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Gender Role Identification, Sexual Orientation, and Disordered Eating in Young Adults

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GENDER ROLE IDENTIFICATION, SEXUAL ORIENTATION, AND DISORDERED
EATING IN YOUNG ADULTS

A Capstone Experience/Thesis Project

Presented in Partial Fulfillment of the Requirements for

the Degree Bachelor of Science with

Honors College Graduate Distinction at Western Kentucky University

By

Natalie M. Perkins

* * * * *

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2016

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ABSTRACT

Young adults are at a significantly high risk for eating disorders. Existing research is lacking in what factors can contribute to this disorder; however, there is some that suggests that self-identification with masculine and feminine gender roles can contribute to an individual's risk for disordered eating. Research investigating disordered eating in sexual minorities is particularly slim. The current study sought to examine the relationship between gender role identification, sexual orientation, and disordered eating, as well as the roles that anxiety and depression have in disordered eating development. In our sample (n = 437, 73.6% female, 76.7% white, 87.6% heterosexual), participants completed a packet of measures assessing the variables of interest through a secure online survey via Qualtrics. It was hypothesized that stronger identification with femininity would be positively associated with disordered eating behaviors, both LGBQ (lesbian/gay/bisexual/questioning) groups would report more disordered eating than the heterosexual groups, and stronger identification with masculinity would be negatively associated with disordered eating behaviors. The hypotheses were partially supported, as femininity was not positively associated with disordered eating, and masculinity did not predict disordered eating. However, LGBQ females did self-report more disordered eating symptoms than did heterosexual males.

Keywords: Eating Disorders, Masculinity, Femininity, Sexual Orientation, Anxiety

Dedicated to my friends and family

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Introduction

Historically, eating disorders (EDs) have been perceived as female-only disorders. However, more recent research has indicated that men struggle with the same disorders but at a much lower rate of occurrence (Algars, Santtila, & Sandnabba, 2010). The large occurrence rate among women suggests that there may be something about being female that puts women at a greater risk for developing eating psychopathology. Past research has examined the role that femininity may have in the etiology of EDs (Pritchard, 2008). Results have been varied, with some studies showing that femininity is positively associated with disordered eating (Pritchard, 2008), and others showing that femininity is associated with healthier eating behaviors (Pritchard, 2008).

Some of this variance could be attributed to the lack of differentiation between sexual orientations in samples. Studies that have examined disordered eating in relation to sexual orientation have found that compared to homosexual women, heterosexual women have a higher drive for thinness and increased weight control behaviors (Moore & Keel, 2002). However, even this area of research has discrepancies, as other studies have found that heterosexual women are twice as likely as homosexual women to have healthier methods of weight control and better eating behaviors (Vankim et al., 2015). Even with disagreements in the existing literature, little research has been conducted that examines disordered eating behaviors, gender role identification, and sexual orientation together. Further still, research on the presence of EDs in men that examines the roles of sexual orientation and gender role identification is virtually nonexistent. This review will

examine the existing research and identify areas that continue to need additional work or clarification.

Gender and Eating Psychopathology

As previously stated, women have a much higher occurrence rate of EDs as men (Rolls, Fedoroff, & Guthrie, 1991). The National Institutes of Mental Health found that the lifetime incidence of anorexia nervosa and bulimia nervosa among women is 0.9 and 0.5 percent, respectively; the lifetime incidence among men for anorexia nervosa and bulimia nervosa is 0.3 and 0.1 percent, respectively (Insel, 2012). Binge eating disorder also occurs more frequently in women than in men, with lifetime occurrence rates of 3.5 and 2.0 percent, respectively (Insel, 2012). One study found that women had significantly higher occurrence rates of overeating, loss of control over eating, binge-eating at least once and twice a week, vomiting, fasting, body checking, and body avoidance behaviors than did men (Striegel-Moore et al., 2009). However, no significant differences were found in laxative use and over-exercise (Striegel-Moore et al., 2009). Other research has indicated that women are more likely to believe they are overweight and have some level of weight-related anxiety as a result of this than men (Rolls et al., 1991). Women also engage in more weight-regulating behaviors, such as dieting and exercise; however, men are actually more successful in losing weight and maintaining their weight loss in normal, healthy settings (Rolls et al., 1991).

