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# Testing the Tripartite Influence Model Among Heterosexual, Bisexual, and Lesbian Women

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## Testing the Tripartite Influence Model Among Heterosexual, Bisexual, and Lesbian Women

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## Abstract

This cross-sectional study explored similarities and differences between heterosexual, bisexual, and lesbian women in levels of, and relationships between, the following constructs using a Tripartite Influence Model framework: family, peer, and media appearance pressures, thin- and muscular-ideal internalization, and eating disorder (ED) pathology. Self-identified heterosexual (n = 1,528), bisexual (n = 89), and lesbian (n = 278) undergraduate women completed the Sociocultural Attitudes Towards Appearance Questionnaire-4 and the Eating Disorder Examination-Questionnaire. Sexual orientation differences in appearance pressures, appearance-ideal internalization, and ED pathology were examined via analysis of variance tests. Relationships between these variables were examined with multi-group path analyses, controlling for age, race/ethnicity, and body mass index. Compared with lesbian women, heterosexual and bisexual women reported higher levels of peer appearance pressures. Paths from peer appearance

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pressures and thin-ideal internalization to shape/weight overvaluation and body dissatisfaction were strongest for bisexual women. Overall, results indicate notable similarities between heterosexual, bisexual, and lesbian women. However, preliminary evidence for potential differences highlights the importance of examining variation in ED risk between sexual minority subgroups.

#### Keywords

disordered eating; sexual orientation; women; tripartite influence model; appearance-related pressures

## 1. Introduction

Sexual minorities (i.e., individuals who do not identify as heterosexual or who report attraction to or sexual behavior with individuals of the same or multiple genders) are at elevated risk for a wide range of mental health problems, including anxiety, depression, and suicidality (Plöderl & Tremblay, 2015). Although evidence regarding the relationship between sexual orientation and eating disorder (ED) pathology among women has been mixed (Calzo, Blashill, Brown, & Argenal, 2017), findings from a recent systematic review indicate that sexual minority women report higher rates of EDs, binge eating, and purging, but lower levels of established risk factors for EDs (e.g., body dissatisfaction) compared to their heterosexual peers (Meneguzzo et al., 2018). Thus, etiological processes contributing to ED risk might differ between sexual minority and heterosexual women.

Sociocultural theories offer a framework for understanding how inter- and intra-personal experiences could differentially contribute to ED pathology among sexual minority women. The Tripartite Influence Model posits that appearance pressures from family, peers, and media lead to disordered eating via thin-ideal internalization (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). This model has been supported empirically among samples of primarily heterosexual women (e.g., Girard, Rodgers, & Chabrol, 2018; Lovering, Rodgers, George, & Franko, 2018; Rodgers, Chabrol, & Paxton, 2011), but the extent to which the model holds for sexual minority women is unclear.

Some researchers have speculated that many lesbian women reject the mainstream thin ideal, making them less vulnerable to harmful effects of thinness pressures than heterosexual women (Brown, 1987). Consistent with this view, sexual minority women have reported comparable levels of family, peer, and media thinness pressures but lower thin-ideal internalization than heterosexual women (Huxley, Halliwell, & Clarke, 2015; Yean et al., 2013). Although evidence indicates substantial variability in levels of muscular-ideal internalization among women (Schaefer et al., 2015), limited work has examined this construct among sexual minority women.

To our knowledge, only one study has tested the Tripartite Influence Model among sexual minority and heterosexual women (Huxley et al., 2015). Findings suggested thin-ideal internalization is a stronger predictor of restrained eating for sexual minority women than heterosexual women; however, all sexual minority women (i.e., those identifying as bisexual

or lesbian) were combined into one group. Because sexual minority subgroups represent unique populations, the Institute of Medicine (2011) report on sexual minority health recommended examining sexual minority subgroups separately. Emphasizing the importance of this recommendation, research has consistently found that bisexual individuals experience worse mental health outcomes than their gay, lesbian, or heterosexual peers (Taylor, 2017), and women attracted to both sexes have been found to exhibit greater ED pathology than those only attracted to one sex (Shearer et al., 2015). A possible explanation for these findings is that discrimination toward bisexual individuals comes not only from heterosexual communities, but also from gay/lesbian communities (Taylor, 2017). Therefore, distinguishing between sexual minority subgroups when examining associations between sociocultural factors and ED risk is an important area of study.

