which suggests that the model may have had adequate power.

To measure both familial appearance-related messages and family health climate in childhood/adolescence, retrospective questions were utilized. Retrospective questioning is not an uncommon method in studies that investigate connections between phenomena in childhood/adolescence and adulthood and it has been used in research related to body image and disordered eating (Oliveira et al., 2019; Oliveira et al., 2018; Rogers et al., 2019). However, the only way to ascertain the accuracy of the answers of these types of questions would be to conduct a longitudinal study to collect the data during childhood/adolescence and then compare the answers from retrospective questions during adulthood, which was not feasible for this study. Therefore, the accuracy of these answers is unknown. Additionally, it is possible that older adults in the study may have less accurate reporting due to time and memory differences when compared to young adults, which is another limitation. Age and years since lived at home data were collected

and years since lived at home was included in regression analyses to control for this variable (age was not included due to multicollinearity). Had the diverse sample that was sought been obtained, comparisons between age groups would have been made to investigate any potential differences in reporting among age groups. However, because the percentage of older adults was much lower than young adults, such comparisons were not possible. However, it is important to consider that it is possible that what affects body image development more is one's perception of their family health climate and familial appearance-related messages during childhood/adolescence rather than the actual occurrence of them. However, this idea would need to be investigated via longitudinal studies.

CHAPTER VI

CONCLUSION

Clinical Applications

Because body image has such a strong impact on several areas of mental health and overall quality of life, this is an important topic to not only continue researching, but to continue focusing on for prevention and intervention programs. It is important to target all three factors from the Tripartite Influence Model (peers, media, and family) to thoroughly aid in helping individuals develop a more positive body image. However, because the family system is generally the first and most consistent area of socialization it is particularly important to focus on this factor. Additionally, it is important to ensure that these prevention and intervention programs can be implemented with anyone, regardless of age, gender, race/ethnicity, ability status, sexual orientation, etc. The Body Project program has been successful in improving body image; however, its main focus is on media and it has been mostly applied to girls and young women without obvious considerations of diversity issues (Stice et al., 2013). A quick internet search will yield many articles giving advice on how families can help promote a more positive body image in their children, such as an article by psychologist Glenn Mackintosh in *The Guardian* (2020) about how to break cycles learned in childhood regarding how to talk about bodies and weight. When treating individuals with eating disorders, some therapists

help families understand the role they play in their child's body image development and help them modify their appearance-related messages. However, there is currently no widely used, evidence-based program that educates families on this topic and that is accessible to those who are not in treatment for an eating disorder. The current study and future studies that will be suggested could be very beneficial in developing such a program. Below are suggestions for program development based on the review of the literature and the findings from this study.

First, the program should focus on educating families about body image and how it affects mental health and quality of life. All known factors that contribute to body image development should be addressed, with a particular emphasis on the family's role and how impactful they can be in their child's body image development in the short and long-term. Second, the program should focus on educating families and creating mindfulness about how the appearance-related messages they give their children impact their body image development. Families should be encouraged to refrain from teasing or making negative appearance-related comments to their child. Additionally, it is important that caregivers model a positive relationship with their own body and refrain from making negative appearance-related comments about other people's bodies, especially in front of their children. Families should be taught how to disconnect value/worth/self-esteem from physical appearance in order to ensure that their child knows that their worth does not rely on their outward appearance. This can include encouraging caregivers to compliment other aspects about their child apart from their appearance. Even positive appearance-related messages still reinforce the importance of appearance and should, therefore, be limited (Herbozo, & Thompson, 2006; Kluck, 2010; Rodgers et al., 2009).

For caregivers to be successful in retraining themselves on how they speak about appearance, it would be very beneficial for them to reflect on and critically analyze the messages that they received from their family of origin (as well as peers and media) to develop self-awareness and increase their willingness to not continue the cycle of harmful messages. Families should also be empowered to intervene when their child receives negative appearance-related messages from other sources and help them critically analyze and reframe these messages. Specific examples and role-play exercises can be included to help caregivers understand how this information can be practically applied in their home.

Third, the program should focus on educating families and creating mindfulness about family health climate and how it can help shape their child's health behaviors, impact their weight status, and therefore also influence their body image development. Families should be encouraged to model and promote healthy attitudes and behaviors in the home, regarding both physical activity and nutrition. This should include encouraging families to not only engage in regular physical activity, but to do so as a family and utilize enjoyable activities to also promote family interaction and cohesiveness. Caregivers should be given an overview of how to focus on eating nutritiously and also be provided with resources for more information and guidance on this subject to help families, regardless of their socioeconomic status, incorporate more nutritious foods into their eating behaviors. Families should be encouraged to eat meals together, when possible, to further promote family interaction and cohesiveness. It is critical that families are taught to make the focus of these health behaviors on respecting and taking care of their physical and mental health instead of on trying to achieve some ideal appearance standard. Families should be provided with education on how physical activity and

proper nutritional intake improves both physical and mental health, including the role of gut health. However, it is also important that families promote flexibility and moderation with these behaviors instead of rigidity and shame. There should be an emphasis on the dangers of diet-culture and having over-controlled health behaviors.

Families should also be encouraged to examine the congruence (or incongruence) of the appearance standards they hold and promote and the health behaviors they model and encourage. For example, are they promoting a certain appearance standard while not modeling health behaviors that would aid in attaining this standard? How might this kind of scenario further impact their child's body image by both setting a (potentially unrealistic or harmful) standard and also not helping them learn how to potentially reach this standard? The goal would be to help families better understand the different ways in which they impact their child's body image development and become more mindful of what they are promoting.

The program should be broad and open-ended regarding the appearance-related standards that are challenged so that it is not solely applicable to straight, white, young, able-bodied, females. Many programs and articles focus on the thin-ideal, but this is not the ideal standard for every person, family, or culture. People who experience body dissatisfaction are diverse and the program should be broad enough to include addressing any type of unrealistic or harmful appearance-related standard. This can be achieved through having each family/person identify their own appearance-related standards, how they developed them, and whether they are unrealistic or harmful.

While the program will be focused on the importance the family plays in body image development, it is critical that the tone of the program not be shameful towards

caregivers or make them feel blamed if their child is dissatisfied with their body. It should be emphasized that while the family is an important factor in body image development, it is not the sole factor. The program should help caregivers recognize that many appearance-related messages and negative health behaviors do not come from any intention to harm their children and that most caregivers are simply trying to help their children, using the skills and messages that were given to them. The program should also validate caregivers' own experiences with appearance-related messages they have received, health behaviors that were modeled for them, and how their own body image was impacted by these factors to help minimize any perceived blame and empower them to break harmful intergenerational cycles.

The program should be developed to be applicable for families with children who do not already have known body image-related concerns (prevention) and for those that do (intervention). When used for intervention purposes, it should be designed to be complimentary to and not a substitute for other intervention modalities that are addressing the specific issue that the child has. However, it should not be tailored to be solely applicable for prevention and intervention for eating disorders given that body dissatisfaction plays a role in many other mental health issues. Finally, the program should be designed to be facilitated not solely by mental health professionals, but also school counselors and other community members, similar to the Body Project, to increase accessibility. Program materials should be designed considering different levels of literacy within families.

To ensure that the program is collaboratively developed by people who specialize in body image-related issues and to help promote the program, it would be ideal to

partner with an organization, such as the National Eating Disorder Association (NEDA). Again, body image-related issues are not exclusive to those who experience disordered eating, but an organization such as NEDA aid in the development of the program, research on the efficacy of the program, and promoting the program to make it more available and accessible. Developing a comprehensive and widely used program with a national organization using the results from the current studies and future studies on this topic is an achievable, but more long-term goal. To begin the process of developing such a program, the current study will be used to develop materials that can be used to disseminate an abbreviated version of this information to families. A collaboration has been established with the medical director of the Oklahoma State University Family Health and Nutrition Clinic, Dr. Colony Fugate. A 15-minute audio/video module will be created for families who participate in a summer program organized by the clinic. Additionally, an informational handout has been created to give to families who receive care at this clinic, which can be found in Appendix K.

An important finding from the current study that is relevant to current sociocultural trends is the amount that self-classified weight status was associated with body satisfaction. Those that perceived themselves has having a higher weight status were much less likely to be satisfied with their bodies. This is certainly not a novel finding. However, sociocultural trends that have become more widespread in recent years, such as the body, fat, and size acceptance movements, will hopefully have an impact on decreasing how much perceived weight status predicts body satisfactions by decreasing weight stigma (Bombak et al., 2019; Hall, 2020). A major goal of the

proposed program aimed at families is to help further these movements by helping caregivers promote and model body acceptance to their children from an early age.

Future Directions for Research

Regarding implications of this study for future research, several modifications and future directions can be suggested. In an effort to have a more diverse and representative sample, it would be beneficial to utilize different sampling and recruitment methods in future studies on this topic. Studies on this topic could be conducted with more homogeneous groups and then replicated with different populations. This would greatly aid in the ability to make group comparisons regarding different variables in the study. It would also be helpful to add a measure for current health attitudes and behaviors to help investigate if there is a relationship between this variable and family health climate from one's family of origin. As discussed above, it is possible (based on post-hoc analyses) that self-classified weight status is a mediating variable between family health climate and body satisfaction. It is also possible that there is an interaction between appearance-related messages from one's family of origin and self-classified weight. If so, this would make family health climate more of an indirect influence on body satisfaction. There is currently a gap in the literature on whether or not family health climate in childhood/adolescence has an impact on weight status or body image. In fact, the finding from a post-hoc analysis in this study that family health climate (regarding physical activity) predicts current weight status has not previously been found/reported in the literature. Therefore, future studies should use mediation and other analyses to further investigate this potential influence.

The potentially meaningful correlations that were previously discussed also warrant further investigation. Two of these correlations provide potential evidence of a relationship not only between family health climate and weight status as an adult, but also between familial appearance-related messages and weight status (especially perceived weight status) as an adult. This provides further reasoning for future studies to investigate the potential influence that family health behaviors and appearance-related messages in childhood/adolescence have on weight status as an adult. Additionally, another correlation indicates the possibility that families who put a greater emphasis on health behaviors also engage in less negative appearance-related messages. Future studies should also investigate the potential relationship between these variables as well.

Finally, future studies on this topic would likely benefit from using a Structural Equation Modeling (SEM) approach. SEM for the social sciences uses latent variables which allow for a more sophisticated handling of error variance and would increase the amount of variance that could be accounted for by the model. SEM would also be helpful in further understanding how these variables relate to one another to get a more thorough understanding of familial influence on body image development. Finally, SEM would better allow for exploration of a developmental timeline of influence, utilizing the retrospective measures used in this study, as well as adding a measure of current health behaviors.

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APPENDICES

APPENDIX A: Extended Review of the Literature

Body image affects overall mental health and quality of life and thus is an

important research topic to aid in the development of prevention and treatment methods.

The construct of body image has been defined as our overall attitudes towards our body,

especially related to its appearance (Cash & Pruzinsky, 1990). It has been separated into

two dimensions: evaluation/affect, which refers to body satisfaction and dissatisfaction,

as well as related emotions, and investment, which refers to the behavioral and cognitive

importance placed on one's appearance (Cash, 1994). While the terms body image, body

satisfaction, and body dissatisfaction are not interchangeable, different terms are used in

this review based on what the cited study used. Body dissatisfaction refers to the disliking

and disparaging of one's body (Wilson et al., 2013). The experience of having a negative

body image has been associated with several mental health concerns, including, but not

limited to, poor self-esteem, depression, self-consciousness, social anxiety, sexual

difficulties, and body dysmorphia (Hartmann et al., 2013; Thompson, 1990). Researchers

have identified body dissatisfaction as a predictor for both mental and physical health-

related quality of life (Wilson et al., 2013). In fact, Muennig and colleagues (2008) found

that body dissatisfaction predicted physical and mental health more strongly than did

Body Mass Index (BMI) and has been found to be associated with increased depression

levels, as well as decreased self-esteem (Sarwer et al., 2005). Body dissatisfaction is very

common and has been estimated to affect around 50% of girls and young women in Western cultures (Grabe et al., 2008). Although commonly considered to be a female concern (Feingold & Mazella, 1998), recent evidence reveals an increasing prevalence of body dissatisfaction in males (Dakanalis et al., 2015; Dye, 2015; Halliwell & Harvey, 2010; McCabe & Ricciardelli, 2003; Rodgers et al., 2009). Body dissatisfaction is often conceptualized as culturally bound, given different prevalence rates among racial/ethnic groups (Wildes et al., 2001). It appears to be more prevalent in westernized cultures and occurs frequently during adolescence and early adulthood (Holmqvist & Frisén, 2010; Neumark-Sztainer et al., 2006). Considering how many individuals appear to experience body dissatisfaction and the mental and physical health concerns that can result from it, further research into the factors that influence body image development could help improve overall mental and physical health in many populations.

Body Image Influence Models

In order to develop effective treatment and prevention methods for body image-related concerns, it is critical to first understand the factors that contribute to body image development by examining the literature. Researchers have identified numerous factors as developmental influences for body image, of which sociocultural factors are among the most heavily researched. From a social-cognitive learning perspective, the development of body image encompasses a range of factors that influence predisposition, precipitation, and maintenance (Cash & Grant, 1996). Societal and cultural messages have been demonstrated to play a significant role in determining what is considered psychically attractive and unattractive (Fallon, 1990). It is commonly believed that body image is molded through social interactions and feedback about one's appearance from

others (Lerner & Jovanovic, 1990). One model that has been used in the literature to explain how body image disturbance develops is objectification theory. Objectification theory asserts that in a society in which women are highly (or primarily) valued for their appearance, frequent exposure to sexual objectification from others results in women adopting these appearance ideals and viewing their own bodies from a third-person perspective, commonly referred to as self-objectification (Fredrickson & Roberts, 1997). They begin to perceive, monitor, and evaluate their own appearance against the idealized appearance standard. Conversely, self-objectification can be decreased by being exposed to environments that encourage a focus on aspects of the body other than appearance (such as what the body can do and health) (Frisén & Holmqvist, 2010; Menzel & Levine, 2011). Because the appearance standard in many cultures emphasizes being thin (the "thin ideal") and this standard is unrealistic for many women to achieve, evaluating their appearance leads to feeling shameful and dissatisfied (Moradi & Huang, 2008). This model is supported by trends across time. For example, in Western cultures, the idealization of thinness in women as well as the prevalence of Bulimia Nervosa and Anorexia Nervosa increased during the 20th century (Culbert et al., 2015; Keel & Forney, 2013). This indirectly supports the idea that increases in the thin ideal results in increased risk for body dissatisfaction and eating disorder symptomology. The Tripartite Influence Model expands on the objectification theory by identifying specific sociocultural influences that lead to internalization and pursuit of appearance standards (Thompson et al., 1999). Researchers have strived to identify influential factors and develop theories that provide a multidimensional explanation of how body image develops that can be

used in developing prevention and intervention methods, as well as serve as a framework for future research.

Tripartite Influence Model

The Tripartite Influence Model can be effectively utilized to understand the sociocultural factors that influence body image development (see Figure B1). The Tripartite Influence Model of body dissatisfaction and eating disturbance proposes that three formative influences affect body image and eating disturbance (Thompson et al., 1999). These influences are media, peers, and family. The model also asserts that these influences occur through two mediational mechanisms: appearance comparison processes and internalization of the thin ideal (Thompson et al., 1999). The three influences can occur directly, via comments about weight/appearance, or indirectly, through popular media portrayals and associations between appearance and success, happiness, confidence, and romantic potentiality. These influences can also occur through modeling of maladaptive behaviors including weight/shape concerns, weight control mechanisms, and negative attitudes about appearance (Carey et al., 2013; Engeln-Maddox, 2006; Mills & Fuller-Tyszkiewicz, 2017; Rodgers et al., 2009). Additionally, these influences can be exerted through appearance conversations, which promote the importance of appearance and encourage the development and reliance upon appearance ideals (Jones & Crawford, 2006; Mills & Fuller-Tyszkiewicz, 2017). This model also extends beyond objectification theory because it can be readily applied to males as well. Males are not immune to these sociocultural influences. Sociocultural factors, such as media exposure to appearance ideals and perceived pressure to lose weight from family or peers, positively predict body image concerns and the development of eating disorder symptoms in adolescent males

(Field et al., 2001; Hausenblas et al., 2013; McCabe & Ricciardelli, 2005; Presnell et al., 2004; Ricciardelli & McCabe, 2003). Research findings on this model support its viability as a useful framework for understanding processes that contribute to the development of body image disturbances, as well as eating disturbance (Keery et al., 2004; Menzel et al., 2011). Because of its multidimensional nature, research support, and application to males, as well as females, this model can be used as a framework for conceptualizing and explaining the different factors that contribute to body image development.

