

**Contextualizing Lesbian Body Image: Comparisons with Heterosexual Women and
Lesbian-Specific Factors**

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THESIS

Submitted as partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Psychology
in the Graduate College of the
University of Illinois at Chicago, 2013

Chicago, Illinois

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This dissertation is dedicated to my parents, Mary and Kerby Alvy, and my sister, Britt Alvy, without whom I would not be where I am today or who I am today. It is also dedicated to my close friends, Steve Du Bois, Jamie Ott, Chris Hook, and Parijat Deshpande, who have supported me for years and helped shape my worldview in many important ways.

ACKNOWLEDGEMENTS

This project would not have been possible if it were not for the dedicated work of the late Deborah Aaron, lead Principal Investigator (PI) on the ESTHER Project, who passed away prior to seeing the Project come to fruition. I thank her for her central role in the ESTHER Project and overall contributions to lesbian health research. I also would like to thank Nina Markovic and Michelle Danielson, co-PIs on the ESTHER Project, who graciously allowed me to use the ESTHER dataset, and Helen Smith, who guided me through the ins and outs of the dataset and project. I owe a huge debt of gratitude to Tonda Hughes for her facilitation of my use of this dataset and her help throughout the process as a pivotal member of my dissertation committee. I would like to thank my advisor, David McKirnan, for pushing me to produce the best research product possible and serving as a first-rate theoretical and empirical sounding board. Thank you to Mary Ellen Mackesy-Amiti, Jon Kassel, and Stephanie Riger, for serving on my dissertation committee and lending their expertise to strength this manuscript and project. Finally, thank you to the women of Pittsburgh who gave their time to participate in this important study of women's health.

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LIST OF ABBREVIATIONS

ANCOVA	Analysis of Covariance
BASS	Body Areas Satisfaction Scale
BES-1	Body Esteem Scale-1
BMI	Body Mass Index
BSD	Body Size Drawings
BSQ	Body Shape Questionnaire
CI	Confidence Interval
CDC	Centers for Disease Control and Prevention
CFI	Comparative Fit Index
CSA	Childhood Sexual Abuse
DXA	Dual-energy X-ray Absorptiometry
EDI-BD	Eating Disorder Inventory, Body Dissatisfaction Subscale
EDI-2-BD	Eating Disorder Inventory-2, Body Dissatisfaction Subscale
EFA	Exploratory Factor Analysis
EOD	Experiences of Discrimination Scale
ESTHER	Epidemiological Study of Health Risk in Women
IHP	Internalized Homophobia Scale
LGB	Lesbian, Gay, and Bisexual
LGBT	Lesbian, Gay, Bisexual, and Transgender
LIHS	Lesbian Internalized Homophobia Scale
<i>M</i>	Mean
MBSRQ	Multidimensional Body-Self Relations Questionnaire

LIST OF ABBREVIATIONS (continued)

MBSRQ-AE	Multidimensional Body-Self Relations Questionnaire, Appearance Evaluation Subscale
ML	Maximum Likelihood
MSEM	Moderated Structural Equation Modeling
NHSII	Nurses' Health Study II
OR	Odds Ratio
PCA	Principal Component Analysis
PI	Principal Investigator
RMSEA	Root Mean Square Error of Approximation
<i>SD</i>	Standard Deviation
<i>SE</i>	Standard Error
SEM	Structural Equation Modeling
SRMR	Standardized Root Mean Square Residual

SUMMARY

Body image is an important component of women's physical and mental health. Body dissatisfaction, a negative subjective evaluation of one's body, has long been associated with disordered eating, obesity, depression, and low self-esteem. Body dissatisfaction is prevalent among women generally but may be less so among lesbian women as the result of a lower emphasis on physical appearance within lesbian culture, a greater valuing of larger body types among lesbian women, and lesbian women feeling less subject to male-defined standards. If so, understanding lesbian and heterosexual differences and lesbian-specific influences on body dissatisfaction could have important implications for body image research and women's health efforts.

Many studies that have explored lesbian and heterosexual differences in body dissatisfaction have suffered from methodological limitations and have not been theoretically based. Additionally, key variables known to influence other aspects of lesbian health, such as minority stress and sexual identity development, have not been well explored. I addressed both empirical and theoretical limitations of past research within a community sample of 879 lesbian and heterosexual women. I contrasted the two sexual identity groups on several widely used body dissatisfaction measures, controlling for clinician-collected data on BMI and key demographic covariates. As predicted, lesbian women reported significantly less body dissatisfaction than did heterosexual women on three of four measures. A structural equation model of proposed risk and protective factors for body dissatisfaction among lesbian women did not reveal significant relationships between these predictors and body dissatisfaction. This study represents a first attempt at modeling theoretically-derived, culturally-specific influences on lesbian women's body image. Given demonstrated differences in lesbian and heterosexual

SUMMARY (continued)

women's body dissatisfaction it is important to continue to explore body image among this sexual minority group. I discuss implications for future research.

I. INTRODUCTION

A. Background

Body image is an important component of women's physical and mental health. Researchers have found that a woman's attitude toward her body is strongly tied to her self-esteem (Franzoi & Shields, 1984; Grossbard, Lee, Neighbors, & Larimer, 2009; Vohs et al., 2001) and contributes to her perceived quality of life (Cash & Fleming, 2002). Additionally, poor body image is a major risk factor for disordered eating and obesity (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Neumark-Sztainer et al., 2006; Stice & Shaw, 2002), and has been linked to depression (Grabe, Hyde, & Lindberg, 2007).

Although a number of variables comprise negative body image, body dissatisfaction is by far the most studied. Body dissatisfaction, a negative subjective evaluation of one's physical body (Stice & Shaw, 2002), is itself a multi-faceted construct. Although it is generally conceived of as an attitudinal measure, many researchers assume affective and/or behavioral components. For the purposes of this paper, I treat body dissatisfaction as primarily an attitude in the classic social psychology sense, i.e., an evaluation of a psychological object indicated with dimensions such as good-bad or like-dislike (Ajzen, 2001). The construct is characterized by dissatisfaction with overall appearance, or body characteristics such as weight, hips, thighs, and stomach areas, and is captured by agreement with statements such as "I am dissatisfied with the shape of my body". However, related constructs such as body disparagement and preoccupation with weight are often treated as components of, or synonymous with, body dissatisfaction.