The current study builds upon previous work by using cross-sectional data to examine similarities and differences between heterosexual, bisexual, and lesbian women in (a) levels of appearance pressures, thin and muscular-ideal internalization, and ED pathology and (b) a variation of the Tripartite Influence Model in which family, peer, and media appearance pressures lead to thin- and muscular-ideal internalization, which in turn lead to ED pathology. Both thin- and muscular-ideal internalization were assessed, as both thinness and muscularity have been acknowledged as integral to societal appearance ideals for women and are both detrimental to well-being when internalized (Betz & Ramsey, 2017; Robinson et al., 2017; Uhlmann, Donovan, Zimmer-Gembeck, Bell, & Ramme, 2018).

#### 2. Method

#### 2.1. Participants

Participants were 1,895 undergraduate women who identified as heterosexual (n = 1,528), bisexual (n = 89), or lesbian (n = 278). Participants were recruited from undergraduate research pools at five universities across the United States (University of South Florida, Michigan State University, University at Albany - State University of New York, University of California - Los Angeles, and University of North Carolina at Chapel Hill) for a study described as an online study examining appearance attitudes among college students. Participants received extra course credit upon completion. Study procedures were approved by the university Institutional Review Boards.

#### 2.2. Measures

#### 2.2.1. Appearance pressures and appearance-ideal internalization.—

Appearance pressures and appearance-ideal internalization were measured with the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4; Schaefer et al., 2015). This 22-item measure contains five subscales assessing perceived appearance pressures from family, peers, and media, as well as internalization of the thin ideal and muscular ideal. Items are rated on a 5-point Likert-type scale ranging from 1 (definitely disagree) to 5 (definitely agree), with higher scores indicating higher levels of perceived pressures and internalization. Cronbach's alpha for each subscale exceeded .80 in all sexual orientation groups.

**2.2.2. Eating disorder pathology.**—ED pathology was measured with a modified brief version of the Eating Disorder Examination-Questionnaire (EDE-Q; Grilo, Reas, Hopwood, & Crosby, 2015). This 7-item empirically derived measure contains three subscales assessing dietary restraint, shape/weight overvaluation, and body dissatisfaction. Items are rated on a 7-point scale ranging from 0 (no days/not at all) to 6 (everyday/ markedly), with higher scores indicating greater ED pathology. Cronbach's alpha for each subscale exceeded .80 in all sexual orientation groups.

**2.2.3. Sexual orientation.**—Sexual orientation was assessed as self-reported sexual identity by asking participants which of the following terms best fit them: heterosexual, bisexual, or homosexual.

**2.2.4.** Covariates.—Participants self-reported their age and race/ethnicity. Self-reported height and weight were used to calculate body mass index (BMI;  $kg/m^2$ ).

#### 2.3. Data Analyses

Rates of missing data were low (4% for ED pathology, < 1% for all other variables) and handled using listwise deletion. Skewness for all variables was less than 2.1, with most below 1.0. Model fit was identical for path models using maximum likelihood estimation and using estimators with Satorra-Bentler corrections, suggesting the data were multivariate normal (Byrne, 2012). Therefore, no variables were transformed. Univariate outliers (mean  $\pm 3$  standard deviations) were identified for <3% of age and BMI values, and multivariate outliers (Mahalanobis distance exceeding critical value,  $\chi^2(10) = 29.59, p < .001$ ) were identified for < 2% of cases. Outliers were retained in primary analyses, as outlier values were plausible and comprised a low proportion of the total sample, but sensitivity analyses excluding outliers were also conducted.

Using SPSS version 25.0, one-way analysis of variance (ANOVA) tests with Bonferroni adjustments were used to examine differences in age, BMI, appearance pressures, internalization of appearance ideals, and ED pathology by sexual orientation. Effect size was assessed via partial eta-squared ( $\eta_{\rho}^2$ ) across the three sexual orientation groups; an effect of .01 is considered small, .06 is medium, and .14 is large (Cohen, 1988). Significant ANOVAs were followed by pairwise-comparisons, which were performed using Tukey's HSD when the assumption of equal variances was met and Dunnett's C test when it was not. A chi-square test was used to examine differences in race/ethnicity by sexual orientation.