Media Influence

The first factor in the Tripartite Influence Model, media, has been well-established in the literature as having a significant impact on body image development. In contemporary western society, media images reflect cultural standards and accentuate physically attractive characteristics that differ for men and women (Jung & Lennon, 2003). For example, media images of women typically conform to an unrealistic thin ideal, whereas for men they frequently highlight unrealistic muscularity (Cash & Brown, 1989; DeBraganza & Hausenblas, 2010; Vaughan & Fouts, 2003). However, the average person's body type does not match these standards (Brownell, 1991). Research findings have consistently supported the hypothesis that body image is affected by the failure to measure up to these cultural standards and ideal images (Arbour & Ginis, 2006; Brownell, 1991; Cho & Lee, 2013; Cramblitt & Pritchard, 2013; Jacobi & Cash, 1994; Jung & Lennon, 2003). Longitudinal and correlational research findings provide evidence that exposure to the media's representation of the ideal body-type is positively associated with body dissatisfaction, as well as eating disorder symptomology for males and females

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(Harrison, 2001; Stice et al., 2001; Vaughan & Fouts, 2003). The relationship between exposure to idealized media images and negative body image has been well established through correlational, quasi-experimental, and experimental findings as well (Engeln-Maddox, 2005). Even being exposed to social media and dating applications has been shown to predict body dissatisfaction, higher levels of internalization, appearance comparisons, and body shame and surveillance (Strubel & Petrie, 2017). Many of these studies highlight the thin-ideal internalization and upward social comparison as explanations for why the media impacts body image so strongly (Fitzsimmons-Craft et al., 2012). The idea that media influences body image is often debated. Some believe that media merely reflects the culture's changing attitudes about beauty and appearance standards rather than causing those changes. However, even those who argue this belief accept that media is to blame for at least disseminating unrealistic appearance ideals from cultural attitude changes that serve as a standard for self-comparison (Ferguson et al., 2014). There is certainly no shortage in literature on this topic, which has led to increased attention to this problem (Engeln-Maddox & Miller, 2008; Groesz et al., 2002). This attention has resulted in numerous efforts to develop literacy-based prevention and intervention programs to decrease the impact of this exposure (Levine & Harrison, 2004). For example, the Body Project program, a cognitive dissonance program, has been shown to alter neural responsiveness to media images and statements that promote the thin ideal (Stice et al., 2013). This shows that targeted reductions of media and other sociocultural influences reduce the risk for body dissatisfaction and related concerns (Stice et al., 2013). This highlights the important role that media plays in the development and maintenance of body image. It is important to keep in mind that media influence on body

dissatisfaction is only one risk factor among many and should be considered in combination with other risk factors, such as peer and family influence. For example, peers can be a critical mediating variable between media and body dissatisfaction (Clark & Tiggemann, 2006; Ferguson et al., 2014). These findings illuminate the importance of considering this factor when studying body image development, especially on a broader, societal scale and provide support to the Tripartite Influence Model.

Peer Influence

Peers, the second factor in the Tripartite Influence Model, are another well-studied factor in body image development with substantial supporting evidence. Peer pressure for thinness has been found to be a main predictor of body dissatisfaction among adolescent girls (Gondoli et al., 2011; Helfert & Warschburger, 2011). Peer groups tend to have similar levels of body image concerns, as well as frequency of weight-loss behaviors and dietary restraint (Paxton et al., 1999). Interpersonal pressure to conform to ideal appearance expectations and criticism of appearance have been found to correlate with both body dissatisfaction and disordered eating behaviors among adolescent females (Mukai, 1996; Schutz et al., 2002; Vincent & McCabe, 2000). The quality of peer relationships also seems to play a role in eating disordered behaviors and attitudes. This is likely due to adolescents attempting to conform to the ideal body-type to gain acceptance from their peer group (Linville et al., 2011). Chow and Tan (2014) found that body dissatisfaction among men increased in response to a pattern of comparison of their appearance to close friends. This highlights that the role of peer comparison is not only a factor for females, but for males as well. Appearance is one of the most common focuses of interpersonal teasing in childhood and adolescence (Shapiro et al., 1991). Not only

does this negatively affect body image in childhood and adolescence, but the effects can also last into adulthood (Cash, 1995). A reported history of appearance-related teasing has been linked to body image disturbance in early adulthood (Cash, 1995; Cattarin & Thompson, 1994). The main focus of the literature on this topic has been on direct criticisms of peers and thinness conversations with peers, however, indirect competition for potential romantic interests, even without the presence of verbal criticisms can play a role appearance comparison and perceived body inadequacy (Ferguson et al., 2014; Lawler & Nixon, 2011). Peer competition can even be more salient to body and eating issues in teenage girls than television or social media exposure (Ferguson et al., 2014). These findings and many more highlight the various ways in which peers can influence body image development and emphasize the importance of considering this factor when researching this topic and developing body image prevention and intervention programs.

Familial Influence

Unfortunately, peers are not the only source of appearance-related teasing. Family members are also guilty of teasing and making negative comments about body image in general. Family, the third factor in the Tripartite Influence Model, has been consistently identified as a strong predictor of body image, with a particular emphasis on maternal influence. Parental influence appears to be one of the most salient sociocultural factors in body image development and disordered eating (Ata et al., 2007; Eli et al., 2014; Rodgers & Chabrol, 2009; Rodgers et al., 2009), and consequently one of the most commonly examined of all the sociocultural influences (Smolak et al., 1999; Thelen & Cormier, 1995). Some argue that parents and caregivers are the most important source of social influence in children and adolescents (Rodgers & Chabrol, 2009) and the literature seems

to support this argument (Ata et al., 2007; Dunkley et al., 2001; Field et al., 2001; Rogers et al., 2017; van den Berg, Thompson, et al., 2002; van den Berg, Wertheim, et al., 2002). One main reason for this is that parents are typically the first sources of socialization (McCabe & Ricciardelli, 2003). Associations between mother and daughter body image variables suggest that mothers are typically the primary role models of body image and eating behaviors for their daughters (Cooley et al., 2008; Snoek et al., 2009; Usmiani & Daniluk, 1997; Wertheim et al., 1999). Although mothers are the most frequently studied caregiver on this topic, there have been some studies that include fathers as well. One longitudinal study revealed that encouragement from both mother and fathers to lose weight predicted increased body dissatisfaction among adolescent daughters one year later (Helfert & Warschburger, 2011). It has been suggested that parents influence the development of body image and eating disturbances by reinforcing societal messages of the importance of being thin (Mills & Miller, 2007; Neziroglu et al., 2008). With a few exceptions, the indirect influence of maternal body dissatisfaction on their child's body image and disordered eating habits has been supported in the literature (Attie & Brooks-Gunn, 1989; Canals, Sancho, & Arija, 2009; Pike & Rodin, 1991). Research results have also shown that maternal thin ideal internalization significantly predicted adolescent symptoms of bulimia (Linville et al., 2011). One group of researchers found a relationship between the quality of family relations with body image and dieting behaviors. Their findings also suggested that mothers' perceptions of their daughters' weight and appearance influenced how much pressure they put on their daughters' body image and dieting habits (Byely et al., 2000). The active influence perspective asserts that parental influence is one of the strongest sociocultural factors in body image development

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as a result of parent-child communications and interactions (Thompson et al., 1999).

Parental comments about eating behaviors, weight, and body shape has been identified as

a predictor of body dissatisfaction and disordered eating and can be separated into three

categories: positive, negative, and importance and comparison comments (Abraczinskas

et al., 2012; Rodgers et al., 2009; Vincent & McCabe, 2000; Wertheim et al., 2002).

Positive comments are said to express positive and supportive perspectives on weight and

shape that discourage ideal appearance pursuits and have been identified as a potential

protective factor against body dissatisfaction and disordered eating (Berge et al., 2013;

Gross & Nelson, 2000; Herbozo, & Thompson, 2006; Ricciardelli, McCabe, & Banfield,

2000; Rodgers & Chabrol, 2009). However, positive comments were associated with

some negative outcomes due to reinforcing the emphasis on appearance (Herbozo, &

Thompson, 2006; Kluck, 2010; Rodgers et al., 2009). Negative comments express

criticisms about eating habits, fitness, and weight and shape, and have been associated

with body dissatisfaction and disordered eating among female and male adolescents and

young adults (Abraczinskas et al., 2012; Eli et al., 2014; Gross & Nelson, 2000; Hanna &

Bond, 2006; Sharpe et al., 2013; Vincent & McCabe, 2000). Importance and comparison

parental comments include a variety of comments that emphasize the importance of

physical appearance and comparing weight and shape with others. These comments

predicted body dissatisfaction and disordered eating in young women and female and

male adolescents (Bauer et al., 2013; Keery et al., 2005; Rodgers et al., 2009; Schwartz et

al., 1999). Parents likely make these comments with their child's best interests in mind

without realizing how harmful they can be. Therefore, studying parent behavior and the

body-image outcomes for their children is of utmost importance for developing

appropriate and effective prevention and intervention methods (Rodgers & Chabrol, 2009). Not only has family been established as a strong influence on body image development, these findings highlight how crucial it is to focus on this influence for research as well as prevention and intervention program development for body image-related concerns.

Additionally, family influence can impact body image in different stages of life. For young children especially, families provide the primary context for self-concept formation. This includes how they perceive their own bodies, as well as the peers' bodies (Hart et al., 2014). Body size preference can be influenced by family socialization when a child is as young as preschool age (Ruffman et al., 2016). However, many parents are not aware that they are influencing their child's body size preference. They may be overlooking ways in which family and society are already influencing their young child's body image development (Liechty et al., 2016). Family communication patterns, including weight commentary and body teasing, have also been associated with body dissatisfaction in adolescence (Keery et al., 2005). Additionally, researchers found that appearance-related teasing by family members, sibling social comparisons, and maternal modeling of negative body image behaviors and attitudes during childhood significantly predicted current body image in adult women (Rieves & Cash, 1996). Recall of childhood experiences regarding messages conveyed about and actions related to appearance and food by their caregivers has been linked to present-day distress regarding body image and disordered eating in adults (Oliveira et al., 2019; Oliveira et al., 2018; Rogers et al., 2019). These findings provide evidence for not only how one's family can

help shape their body image as a child and adolescent, but also how these outcomes can last into adulthood.

Familial Appearance-Related Messages

Familial appearance-related messages can be conceptualized by two dimensions: Direct Influence and Modeling (Abraczinskas et al., 2012). The first dimension of this conceptualization, direct influence, is also known as verbal influence or verbal communication. Direct influence includes parental behaviors such as discussing and encouraging dieting with their children, as well as any other attempts to control their child's weight including negative appearance-related comments and teasing (Abraczinskas et al., 2012). The second dimension is modeling, which has been defined as a form of indirect influence. Modeling involves parental dieting, parental expression of body dissatisfaction, or other observable actions the parent takes to reduce or maintain their own weight (Abraczinskas et al., 2012). There has been consistent research support for direct influence as a strong predictor of body dissatisfaction, as well as dieting behaviors (Smolak et al., 1999; Wertheim et al., 1999; Young et al., 2004). For example, Vincent and McCabe (2000) found that parents who frequently discussed weight-loss were more likely to have daughters with disordered eating behaviors. Additionally, parental modeling is also a predictor for child/adolescent body dissatisfaction and maladaptive eating behaviors. By discussing their own body dissatisfaction and overtly trying to lose weight, parents appear to be indirectly sending messages to their child that reinforce the thin ideal (MacDonald et al., 2015; Wertheim et al., 1999). For example, mothers who have dieting behaviors and discuss their weight concerns are more likely to have daughters who also have concerns about their weight (Pike & Rodin, 1991). Similar

to direct influence and modeling, two mechanisms linking maternal behavior to daughter outcomes have been identified in the literature: mother direct encouragement of daughter to change weight/shape (direct influence) and mother indirect encouragement of daughter weight loss through discussion of maternal weight concerns and dieting behavior (modeling) (Hillard et al., 2016). Mother encouragement to lose weight has been correlated in cross-sectional studies to body dissatisfaction and related concerns (Armstrong, & Janicke, 2012; Francis & Birch, 2005). This kind of maternal influence can be very powerful. Even subtle encouragement such as mentioning a daughter's weight has been shown to predict greater dieting and lower body esteem in young adolescent girls (Smolak et al., 1999). Maternal indirect encouragement, through talk of maternal weight concerns and overt dieting behavior, has also been demonstrated to predict daughter's body dissatisfaction and related concerns (Benedikt et al., 1998; Levine et al., 1994; Neumark-Sztainer et al., 2010; Wertheim et al., 1999). By expressing their own weight concerns and openly dieting, mothers may be teaching daughter's how women in general should view their bodies and how to implement restrictive weight management (Hillard et al., 2016). Hillard and colleagues (2016) found that the best outcomes for body image in daughters occurred when both direct and indirect maternal encouragement were low. "Fat talk conversations" are also common in families (Lydecker et al., 2018). Fat talk conversations encompass negative, self-focused appearance-related remarks (e.g., "I look so fat in these jeans.") in the presence of others. Fat talk in families has been associated with reinforcing self-objectification, poor body image, disordered eating, thin-ideal internalization, depressive symptoms, and upward social comparison (Arroyo & Andersen, 2016; Chow & Tan, 2018; Greer et al., 2015;

Mills & Fuller-Tyszkiewicz, 2018; Rogers et al., 2017; Shannon & Mills, 2015; Webb et al., 2018).

Rodgers and Chabrol (2009) also identified these two main modes of influences, which they called modeling and active influence. Several studies have lent support for their modeling theory. Numerous studies have provided evidence of a relationship between daughter's level of body dissatisfaction and maternal and paternal body dissatisfaction, highlighting that it is not just mothers than can influence children (Dixon et al., 1996; Elfhag & Linné, 2005; Keel et al., 1997; Keery et al., 2006; Kichler, & Crowther, 2001). Although many of these studies have looked at only daughters, there is also evidence that modeling influences sons as well (Kerry et al., 2006). With regard to active influence, parental teasing and encouragement to diet has been associated with body dissatisfaction, dieting, and disordered eating behaviors (Ata et al., 2007; Dixon et al., 1996; Hanna & Bond, 2006; Keel et al., 1997, Keery et al., 2005; Schwartz et al., 1999; Ricciardelli et al., 2000; Wertheim et al., 2002). Similar findings have been identified with boys as well. Parental encouragement to lose weight has been associated with body dissatisfaction, attempts to lose weight, drive for muscularity, drive for thinness, and binging amongst boys (Ricciardelli et al., 2000; Wertheim et al., 2002; Vincent & McCabe, 2000). Furthermore, both direct and indirect parental messages influence body image development for individuals of many racial/ethnic backgrounds (Boveda, 2018). Although different authors use different terms, the identification of these two modes of familial influence (direct influence and modeling) is seen throughout the literature frequently. These terms will be used in the current study.

Weight Status and Health Behaviors

In addition to sociocultural factors, weight status and health behaviors are also associated with body image. Body Mass Index (BMI), an indirect measure of body fat determined by height and weight, has been identified as a strong predictor of body dissatisfaction. Research has provided evidence that individuals who are overweight tend to experience greater body dissatisfaction, a desire to be thin, and a fear of being overweight (Pingitore et al., 1997). Individuals who are overweight and obese generally have greater body dissatisfaction compared to under- and healthy-weight peers (Eisenberg et al., 2006). Females who are overweight tend to have more weight anxiety, negative body image, and dieting behaviors than their normal weight peers (Cash, 1993; Cash et al., 1990). Although this pattern is generally stronger for females, it applies to males as well, with the exception that males who are underweight tend to have higher body dissatisfaction as well (Calzo et al., 2012). Variance in body weight appears to be related to perceptual, affective, and cognitive components of body image (Cash & Green, 1986). BMI and weight status are heavily influenced by health behaviors such as nutritional and physical activity habits. This suggests that health behaviors could also be a predictor of body dissatisfaction. In fact, one group of researchers found that behaviors such as physical activity and healthful eating improved body satisfaction in just a few months (Annesi et al., 2014). When people engage in healthy behaviors, they are more likely to have a BMI that falls in a healthy range, which would get them closer to meeting the internalized appearance standards given to them by their family, peers, and the media. Given what has already been discussed about the factors that contribute to body image, this would likely result in greater body satisfaction. Because sociocultural factors and health behaviors both play a role in body image development, it is important to

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understand how these factors intersect to have a more complete understanding of how body image develops.