Women also report more overeating in reaction to stress and negative emotions, whereas men have reported overeating most often in social situations (Rolls et al., 1991). Other research has found that depression and dieting were risk factors for the onset of extreme weight loss behaviors, but only in a sample of women (Liechty & Lee, 2013).

The same study found that early extreme weight loss behaviors were significant predictors of a later ED diagnosis, as well as that early dieting was a significant predictor of later binge eating in women (Liechty & Lee, 2013).

However, current epidemiological studies have found differing results for binge-eating disorder, which is defined as recurrent episodes of eating an unusually large amount of food accompanied by a sense of loss of control and associated by significant distress and a lack of compensating behaviors (i.e. purging) (Pisetsky et al., 2015). Current studies show that binge-eating disorder is much more common in men than in women (Striegel-Moore et al., 2009). This is particularly interesting, as other research has found that women have significantly higher rates of binge-eating than do men (Striegel-Moore et al., 2009). Other studies have found that although the occurrence of bulimia in women increases up to age 16 before dropping, men have a higher occurrence of bulimia in those over age 16 than below (Liechty & Lee, 2013). These findings suggest that there is something about being male that puts one at a higher risk for disordered eating in the form of bingeing and purging. Future research should seek to understand the mechanisms and functionality behind bingeing and purging in men, particularly in how they differ from women. Other studies have shown through a longitudinal association model that body image distortion was significantly associated with a later ED in men (Liechty & Lee, 2013). Another particularly interesting finding was that depression was a significant risk factor for a later ED, but this significance was much higher in women than in men (Liechty & Lee, 2013). Future research also needs to investigate how causal pathways for EDs differ between men and women (Liechty & Lee, 2013).

Sexual Orientation and Eating Psychopathology

As previously stated, research on the presence and severity of eating psychopathology is mixed. Vankim et al. (2015) examined eating and weight-related behaviors in a sample of largely heterosexual and Caucasian female college students, placing participants into classes based upon the behaviors they endorsed using regularly to maintain or lose weight. They found that heterosexual women were far more likely to fall within a healthier class (e.g. no binge eating, purging, over-exercise, less unhealthy food consumption, etc.) than were discordant heterosexual (those who identified as heterosexual but had engaged in a same-sex sexual encounter in the past year), bisexual, and unsure women (Vankim et al., 2015). Contrary to this study, Moore and Keel (2002) found that compared to homosexual women, heterosexual women had a higher drive for thinness and utilized more methods for weight control.

Currently, the research examining eating psychopathology in relation to sexual orientation in men is lacking. One large study that did examine sexual orientation in relation to disordered eating found that identifying as a sexual minority significantly predicted an eating disorder diagnosis within the past year in men (Diemer, Grant, Munn-Chernoff, Patterson, & Duncan, 2015). However, it did not significantly predict any current unhealthy weight-regulating behaviors (Diemer et al., 2015). Another study found that heterosexual and homosexual men displayed no difference in risk for developing an eating disorder (Goter & Ferraro, 2011). Current epidemiologic research suggests that nearly a quarter of men with an eating disorder have either bisexual or homosexual preferences (Rolls et al., 1991). Other research suggests that men with eating disorders have experienced issues in their psychosexual development (Rolls et al., 1991).

There has also been some research comparing sexual minority men and women. One such study found that eating motive scores in men were significantly lower in heterosexual men than in both heterosexual and homosexual women; however, homosexual men and women and heterosexual women had no significant differences (Conner, Johnson, & Grogan, 2004). Women also had more health-motivated eating behaviors than did men, but there was no sexual orientation effect for this motive (Conner et al., 2004). Women were also more influenced by mood than men, with the same effect in the homosexual versus heterosexual groups (Conner et al., 2004). Heterosexual men also showed less restraint when eating than did homosexual men or heterosexual women, and women also showed higher levels of emotional eating than men; however, there was no interaction with sexual orientation (Conner et al., 2004). Dieting was most commonly reported among the homosexual men, followed by heterosexual women and then heterosexual men and homosexual women (Conner et al., 2004). No analyses were run examining any other sexual minorities.