Using Mplus version 8 with maximum likelihood estimation, separate path analyses were conducted for ED pathology outcomes of dietary restraint, shape/weight overvaluation, and body dissatisfaction. Single-group path analyses were used to assess model fit for the Tripartite Influence Model within the full sample, adjusting for age, race/ethnicity, and BMI. Modification indices greater than 5.0 were examined to identify whether including any additional pathways would improve model fit (Kelloway, 2015). Next, multi-group path analyses were used to test for differences in the models by sexual orientation. In the first step, all structural paths were free to vary for each sexual orientation group (fully variant model). Then, all structural paths were held constant (invariant model). A chi-square difference test between the invariant and fully variant models was used to determine whether

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at least one pathway differed by sexual orientation. Chi-square difference tests were then used to compare the invariant model with models that relaxed one pathway at a time for all sexual orientation groups. For pathways that differed by sexual orientation, chi-square difference tests were used to compare invariant models with models that relaxed those pathways one at a time for heterosexual women versus bisexual women, bisexual women versus lesbian women, and heterosexual versus lesbian women. Heterosexual and lesbian groups met the suggested minimum sample size of 200 for path analysis (Kelloway, 2015), but the bisexual group did not. Thus, path analysis results pertaining to bisexual women should be interpreted as preliminary.

## 3. Results

After Bonferroni adjustments, ANOVA tests indicated differences by sexual orientation for age and peer appearance pressures (see Table 1). Compared with lesbian women, both heterosexual and bisexual women were older (medium effect size) and reported higher levels of peer appearance pressures (small-to-medium effect size).

In single-group path analyses, modification indices suggested including a bivariate association between thin-ideal internalization and muscular-ideal internalization (modification index = 165.92). This modification was incorporated in multi-group path analyses, in which invariant models demonstrated good fit (dietary restraint and body dissatisfaction models: CFI = .99, SRMR = .04, RMSEA = .03; shape/weight overvaluation model: CFI = .98, SRMR = .04, RMSEA = .03), and fully variant models were just-identified. Fully variant models demonstrated better fit than invariant models for dietary restraint,  $\chi^2(54, N = 1,856) = 76.40$ , p = .02, shape/weight overvaluation,  $\chi^2(54, N = 1,856) = 77.06$ , p = .02, indicating at least one pathway differed by sexual orientation for each outcome. Figure 1 presents standardized path estimates for each sexual orientation group from the fully variant models.

Six paths differed by sexual orientation. The path from peer appearance pressures to thinideal internalization differed by sexual orientation,  $\chi^2(2, N = 1,856) = 11.68, p = .003$ ; this path was stronger for heterosexual women than lesbian women,  $\chi^2(1, N = 1,769) = 11.35, p < .001$ . Paths from peer appearance pressures to dietary restraint,  $\chi^2(2, N = 1,856) = 6.50, p = .04$ , shape/weight overvaluation,  $\chi^2(2, N = 1,856) = 7.23, p = .03$ , and body dissatisfaction,  $\chi^2(2, N = 1,856) = 7.68, p = .02$ , differed by sexual orientation. For dietary restraint, this path was stronger for lesbian women than heterosexual women,  $\chi^2(1, N = 1,769) = 5.67, p = .02$ . For shape/weight overvaluation and body dissatisfaction, these paths were stronger for bisexual women compared to both heterosexual women,  $\chi^2_{\text{Shape/weight}}(1, N = 1,586) = 4.67, p = .03, \chi^2_{\text{body diss}}.(1, N = 1,586) = 6.12, p = .01, and lesbian women,$  $<math>\chi^2_{\text{shape/weight}}(1, N = 357) = 7.06, p = .008, \chi^2_{\text{body diss}}.(1, N = 357) = 6.62, p = .01$ . Finally, paths from thin-ideal internalization to shape/weight overvaluation,  $\chi^2(2, N = 1,856) =$ 

6.33, p = .04, and body dissatisfaction,  $\chi^2(2, N = 1,856) = 8.29, p = .02$ , differed by sexual orientation. Both of these paths were stronger for bisexual women than heterosexual women,  $\chi^2_{\text{shape/weight}}(1, N = 1,586) = 5.38, p = .02$ ,  $\chi^2_{\text{body diss}}(1, N = 1,586) = 7.46, p = .006$ , and

the path from thin-ideal internalization to body dissatisfaction was also stronger for bisexual women than lesbian women,  $\chi^2(1, N=357) = 6.85, p = .009$ .