Social Learning Theory

In Social Learning Theory, Albert Bandura proposed that behaviors can be developed by observing and imitating others. He described learning as a cognitive process that can occur through observation or direct instruction and takes place in a social context. He asserted that learning new behaviors can even occur in the absence of motor reproduction or direct reinforcement (an addition to both classical and operant conditioning theories) (Bandura, 1971). Bandura's Social Learning Theory can be used to understand how sociocultural factors can influence health behaviors. A person's health behaviors are determined by many factors such as cognitions, emotions, motivation, and desires (Niermann et al., 2014). However, according to Social Learning Theory, these behaviors are developed by learning from environment and social contexts (Bandura, 1986). Family is arguably one of the most influential social environmental dimensions that shapes an individual's health behavior and has a long-lasting effect (Bandura, 1986). Research findings on familial influences on child and adolescent behavior provide evidence of the importance of the familial role in the development of a healthy lifestyle (Ornelas et al., 2007). The family's role in shaping nutrition and activity behavior involves direct influences such as encouragement, support, monitoring, and modeling (Pearson et al., 2009; Pugliese, & Tinsley, 2007). Social Learning Theory, as well as the supporting research evidence, highlights the importance of examining how individuals develop their health behaviors from their family.

Family Health Climate

Examining the health climate within family systems can aid in further understanding of the role that family plays in shaping an individual's health behaviors. Family health climate has been defined as "shared perceptions and cognitions concerning health and health behavior" (Niermann et al., 2014, p. 2). Family health climate further highlights the familial role in the development of health behaviors by revealing the individual experience of daily life within the family values and expectations related to health attitudes and behaviors, and behavioral patterns within the family. The Family Health Climate Scale (FHC-Scale) is designed to determine the health-related skills that people develop, as well as how they value and interpret their own behavior and the behavior of others. A positive family health climate is defined as an environment where eating healthfully and being physically active is highly valued and an integral part of the family's everyday life (Niermann et al., 2014). The family health climate model is comprised of two sub-climates: Family Nutrition Climate and Family Physical Activity Climate (Niermann et al., 2014). Gerards and colleagues (2016) found evidence to support this model. Their findings suggested that children's nutrition education and behaviors are largely influenced by their family. They found that families who have a high family nutrition climate and are emotionally supportive were more likely to have children with lower BMIs. Family health climate has also been demonstrated to affect the weekly physical activity and the consumption of nutritious foods in adolescents (Niermann et al., 2015). The family health climate model can be utilized to understand how an individual's family can shape their health behaviors, as evidenced by this support in the literature.

Interaction of Familial Appearance-Related Messages and Family Health Climate

When considering family as both a sociocultural factor and an influence on health behaviors, it becomes evident that family is an important influence on body image development in many ways. The appearance-related messages that caregivers provide, both direct comments and modeling, can directly affect body image (Abraczinskas et al., 2012). Family health climate has been demonstrated to determine health behaviors and attitudes, which affects BMI, which in turn affects body image (Annesi et al., 2014; Niermann et al., 2014). Although both of these ideas are fairly well established in the literature, the interaction between these two familial influences has yet to be thoroughly investigated. However, there are some findings that suggest that this interaction may be important. For example, one group of researchers found that maternal diet talk that involves discussing proper nutrition and healthy exercise levels was associated with lower body dissatisfaction in daughters, even when the mother is directly encouraging her daughter to lose weight (Hillard et al., 2016). Additionally, parents who encourage family meals tend to have children with less disordered eating, even when they engage in direct appearance related messages, such as encouragement to diet (Fulkerson et al., 2006; Neumark-Sztainer et al., 2004; Rodgers & Chabrol, 2009). These preliminary findings highlight the need to further explore the interaction between appearance-related messages and family health climate and the outcomes on body image.

Importance of Familial Influence

As addressed above, in order to be able to effectively address body-image related concerns, it is crucial to strive for a thorough understanding of the factors that influence body image development. The Tripartite Influence Model is used frequently in the literature to explain how media, peers, and family influence body image development.

The body of literature that provides evidence for this model is fairly substantial. Although examining all three of these factors is important to fully understand this issue, family is generally the first and most consistent area of socialization and, therefore, can be particularly important to explore for developing prevention and treatment methods. Family has been consistently identified throughout the research as a strong predictor of body image and can impact body image at different stages of life. Family members provide appearance-related messages through direct comments and modeling. Because weight status is also a strong predictor of body image, family can have an additional impact on body image by influencing the development of health behaviors which affect weight status. Although both of these modes of familial influence have been examined separately, the interaction between them has yet to be studied.

Current Study

To further investigate these findings and fill a gap in the literature, the current study was designed to examine the interactive influence of both appearance-related messages from caregivers and family health climate on the development of body image. The current study was designed to determine if this interaction would have a greater impact on body dissatisfaction than the two factors would separately. Based on the above cited research findings, it is likely that these factors would influence body satisfaction separately. However, there are different ways in which they could interact. First, an individual could be raised in a family that has a positive family health climate and a high amount of negative appearance-related messages. An individual could be raised in a family that has a negative family health climate and a low amount of negative appearance-related messages. An individual could also be raised in a family that has a

positive family health climate and a low amount of negative appearance-related messages, which would likely result in greater body satisfaction. Lastly, someone could be raised in a family with a negative family health climate and a high amount of negative appearance-related messages, which would likely result in lower body satisfaction.

In order to evaluate these possibilities, three main questions need to be answered. First, do familial appearance-related messages (both direct influence and modeling) in childhood and adolescence predict body satisfaction in adulthood? Second, does family health climate (both nutrition and physical activity) in childhood and adolescence predict body satisfaction in adulthood? Lastly, does the interaction between familial appearance-related messages and family health climate in childhood and adolescence predict body satisfaction in adulthood?

APPENDIX B: Tripartite Influence Model Diagram
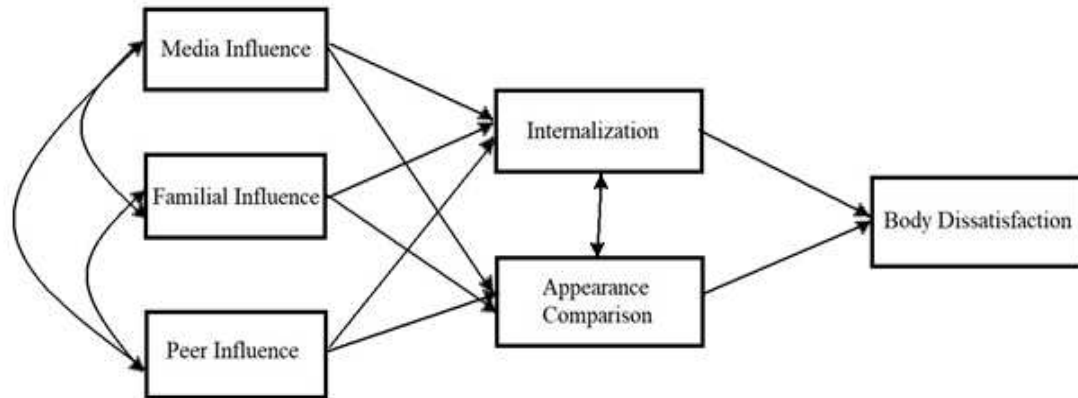
Figure B1. Tripartite Influence Model Diagram. Adapted from Rodgers et al. (2011).

APPENDIX C: Hypotheses Diagrams
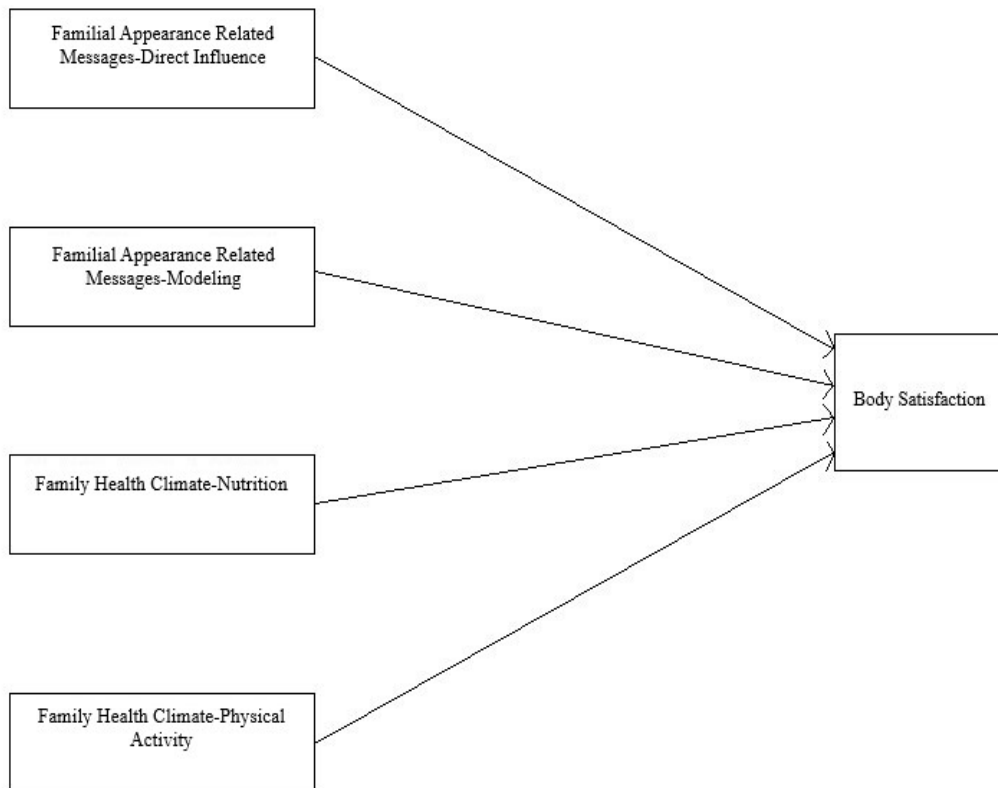
Figure C1. Diagram of Hypothesis 1.
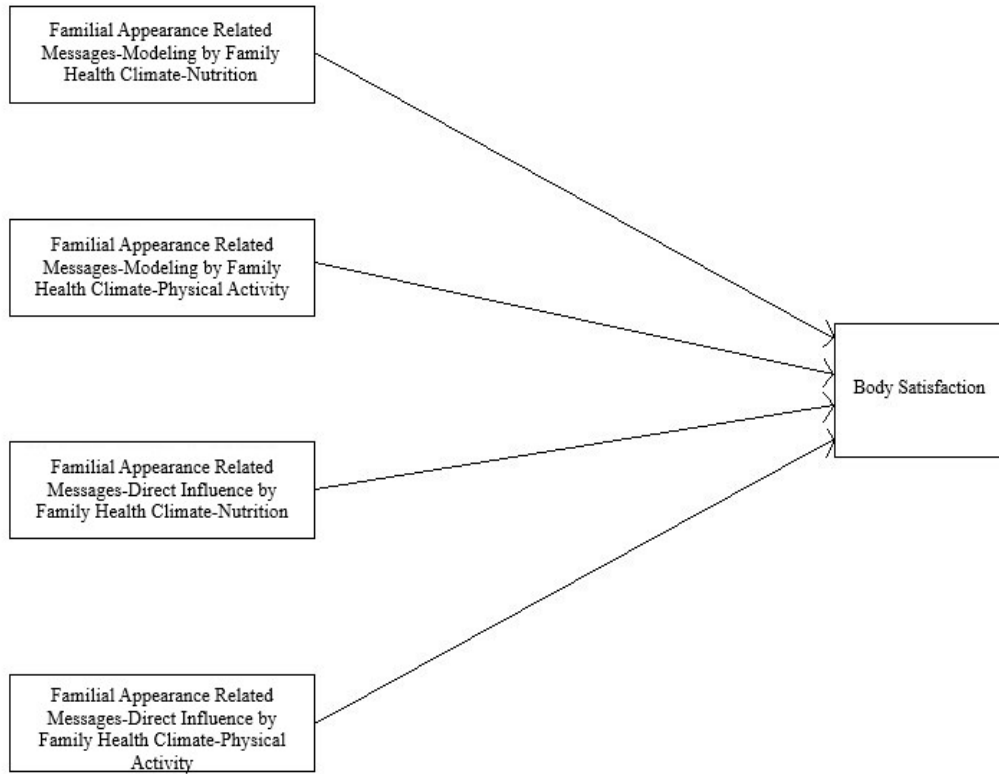
Figure C2. Diagram of Hypothesis 2.

APPENDIX D: Informed Consent Document

IRB STUDY # ED17163

OKLAHOMA STATE UNIVERISTY
STUDY INFORMATION SHEET & INFORMED CONSENT

FAMILIAL INFLUENCES ON BODY IMAGE STUDY

You are invited to participate in a research study looking at the impact of familial appearance-related messages and family health climate on body satisfaction. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

The study is being conducted by Jennie A. Martin, MS and colleagues at Oklahoma State University.

STUDY PURPOSE

The purpose of this study is to gain insight into how familial appearance-related messages and family health climate in childhood/adolescence influence body image in adulthood.

PROCEDURES FOR THE STUDY

If you agree to be in the study, you will do the following things:

You will be completing an online questionnaire that is estimated to take about 30 minutes of your time. As discussed in the confidentiality section below, the study is an anonymous questionnaire, no identifying information will be collected, and the records of the study will be kept private.

RISKS OF PARTICIPATION

There are no risks that are anticipated from your participation in the study. Some of the questions may make you feel uncomfortable, but you are free to decline to answer any questions you do not wish to answer or stop participation in the study.

BENEFITS OF PARTICIPATION

The anticipated benefit of participation is to provide insight into how familial appearance-related messages and family health climate in childhood/adolescence influences body image in adulthood to inform better prevention and treatment methods for body image related concerns and disorders.

CONFIDENTIALITY

This study includes an anonymous questionnaire; as such the records of this study will be kept private. Any written results will discuss group findings and will not include information that will identify you. Research records will be stored on a password-protected computer in a locked office and only researchers and individuals responsible for research oversight will have access to the records. Data will be destroyed three years after the study has been completed.

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Note that Qualtrics has specific privacy policies of their own. If you have concerns, you should consult this service directly. Qualtrics' privacy statement is provided at: http://qualtrics.com/privacy-statement.

PAYMENT

For your participation in the study, you can choose to enter into a drawing for 1 of 4 $50 Amazon gift cards. At the end of this survey, a link will be provided that will route you to a separate survey where you can then enter your email information, so we can enter you into the drawing. The information in the two surveys will not be able to be matched and your responses will still remain anonymous if you choose to enter the drawing. If you are participating through MTurk, you will also receive a twenty-five cent credit to your MTurk account.

CONTACTS FOR QUESTIONS OR PROBLEMS

For questions about the study, contact the researcher, Jennie Martin at jennie.martin@okstate.edu, or her advisor Hugh Crethar, PhD at crethar@okstate.edu.

For questions about your rights as a research participant or to discuss problems, complaints or concerns about a research study, or to obtain information, or offer input, contact the IRB Office at 223 Scott Hall, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

VOLUNTARY NATURE OF STUDY

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. Leaving the study will not result in any penalty or loss of benefits to which you are entitled. Your decision whether or not to participate in this study will not affect your current or future relations with Oklahoma State University.

CONSENT DOCUMENTATION:

I have been fully informed about the procedures listed here. I am aware of what I will be asked to do and of the benefits of my participation. I also understand the following statements:

I affirm that I am 18 years of age or older.