Gender Role and Eating Psychopathology

Some research exists that examines the influence of gender role orientation in disordered eating. These studies investigate the constructs of masculinity, femininity, and androgyny in participants. Masculinity is defined as the extent to which an individual identifies with traits that have been associated with the male sex (Hepp, Spindler, & Milos, 2005; Meyer, Blissett, & Oldfield, 2001). Femininity is defined as the extent to which an individual identifies with traits that have been associated with the female sex (Hepp et al., 2005; Meyer et al., 2001). Androgyny is defined as the extent to which an individual identifies with both masculine and feminine traits equally (Hepp et al., 2005;

Meyer et al., 2001). Additionally, some individuals do not identify closely with either masculine or feminine traits, in which case a person would be identified as undifferentiated.

Research in this area is mixed as well, as many studies use different scales for measuring these constructs, allowing for some discrepancies and disagreements in the literature. One study hypothesized that sex role conflict, defined as the difference between the expected sex role ideology and the individual's actual sex role ideology, was a main driving force behind disordered eating (Johnson, Brems, & Fischer, 1996). However, they found no results to support this hypothesis. Few studies have been conducted since to replicate these findings, leaving a large gap in our understanding of how these constructs might have differing influences on men and women.

Studies are also still attempting to understand how these constructs can serve as risk and/or protective factors for disordered eating. Hepp et al. (2005) found that femininity was not significantly associated with core eating disorder (ED) symptomatology. Androgynous individuals showed the lowest levels of ED symptomatology, and undifferentiated individuals showed the highest levels of ED symptomatology (Hepp et al., 2005). Other studies have found similar outcomes, with one study finding that undifferentiated women had more ED symptoms than did androgynous women (Pritchard, 2008). The same study found that masculine women had higher body dissatisfaction and bulimia scores than did androgynous women (Pritchard, 2008). Feminine women also had higher body dissatisfaction scores than did androgynous women (Pritchard, 2008).

There is less research on the influence of gender role orientation on disordered eating in men; however, some existing work does provide a basic framework in which to conduct studies. One of these studies found undifferentiated men, as well as feminine men, had higher body dissatisfaction scores than did androgynous and masculine men (Pritchard, 2008). Similar studies have found that men with a conflicted gender identity were more dissatisfied with their bodies than those who had no conflicted gender identity (Algars et al., 2010). However, men with a conflicted gender identity were not shown to have significantly higher levels of disordered eating (Algars et al., 2010).

Sexual Orientation, Gender Role, and Eating Psychopathology

Research on these three constructs in tandem is currently limited, most likely due to the difficulty of differentiating between the influences of sexual orientation and gender role identification on ED symptomatology. As the previous research seems to suggest, gender role identification may vary more among men than among women, and adding sexual orientation into the equation further muddles the findings. However, there is some existing research that has successfully tackled these three constructs together. One study found that higher levels of femininity overall were associated with more dieting behaviors, and higher levels of masculinity were associated significantly with lower levels of dieting and bulimic behaviors (Meyer et al., 2001). In homosexual men, there was a significant negative correlation between masculinity and bulimia scores (Meyer et al., 2001). Researchers also found a significant positive correlation between femininity and oral control/restriction scores (Meyer et al., 2001). In the group of homosexual women, higher levels of femininity were associated with greater dietary restriction

(Meyer et al., 2001). However, this study did not examine differences in any other sexual minorities, nor did they control for depression or anxiety in their analyses.

Rationale and Hypothesis

Overall, research in the areas of sexual orientation, gender role identification, and disordered seems to be mixed, revealing a need for additional research to clarify existing work. In general, past research has also failed to control for depression and anxiety in their analyses, leading us to wonder if ED symptomatology is a result of these issues or sexual orientation and gender role identification. Future research should seek to control for these mood disorders as they have been shown to be significantly associated with disordered eating (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). Such studies also need to define more clearly the constructs of masculinity and femininity, as well as have a uniform way to measure them. Research on these constructs in men is especially needed, as current research is sorely lacking in information on the role of gender role identification in men identifying as a sexual minority. Although the research on disordered eating in heterosexual women is quite extensive, research on sexual minority women is still limited. The current study will test these constructs together in a sample of undergraduate men and women with a broad range of sexual orientations.

Based on past research, it was hypothesized that:

H1: Stronger identification with femininity would be positively associated with disordered eating behaviors.