Estimates of the extent of body dissatisfaction among women vary but are consistently high; some studies report that up to 80 percent of young female respondents express current dissatisfaction with their bodies (Lawler & Nixon, 2011). Research conducted with women

across the lifespan suggests that the percentage of women expressing significant body dissatisfaction is stable until late in life (Tiggemann, 2004) and is consistently higher than the percentage of men expressing body dissatisfaction (Demarest & Allen, 2000; Feingold & Mazzella, 1998). The prevalence of body dissatisfaction has also increased substantially in the latter half of the 20th century (Garner, 1997), and the gap between men and women's body dissatisfaction appears to have widened during this time (Feingold & Mazzella, 1998).

The apparent pervasiveness of body dissatisfaction among women in the United States has led researchers to label poor body image a “normative discontent” (Cash & Henry, 1995; Rodin, Silberstein, & Striegel-Moore, 1985). However, there is growing recognition that the extent of body dissatisfaction differs across groups. For example, African American women consistently report less body dissatisfaction than do their European American counterparts (Grabe & Hyde, 2006; Kronenfeld, Reba-Harrelson, Von Holle, Reyes, & Bulik, 2010; Roberts, Feingold, Cash, & Johnson, 2006). Preliminary evidence suggests that Latina women also demonstrate less dissatisfaction with their bodies than do Caucasian women (Millstein et al., 2008).

Lesbian women may also experience less body dissatisfaction than do heterosexual women. Lesbian women appear to have distinctive standards of beauty and attractiveness, valuing a larger body size than heterosexual women do (Swami & Tovée, 2006). Within lesbian culture there are subgroups that may especially value larger body sizes, such as so-called “butch” women, who are typically more masculine and physically larger (Ludwig & Brownell, 1999). Lesbian women may also reject thinness norms as part of a larger political rejection of heterosexual values (L. S. Brown, 1987). By less strongly subscribing to feminine gender roles,

lesbian women may be less likely to evaluate themselves against unrealistic standards of female attractiveness (Lakkis, Ricciardelli, & Williams, 1999). Also, because lesbian women are not trying to attract male romantic partners, they may feel less bound by male-defined standards (Siever, 1994).

The prospect that lesbian women experience more positive outcomes on an important mental health variable stands in contrast to a growing body of research suggesting that, as sexual minorities, lesbian women exhibit worse mental health outcomes (Cochran, Mays, & Sullivan, 2003; Meyer, 2003). Sexual minority women have significantly higher rates of substance use and abuse than do heterosexual women (Cochran, Ackerman, Mays, & Ross, 2004; Hughes, 2005), report higher rates of depression and anxiety in general (McNair, Szalacha, & Hughes, 2011), and are more likely to report generalized anxiety disorder, in particular (Cochran, et al., 2003). Many lesbian women also come to share society's negative attitudes toward homosexuality (Szymanski & Chung, 2003a). This "internalized heterosexism" is related to several negative psychological outcomes, including low self-esteem, depression, and general psychological distress (Szymanski & Chung, 2003b).

The minority status of lesbian women may predispose them toward psychological difficulties: "minority stress" among lesbian, gay, and bisexual (LGB) individuals is related to multiple poor mental health outcomes (Meyer, 2003). However, there may be a paradoxical effect among lesbian women, such that their specific minority group membership buffers them against body dissatisfaction experienced by women generally. If true, this buffering effect would have important implications for lesbian health, and may enhance our understanding of body image more broadly.

B. Body Dissatisfaction Findings: Lesbian versus Heterosexual Women

Most of the empirical literature on lesbian body image focuses on differences between lesbian women and their heterosexual counterparts. Although the literature generally suggests that lesbian women experience less dissatisfaction than do heterosexual women, findings have been inconsistent (Morrison, Morrison, & Sager, 2004). For example, Siever (1994) found that lesbian women were more satisfied with their bodies than were heterosexual women on the Body Dissatisfaction subscale of the Eating Disorder Inventory (EDI-BD), which measures women's attitudes toward their bodies with items such as "I think that my thighs are too large." They also trended toward greater satisfaction on three other measures: the Body Esteem Scale-1 (BES-1), which has respondents rate positive/negative feelings toward body components, such as "figure or physique" and "hips"; the Body Shape Questionnaire (BSQ), which captures feelings about one's appearance with questions such as "Have you worried about your flesh not being firm enough?"; and the actual-ideal discrepancy score of the Body Size Drawings (BSD), which assesses discrepancies between figure drawings selected as one's actual and ideal size. In this study, lesbian women were also the least concerned with physical attractiveness compared to heterosexual men and women, and gay men. In contrast, Beren, Hayden, Wilfley, and Grilo (1996) found that lesbian and heterosexual women did not differ on any of the body dissatisfaction measures they administered to participants, including the EDI-BD, BSQ, and BSD.

In a meta-analysis of studies spanning the previous 20 years, Morrison, Morrison, and Sager (2004) identified 16 studies that directly compared lesbian and heterosexual women on one or more body dissatisfaction variable. Their analyses encompassed 25 effect size measures, based on data from 1391 heterosexual and 1448 lesbian women. They did not find an overall difference in body dissatisfaction between lesbian and heterosexual women. However, when they

examined only those studies in which the average body mass index (BMI) of lesbian and heterosexual women was similar, lesbian participants demonstrated significantly less body dissatisfaction.

In most of the studies Morrison and colleagues (2004) reviewed, lesbian participants had a significantly higher BMI than did heterosexual women, suggesting that BMI may confound the effect of sexual orientation on women's body dissatisfaction. For instance, in Beren and colleagues' (1996) study, which found few differences between lesbian and heterosexual women in overall body dissatisfaction, lesbian respondents had a substantially higher average BMI. Although the researchers statistically controlled for this variable, the average BMIs of the groups were so different (27 versus 21) that the use of statistical controls was questionable. Given that body dissatisfaction is related to elevated body mass (Stice & Shaw, 2002), BMI differences between lesbian and heterosexual samples make findings of group differences in body dissatisfaction difficult to interpret.

Actual population differences in BMI may present a significant confound in comparisons of lesbian and heterosexual women's body dissatisfaction (Aaron et al., 2001; Boehmer, Bowen, & Bauer, 2007; Case et al., 2004; Valanis et al., 2000). Analyzing data from the 2002 National Survey of Family Growth, Boehmer, Bowen, and Bauer (2007) found that lesbian women had over twice the odds of being overweight (OR: 2.69, 95% CI: 1.40, 5.18) and obese (OR: 2.47, 95% CI: 1.19, 5.09) as heterosexual women. Similarly, comparing a well-matched sample of registered nurses from the Nurses' Health Study II (NHSII), Case and colleagues (2004) found that lesbian women had a 20% greater prevalence of overweight and 50% greater prevalence of obesity than did heterosexual women.