☐ YES
☐ NO

I have read and fully understand this consent form. I hereby give permission for my participation in this study.

☐ YES
☐ NO

APPENDIX E: Debriefing Statement

Debriefing Statement

Thank you for participating in this research. In the study, the researcher studied the impact of familial appearance-related messages and family health climate in childhood/adolescence on body satisfaction in adulthood. If you would like a copy of the results of the study, please contact the researcher and arrangements will be made.

Researcher: Jennie A. Martin, M.S.
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Advisor: Hugh C. Crethar, PhD
School of Community Health Sciences, Counseling and Counseling Psychology
Oklahoma State University
434 Willard Hall
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If you have questions about your rights as a research volunteer, you may contact the Oklahoma State University Institutional Review Board (IRB) Chair.

Oklahoma State University
223 Scott Hall
Stillwater, OK 74078,
Email: irb@okstate.edu

Thank you for participating.

APPENDIX F: Measures

Demographic Questionnaire

1) How old are you?
      18-99
      100 = over 99

2) What is your primary race or ethnic identification? (Select one)
      1 = Black/African American
      2 = Hispanic/Latino
      3 = White, not of Hispanic origin
      4 = Asian/Pacific Islander
      5 = American Indian/Alaskan
      6 = Another Race/Ethnicity
      7 = Biracial/Multiracial

3) What is your gender? (Select one)
      1 = Male
      2 = Female
      3 = Transgender (Male to Female)
      4 = Transgender (Female to Male)
      5 = Gender Nonconforming

 4) What COUNTY and STATE did you grow up in (spent the most time in as a child/adolescent)? (ex: ORLANDO is in ORANGE county in the state of FLORIDA) (provide list of all counties in the United States)
      97 = I grew up outside of the United States

5) How many years has it been since you lived in the same home as your family?
      1-80 years
      98 = Less than 1 year
      99 = I still live in the same home as my family
      100 = over 80 years

6) What is your weight in pounds?
      ###

7) What is your height?
      ## ft., ## in.

8) I think I am: (Question from the Self-Classified Weight subscale of the MBSRQ)
        1 = Very Underweight
        2 = Somewhat Underweight
        3 = Normal Weight
        4 = Somewhat Overweight
        5 = Very Overweight

9) From looking at me, most other people would think I am: (Question from the Self-Classified Weight subscale of the MBSRQ)
        1 = Very Underweight
        2 = Somewhat Underweight
        3 = Normal Weight
        4 = Somewhat Overweight
        5 = Very Overweight

10) Do you **currently** have body image related concerns (such as feeling ashamed, self-conscious, or anxious about your body, having disordered eating behaviors, or having a distorted perception of your body)?
        1 = Yes
        2 = No

11) Do you have a **history** of body image related concerns (such as feeling ashamed, self-conscious, or anxious about your body, having disordered eating behaviors, or having a distorted perception of your body)?
        1 = Yes
        2 = No

12) Have you ever been diagnosed with a body image related disorder (such as an eating disorder or body dysmorphic disorder)?
        1 = Yes
        2 = No

13) What is your sexual/affectional orientation? (Select one)
        1 = Gay
        2 = Lesbian
        3 = Straight
        4 = Bisexual
        5 = Pansexual/Omnisexual
        6 – Asexual

Parental Influence Questionnaire (PIQ)

Directions: Think back to your interactions with your parent(s)/caregiver(s) when you

were a child and adolescent. Using the scale below, please indicate the degree to which

either or *both* of your parents/caregivers communicated the following messages to you or behaved in the following ways:

Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

1) I perceived a strong message from my parent(s)/caregiver(s) to have a slender figure.

1   2   3   4   5

2) My parent(s)/caregiver(s) wanted me to be thinner.

1   2   3   4   5

3) My parent(s)/caregiver(s) kept me from eating foods that I liked in order to lose weight or keep from gaining weight.

1   2   3   4   5

4) My parent(s)/caregiver(s) watched closely what I ate.

1   2   3   4   5

5) My parent(s)/caregiver(s) asked me how much I weigh.

1   2   3   4   5

6) My parent(s)/caregiver(s) told me that I looked like I gained weight.

1   2   3   4   5

7) My parent(s)/caregiver(s) encouraged me to lose weight.

1   2   3   4   5

8) My parent(s)/caregiver(s) said, "If you do not lose weight, you will never get a date, get a boyfriend/girlfriend, get married, etc."

1   2   3   4   5

9) My parent(s)/caregiver(s) made negative comments about my physical appearance.

1   2   3   4   5

10) My parent(s)/caregiver(s) said critical things to me about my appearance.

1   2   3   4   5

11) My parent(s)/caregiver(s) told me to eat different foods in order to lose weight or keep from gaining weight.

1   2   3   4   5

12) I received negative feedback from my parent(s)/caregiver(s) about the size or shape of my body.

1   2   3   4   5

13) I received negative feedback from my parent(s)/caregiver(s) about my eating patterns to change my body size or shape.

1   2   3   4   5

14) My parent(s)/caregiver(s) would say to me, "You do not need to lose weight."

1   2   3   4   5

15) My parent(s)/caregiver(s) would say to me, "Your health is what is important, not your weight."

1   2   3   4   5

16) My parent(s)/caregiver(s) would say to me, "What you weigh or how you look is not what is important."

1   2   3   4   5

17) My parent(s)/caregiver(s) would say to me, "You need to make sure you eat enough while you are growing."

1   2   3   4   5

18) My parent(s)/caregiver(s) teased me about my appearance.

1   2   3   4   5

19) My parent(s)/caregiver(s) commented on each other's weight.

1   2   3   4   5

20) My parent(s)/caregiver(s) encouraged each other to lose weight.

1   2   3   4   5

21) My parent(s)/caregiver(s) talked about dieting.

1   2   3   4   5

22) My parent(s)/caregiver(s) complained about their weight.

1   2   3   4   5

23) My parent(s)/caregiver(s) would ask, "Am I gaining weight?"

1   2   3   4   5

24) My parent(s)/caregiver(s) would ask, "Am I as fat as him/her?"

1   2   3   4   5

25) My parent(s)/caregiver(s) worried about their weight.

1   2   3   4   5

26) Physical appearance (shape, weight, clothing) was important to my

parent(s)/caregiver(s).

1   2   3   4   5

27) My parent(s)/caregiver(s)'s weight and shape influence how they felt about

themselves.

1   2   3   4   5

28) My parent(s)/caregiver(s) tried to become more muscular.

1   2   3   4   5

Family Health Climate Scale (FHC-Scale)

Definitely False	Rather False	Rather True	Definitely True
0	1	2	3

In my family, when I was a child/adolescent…

1) we made a point of being physically active during daily life.

0   1   2   3

2) it was normal to be physically active on a regular basis.

0   1   2   3

3) it went without saying that we exercise and are physically active on a regular basis.

0   1   2   3

4) it was normal to be physically active in our leisure time.

0   1   2   3

5) we agreed that physical activities are part of daily life.

0   1   2   3

6) we liked being together during physical activities (e.g. bike tours, hikes).

0   1   2   3

7) we enjoyed exercising together.

0   1   2   3

8) we had fun doing physical activities together (e.g. bike tours, hikes).

0   1   2   3

9) we found it very pleasant to be physically active together.

0   1   2   3

10) we liked spending time together in sports activities.

0   1   2   3

11) we watched TV-programs on physical activity and exercise.

0   1   2   3

12) we explicitly looked for the latest information on physical activity and exercise to stay up to date.

0   1   2   3

13) we collected information (e.g. on the internet) on physical activity and exercise.

0   1   2   3

14) we read newspaper or magazine articles on fitness, physical activity, and exercise.

0   1   2   3

15) a healthy diet played an important role in our lives.

0   1   2   3

16) we naturally paid attention to eating healthfully.

0   1   2   3

17) we routinely ate healthfully.

0   1   2   3

18) it was normal to choose healthful foods.

0   1   2   3

19) we were interested in articles (e.g. in magazines) on healthful nutrition.

0   1   2   3

20) we reminded each other to pay attention to a healthful diet.

0   1   2   3

21) we talked about which foods are healthful.

0   1   2   3

22) we supported each other to refrain from unhealthful things.

0   1   2   3

23) we talked about how to eat healthfully.

| 0 | 1 | 2 | 3 |

24) we appreciated spending time together during meals.

| 0 | 1 | 2 | 3 |

25) everybody enjoyed having meals together.

| 0 | 1 | 2 | 3 |

26) eating together was a part of our daily family life.

| 0 | 1 | 2 | 3 |

27) we enjoyed meals most when we sat at the same table.

| 0 | 1 | 2 | 3 |

28) we tried to eat together as often as possible.

| 0 | 1 | 2 | 3 |

29) we rarely argued about food- or diet-related matters.

| 0 | 1 | 2 | 3 |

30) we agreed on diet and nutrition.

| 0 | 1 | 2 | 3 |

31) we usually agreed on meals and food choices.

| 0 | 1 | 2 | 3 |

Appearance Evaluation (AE) and Body Areas Satisfaction (BASS) subscales of the Multidimensional Body-Self Relations Questionnaire (MBSRQ).

Definitely Disagree	Mostly Disagree	Neither Agree Nor Disagree	Mostly Agree	Definitely Agree

1	2	3	4	5

1) My body is sexually appealing.

1   2   3   4   5

2) I like my looks just the way they are.

1   2   3   4   5

3) Most people would consider me good-looking.

1   2   3   4   5

4) I like the way I look without my clothes on.

1   2   3   4   5

5) I like the way my clothes fit me.

1   2   3   4   5

6) I dislike my physique.

1   2   3   4   5

7) I am physically unattractive.

1   2   3   4   5

8-16. Use this 1 to 5 scale to indicate how dissatisfied or satisfied you are

with each of the following areas or aspects of your body:

Very Dissatisfied 1	Mostly Dissatisfied 2	Neither Satisfied Nor Dissatisfied 3	Mostly Satisfied 4	Very Satisfied 5

8) Face (facial features, complexion)

1   2   3   4   5

9) Hair (color, thickness, texture)

1   2   3   4   5

10) Lower torso (buttocks, hips, thighs, legs)

1   2   3   4   5

11) Mid torso (waist, stomach)

1   2   3   4   5

12) Upper torso (chest or breasts, shoulders, arms)

1   2   3   4   5

13) Muscle tone

1   2   3   4   5

14) Weight

1   2   3   4   5

15) Height

1   2   3   4   5

16) Overall appearance

1   2   3   4   5

APPENDIX G: IRB Approval and Modifications

Oklahoma State University Institutional Review Board

Date: Monday, January 22, 2018

IRB Application No   ED17163

Proposal Title: The Interactive Influence of Familial Appearance-Related Messages and
                         Family Health Climate on Body Satisfaction

Reviewed and   Exempt
Processed as:

Status Recommended by Reviewer(s): Approved   Protocol Expires: 1/21/2021

Principal
Investigator(s):

Jennie Martin   Hugh C. Crethar
                                        422 Williard
Stillwater, OK 74078   Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☐ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Scott Hall (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Jennifer Byrd-Craven, Vice-Chair
Institutional Review Board

Oklahoma State University Institutional Review Board

Date: Wednesday, January 31, 2018   **Protocol Expires: 1/21/2021**

IRB Application No: ED17163

Proposal Title: The Interactive Influence of Familial Appearance-Related Messages and Family Health Climate on Body Satisfaction

Reviewed and Processed as: Exempt

Modification

Status Recommended by Reviewer(s)   **Approved**

Principal Investigator(s):

Jennie Martin

Stillwater, OK 74078

Hugh C. Crethar
422 Williard
Stillwater, OK 74078

The requested modification to this IRB protocol has been approved. Please note that the original expiration date of the protocol has not changed. The IRB office MUST be notified in writing when a project is complete. All approved projects are subject to monitoring by the IRB.

☐ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

The reviewer(s) had these comments:

Modification to update recruitments scripts and to change time of survey completion to 15 minutes is approved.

Signature :

Jennifer Byrd-Craven

Jennifer Byrd-Craven, Vice-Chair, Institutional Review Board

Wednesday, January 31, 2018
Date

Oklahoma State University Institutional Review Board

Date:	Friday, February 23, 2018	**Protocol Expires:**	**1/21/2021**
IRB Application No:	ED17163		

Proposal Title: The Interactive Influence of Familial Appearance-Related Messages and Family Health Climate on Body Satisfaction

Reviewed and Processed as: Exempt

Modification

Status Recommended by Reviewer(s)   **Approved**

Principal Investigator(s):

Jennie Martin

Stillwater, OK 74078

Hugh C. Crethar
422 Williard
Stillwater, OK 74078

The requested modification to this IRB protocol has been approved. Please note that the original expiration date of the protocol has not changed. The IRB office MUST be notified in writing when a project is complete. All approved projects are subject to monitoring by the IRB.

☐ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

The reviewer(s) had these comments:

add flyer and script to target male participants

Signature :

Jennifer Byrd-Craven

Jennifer Byrd-Craven, Vice-Chair, Institutional Review Board

Friday, February 23, 2018
Date

APPENDIX H: Multiple Regression Results

Table H1

Multiple regression results for Body Satisfaction

Variable	Full Model	
	b (SE)	*t*-value, *p*-value
Intercept	2.77 (0.59)	4.67 ,<.0001
FHC Nutrition	0.02 (0.38)	0.06 ,0.95
FHC Physical Activity	0.4 (0.34)	1.18 ,0.24
PIQ Modeling	-0.19 (0.15)	-1.3 ,0.19
PIQ Direct Influence	0.06 (0.15)	0.39 ,0.7
BMI	0.01 (0.01)	0.6 ,0.55
Self-Classified Weight	**-0.65 (0.1)**	**-6.53 ,<.0001**
Rurality	-0.67 (0.37)	-1.79 ,0.07
Male	0.001 (0.13)	0.01 ,0.99
Transgender/Nonbinary	-0.34 (0.28)	-1.21 ,0.23
Black/African American	0.02 (0.28)	0.06 ,0.95
Hispanic/Latino	0.26 (0.21)	1.21 ,0.23
Asian /Pacific Islander	0.53 (0.39)	1.38 ,0.17
American Indian/Alaskan Native	-0.27 (0.24)	-1.12 ,0.26
Another Race/Ethnicity	0.11 (0.35)	0.32 ,0.75
Biracial/Multiracial	-0.05 (0.24)	-0.19 ,0.85
Gay	-0.39 (0.25)	-1.53 ,0.13
Lesbian	-0.29 (0.25)	-1.18 ,0.24
Bisexual	0.1 (0.14)	0.7 ,0.49
Pansexual/Omnisexual	0.14 (0.21)	0.66 ,0.51
Asexual	-0.56 (0.54)	-1.04 ,0.3
Years Since Moved Out	-0.001 (0.004)	-0.17 ,0.87
FHC NU*PIQ DI	0.17 (0.13)	1.32 ,0.19
FHC PA*PIQ Modeling	-0.18 (0.12)	-1.51 ,0.13
FHC NU*PIQ Modeling	-0.15 (0.11)	-1.33 ,0.18
FHC PA*PIQ DI	0.05 (0.1)	0.49 ,0.63

Note. Variables that are statistically significant are denoted in boldface.
n = 292.