In sensitivity analyses excluding outliers, the fully variant model did not demonstrate better fit than the invariant model for dietary restraint, suggesting no pathways differed by sexual orientation for this outcome. In shape/weight overvaluation and body dissatisfaction models excluding outliers, for which fully variant models did demonstrate better fit than invariant models, there were only two differences compared to primary analyses. The path from family appearance pressures to thin-ideal internalization differed by sexual orientation,  $\chi^2(2, N = 1,775) = 7.49, p = .02$ ; this path was stronger for heterosexual women than lesbian women,  $\chi^2(1, N = 1,695) = 7.24, p = .007$ . Additionally, the path from thin-ideal internalization to shape/weight overvaluation was stronger for bisexual women than lesbian women,  $\chi^2(1, N = 345) = 4.44, p = .04$ .

## 4. Discussion

Results of this cross-sectional study supported the Tripartite Influence Model among bisexual and lesbian women and indicated both shared and divergent processes across these groups. In contrast to some previous research (Meneguzzo et al., 2018), lesbian, bisexual, and heterosexual women in the current study reported similar levels of dietary restraint, shape/weight overvaluation, and body dissatisfaction. Further, all groups endorsed comparable levels of family and media appearance pressures and thin- and muscular-ideal internalization. This contrasts with speculation that lesbian women are less likely to internalize traditional feminine appearance ideals (Brown, 1987) and previous work suggesting lower rates of established risk factors among sexual minority women (Meneguzzo et al., 2018). In addition, family appearance pressures, media appearance pressures, and muscular-ideal internalization were similarly associated with thin-ideal internalization and ED pathology across all groups.

Lesbian women did report lower levels of peer appearance pressures compared with bisexual and heterosexual women. Moreover, positive associations between peer appearance pressures and thin-ideal internalization were weakest among lesbian women, and negative associations between peer appearance pressures and dietary restraint were strongest among lesbian women. However, positive associations of peer appearance pressures and thin-ideal internalization with shape/weight overvaluation and body dissatisfaction were strongest among bisexual women. Thus, lesbian women appeared to be protected from some of the harms of peer appearance pressures, while bisexual women did not. Lesbian women tend to be more involved in sexual minority communities than bisexual women (Taylor, 2017), which is associated with lower levels of established risk factors for EDs (Hanley & McLaren, 2015). It is therefore possible that lesbian women may receive more protective benefits of such community involvement (e.g., reduced peer thinness pressures). Additionally, lesbian women may face lower thinness pressures from romantic partners (Legenbauer et al., 2009), and some participants likely had potential romantic partners in mind when responding to items assessing peer pressures. Future work could investigate this possibility by utilizing the SATAQ-4-Re vised (Schaefer, Harriger, Heinberg, Soderberg, &

Thompson, 2017), which contains separate subscales assessing pressures from peers and significant others.

Importantly, sexual orientation is a multifaceted construct, which likely interacts with sociocultural factors to contribute to ED pathology among sexual minority women. Assessment of sexual orientation in the current study employed a single self-report item assessing sexual identity; future work should utilize alternative measurement approaches to better capture the various components of sexual orientation (i.e., attraction, behavior, identity). In addition, as prior work indicates that butch gender expression (i.e., more masculine versus feminine gender expression; Rosario, Schrimshaw, Hunter, & Levy-Warren, 2009) is associated with lower thin-ideal internalization (Henrichs-Beck & Szymanski, 2017), gender expression may moderate links among Tripartite Influence Model constructs. Moving forward, more research is needed to illuminate the interplay between sexual orientation, gender identity, gender expression, general sociocultural factors such as those examined in this study, and sexual minority-specific factors such as discrimination and shame (Mason, Lewis, & Heron, 2018; Watson, Velez, Brownfield, & Flores, 2016) in predicting ED pathology.

### 4.1. Conclusions

This cross-sectional study indicates notable similarities in levels of and associations between sociocultural ED risk factors and ED pathology among heterosexual, bisexual, and lesbian women. However, although preliminary, our findings suggest peer appearance pressures and thin-ideal internalization may be particularly harmful for bisexual women. Our findings suggest clinicians should be aware that sexual minority women exhibit comparable levels of sociocultural ED risk factors to heterosexual women and should therefore take steps to identify and address concerns linked to appearance pressures and appearance-ideal internalization among sexual minority women.