Sampling bias may serve as another explanation for BMI discrepancies between lesbian and heterosexual samples. Several studies in Morrison and colleagues' (2004) meta-analysis used university-based recruiting for their heterosexual female sample, but recruited lesbian women from the community. As a result, the samples differed on important demographic variables that are themselves related to body mass. For example, in a study by Brand, Rothblum, and Solomon (1992), heterosexual participants were from an introductory psychology course with a mean age of 18.9 years, whereas lesbian participants were from a regional music festival and had a mean age of 33.3 years. Unsurprisingly, the lesbian participants were significantly heavier than were heterosexual participants, which may have precluded investigators from finding body dissatisfaction differences.

Although overall population differences in BMI make it challenging for researchers to recruit lesbian and heterosexual samples that do not differ in BMI, recruiting well-matched samples can minimize these differences. Owens, Hughes, and Owens-Nicholson (2003) recruited lesbian women through community sampling methods and obtained a heterosexual comparison group by asking lesbian participants to recruit a similar female friend. This sampling approach resulted in a lesbian sample with an average BMI of 29.6 and a heterosexual female sample with an average BMI of 28.2. Although these BMIs were significantly different, they were much closer in value than those from other studies, and both means were in the overweight range (i.e., greater than or equal to 25; CDC, 2011). Comparing these more carefully matched samples, the researchers found that lesbian participants reported more positive body image than did heterosexual participants.

Another methodological factor that may explain equivocal findings involves outcome measurement. Several studies report conflicting results within the same sample depending on

how body dissatisfaction is measured. Although Brand and colleagues (1992) found heterosexual and lesbian women to be equally dissatisfied with their weights, heterosexual women reported lower ideal weights and were more preoccupied with their weight. Similarly, Bergeron and Senn (1998) found heterosexual women to have a thinner body ideal, report greater concern over the size of their thighs and buttocks, and feel less strong and fit than did lesbian respondents; however, both groups spent similar amounts of time thinking about their weight and shape, and reported similar degrees of body disparagement. These different measures capture different components of body image, which may have distinct relationships with sexual orientation.

Body dissatisfaction is a complex construct. Some researchers have suggested that a distinction be made between one's *evaluation* of his/her body and the *importance* of appearance for that individual (Cash, 2002; Cash, Melnyk, & Hrabosky, 2004). Investigating body image among women throughout the lifespan, Tiggemann (2004) suggested that although body dissatisfaction is stable throughout adulthood, the importance women place on appearance decreases as they age. In support of this theory, Tiggemann and Lynch (2001) found that while self-reported body dissatisfaction did not differ among respondents ages 20 to 85, self-objectification, habitual monitoring of one's body, and anxiety over appearance decreased with age. As with these age effects, it is likely that some aspects of body image are similar across sexual orientation, while others are not. Inasmuch as these different components of body image are lumped into one body dissatisfaction category, research findings may appear equivocal when in fact lesbian and heterosexual women differ consistently on some body image constructs and not others.

Since Morrison and colleagues (2004) published their meta-analysis, several more methodologically rigorous studies have appeared in the literature. While statistically controlling

for BMI and using well-matched samples of lesbian and heterosexual women that did not differ in BMI, Polimeni, Austin, and Kavanagh (2009) found that lesbian women were significantly less dissatisfied with their body weight and shape than were exclusively heterosexual women. Unlike previous studies of sexual orientation differences in body dissatisfaction, this study drew from a national dataset that randomly selected women to participate without regard to sexual orientation (the Australian Longitudinal Study of Women's Health), eliminating sampling bias and also enhancing generalizability.

Peplau and colleagues (2009) surveyed large samples of women online, using similar recruitment methods for heterosexual and lesbian women, although targeting lesbian-specific online sources. They found that lesbian and heterosexual women did not differ on evaluations of their appearance or in the perceived impact their body image has on their quality of life. However, heterosexual women were more preoccupied with being overweight (40% of heterosexual women vs. 26% of lesbian women). These findings parallel those of Brand and colleagues (1992), in that lesbian and heterosexual women report similar levels of negative body evaluations, but heterosexual women express greater preoccupation with their weight. As lesbian participants had significantly higher BMIs ($M = 27.02$) than did heterosexual female participants ($M = 25.10$), the authors controlled for BMI in all analyses.

In sum, the findings on body dissatisfaction in lesbian compared to heterosexual women are equivocal, although there is a trend for lesbian women to report less dissatisfaction in studies that control for BMI. The lack of well-matched samples is an important methodological limitation of several existing studies. Researchers who employed different sampling methods for lesbian and heterosexual participants often obtained a comparison group that differed on several key variables other than sexual orientation, including age and body size, which served to

accentuate overall population differences in BMI. Recent studies that have addressed these challenges with more rigorous sampling methodology (Peplau, et al., 2009; Polimeni, et al., 2009) have found differences in body dissatisfaction, suggesting that lesbian women are more satisfied with their bodies than are heterosexual women.

The measures selected to capture body dissatisfaction also appear to influence whether researchers find differences by sexual identity group; these measures are likely capturing distinct psychological constructs which differ in their relationship to sexual orientation. The body image measures appearing in these studies fall into several categories: 1) attitudinal measures of body dissatisfaction that assess participants' evaluation of appearance, 2) implicit body dissatisfaction measures based on actual-ideal discrepancies in ratings of body figures, 3) measures that capture preoccupation or time spent thinking about one's body, 4) assessments of disparagement of one's overall appearance or body features, and 5) measures of the degree of importance placed on one's physical appearance. To clarify equivocal findings, future research should strive to be specific about the body image construct under examination. In the current study I focus on the first two categories, as these evaluation measures capture body dissatisfaction as it is most commonly defined.

C. **Theories Regarding Body Dissatisfaction in Lesbian Women**

1. **Sociocultural theories**

Many theories of body dissatisfaction among women focus on the sociocultural environment. This is consistent with the rapid rise of body dissatisfaction and disordered eating behaviors in the second half of the 20th century, and the simultaneous rise of mass media depicting thinner and thinner women as ideal (Grabe, Ward, & Hyde, 2008; Stice, 1994). Sociocultural approaches to lesbian women's body image have included testing sociocultural

models developed for heterosexual women among lesbians, as well as developing new theories to explain possible differences between lesbian and heterosexual women.

a. **Self-objectification theory**

One model developed for heterosexual women that researchers have tested on lesbian samples is self-objectification theory (Haines et al., 2008; Kozee & Tylka, 2006).