Table H1 (continued)

Multiple regression results for Body Satisfaction (continued)

Variable	Three Interactions	
	b (SE)	*t*-value, *p*-value
Intercept	2.75 (0.59)	4.65 ,<.0001
FHC Nutrition	0 (0.37)	0.01 ,0.99
FHC Physical Activity	0.44 (0.32)	1.36 ,0.18
PIQ Modeling	-0.19 (0.15)	-1.28 ,0.2
PIQ Direct Influence	0.06 (0.15)	0.4 ,0.69
BMI	0.01 (0.01)	0.57 ,0.57
Self-Classified Weight	**-0.65 (0.1)**	**-6.52 ,<.0001**
Rurality	-0.66 (0.37)	-1.78 ,0.08
Male	0 (0.13)	0.01 ,0.99
Transgender/Nonbinary	-0.33 (0.28)	-1.19 ,0.23
Black/African American	0.01 (0.28)	0.04 ,0.97
Hispanic/Latino	0.27 (0.21)	1.25 ,0.21
Asian /Pacific Islander	0.53 (0.39)	1.39 ,0.17
American Indian/Alaskan Native	-0.26 (0.24)	-1.11 ,0.27
Another Race/Ethnicity	0.1 (0.34)	0.28 ,0.78
Biracial/Multiracial	-0.04 (0.24)	-0.17 ,0.86
Gay	-0.38 (0.25)	-1.5 ,0.13
Lesbian	-0.3 (0.25)	-1.23 ,0.22
Bisexual	0.1 (0.14)	0.72 ,0.47
Pansexual/Omnisexual	0.13 (0.21)	0.63 ,0.53
Asexual	-0.55 (0.54)	-1.01 ,0.31
Years Since Moved Out	-0.001 (0.004)	-0.24 ,0.81
FHC NU*PIQ DI	-0.14 (0.09)	-1.54 ,0.13
FHC PA*PIQ Modeling	-0.12 (0.1)	-1.25 ,0.21
FHC NU*PIQ Modeling	0.15 (0.12)	1.23 ,0.22
FHC PA*PIQ DI	-	-

Note. Variables that are statistically significant are denoted in boldface.
n = 292.

Table H1 (continued)

Multiple regression results for Body Satisfaction (continued)

	Two Interactions	
Variable	*b* (SE)	*t*-value, *p*-value
Intercept	2.48 (0.55)	4.5 ,<.0001
FHC Nutrition	0.36 (0.24)	1.5 ,0.14
FHC Physical Activity	0.2 (0.26)	0.78 ,0.44
PIQ Modeling	-0.06 (0.1)	-0.58 ,0.56
PIQ Direct Influence	-0.01 (0.14)	-0.04 ,0.97
BMI	0.01 (0.01)	0.59 ,0.55
Self-Classified Weight	**-0.65 (0.1)**	**-6.52 ,<.0001**
Rurality	-0.65 (0.37)	-1.75 ,0.08
Male	0.01 (0.13)	0.09 ,0.93
Transgender/Nonbinary	-0.35 (0.28)	-1.24 ,0.22
Black/African American	0.02 (0.28)	0.06 ,0.95
Hispanic/Latino	0.27 (0.21)	1.27 ,0.2
Asian /Pacific Islander	0.56 (0.39)	1.44 ,0.15
American Indian/Alaskan Native	-0.24 (0.24)	-1 ,0.32
Another Race/Ethnicity	0.09 (0.34)	0.26 ,0.8
Biracial/Multiracial	-0.05 (0.24)	-0.19 ,0.85
Gay	-0.38 (0.25)	-1.49 ,0.14
Lesbian	-0.32 (0.25)	-1.29 ,0.2
Bisexual	0.09 (0.14)	0.69 ,0.49
Pansexual/Omnisexual	0.13 (0.21)	0.63 ,0.53
Asexual	-0.57 (0.54)	-1.06 ,0.29
Years Since Moved Out	-0.001 (0.004)	-0.38 ,0.7
FHC NU*PIQ DI	-0.1 (0.08)	-1.13 ,0.26
FHC PA*PIQ Modeling	-0.05 (0.08)	-0.62 ,0.53
FHC NU*PIQ Modeling	-	-
FHC PA*PIQ DI	-	-

Note. Variables that are statistically significant are denoted in boldface.
n = 292.

Table H1 (continued)

Multiple regression results for Body Satisfaction (continued)

| Variable | One Interaction | |
	b (SE)	*t*-value, *p*-value
Intercept	2.6 (0.52)	5.05 ,<.0001
FHC Nutrition	0.39 (0.23)	1.69 ,0.09
FHC Physical Activity	0.05 (0.09)	0.55 ,0.58
PIQ Modeling	-0.11 (0.06)	-1.97 ,0.05
PIQ Direct Influence	0.02 (0.13)	0.13 ,0.9
BMI	0.01 (0.01)	0.59 ,0.56
Self-Classified Weight	**-0.65 (0.1)**	**-6.55 ,<.0001**
Rurality	-0.64 (0.37)	-1.72 ,0.09
Male	0.01 (0.13)	0.11 ,0.91
Transgender/Nonbinary	-0.34 (0.28)	-1.21 ,0.23
Black/African American	0.03 (0.28)	0.11 ,0.91
Hispanic/Latino	0.26 (0.21)	1.22 ,0.22
Asian /Pacific Islander	0.56 (0.39)	1.44 ,0.15
American Indian/Alaskan Native	-0.24 (0.24)	-1.02 ,0.31
Another Race/Ethnicity	0.09 (0.34)	0.26 ,0.79
Biracial/Multiracial	-0.06 (0.24)	-0.23 ,0.82
Gay	-0.38 (0.25)	-1.5 ,0.13
Lesbian	-0.31 (0.24)	-1.26 ,0.21
Bisexual	0.1 (0.14)	0.71 ,0.48
Pansexual/Omnisexual	0.13 (0.21)	0.62 ,0.53
Asexual	-0.57 (0.54)	-1.06 ,0.29
Years Since Moved Out	-0.001 (0.004)	-0.37 ,0.71
FHC NU*PIQ DI	-0.11 (0.08)	-1.39 ,0.17
FHC PA*PIQ Modeling	-	-
FHC NU*PIQ Modeling	-	-
FHC PA*PIQ DI	-	-

Note. Variables that are statistically significant are denoted in boldface.
n = 292.

Table H1 (continued)

Multiple regression results for Body Satisfaction (continued)

Variable	No Interactions	
	b (SE)	*t*-value, *p*-value
Intercept	3.09 (0.38)	8.1, <.0001
FHC Nutrition	0.10 (0.10)	1.02, 0.31
FHC Physical Activity	0.04 (0.09)	0.46, 0.65
PIQ Modeling	**-0.12 (0.06)**	**-2.03, 0.04**
PIQ Direct Influence	**-0.15 (0.06)**	**-2.64, 0.01**
BMI	0.01 (0.01)	0.67, 0.50
Self-Classified Weight	**-0.66 (0.10)**	**-6.66, <.0001**
Rurality	-0.63 (0.37)	-1.7, 0.09
Male	0.00 (0.13)	0.03, 0.98
Transgender/Nonbinary	-0.32 (0.28)	-1.13, 0.26
Black/African American	0.01 (0.28)	0.03, 0.98
Hispanic/Latino	0.25 (0.21)	1.18, 0.24
Asian /Pacific Islander	0.54 (0.39)	1.39, 0.17
American Indian/Alaskan Native	-0.26 (0.24)	-1.08, 0.28
Another Race/Ethnicity	0.07 (0.34)	0.2, 0.84
Biracial/Multiracial	-0.04 (0.24)	-0.15, 0.88
Gay	-0.37 (0.25)	-1.48, 0.14
Lesbian	-0.27 (0.24)	-1.11, 0.27
Bisexual	0.09 (0.14)	0.63, 0.53
Pansexual/Omnisexual	0.17 (0.21)	0.83, 0.41
Asexual	-0.57 (0.54)	-1.05, 0.30
Years Since Moved Out	-0.00 (0.00)	-0.41, 0.68
FHC NU*PIQ DI	-	-
FHC PA*PIQ Modeling	-	-
FHC NU*PIQ Modeling	-	-
FHC PA*PIQ DI	-	-

Note. Variables that are statistically significant are denoted in boldface.
n = 292.

Table H2

Multiple regression results for Self-Classified Weight

Variable	*b* (SE)	*t*-value, *p*-value
Intercept	3.42 (0.20)	16.73, <.0001
FHC Nutrition	-0.03 (0.09)	-0.33, 0.74
FHC Physical Activity	**-0.21 (0.08)**	**-2.64, 0.01**
PIQ Modeling	-0.09 (0.05)	-1.87, 0.06
PIQ Direct Influence	**0.33 (0.04)**	**7.45, <.0001**

Note. Variables that are statistically significant are denoted in boldface.
n = 292.

Table H3

Multiple regression results for Body Satisfaction (with SCW interaction terms)

Variable	Full Model b (SE)	t-value, p-value
	Full Model	
	b (SE)	*t*-value, *p*-value
Intercept	2.09 (1.31)	1.6, 0.11
FHC Nutrition	0.56 (0.55)	1.02, 0.31
FHC Physical Activity	-0.57 (0.45)	-1.26, 0.21
PIQ Modeling	-0.22 (0.27)	-0.83, 0.41
PIQ Direct Influence	0.4 (0.28)	1.42, 0.16
BMI	0.01 (0.01)	1.09, 0.28
Self-Classified Weight (SCW)	-0.44 (0.34)	-1.3, 0.2
Rurality	-0.61 (0.37)	-1.63, 0.11
Male	-0.01 (0.13)	-0.09, 0.93
Transgender/Nonbinary	-0.29 (0.28)	-1.06, 0.29
Black/African American	0.04 (0.28)	0.16, 0.88
Hispanic/Latino	0.25 (0.21)	1.16, 0.25
Asian /Pacific Islander	0.47 (0.39)	1.22, 0.22
American Indian/Alaskan Native	-0.24 (0.24)	-0.98, 0.33
Another Race/Ethnicity	0.17 (0.35)	0.48, 0.63
Biracial/Multiracial	-0.04 (0.24)	-0.16, 0.87
Gay	-0.42 (0.25)	-1.68, 0.09
Lesbian	-0.23 (0.24)	-0.96, 0.34
Bisexual	0.08 (0.14)	0.56, 0.58
Pansexual/Omnisexual	0.14 (0.21)	0.7, 0.48
Asexual	-0.65 (0.54)	-1.2, 0.23
Years Since Moved Out	0.00 (0.003)	-0.18, 0.86
SCW*PIQ DI	**-0.14 (0.07)**	**-1.99, 0.048**
SCW*FHC PA	0.17 (0.12)	1.42, 0.16
SCW*FHC NU	-0.12 (0.15)	-0.85, 0.4
SCW*PIQ Modeling	0.03 (0.07)	0.38, 0.7

Note. Variables that are statistically significant are denoted in boldface. *n* = 292.

Table H3 (continued)

Multiple regression results for Body Satisfaction (with SCW interaction terms) (continued)

	Three Interactions	
Variable	*b* (SE)	*t*-value, *p*-value
Intercept	1.87 (1.17)	1.6, 0.11
FHC Nutrition	0.58 (0.54)	1.08, 0.28
FHC Physical Activity	-0.59 (0.45)	-1.33, 0.19
PIQ Modeling	**-0.12 (0.06)**	**-2.18, 0.03**
PIQ Direct Influence	0.36 (0.26)	1.38, 0.17
BMI	0.01 (0.01)	1.07, 0.29
Self-Classified Weight (SCW)	-0.38 (0.3)	-1.27, 0.2
Rurality	-0.6 (0.37)	-1.62, 0.11
Male	-0.01 (0.13)	-0.06, 0.95
Transgender/Nonbinary	-0.29 (0.28)	-1.06, 0.29
Black/African American	0.04 (0.28)	0.14, 0.89
Hispanic/Latino	0.25 (0.21)	1.19, 0.24
Asian /Pacific Islander	0.47 (0.38)	1.22, 0.22
American Indian/Alaskan Native	-0.25 (0.24)	-1.05, 0.29
Another Race/Ethnicity	0.17 (0.34)	0.49, 0.62
Biracial/Multiracial	-0.05 (0.24)	-0.2, 0.85
Gay	-0.43 (0.25)	-1.69, 0.09
Lesbian	-0.23 (0.24)	-0.95, 0.34
Bisexual	0.08 (0.14)	0.59, 0.55
Pansexual/Omnisexual	0.14 (0.21)	0.71, 0.48
Asexual	-0.64 (0.54)	-1.19, 0.23
Years Since Moved Out	-0.001 (0.004)	-0.16, 0.87
SCW*PIQ DI	**-0.13 (0.06)**	**-2, 0.047**
SCW*FHC PA	0.18 (0.12)	1.49, 0.14
SCW*FHC NU	-0.13 (0.14)	-0.91, 0.37
SCW*PIQ Modeling	-	-

Note. Variables that are statistically significant are denoted in boldface. *n* = 292.

Table H3 (continued)

Multiple regression results for Body Satisfaction (with SCW interaction terms) (continued)

| Variable | Two Interactions | |
	b (SE)	*t*-value, *p*-value
Intercept	2.5 (0.93)	2.67, 0.01
FHC Nutrition	0.1 (0.1)	1.01, 0.31
FHC Physical Activity	-0.36 (0.36)	-0.98, 0.33
PIQ Modeling	**-0.12 (0.06)**	**-2.18, 0.03**
PIQ Direct Influence	0.3 (0.25)	1.19, 0.24
BMI	0.01 (0.01)	1.05, 0.29
Self-Classified Weight	**-0.54 (0.24)**	**-2.26, 0.02**
Rurality	-0.63 (0.37)	-1.71, 0.09
Male	-0.01 (0.13)	-0.12, 0.91
Transgender/Nonbinary	-0.31 (0.28)	-1.11, 0.27
Black/African American	0.02 (0.28)	0.07, 0.95
Hispanic/Latino	0.24 (0.21)	1.12, 0.26
Asian /Pacific Islander	0.49 (0.38)	1.28, 0.2
American Indian/Alaskan Native	-0.26 (0.24)	-1.07, 0.28
Another Race/Ethnicity	0.16 (0.34)	0.46, 0.64
Biracial/Multiracial	-0.05 (0.24)	-0.21, 0.84
Gay	-0.4 (0.25)	-1.6, 0.11
Lesbian	-0.25 (0.24)	-1.02, 0.31
Bisexual	0.07 (0.14)	0.54, 0.59
Pansexual/Omnisexual	0.17 (0.2)	0.82, 0.41
Asexual	-0.65 (0.54)	-1.21, 0.23
Years Since Moved Out	-0.001 (0.004)	-0.26, 0.79
SCW*PIQ DI	-0.11 (0.06)	-1.82, 0.07
SCW*FHC PA	0.11 (0.09)	1.19, 0.24
SCW*FHC NU	-	-
SCW*PIQ Modeling	-	-

Note. Variables that are statistically significant are denoted in boldface. *n* = 292.

Table H3 (continued)

Multiple regression results for Body Satisfaction (with SCW interaction terms) (continued)

	One Interaction	
Variable	*b* (SE)	*t*-value, *p*-value
Intercept	1.77 (0.71)	2.5, 0.01
FHC Nutrition	0.11 (0.1)	1.11, 0.27
FHC Physical Activity	0.06 (0.09)	0.68, 0.5
PIQ Modeling	**-0.12 (0.06)**	**-2.15, 0.03**
PIQ Direct Influence	0.38 (0.25)	1.55, 0.12
BMI	0.01 (0.01)	0.89, 0.38
Self-Classified Weight	**-0.34 (0.17)**	**-1.99, 0.048**
Rurality	-0.65 (0.37)	-1.76, 0.08
Male	-0.01 (0.13)	-0.09, 0.93
Transgender/Nonbinary	-0.32 (0.28)	-1.14, 0.26
Black/African American	0.03 (0.28)	0.12, 0.9
Hispanic/Latino	0.26 (0.21)	1.25, 0.21
Asian /Pacific Islander	0.48 (0.38)	1.26, 0.21
American Indian/Alaskan Native	-0.23 (0.24)	-0.95, 0.34
Another Race/Ethnicity	0.17 (0.34)	0.51, 0.61
Biracial/Multiracial	-0.04 (0.24)	-0.15, 0.88
Gay	-0.39 (0.25)	-1.54, 0.13
Lesbian	-0.28 (0.24)	-1.16, 0.25
Bisexual	0.09 (0.13)	0.65, 0.52
Pansexual/Omnisexual	0.16 (0.2)	0.8, 0.43
Asexual	-0.58 (0.54)	-1.08, 0.28
Years Since Moved Out	-0.001 (0.004)	-0.17, 0.87
SCW*PIQ DI	**-0.13 (0.06)**	**-2.22, 0.03**
SCW*FHC PA	-	-
SCW*FHC NU	-	-
SCW*PIQ Modeling	-	-

Note. Variables that are statistically significant are denoted in boldface.
n = 292.