H2: Both non heterosexual (LGBQ) groups would report more disordered eating than the heterosexual groups.

H3: Stronger identification with masculinity would be negatively associated with disordered eating behaviors.

Method

Participants

The participants in this study were 484 undergraduate men and women at Western Kentucky University; however, some were not included in the final analyses due to large portions of missing data. The sample of participants with complete data included 437 students. The majority of participants were heterosexual (87.6%), white (76.7%), and were college freshman at the time of the study (53.1%) with a mean age of 20.17 ($SD = 4.00$). Most participants were female ($n = 322$), with some male ($n = 111$) and a small number of transgender individuals ($n = 2$) and those who declined to state a gender ($n = 2$). Most participants ($n = 463$) were recruited from the psychology and psychological science department undergraduate research pool and received course credit for their participation. A small number of sexual minority participants were recruited through more targeted means and received a \$5 Amazon gift card for their participation ($n = 21$). There were four groups included in our study: heterosexual men ($n = 89$) and women ($n = 294$), and LGBTQ men ($n = 19$) and women ($n = 28$). Students identifying as transgender ($n = 2$) were excluded from the study due to the small sample size.

Measures

Participants completed a packet of five measures: a demographics questionnaire, the Bem Sex Roles Inventory, the Eating Attitudes Test, the Center for Epidemiological Studies Depression Scale, and the Zung Self-Rating Anxiety Scale.

Bem Sex Roles Inventory

The Bem Sex Roles Inventory (BSRI) is a 60-item measure that assesses an individual's identification with traditional sex roles (Bem, 1974). It is made up of three subscales including 20 items each that assess an individual's identification with masculine personality traits (masculinity), feminine traits (femininity), and undifferentiated traits (neutral). Items are rated on a 7-point Likert scale asking participants to rate how often they feel they identify with a variety of constructs, with responses ranging from 1 (*never*) to 7 (*almost always*). Examples of these constructs are "self-reliant," "eager to soothe hurt feelings," "assertive," and "likable." Scores for each subscale were obtained by calculating the mean of the 20 items for that particular subscale. High scores on each subscale indicate a high level of identification with that gender role. An individual who identified greatly with both masculine and feminine traits would be classified as androgynous. Holt and Ellis (1998) found both the masculine ($\alpha = .92$) and feminine ($\alpha = .95$) subscales to be reliable assessments. The masculinity and femininity scales were also found to be reliable in the current study, at $\alpha = .88$ and $\alpha = .82$ respectively.

Eating Attitudes Test

The Eating Attitudes Test (EAT-26) was developed to assess anorexic and bulimic behaviors in individuals (Garner, Olmstead, Bohr, & Garfinkel, 1982). It is comprised of twenty-six items on a 6 point Likert scale ranging from 1 (*never*) to 6 (*always*). The scale includes items such as "I avoid foods with sugar in them," "I feel that food controls my life," and "I have the impulse to vomit after meals." Items on the EAT-26 are first weighted in their symptomatic direction, then scored by summing the

numbered responses, with a score of 20 or higher being indicative of a present eating disorder. The EAT-26 has been proven to be reliable, with a test-retest reliability of .84 (Allison, 1995) and internal consistency of $\alpha = .90$ (Garner et al., 1982). The current study showed the EAT-26 to be reliable with $\alpha = .84$.

Center for Epidemiological Studies Depression Scale

The Center for Epidemiological Studies Depression Scale (CES-D) was developed to assess depressive symptomatology (Radloff, 1977). The CES-D is made up of 20 self-report items that measure the severity of depressive symptoms within the past week on a 4 point Likert scale ranging from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Sample items include “I was bothered by things that don’t usually bother me,” “I had trouble keeping my mind on what I was doing,” and “My sleep was restless.” Scores are summed, with higher scores on the CES-D indicate greater depressive symptomatology. The CES-D has been found to be a valid and reliable measure of depressive symptoms ($\alpha = .85$) (Schroevers, Sanderman, Sonderen, & Ranchor, 2000). It was also found to be reliable in the current study ($\alpha = .63$). The reliability of this scale is not excellent; however, previous studies have suggested that the CES-D better suited to measure individual differences in depressive symptoms (Santor, Zuroff, Ramsay, Cerventes, & Palacios, 1995). As the current study measured depressive symptoms in individuals who varied greatly across sexual minority, this scale may not have demonstrated its normally strong reliability.