Self-objectification theory (Fredrickson & Roberts, 1997) is one of the most prominent and well-researched theoretical explanations for low body-esteem and related negative outcomes in girls and women. The major tenet of this theory is that women are socialized to take an observer's perspective on their own body, which results in elevated self-monitoring of one's body or appearance. High levels of body surveillance can lead to greater opportunities for anxiety and shame about one's body, which can result in negative outcomes such as disordered eating and depression. There is consistent support for this theory (Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; Greenleaf, 2005; Muehlenkamp & Saris-Baglama, 2002), suggesting that it is a useful way to model body-related phenomena among heterosexual women.

Kozee and Tylka (2006) tested a model of interpersonal sexual objectification within a sample of lesbian and heterosexual women. They addressed five variables: 1) the experience of sexual objectification from others; 2) body surveillance, i.e., the extent to which one self-monitors her body; 3) shame regarding one's body; 4) "interoceptive awareness," i.e., awareness of internal bodily states such as hunger and emotions; and 5) disordered eating. They found that the model provided an excellent fit to the heterosexual women's data: interpersonal sexual objectification led to greater body surveillance, which in turn led to body shame. Body shame increased disordered eating directly, and indirectly by lowering interoceptive awareness. In contrast, the model was a poor fit to the data from lesbian respondents, suggesting that variables

such as sexual objectification and body shame may operate differently among lesbian versus heterosexual women.

Haines and colleagues (2008) also investigated self-objectification theory among lesbian women. They found that, as with heterosexual women, greater body surveillance was associated with body shame, and shame was associated with negative eating attitudes and depression. However, they also found that body surveillance was directly associated with negative eating attitudes, a path not typically found among heterosexual women. Haines and colleagues viewed this as evidence that models developed for heterosexual women may not fully apply to lesbian women. To explore cultural variables that may explain lesbian and heterosexual differences, Haines et al. investigated the role of feminist self-identification and internalized heterosexism. Although feminist self-identification was not related to variables in the model, greater internalized heterosexism was directly associated with depression, as well as body surveillance and body shame, which themselves were linked to negative eating attitudes and depression. This suggests that internalized heterosexism may be an important culturally-specific variable related to body image among lesbian women.

b. **Femininity and body image**

Another sociocultural perspective from the heterosexual literature that may be applicable to lesbian women involves gender roles. Sometimes conceptualized as the “femininity hypothesis,” this theory asserts that the more individuals identify with feminine traits, the more they are at risk for health-related problems more common among women, such as disordered eating (Paxton & Sculthorpe, 1991). In support of this theory, a meta-analysis of 22 studies using female heterosexual respondents demonstrated a small, positive relationship

between self-perceived feminine traits and disordered eating (Murnen & Smolak, 1997). The authors also found a small, negative relationship between masculine traits and disordered eating.

Several researchers have explored femininity and body dissatisfaction in lesbian samples. Ludwig and Brownell (1999) found that lesbian and bisexual women who endorsed feminine traits reported greater body dissatisfaction than did androgynous- or masculine-identified women, replicating findings among heterosexual women. Lakkis, Ricciardelli, and Williams (1999) directly compared lesbian and heterosexual women on body dissatisfaction and disordered eating and found that lesbian women were less likely than heterosexual women to report body dissatisfaction, drive for thinness, dietary restraint, and bulimia. When the authors controlled for self-ascribed feminine traits in the model, the effect of sexual orientation was partially reduced, suggesting that lesbian women's lower endorsement of feminine traits accounted for some of their better health outcomes.

c. **Feminist perspectives on lesbian body image**

Recognizing the potential inadequacy of models developed for heterosexual women, several researchers have generated theories to address lesbian body image directly. Given the emergence of the lesbian rights movement from the feminist movement of the 1970s, many of the theories regarding lesbian body image adopt a feminist sociocultural perspective (L. S. Brown, 1987; Dworkin, 1988). Specifically, almost all of the articles that explore body image among lesbian women cite Brown's (1987) and Dworkin's (1988) feminist interpretations.

Brown (1987) posited that lesbian and obese women both break patriarchal cultural rules intended to keep women powerless and prevent them from loving and valuing themselves; if a lesbian woman is able to work through her internalized heterosexism, which is socialized since

birth, she is less likely to follow societal rules of size, shape, and attractiveness. Conversely, lesbian women who strongly internalize heterosexism will be more likely to follow societal thinness norms. Given that many lesbian women decrease their internalization of heterosexist attitudes as they develop their sexual identities, they may ultimately experience less body dissatisfaction than heterosexual women who do not go through this process. Brown also described a subset of feminist, politically active lesbian women who oppose “fat-oppressive” attitudes and behaviors, and are more likely to be satisfied with their bodies than are heterosexual women.

Dworkin’s feminist perspective (1988) is also frequently cited by body image researchers, typically as a contrast to Brown’s. Dworkin argued that lesbian women work and live in the same patriarchal society as heterosexual women, and as a result are likely to experience the same levels of body dissatisfaction. She stated that society holds lesbian women to the same attractiveness standards as heterosexuals, especially in the workplace where women must market themselves based on appearance. Succinctly, “thin privilege allows lesbians to move easily in a patriarchal society” (Dworkin, 1988, p. 33). Similar to Brown, however, she discussed segments of the lesbian community that are more welcoming to larger women. Dworkin argued that this reception falls short of full acceptance, especially if a larger lesbian woman attempts to seek out slim female partners. She suggested that the culture may be shifting, however, and predicted that as feminist lesbian women continued to defy patriarchal norms and constraints they would begin to make progress on challenging prescriptions for women’s bodies, as well. Although authors commonly draw from Brown’s (1987) and Dworkin’s (1988) work, these theories have not been empirically validated and, in fact, were not designed for model testing.

d. **Body dissatisfaction and partner choice**

Another sociocultural perspective on body dissatisfaction in lesbian women involves partner choice. Siever (1994) argued that because lesbian women seek women and not men as romantic partners, they avoid being sexually objectified by men, and thus are likely to resemble heterosexual men on measures of body dissatisfaction and disordered eating. Siever's hypothesis emerged from studies demonstrating that men value physical attractiveness in romantic partners more so than women do (Sprecher, Sullivan, & Hatfield, 1994). Siever's (1994) data partially supported this hypothesis: lesbian women were least concerned with physical attractiveness compared to heterosexual men and women, and gay men. His findings on body dissatisfaction among lesbian versus heterosexual women were mixed, but trended toward greater satisfaction among lesbian women. Although these findings are consistent with a partner selection hypothesis, the hypothesis itself cannot be tested by Siever's study. Given that the gender of one's desired partner is synonymous with sexual orientation, partner choice is confounded with the myriad other factors that contribute to sexual orientation differences in body dissatisfaction.