Table I1

Descriptive Statistics for Continuous Variables

	Body Satisfaction	FHC Nutrition	FHC Physical Activity	PIQ Modeling	PIQ Direct Influence	BMI
Mean	0.00	1.50	1.13	3.19	2.62	29.09
Median	0.04	1.53	1.14	3.30	2.39	27.85
Mode	-0.77	1.94	1.14	3.60	1.78	27
SD	0.96	0.58	0.64	0.95	1.04	7.41
Skewness	-0.00	-0.26	0.10	-0.43	0.48	1.19
Kurtosis	-0.84	-0.21	-0.49	-0.52	-0.83	2.15
Range	4.29	2.94	2.86	4.00	4.00	44
Minimum	-2.25	0.00	0.00	1.00	1.00	18
Maximum	2.04	2.94	2.86	5.00	5.00	62
Scale α	0.80	0.91	0.92	0.88	0.95	-

Note. Scale α = coefficient alpha, measuring internal consistency for the scale. $n = 292$ for all variables

Table I1 (continued)

Descriptive Statistics for Continuous Variables (continued)

	Self-Classified Weight	Rurality	Years Since Moved Out	Age
Mean	3.73	0.36	14.13	34.65
Median	3.75	0.38	10.00	30.00
Mode	4.00	0.27	0.00	27
SD	0.78	0.12	12.50	11.87
Skewness	-0.19	-0.28	1.06	1.11
Kurtosis	-0.24	-0.80	0.46	0.42
Range	3.50	0.59	53.00	52
Minimum	1.50	0.06	0.00	18
Maximum	5.00	0.66	53.00	70
Scale α	-	-	-	-

Note. Scale α = coefficient alpha, measuring internal consistency for the scale. $n = 292$ for all variables

Table I2

Descriptive Statistics for Categorical Variables

	Race/Ethnicity	Gender	Sexual/Affectional Orientation	Current Body Image Concerns	History of Body Image Concerns	Diagnosed with Body Image Disorder
Median	3-White	2-Female	3-Straight	1-Yes	1-Yes	2-No
Mode	3-White	2-Female	3-Straight	1-Yes	1-Yes	2-No

Note. $n = 292$ for all variables
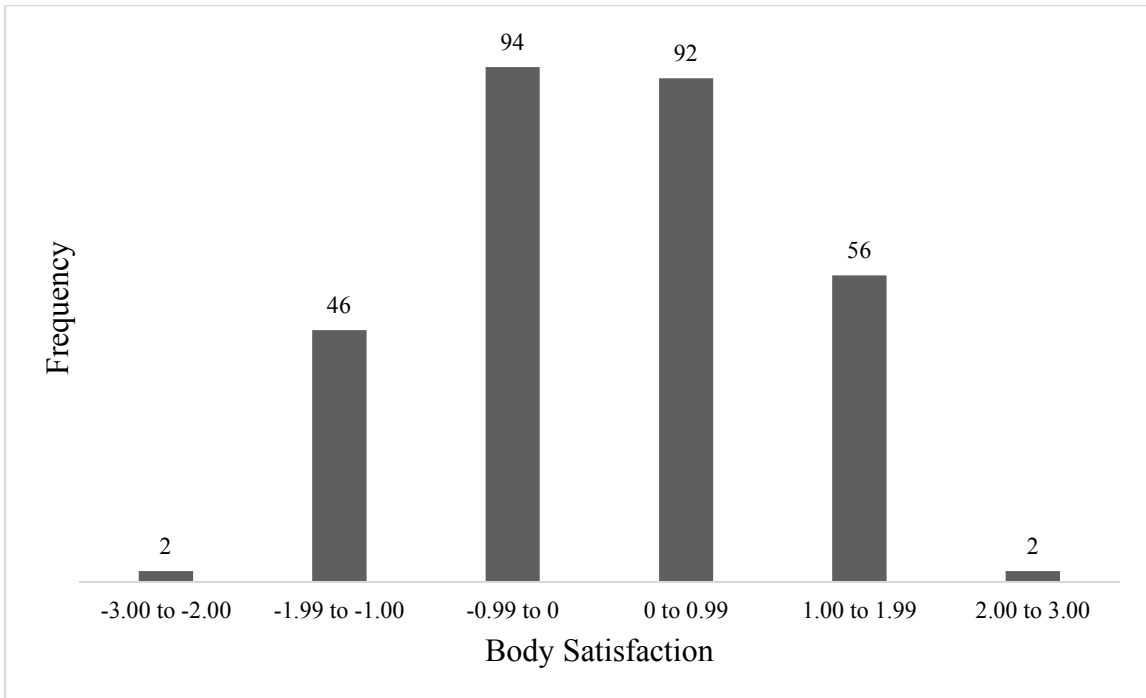
Figure I3. Frequencies for Body Satisfaction scores. *n* = 292.
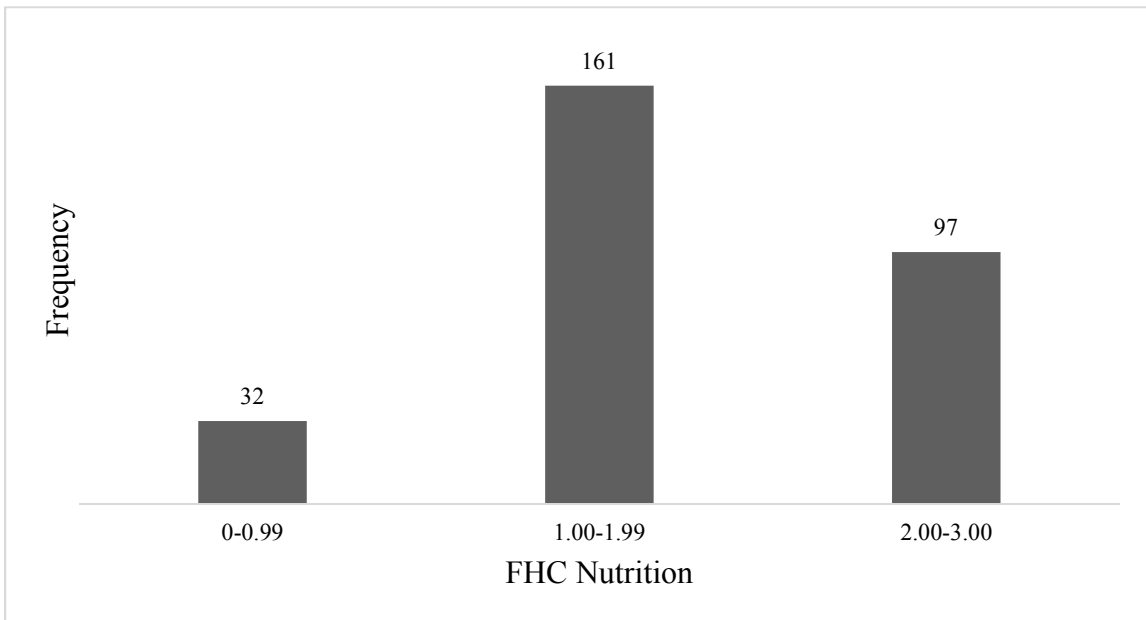
Figure I4. Frequencies for FHC Nutrition scores. *n* = 292.
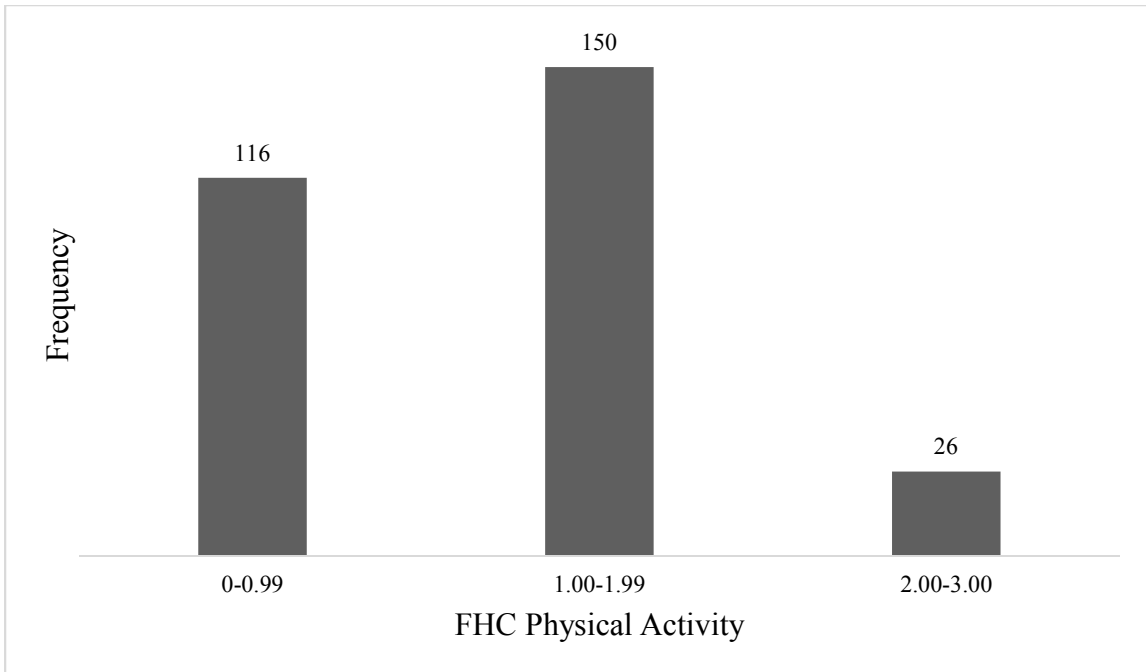
Figure I5. Frequencies for FHC Physical Activity scores. *n* = 292.
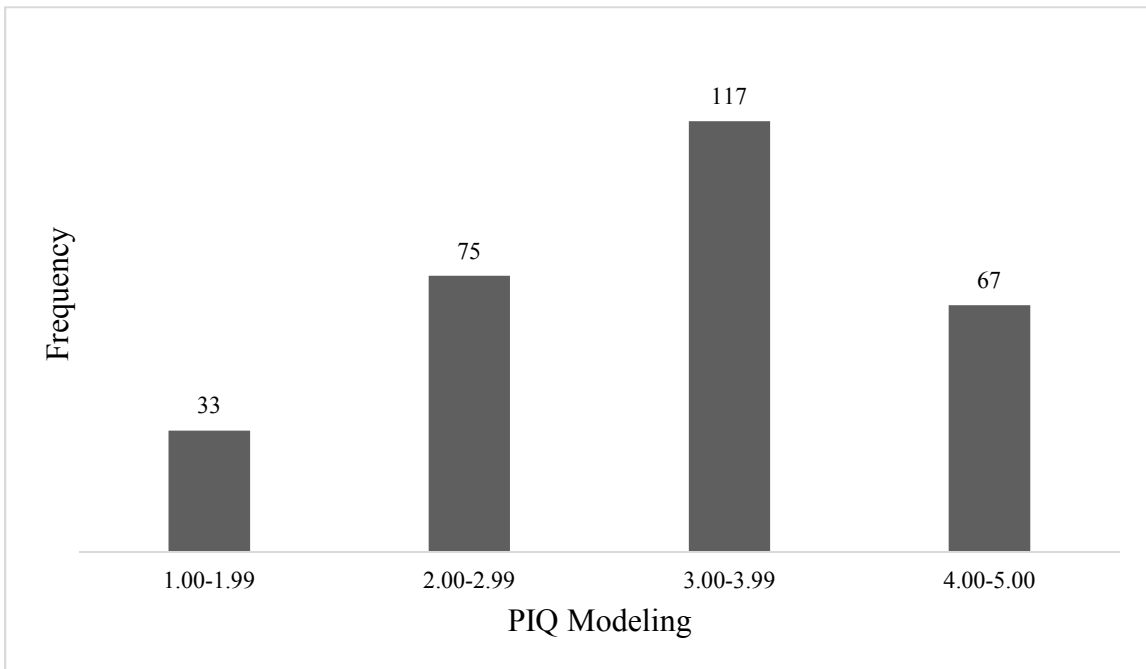
Figure I6. Frequencies for PIQ Modeling scores. *n* = 292.
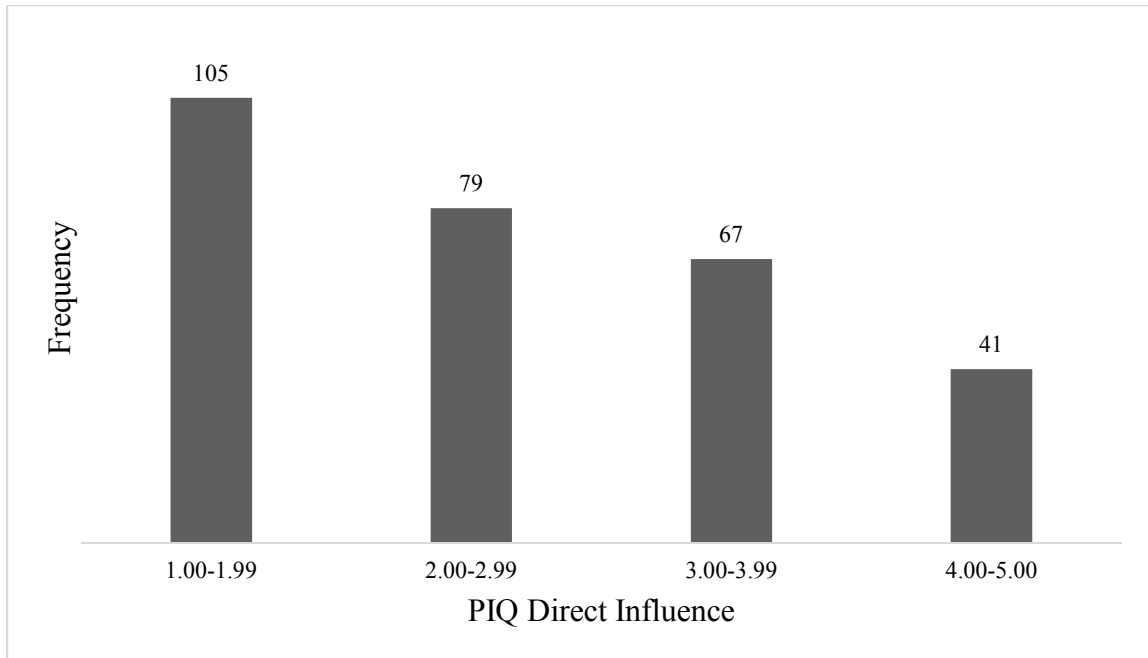
Figure 17. Frequencies for PIQ Direct Influence scores. *n* = 292.
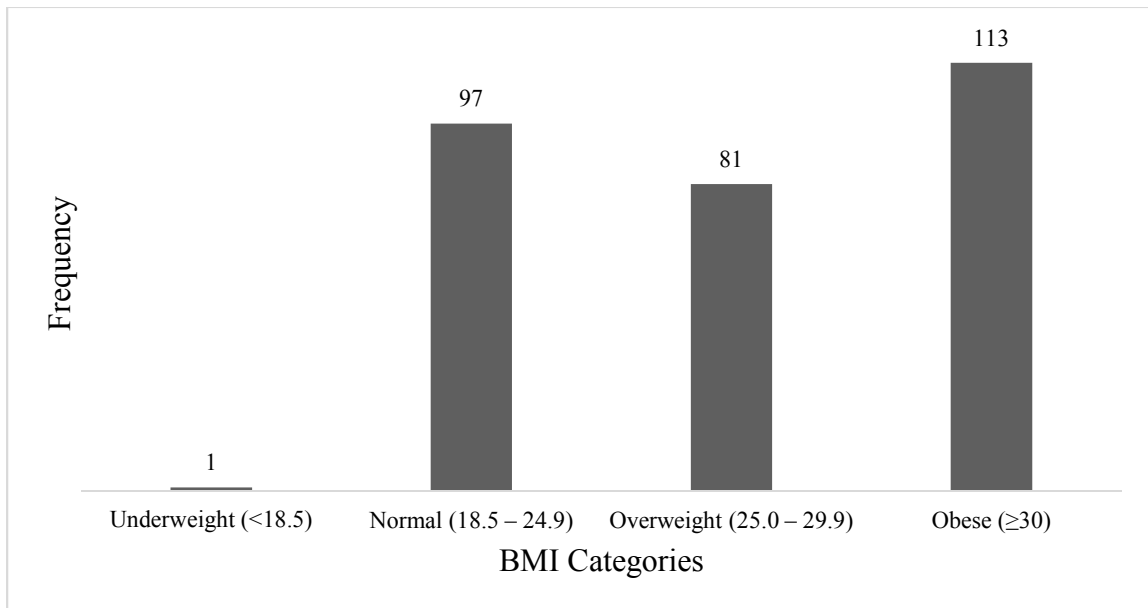
Figure 18. Frequencies for BMI Categories. *n* = 292.
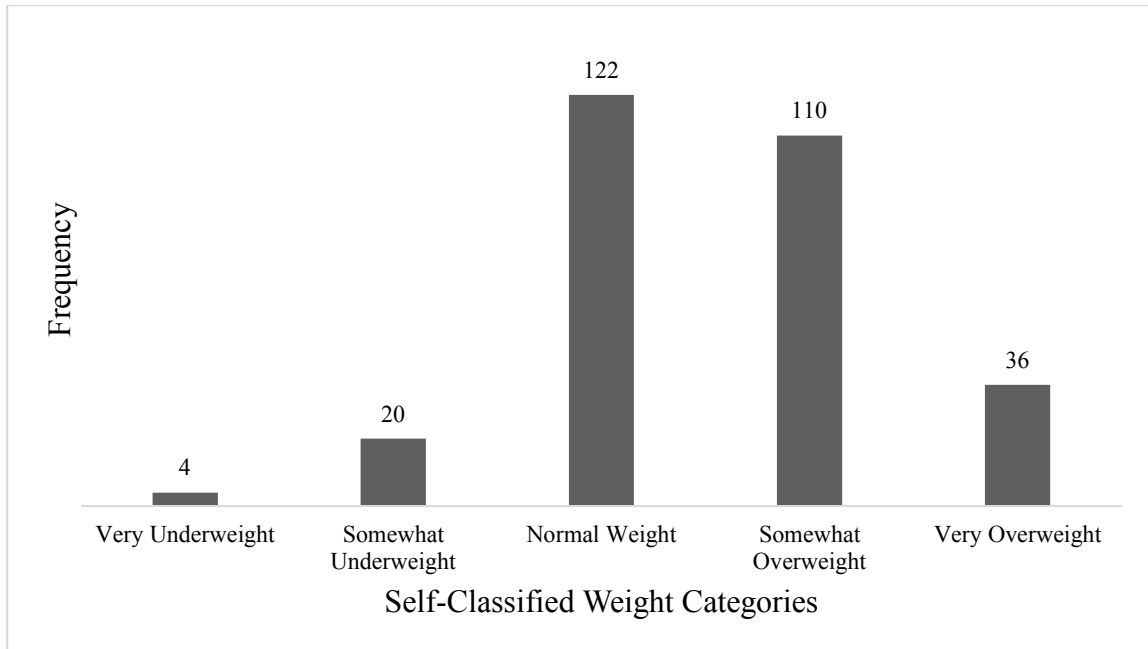
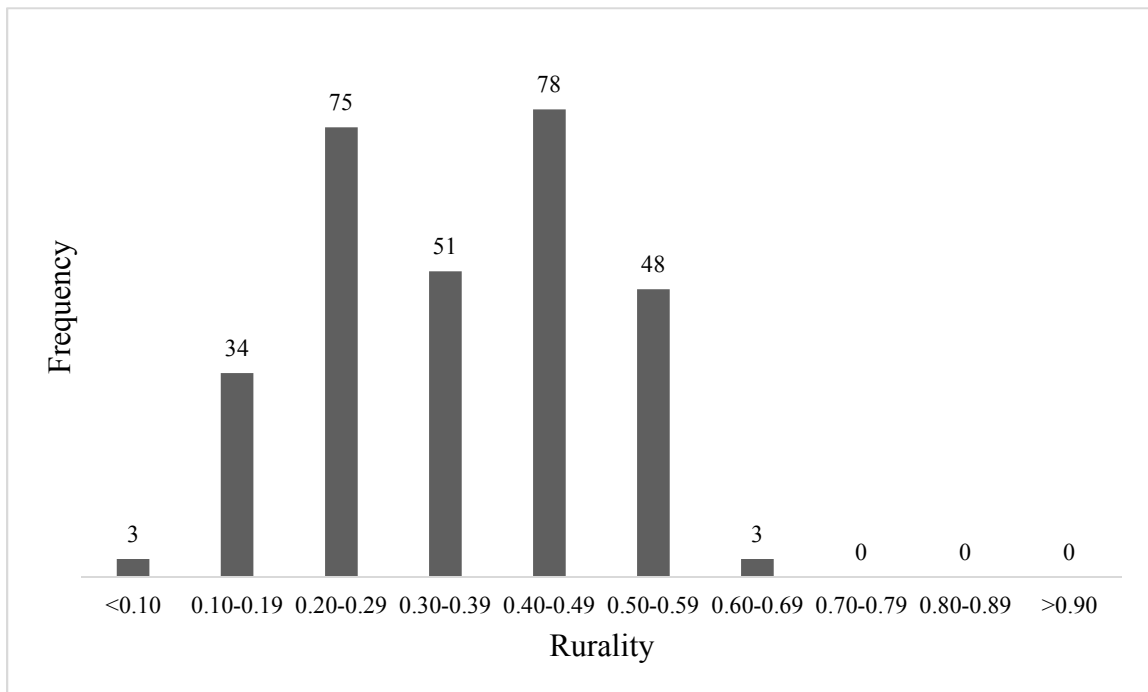*Figure I9.* Frequencies for Self-Classified Weight Categories. *n* = 292.