Zung Self-Rating Anxiety Scale

The Zung Self-Rating Anxiety Scale (SAS) was developed to assess anxiety-related symptomatology (Zung, 1971). The SAS is made up of 20 self-report items that

measure the severity of anxiety symptoms within the past week on a 4 point Likert scale ranging from 0 (*a little of the time*) to 3 (*most of the time*). The scale includes items such as “I feel more nervous and anxious than usual,” “My arms and legs shake and tremble,” “I can feel my heart beating fast,” and “I have nightmares.” After some recoding for questions about positive symptoms, responses are summed, with higher scores indicating greater anxiety-related symptomatology. In the original study, the SAS demonstrated good reliability ($\alpha = .71$) (Zung, 1971). The current study also found the SAS to be reliable ($\alpha = .63$). Although this reliability is lower than would be ideal, it is similar to what is typically seen in past studies.

Procedure

Data were collected via a secure online survey link using Qualtrics. Students were given the link when signing up for the study on the psychology study board. During specific recruitment of additional LGBTQ participants, various university organizations were contacted and gave consent to allow their student members to be contacted. These students were sent an email containing the Qualtrics survey link. In addition, the link was posted to the WKU Student Identity Outreach Organization social media profile where any of the group members had the opportunity to participate. During the specific recruitment period, participants received a \$5 gift card to Amazon.com. Upon opening the link, participants were given the opportunity to read through a copy of the informed consent page, which stated that their continued participation implied their consent. Participants were debriefed upon completion of the survey and given the opportunity to save and print the debriefing sheet provided.

Results

Data Management

Of the 484 participants, only 437 had complete data; all of the participants with significant amounts of incomplete data were excluded from the final analysis.

Participants who identified as transgender were also excluded from analysis due to the small sample size ($n = 2$). There were small differences ($n = 399-406$) among analyses due to miniscule bits of missing data among the remaining participants. Due to the small number of participants reporting sexual minority status ($n = 51$), all sexual minorities were grouped together by gender for analysis. Participants were categorized by gender and sexual orientation into one of four groups – heterosexual males ($n = 89$), LGBQ males ($n = 19$), heterosexual females ($n = 294$), and LGBQ females ($n = 28$).

Analysis

A linear regression model was used to examine the relationship between eating disorder behaviors, masculinity, femininity, anxiety, and depression. Masculinity, femininity, depression, and anxiety were run as predictors, and disordered eating was tested as the outcome variable. The same regression model was run five times; once for the full sample, and once for each of the heterosexual and LGBQ groups. Total scores were used in the analysis for all factors, which were used to predict eating disorder behaviors. The overall model for the full sample was significant, $F(4,308) = 12.079$, $p < .001$, and accounted for 13.6% of the variance. However, only anxiety was a significant predictor of eating disorder behaviors ($\beta = .286$, $t(308) = 4.502$, $p < .001$). The overall model was not significant for the sample of heterosexual men, $F(4,54) = .759$, $p = .556$, or the LGBQ men, $F(4,9) = .878$, $p = .514$. However, the model was significant in the

sample of heterosexual women, $F(4,211) = 6.281, p < .001$, and accounted for 10.6% of the variance. Only anxiety was a significant predictor of eating disorder behaviors ($\beta = .263, t(211) = 3.560, p < .001$). The overall model approached significance for the sample of LGBTQ women, $F(4,19) = 2.764, p = .058$.

Group differences between the four genders and sexual orientations regarding disordered eating behaviors, masculinity, femininity, depression, and anxiety were examined using one, large scale ANOVA. Mean differences were examined using Tukey post hoc tests, and these differences can be seen below in Table 1. All variables differed significantly across groups except for disordered eating.