Researchers have also suggested that lesbian women are less likely than heterosexual women to experience body dissatisfaction because lesbian women generally value a larger (and thus more realistic) body size in their romantic partners (Cohen & Tannenbaum, 2001; Swami & Tovée, 2006). Comparing feminist and non-feminist heterosexual and lesbian women, Swami and Tovée (2006) found that lesbian women preferred images of women with higher BMIs than the images preferred by heterosexual women. Among both lesbian and heterosexual women, self-identified feminists did not differ from non-feminists in their preference for body size,

suggesting that group differences in body size preference were due to sociocultural factors other than political ideology.

e. **Lesbian subgroup differences and body dissatisfaction**

As with most social categories, the umbrella term “lesbian” covers a diverse group of women. Many lesbian women may more closely identify with a specific lesbian subgroup than with the lesbian community as a whole (Rothblum, 1994). Lesbian subgroups may differ significantly in the norms and attitudes underlying body image. For example, lesbian women who identify as “femme” or “lipstick” are more likely by definition to ascribe to feminine gender traits than are lesbian women who identify as “butch.” Ludwig and Brownell (1999) tested a variation on the subgroup hypothesis by asking women how much they affiliated with three subgroups based on brief character sketches: a lesbian-feminist subculture, a lesbian-sports community, and a young, music-based or “punk” subculture. Participants’ identification with these groups was not associated with their body dissatisfaction scores. However, there are methodological issues with participants’ self-identifying with researcher-generated sketches, and Ludwig and Brownell’s choice of subgroups did not include “butch” or “femme” categorizations. Given the association of femininity with body image described above, we would expect particularly strong differences between these gender role-based groupings.

f. **Summary of sociocultural theories**

Sociocultural theories suggest that lesbian culture offers some protection against body dissatisfaction among women by deemphasizing unattainable female standards of beauty and physical attractiveness. Feminist theories assert that lesbian women experience reduced body dissatisfaction as they become more comfortable with their sexual identity or get involved with feminist politics. The “femininity hypothesis” suggests that lesbian women will be

less at risk for body dissatisfaction inasmuch as they exhibit less stereotypically feminine traits. Partner selection theories suggest that lesbian women are likely to experience less body dissatisfaction because the female partners they are trying to attract deemphasize physical attractiveness relative to men, and lesbian women may have different standards of beauty. Although not all sociocultural theories stress the protective nature of lesbian status or identity (i.e., Dworkin, 1988), the vast majority do.

2. **Minority stress influences on body dissatisfaction**

Although lesbian status and identity may have “protective” effects on body dissatisfaction, being a member of a sexual minority group could also serve as a risk factor for body dissatisfaction. Lesbian women are more likely to suffer discrimination and targeted violence than are heterosexual women (Meyer, 2003), which might influence their attitudes toward their bodies. Additionally, lesbian women who experience high levels of internalized heterosexism may have poorer perceptions of themselves generally, and of their bodies specifically.

In a thorough and well-articulated review paper, Meyer (2003) described how minority stress can lead to negative mental health outcomes among LGB individuals. In Meyer’s model, the minority member is situated within an environment that gives rise to general stressors, for example losing one’s job or experiencing a death in the family, and minority-specific stressors such as discrimination in employment due to minority status, or targeted violence. Being part of a minority group often leads to a minority identity, which can lead to additional stress as the individual considers his or her devalued status in society. Specifically, the individual may experience expectations of rejection, concealment of his/her identity, and internalized

heterosexism. These variables will be moderated by how prominent the minority identity is for that individual and how integrated it is with other identities.

Research has supported several of Meyer's minority stress claims, including that LGB individuals experience more negative mental health outcomes than do heterosexuals. For example, Cochran, Mays, and Sullivan (2003) found that gay and bisexual men were more likely to experience depression, panic attacks, and psychological distress, while lesbian and bisexual women were more likely to report generalized anxiety disorder, than their heterosexual counterparts. Sexual minority women also have significantly higher rates of substance use and abuse compared to heterosexual women (Cochran, et al., 2004; Hughes, 2005) and researchers have implicated minority stress as one cause of these substance use disparities (Hughes, Szalacha, & McNair, 2010).

Lehavot and Simoni (2011) investigated the influence of minority stress on mental health problems and substance use, and hypothesized that social-psychological resources – e.g., social support – would mediate the effect of minority stress on health. Using a large, national sample of lesbian and bisexual women, they found that LGB victimization, internalized heterosexism, and concealment of LGB identity were associated with fewer social-psychological resources, which in turn was associated with depression, anxiety, and substance use. LGB victimization also had a direct positive relationship with substance use. McCabe and colleagues (2010) found that the likelihood of having a substance use disorder during the past year was nearly four times greater among LGB adults who reported discrimination based on their sexual orientation, gender, and race in the past year, compared to those who reported no discrimination. A subsample who reported discrimination based only on sexual orientation showed a non-significant trend toward a past year substance use disorder, as well. Both Lehavot and Simoni's (2011) and McCabe and

colleagues' (2010) findings support the core minority stress hypothesis, while McCabe et al.'s study suggests that minority stress effects are stronger in the context of stress related to multiple minority identities.

Although few minority stress studies speak specifically to body image, several researchers have hypothesized that lesbian women are at greater risk for body dissatisfaction because of the minority-related stressors they face. Earlier theorists suggested that lesbian women were likely to experience shame toward their bodies given the predominant cultural messages that lesbian bodies are somehow defective and what lesbians do with their bodies sexually is shameful (L. S. Brown, 1987; Heffernan, 1994). More relevant to the present sociocultural environment, having a stigmatized status could lead to lower self-esteem in lesbian individuals (Szymanski & Chung, 2003b), a variable highly correlated with body dissatisfaction (Franzoi & Shields, 1984; Vohs, et al., 2001).