Figure I10. Frequencies for Rurality (Index of Relative Rurality). *n* = 292.
Note. The index is scaled from 0 to 1, with 0 representing the most urban area and 1 representing the most rural area (Waldorf & Kim, 2018).
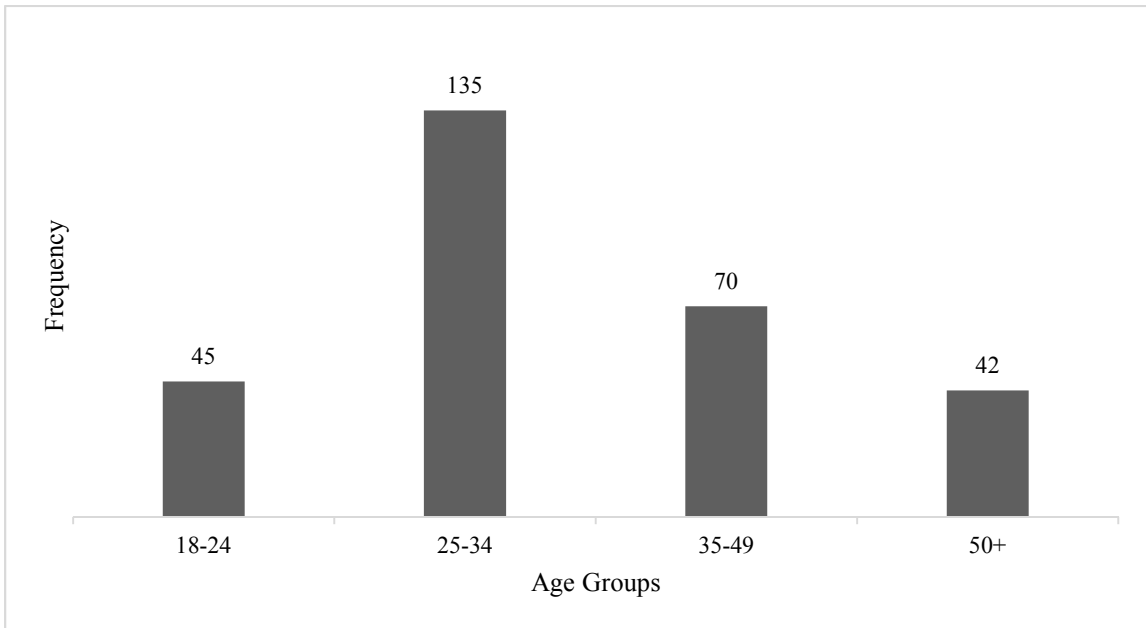
Figure I11. Frequencies for Age Groups. *n* = 292.
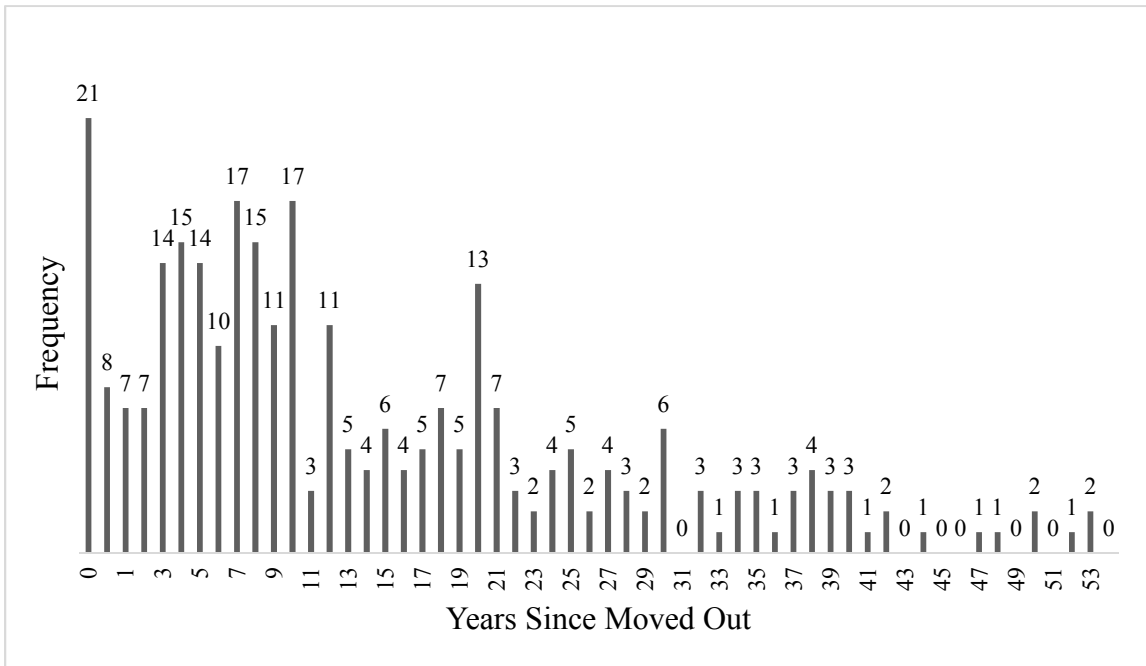
Figure I12. Frequencies for Years Since Moved Out. *n* = 292.
Note. 0 = Still living with family of origin.
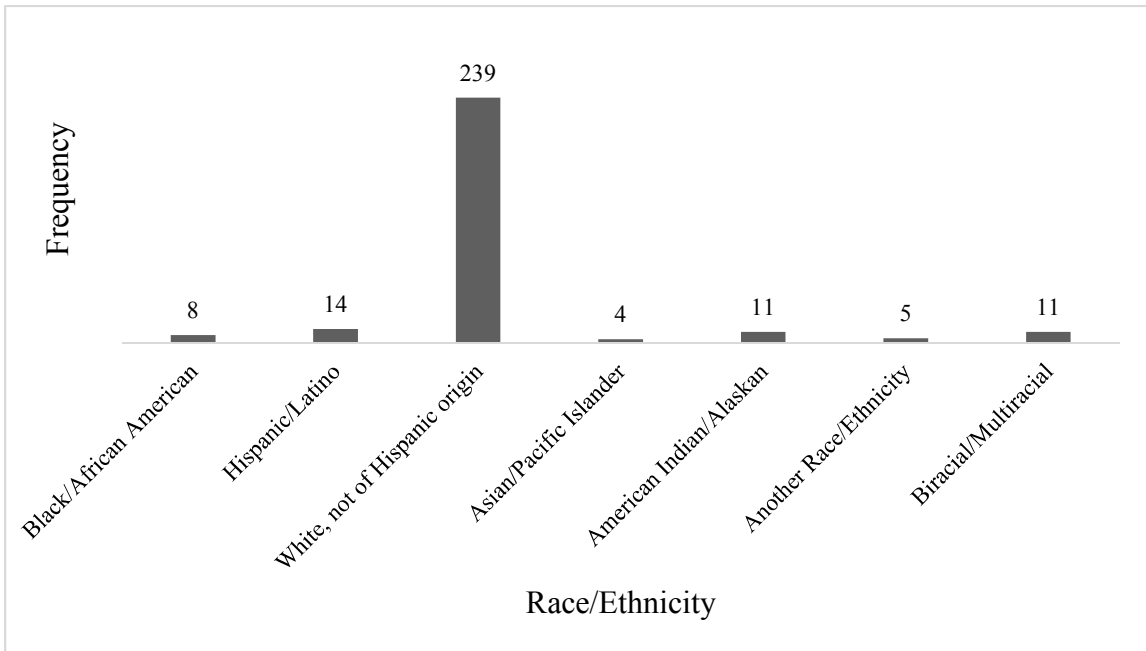
Figure I13. Frequencies for Race/Ethnicity. *n* = 292.
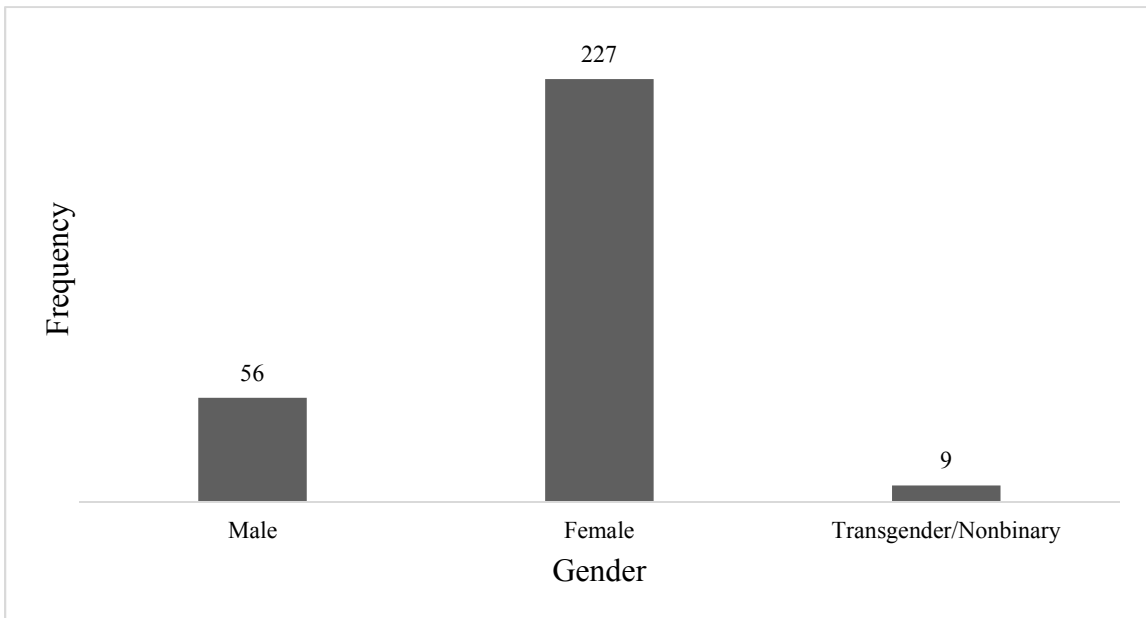
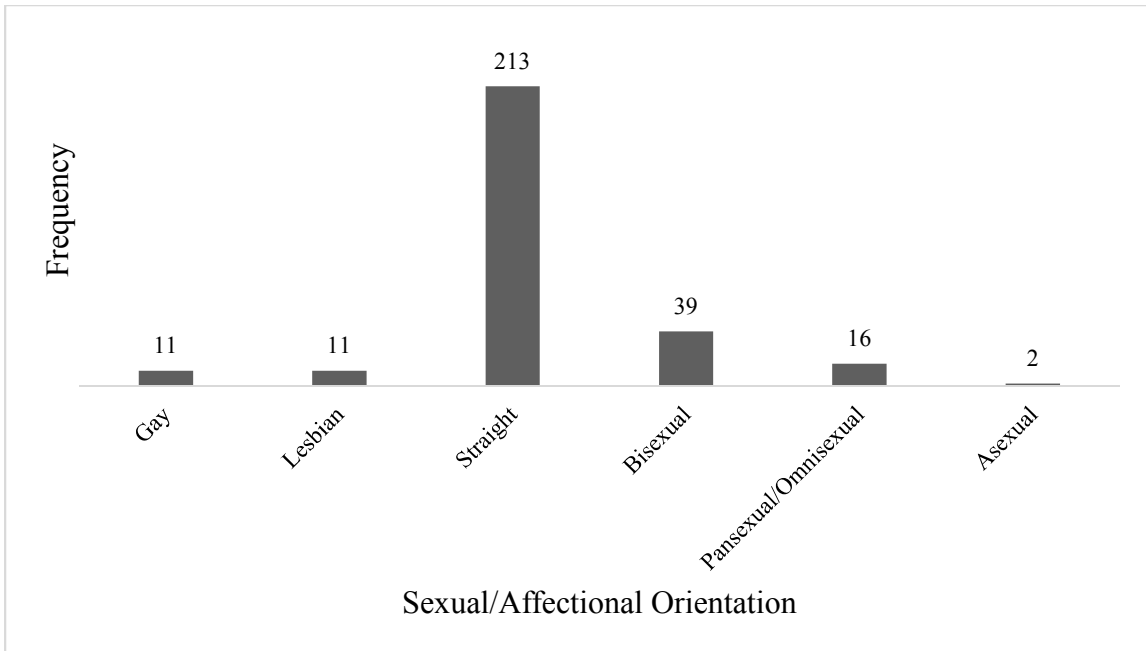*Figure I14.* Frequencies for Gender. *n* = 292.