Table 1

ANOVA: Group difference among gender and sexual orientation

	Mean	(SD)	F	p
Disordered Eating			3.216	0.023*
Hetero Males ^a	7.47	6.82		
LGBTQ Males	10.38	8.03		
Hetero Females	10.02	8.41		
LGBTQ Females ^a	13.08	14.52		
Masculinity			3.790	0.011*
Hetero Males ^b	5.04	0.71		
LGBTQ Males ^b	4.40	0.93		
Hetero Females	4.83	0.86		
LGBTQ Females	4.71	0.78		
Femininity			11.301	<0.001***

Hetero Males ^c	4.73	0.63		
LGBQ Males ^d	4.39	0.58		
Hetero Females ^c	5.09	0.69		
LGBQ Females ^d	5.04	0.71		
Depression			5.504	0.001**
Hetero Males ^{e,f}	34.77	8.13		
LGBQ Males ^e	40.47	10.41		
Hetero Females	36.79	6.95		
LGBQ Females ^f	40.43	10.34		
Anxiety			7.099	<0.001***
Hetero Males ^g	35.42	5.12		
LGBQ Males	37.33	7.36		
Hetero Females ^{g,h}	37.72	5.58		
LGBQ Females ^{g,h}	40.85	6.68		

Note: (SD) = standard deviation

^a In post hoc analyses, only heterosexual males and LGBQ females were found to differ.

^b Only heterosexual males and LGBQ males differed from each other.

^c Heterosexual males only differed from the heterosexual females.

^d Only LGBQ males and LGBQ females were found to differ from each other.

^e The heterosexual males differed only from the LGBQ males.

^f The heterosexual males were significantly different from the LGBQ females.

^g The heterosexual males were found to differ from both the heterosexual females and the LGBQ females.

^h The heterosexual females were significantly different for the LGBQ females.

The LGBQ males reported the highest levels of depression and anxiety but the lowest levels of disordered eating. Additionally, LGBQ males showed both the lowest levels of masculinity and femininity, with the heterosexual females showing the highest levels of both. Post-hoc tests revealed that these differences existed mainly between the

LGBQ and heterosexual groups. Heterosexual males had significantly higher disordered eating levels than did both heterosexual and LGBQ females ($p = .028$; $p = .040$), but did not differ significantly from the LGBQ males. Heterosexual males also had significantly higher masculinity scores than did LGBQ males ($p = .022$), and LGBQ males had significantly lower masculinity scores than did heterosexual females ($p = .001$). Mean differences between the LGBQ groups on masculinity approached significance ($p = .058$), such that the males generally scored lower than the females. However, heterosexual males and females did not differ significantly ($p = .581$). Heterosexual females had significantly higher femininity scores than did heterosexual males ($p = .006$). LGBQ males also had significantly lower femininity scores than did the heterosexual females ($p = .002$). LGBQ females and males scored significantly higher for depression than did the heterosexual males ($p = .004$; $p = .025$); however, these groups did not differ significantly from one another ($p = 1.000$). Anxiety scores differed by far the most across groups. Heterosexual males had significantly lower scores than both the heterosexual females ($p = .006$) and the LGBQ females ($p < .001$). Heterosexual females also had significantly higher scores than did LGBQ females ($p = .032$). No other groups showed any significant differences among groups across all measured variables.

Discussion

Past research on the relationship between gender role identification and disordered eating behaviors has been mixed; however, results from the current study help to illuminate some of the past discrepancies. Results of the current study partially supported the hypotheses. The first hypothesis was that individuals who identified as more feminine would report more disordered eating behaviors. This hypothesis was not

supported in that, across the entire sample, femininity did not predict disordered eating behaviors. In the heterosexual female sample, only anxiety predicted disordered eating behaviors. Similar results were seen in the entire sample, and depression was positively associated with disordered eating behavior but did not reach statistical significance.

These results suggest that disordered eating may be most closely related to anxiety, and that the development of disordered eating is not influenced by what are considered to be more traditionally feminine attributes. This finding is inconsistent with previous research, and raises the question about how femininity, and furthermore masculinity, are currently measured. However, this finding is perhaps the most interesting of this study. The relationship between anxiety and disordered eating has been well-studied (Kessler et al., 2012), and suggests that at least some disordered eating behaviors could serve as coping mechanisms to reduce anxiety.