Another avenue whereby minority stress could contribute to body dissatisfaction is through experiences of childhood sexual abuse (CSA). Sexual minority women are much more likely than heterosexual women to report a history of CSA (Alvy, Hughes, Kristjanson, & Wilsnack, in press; Austin, et al., 2008), even within the same family (Balsam, Rothblum, & Beauchaine, 2005). Furthermore, researchers have begun to uncover a link between CSA and obesity among lesbian women (Aaron & Hughes, 2007; Smith et al., 2010). For example, Aaron and Hughes (2007) found that in a community sample of lesbian women, participants who reported CSA were more likely to be obese (OR = 1.9, 95% CI 1.1-3.4) and severely obese (OR = 2.3, 95% CI 1.1-5.2) than those who did not report CSA. Because obesity is strongly related to body dissatisfaction (Stice & Shaw, 2002), it may serve as a mediator between CSA experiences and body dissatisfaction. CSA may also have a direct relationship with body

dissatisfaction, which has been documented in several populations (Dunkley, Masheb, & Grilo, 2010; Grilo & Masheb, 2001; Kenardy & Ball, 1998; Murray, Macdonald, & Fox, 2008; Preti, Incani, Camboni, Petretto, & Masala, 2006), but has yet to be explored among lesbian women specifically. Given higher rates of CSA experiences among lesbian women, CSA may constitute a culturally-specific risk factor for body dissatisfaction among this group.

3. **Developmental processes in lesbian body image**

A lesbian identity is not a static or enduring quality, but develops and solidifies over time (Bardone-Cone, Cass, & Ford, 2008; Coleman, 1982; Kaufman & Johnson, 2004). Recognizing this, a few researchers have explored lesbian body image from an identity development perspective. Some have argued that as a lesbian woman moves toward latter stages of identity development she becomes less concerned with physical appearance, insomuch as appearance is deemphasized in lesbian culture and mate selection (L. S. Brown, 1987; Siever, 1994). In a study by Krakauer and Rose (2002), lesbian respondents retrospectively reported less body weight concerns after “coming out” as lesbians. Lesbian women in the sample who had been “out” longer also expressed less current weight concern than those who came out more recently. Unfortunately, these findings are subject to retrospective reporting bias and do not account for confounding factors, such as age, that would distinguish women who have come out more recently from those who have not.

Measuring identity development as the amount of time a lesbian woman has recognized herself as lesbian or been “out” to family and friends can be problematic. Foundational theories of sexual identity development hypothesized that gay and lesbian individuals move through universal stages of an identity development process that is more or less linear (Cass, 1979; Coleman, 1982; Troiden, 1979). More recently, theorists have acknowledged that individuals are

unlikely to progress through stages linearly and some individuals may never attain what identity theorists deem the “highest” stage of sexual identity. Given these considerations, time may not be the best way to determine a lesbian or gay person’s “stage” of identity development.

Another way to understand development among lesbian women is to focus on discrete variables critical to LGB identity development. Theories of sexual identity hypothesize that as an individual moves toward an established lesbian identity she is less likely to experience internalized heterosexism and more likely to affiliate with members of the lesbian community (Bardone-Cone, et al., 2008; Coleman, 1982; Kaufman & Johnson, 2004). Lesbian community involvement and internalized heterosexism can be viewed as individual differences reflecting developmental processes, even if measured cross-sectionally.

a. **Lesbian community involvement**

Given that lesbian cultural influences are in part transmitted by lesbian community affiliation and involvement, we might expect these variables to correlate with body dissatisfaction. Hefferman (1996) tested this hypothesis with a community sample of lesbians, finding that increased participation in lesbian-focused activities was associated with lower self-reported weight concern. Conversely, Beren and colleagues (1996) did not find a relationship between affiliation with the lesbian community and body dissatisfaction. However, considering that the primary recruitment vehicle for lesbian participants in the study was lesbian-specific organizations, there may have been a ceiling effect due to high community involvement.

b. **Internalized heterosexism**

In Brown’s (1987) oft-cited chapter on lesbian body image she described internalized heterosexism as the primary variable that is likely to affect lesbian women’s body dissatisfaction. She predicted that lesbian women who experience greater internalized heterosexism are more

likely to experience body dissatisfaction, and that as lesbian women overcome feelings of internalized heterosexism they will become more accepting of their bodies. Recently, several researchers have recognized the role internalized heterosexism may play in the body image of sexual minority individuals and have begun to test these predictions. Sampling gay men online, Reilly and Rudd (2006) found that components of internalized heterosexism predicted body image, self-esteem, and bulimic behaviors. Additionally, as described above, Haines et al. (2008) found that internalized heterosexism was indirectly related to negative eating attitudes among lesbian women through body surveillance and body shame.

4. **Summary of lesbian body image theories**

Theories regarding lesbian women's body image cite diverse variables and make divergent predictions about differences in body dissatisfaction between lesbian and heterosexual women. The majority suggest that sociocultural variables lead lesbian women to experience more positive body image than heterosexual women. A few suggest that minority stressors contribute to poor body image among lesbian women, while others state that body image fluctuates as the result of lesbian identity development. None offer a comprehensive model of lesbian body image.

D. **Reconceptualizing Lesbian Women's Body Dissatisfaction**

Researchers in the area of lesbian body image have recently stated the need for a psychological and social mechanisms-based approach (Peplau, et al., 2009), suggesting that having a better understanding of body dissatisfaction among lesbian women may help efforts to reduce body dissatisfaction among other groups (Polimeni, et al., 2009). Such an approach would lend itself to model testing, as researchers seek to determine the sociocultural variables and

individual difference factors that predict an individual lesbian woman's level of body dissatisfaction.

The need for contextualized, within group models of body dissatisfaction has been recognized by researchers of African American body image. In their meta-analytic review of black-white differences in female body dissatisfaction, Roberts, Feingold, Cash, and Johnson (2006) issued a call to researchers to investigate “psychologically based risk and protective factors that may contribute to body image evaluations” (pg. 1127), and several researchers of African American body image have begun this line of research (Sabik, Cole, & Ward, 2010; Zhang, Dixon, & Conrad, 2009). For example, Zhang, Dixon, and Conrad (2009) examined the extent to which ethnic identity moderates the influence of rap music videos on body dissatisfaction among African American girls and women. They found that women with stronger ethnic identification and increased media exposure reported *less* body dissatisfaction, whereas increased media exposure had the opposite effect on African American women with weaker ethnic identification.

In a model I proposed previously (Alvy, 2011), I suggested that lesbian women are subject to risk and protective factors for body dissatisfaction as the result of the sociocultural environment (see Figure 1). Protective factors for body dissatisfaction include lesbian cultural norms and attitudes that deemphasize physical attractiveness generally and promote larger body size standards. Risk factors for body dissatisfaction include stigmatization and minority-specific stressors such as discrimination and targeted violence. These cultural-level variables may interact with individual differences to produce overall protective and risk effects. Together these effects serve as countervailing forces influencing lesbian women's body dissatisfaction.