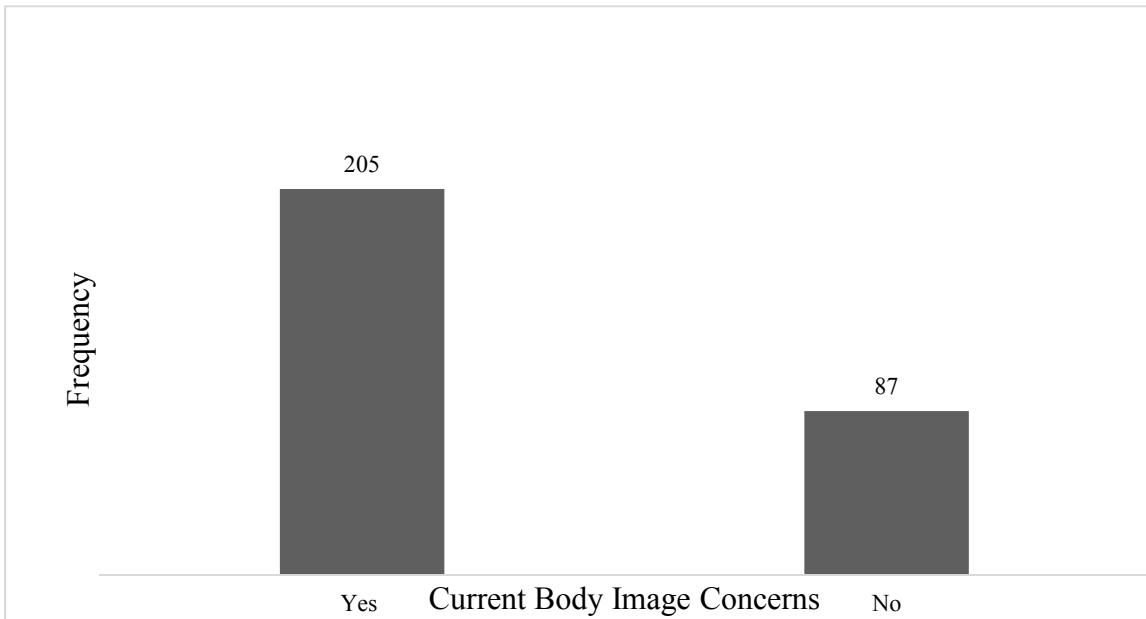*Figure I15.* Frequencies for Sexual/Affectional Orientation. *n* = 292.

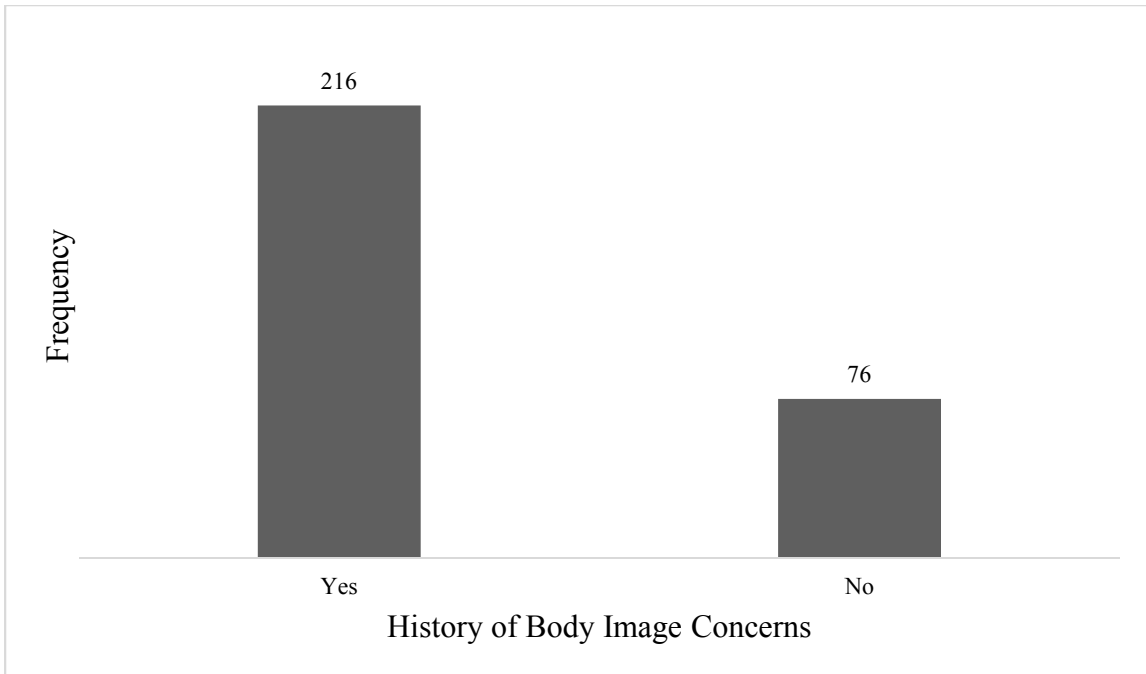*Figure I16.* Frequencies for Current Body Image Concerns. *n* = 292.

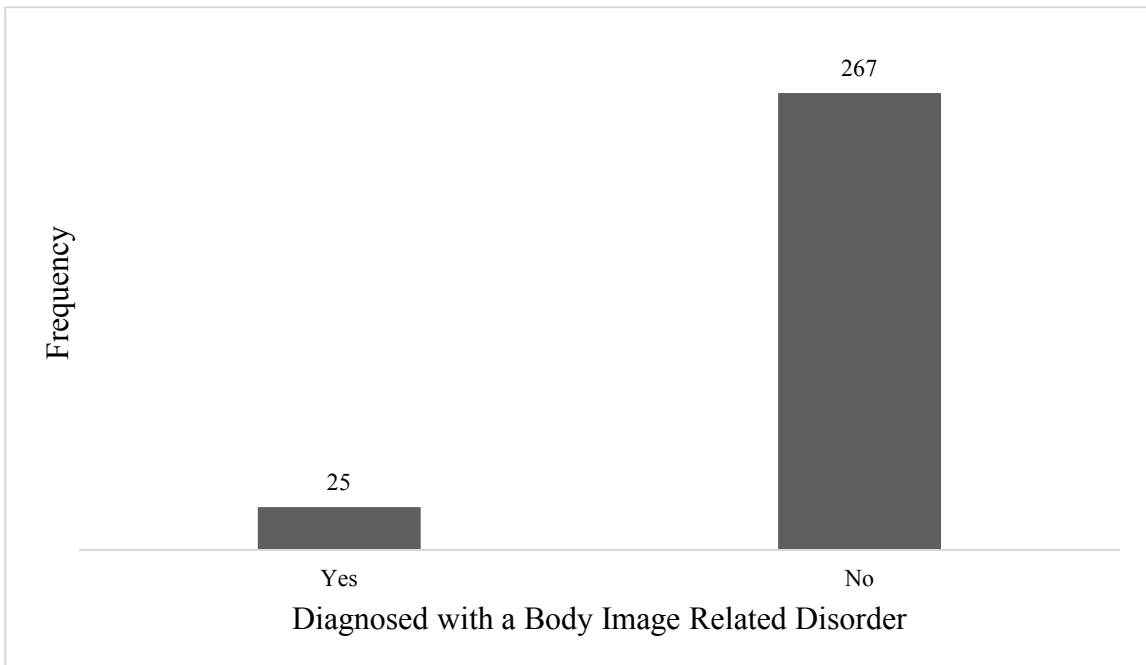*Figure I17.* Frequencies for History of Body Image Concerns. *n* = 292.

Figure I18. Frequencies for Diagnosed with a Body Image Related Disorder. *n* = 292.

APPENDIX J: Correlation Matrix

Table J1

Correlation Matrix for Continuous Variables (Pearson Correlations)

	Age	Rurality	Years Since Moved Out	BMI	Self-Classified Weight	PIQ Direct Influence	PIQ Modeling	FHC Physical Activity	FHC Nutrition	Body Satisfaction
Age	1	-.050	.936**	.240**	.209**	.107	-.220**	-.164**	-.052	-.143*
Rurality	-.050	1	-.041	.010	-.087	-.174**	-.121*	.035	.002	.005
Years Since Moved Out	.936**	-.041	1	.216**	.212**	.086	-.204**	-.163**	-.056	-.111
BMI	.240**	.010	.216**	1	.768**	.340**	-.010	-.208**	-.143*	-.428**
Self-Classified Weight	.209**	-.087	.212**	.768**	1	.443**	.114	-.275**	-.230**	-.588**
PIQ Direct Influence	.107	-.174**	.086	.340**	.443**	1	.457**	-.230**	-.283**	-.441**
PIQ Modeling	-.220**	-.121*	-.204**	-.010	.114	.457**	1	-.089	-.153**	-.247**
FHC Physical Activity	-.164**	.035	-.163**	-.208**	-.275**	-.230**	-.089	1	.587**	.242**
FHC Nutrition	-.052	.002	-.056	-.143*	-.230**	-.283**	-.153**	.587**	1	.251**
Body Satisfaction	-.143*	.005	-.111	-.428**	-.588**	-.441**	-.247**	.242**	.251**	1

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

APPENDIX K: Handout for Families

How To Help Your Child's Body Image

What is body image and why is it important?
Body image is our overall attitudes towards our body, especially related to its appearance. Our body image impacts self-esteem, overall mental and physical health, and quality of life. Body dissatisfaction contributes to several mental health concerns, including, but not limited to, poor self-esteem, depression, self-consciousness, social anxiety, eating disorders, and body dysmorphia. This is a common concern that affects many individuals regardless of gender or racial/ethnic backgrounds.

What influences body image?
Three main factors influence body image: Media, Peers, and Family. Media displays cultural standards and ideal images that are often unrealistic and difficult to achieve. Peers reinforce these standards and ideals, and appearance is one of the most common focuses of teasing in childhood/adolescence. However, the family system is the first and most consistent area of socialization and plays an important role in helping children/adolescents develop their beliefs about their body and appearance standards in general.

Appearance-Related Messages
One of the ways that caregivers influence their children's body image is by the appearance-related messages they give them. These messages can be given both directly (teasing or making negative appearance-related comments to their child about their body) and indirectly (making negative appearance-related comments about their own body or others' bodies in front of their child).

Break the Cycle!
Many caregivers heard appearance-related messages when they were a child that they then use with their children, often with good intentions. For caregivers to be successful in retraining themselves on how they speak about appearance, it is helpful to reflect on and reconsider the messages that they received from their family of origin (as well as peers and media) to develop self-awareness and increase their willingness to not continue the cycle of harmful messages.

Examples of Appearance-Related Messages
- "Are you sure you want to eat that? Don't you want to look good in your swimsuit?"
- "Remember, a minute on your lips, forever on your hips"
- "You will be more attractive once you lose your baby fat."
- "You need to beef up, you're looking a little scrawny."
- "If you do not lose weight, you'll never get a date, get a boyfriend/girlfriend, get married, etc."
- "I look like a whale in this outfit"
- "She does not have the body to be wearing those leggings."
- "My cellulite is so disgusting."
- "I feel so bad for him, his nose is so huge."
- "I look terrible, I need to go back on a diet."

To promote a more positive body image in your children, refrain from teasing or making negative appearance-related comments about their body and instead focus on making comments that will encourage healthy behaviors and a greater self-esteem and self-acceptance.

Even positive appearance-related messages can still reinforce the importance of appearance. Caregivers can complement other aspects about their child apart from their appearance to help their child disconnect their value/worth/self-esteem from their physical appearance.

It is also very important that caregivers model a positive relationship with their own body and refrain from making negative appearance-related comments about other people's bodies, especially in front of their children.

Caregivers can also step in when their child receives negative appearance-related messages from media/peers and help them reframe these messages to more realistic and positive messages.

How To Help Your Child's Body Image

Family Health Behaviors

Another way in which caregivers influence their children's body image is through the health behaviors that are practiced in the home. Health behaviors taught and modeled by caregivers, such as nutrition and physical activity habits, help develop the child's health behaviors, which impacts their weight status. Weight status is one of the strongest predictors of body image.

Caregivers can help their children develop positive health behaviors by modeling healthy attitudes and behaviors in the home, regarding both physical activity and nutrition, such as:

- Engaging in regular physical activity (as a family when possible) that utilizes enjoyable activities that focus on exercise as a fun way to increase wellness and manage stress, rather than just a way to lose weight.
- Focusing on eating a variety of nutritious foods that provides a balanced ratio of fat, carbohydrates, and protein. Cooking meals and eating together as a family is encouraged, when possible.
    - For guidance on how to incorporate nutritious foods, visit https://www.nutrition.gov/topics/audience/children/food-and-nutrition and work with your healthcare provider.
- Emphasizing that the purpose of these health behaviors is to respect and take care of their physical and mental health instead of to try to achieve some ideal appearance standard.

It is important that caregivers encourage flexibility and moderation with these behaviors instead of rigidity and shame. Engaging in diet-culture and over-controlled health behaviors can be very harmful as well.

Break the Cycle!

Many caregivers developed their nutrition and physical activity habits from their family during childhood. To be sure that they are teaching and modeling positive health behaviors, it would be helpful for caregivers to examine these behaviors to determine if they are truly health promoting.

No shaming or blaming

It is important to keep in mind that many appearance-related messages and negative health behaviors modeled by caregivers do not come from any intention to harm their children and that most caregivers are simply trying to help their children, using the skills and messages that were passed down to them. Feeling ashamed or blamed for not contributing to your child's body image development in a positive way is not helpful. Instead, practice self-acceptance and make positive changes when needed and your children will learn to do this as well!

Resources & More Info

- National Eating Disorder Association https://www.nationaleatingdisorders.org/
- Nutrition Information https://www.nutrition.gov/topics/audience/children/food-and-nutrition
- Tips for family physical activity
    - https://www.nhlbi.nih.gov/health/educational/wecan/get-active/family-active-time.htm
    - https://www.pta.org/home/family-resources/health/Obesity-Prevention/Encourage-Physical-Activity
- Resources for parents wanting to promote a positive body image in children
    - https://www.confidentbody.net/further-reading.html
    - https://familydoctor.org/building-your-childs-body-image-and-self-esteem/
    - https://www.betterhealth.vic.gov.au/health/healthyliving/body-image-tips-for-parents
- [link to module with reference list]

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VITA

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Doctor of Philosophy

Dissertation: THE INTERACTIVE INFLUENCE OF FAMILIAL APPEARANCE-RELATED MESSAGES AND FAMILY HEALTH CLIMATE ON BODY SATISFACTION

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