The second hypothesis was partially supported in that some sexual minority groups reported significantly higher levels of disordered eating than did the heterosexual groups. Specifically, LGBTQ females reported higher levels of disordered eating than did heterosexual men. However, no other significant differences were found between groups on disordered eating. This further supports the findings of existing studies, in that those who report identifying as a sexual minority are more likely to engage in unhealthy weight-control behaviors and report more disordered eating (Diemer et al., 2015; Vankim et al., 2015). However, sexual minorities did report more depression than the heterosexual males, but this difference was not seen between the heterosexual female group and the sexual minority groups. LGBTQ females also demonstrated more anxiety than did heterosexual females, who in turn displayed more anxiety than did the

heterosexual males. Overall, results show that sexual minorities do have greater self-reported symptoms of these psychopathologies than do their heterosexual peers.

The third hypothesis was supported in that across all groups, masculinity did not predict disordered eating behaviors. This is consistent with previous research indicating that masculinity was not associated with disordered eating (Pritchard, 2008) However, previous research has also found that masculinity is often associated with greater bingeing and purging behaviors (Hepp et al., 2005). Future research should look at subscales of the EAT-26 associated with bulimia in relation to masculinity scores.

Currently, men are very understudied in the existing research on eating disorders. The current study found no significant predictors of disordered eating in men, nor were there any significant differences between the male groups. Although no predictions were made about disordered eating in the male group, this finding is still interesting. Epidemiological studies have found a growing rate of eating disorders in men; however, no factors included in our study appeared to be related to disordered eating behaviors in men. Anxiety was also found to have no relationship with disordered eating in men, unlike the relationship found in women. This suggests that disordered eating may develop differently and may serve different functions in men and women. Future research should take into account these main differences and seek to identify the main differences in male and female disordered eating behaviors.

Overall, though these findings are inconsistent with current research, they do suggest several interesting ideas. First, across the entire sample, anxiety was the only factor found to significantly predict disordered eating across all groups and controlling for the other measured factors. This seems to suggest that anxiety is more strongly

associated with and related to disordered eating compared to depression and gender role identification than what was predicted in the current study. Disordered eating behaviors in the presence of anxiety could indicate that these behaviors, for some individuals, serve as coping mechanisms by which to reduce the severity of anxious symptoms. It is well established that anxiety is more prevalent among women than men (Kessler et al., 2012); perhaps anxiety serves as the connection between female gender and disordered eating for some individuals. Conversely, the onset of anxiety could come as a result of disordered eating. Future studies should employ a longitudinal design to examine the potential pathways between disordered eating and anxiety. Second, femininity was not found to significantly predict disordered eating behaviors in any group. This finding alone challenges the traditionally held view that eating disorders are a more feminine problem, and suggests that other factors, such as anxiety and depression, may have a more prominent role than femininity in the development of disordered eating. Although certain feminine traits may have influence on disordered eating behaviors, the current study clearly shows that the main driving forces of disordered eating have yet to be discovered.

Limitations

The present study had several limitations. First, the sample of sexual minorities was relatively small, and thus, may not be representative of the LGBTQ population. In addition, due to the small sample size, we were unable to run analyses on each sexual minority, such as bisexual men and women, individually and by gender. Separating the groups even further may have yielded different, and more accurate, results and more clearly demonstrated how these variables are related in these populations. Second, our

sample consisted of only university students. Although college students do have a higher prevalence of disordered eating, depression, and anxiety than the general public, results cannot be generalized to other subsets of the population. Additionally, this study collected all data through self-report data, which allows for participant bias and over- or under-reporting of symptomatology. To remove these biases, future studies should seek to replicate these findings using more objective measures to collect data. Furthermore, this study did not look at a clinical sample. Although it is important to investigate how disordered eating, depression, and anxiety present in the non-clinical population, a clinical sample would provide additional data from a population showing more severe symptoms of these pathologies.

Conclusion

In conclusion, findings from this study show that gender role constructs may not be as related to disordered eating as was once thought. Disordered eating behaviors were most associated with anxiety throughout the study, a relationship that should be further investigated in future studies. Although further research may discover a relationship between gender role constructs and disordered eating, future research should seek to first understand the mechanisms of disordered eating behaviors in sexual minority groups, as these are still very understudied groups. Clinicians may want to consider the functions that disordered eating behaviors may serve to decrease unwanted anxious thoughts and symptoms, and researchers should seek to further discover other functions that these behaviors may serve.

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