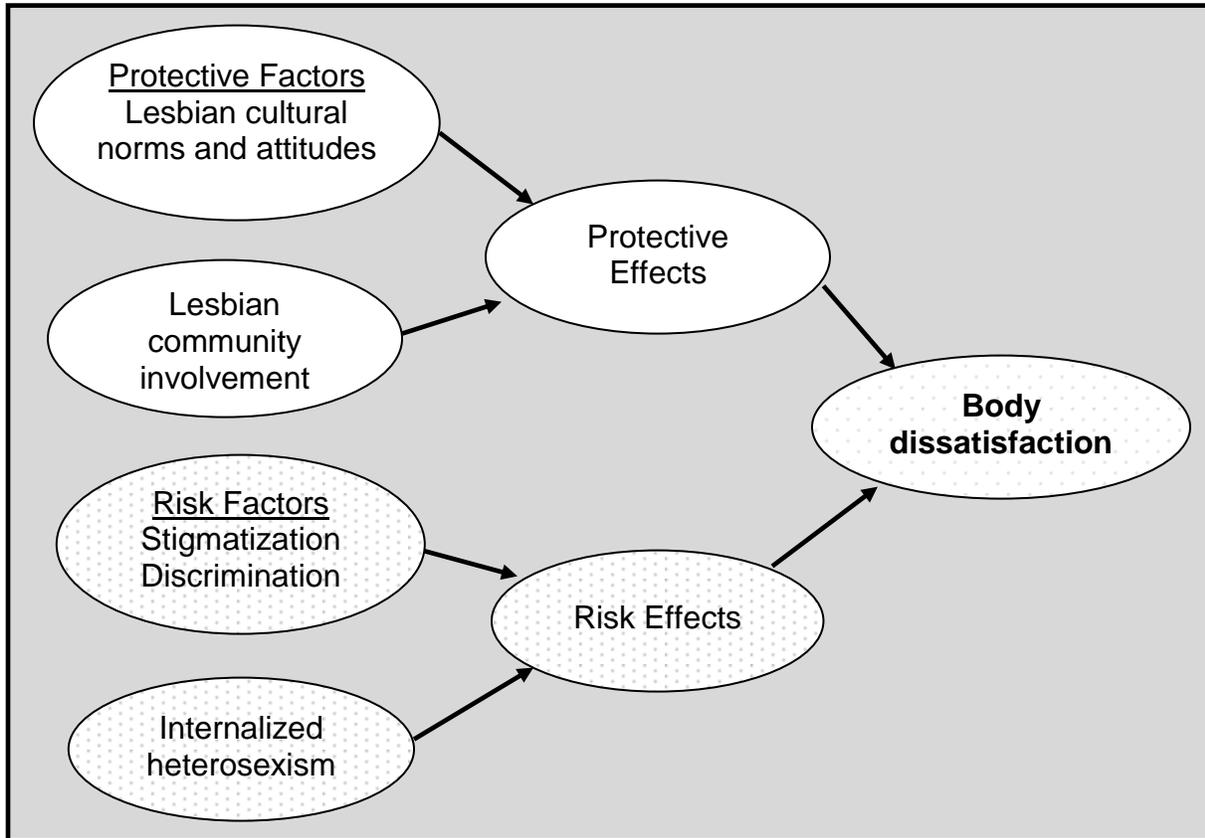


Figure 1. Conceptual model of lesbian-specific risk and protective factors for body dissatisfaction.

The current literature points to two lesbian-specific individual difference variables that are likely influential: lesbian community involvement and internalized heterosexism. In my model I proposed that the extent to which a lesbian woman is involved in the lesbian community will mediate the effect of lesbian cultural norms and attitudes on her body dissatisfaction; lesbian cultural influences are protective only inasmuch as an individual lesbian woman is exposed to them. Considering risk factors, I hypothesized that the experience of internalized heterosexism moderates the effect of stigmatization and discrimination on body image: a woman with higher internalized heterosexism will be more likely to make an internal attribution for a minority stressor, that is, she will interpret discrimination or stigmatization as reflecting her own characteristics. This cognitive set will lead her to interpret stigmatization in a way that reduces her self-esteem and body satisfaction. Conversely, a woman with low internalized heterosexism may experience discrimination as distressing, but would make an external attribution, i.e., that stigma reflects more on the perpetrator than herself. This perspective will prevent her from interpreting minority stressors in a way that negatively affects her self-concept.

There is debate about how much internalized heterosexism moderates the effect of discrimination and stigmatization on health among lesbian women. Some authors have treated internalized heterosexism as a facet of minority stress itself (e.g., Lehavot & Simoni, 2011), while others have treated internalized heterosexism as a moderator of minority stressors (Meyer, 1995; Szymanski, 2006). Szymanski (2006) found that, in contrast to studies of gay men (Meyer, 1995), internalized heterosexism was not a significant moderator of the effect of heterosexist events on lesbian psychological distress. However, the sample was highly educated and predominately Caucasian, limiting generalizability, and participants reported low levels of discrimination overall, suggesting a possible floor effect. To my knowledge, no study has

attempted to replicate these analyses, leaving the moderating role of internalized heterosexism on minority stress effects among lesbian women an open research question.

E. **The Present Study**

The literature on body dissatisfaction among lesbian women suffers from methodological limitations and lacks a strong theoretical grounding. Empirical findings suggest that lesbian women experience less body dissatisfaction than do heterosexual women when samples are well-matched and BMIs controlled for. However, the literature as a whole is equivocal. Moreover, theories in this area are not comprehensive, and few have been empirically validated.

This study seeks to address both the methodological and conceptual limitations of the lesbian body image literature with a two-part study. First, I conducted a more methodologically rigorous comparison of lesbian and heterosexual women's body dissatisfaction. To reduce sampling bias, I analyzed a dataset in which both lesbian and heterosexual participants were drawn from the community utilizing similar recruitment methodology. I controlled for BMI with clinician-collected data on height and weight to minimize the confounding influence of body size on body dissatisfaction outcomes. To address past disparate findings on body dissatisfaction by measure, I examined body dissatisfaction differences using four dissatisfaction measures that are commonly used in the field and all fall under the heading of attitudinal, evaluative measures of body dissatisfaction. I examined the interrelationships among these measures separately for the lesbian and heterosexual participants to see if they operated in a similar fashion prior to drawing group contrasts.