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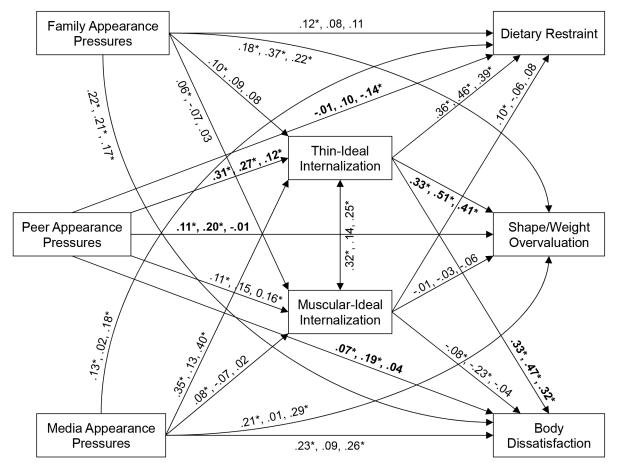
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## Highlights

- The Tripartite Influence Model is supported among bisexual and lesbian women.
- Bisexual women may experience more peer appearance pressures than lesbian women.
- Thin-ideal internalization may be particularly harmful for bisexual women.



#### Figure 1.

Multi-group path model estimates adjusted for age, race/ethnicity, and body mass index. Standardized path coefficients are listed in the following order: heterosexual, bisexual, lesbian. Bold indicates path differs by sexual orientation.

\*p < .05.

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	Heterosexual $(n = 1,528)$	Bisexual $(n = 89)$ Lesbian $(n=278)$	Lesbian $(n=278)$			
		M(SD)		R(db)	Partial $\eta^2$	Partial $\eta^2$ Pairwise Comparisons
Family appearance pressures	2.49 (1.14)	2.79 (1.26)	2.45 (1.21)	R(2, 1, 879) = 3.13	00.	I
Peer appearance pressures	2.97 (1.12)	3.11 (1.10)	2.34 (1.06)	H(2, 1, 890) = 38.89*	.04	B, H>L
Media appearance pressures	3.77 (1.14)	3.98 (1.12)	3.66 (1.29)	R(2, 1, 890) = 2.58	00.	I
Thin-ideal internalization	3.42 (0.92)	3.42 (0.90)	3.44 (0.88)	R(2, 1, 892) = 0.07	00 <sup>.</sup>	I
Muscular-ideal internalization	2.73 (0.96)	2.51 (0.95)	2.63 (0.97)	R(2, 1, 892) = 3.20	00.	I
Dietary restraint	2.17 (1.96)	2.39 (1.97)	2.08 (1.97)	R(2, 1, 877) = 0.79	00 <sup>.</sup>	I
Shape/weight overvaluation	2.44 (2.00)	2.79 (2.05)	2.43 (2.03)	R(2, 1, 885) = 1.26	00 <sup>.</sup>	I
Body dissatisfaction	2.77 (1.92)	3.30 (2.18)	2.71 (1.90)	R(2, 1, 885) = 3.44	00.	I
Body mass index	22.83 (4.34)	24.33 (5.93)	22.93 (4.32)	R(2, 1, 881) = 4.79	.01	I
Age	19.74 (2.00)	19.91 (2.05)	18.39 (1.22)	H2, 1, 876) = 58.99 *	.06	B, H>L
	ц	Frequency (%)		$\chi^2$ (df, N)		d
Race/ethnicity						
Non-Hispanic white	969 (63.5)	50 (56.2)	161 (58.1)	$\chi^2$ (6, $N = 1,893$ ) = 13.27	= 13.27	.04
Non-Hispanic black	171 (11.2)	13 (14.6)	36 (13.0)			
Hispanic/Latina	164 (10.7)	16 (18.0)	25 (9.0)			
Other	223 (14.6)	10 (11.2)	55 (19.9)			

Body Image. Author manuscript; available in PMC 2020 September 01.

*Note.* M = mean; SD = standard deviation; df = degrees of freedom; B = bisexual; H = heterosexual; L = lesbian. Effect size was assessed via partial  $\eta^2$  across the three sexual orientation groups. Pairwise comparisons were performed using Tukey's HSD test when the assumption of equal variances was met and Dunnett's C test when the assumption of equal variances was violated. All pairwise comparisons listed were significant at least at p < .05.

\* p<.005