For the second stage of my study, I tested a conceptual model positing that lesbian women experience both risk and protective factors for body dissatisfaction (Alvy, 2011). I hypothesized that lesbian cultural norms and attitudes deemphasize physical appearance and

promote more realistic body sizes, whereas lesbian-specific stressors such as stigmatization and discrimination represent countervailing risk factors. I also suggested that the extent to which these larger sociocultural factors affect the body dissatisfaction of an individual woman will be influenced by two individual difference variables: her involvement in the lesbian community, and her internalization of heterosexist attitudes.

For this project I tested components of this model using structural equation modeling (SEM). Given the difficulties of capturing “culture” directly, I operationalized the protective effects of lesbian culture using lesbian community involvement as a proxy measure. My model specifies that community involvement is an individual difference that moderates the effect of the larger culture on body dissatisfaction outcomes. However, because I did not have different lesbian cultural groups to compare, lesbian community involvement served as a proxy measure of cultural influences in these analyses.

I hypothesized that perceived discrimination and internalized heterosexism are risk factors for body dissatisfaction, and expected that the effects of discrimination on body dissatisfaction to be most pronounced among participants reporting a high level of internalized heterosexism. Unfortunately, perceived discrimination is not a pure measure of negative cultural experiences, because it reflects an individual’s *perception* of discrimination. These perceptions may be influenced by other individual difference variables such as negative affectivity and coping style. However, even if perceived discrimination is not a perfect indicator of actual environmental events, a woman’s phenomenological experience of discrimination is an important variable to consider in and of itself. Perceived discrimination is also a commonly used measure of discrimination in studies of LGB stigmatization (McCabe, et al., 2010; McLaughlin, Hatzenbuehler, & Keyes, 2010; Szymanski, 2006).

I examined the relationship between lesbian community involvement and body dissatisfaction, as well as perceived discrimination, internalized heterosexism, and body dissatisfaction, within a large community sample of middle-aged lesbian women residing in and around Pittsburgh, Pennsylvania, U.S.A. To consider these theoretically-derived variables simultaneously, I tested their relationships within a combined SEM model. My goal is for these analyses to serve as an initial step in understanding lesbian-specific influences on body dissatisfaction.

II. METHOD

A. Study Overview

The data for this study come from the **E**pidemiological **S**tudy of **H**ealth **R**isk in Women (ESTHER) Project, conducted at the University of Pittsburgh. I obtained access to this dataset through collaboration with Nina Markovic, Ph.D., Associate Professor of Public Health at the University of Pittsburgh and co-Principal Investigator (PI) on the ESTHER Project. I submitted a data use proposal to Dr. Markovic in October 2010, which was approved by the investigators of the study in December 2010. The agreement grants me access to a list of variables I specified for the PIs including those related to body dissatisfaction, lesbian community involvement, and minority stress (see below).

The ESTHER Project is a cross-sectional study of women's health designed to analyze heart disease risk factors in women over 34 years of age. To meet eligibility criteria for the study, participants had to self-identify as heterosexual or lesbian (bisexual women were excluded from participation) and have no previous history of heart disease (including angina, heart attack, or stroke). A total of 503 lesbian women and 581 heterosexual women were enrolled in the study from 2003 to 2006.

B. Procedure

The ESTHER Project team recruited participants using a variety of methods known to access hard-to-reach populations including local newspaper and radio advertisements; lesbian, gay, bisexual, and transgender (LGBT) community events; health events; and the University of Pittsburgh's broadcast phone message system. Although recruitment efforts targeted LGBT events and publications, researchers recruited lesbian and heterosexual women using the same community convenience sampling method. Trained research staff members conducted

recruitment/screening calls. Staff scheduled eligible participants for two clinic visits at the University of Pittsburgh.

During the first visit, participants were asked to complete study questionnaires, physical activity and medical history interviews, and a fasting blood draw. Clinicians weighed participants and measured their height, waist, and chest circumference. In addition to the main study questionnaire administered to all participants, lesbian participants filled out a supplemental questionnaire that included questions related to lesbian identity, community involvement, and minority stressors. All participants were also given food diaries and additional questionnaires to take home and complete prior to their second clinic visit, which took place approximately two weeks later. At the second visit, participants reviewed their completed 3-day food diaries with research staff; underwent a dual-energy x-ray absorptiometry (DXA) scan of the hip, spine, and whole body; and underwent a pregnancy test. For the current study, I used data from study recruitment forms, the interviewer-administered paper-and-pencil questionnaire from the first clinic visit, clinical measurements (height and weight) obtained at the first visit, and responses from several of the take home questionnaires. Research staff reimbursed participants with \$50 for their time and participation in the ESTHER Project. All participants signed written consent forms before participating in the study. The Institutional Review Board of the University of Pittsburgh approved all study instruments and protocol.

C. **Participants**

To correct for demographic differences between the lesbian and heterosexual samples, I employed the data reduction methods used by the ESTHER Project researchers in previous data analyses. The convenience sampling methods resulted in a higher proportion of older women in the heterosexual than in the lesbian sample, so participants over the age of 65 were excluded

from analysis, resulting in a total sample of 1008 women. Because of low numbers of ethnic minority group members, women who did not identify as African American or Caucasian were excluded from analyses, eliminating 29 participants. African Americans were overrepresented among heterosexual participants, so ESTHER Project researchers selected a random sample of African American heterosexuals ($n = 32$) to be proportionate to the number of lesbian African American participants ($n = 38$). These data reduction methods resulted in a total analytic sample of 879 participants; 441 Caucasian lesbian women, 38 African American lesbian women, 368 Caucasian heterosexual women, and 32 African American heterosexual women.

D. **Measures**

1. **Demographics**

Demographic information included standard indicators of age, race (African American or Caucasian), income (total household income from all sources), education (highest level of education completed), and geographic location (place where you presently live, ranging from “In open country but not on a farm” to “In a large city (>250,000 residents)”); see Appendix for all questionnaire items).

2. **Sexual orientation**

Consistent with past studies of lesbian health, the ESTHER Project considered sexual attraction, identity, and behavior to determine sexual orientation (Matthews, Hughes, Johnson, Razzano, & Cassidy, 2002; Parks, Hughes, & Matthews, 2004). Study investigators classified women as heterosexual if they self-identified as heterosexual or straight *and* only had male sexual partners since the age of 18. They classified participants as lesbian if they did not identify as heterosexual; *and* had emotional, physical, and romantic attractions within the past 5 years toward only or primarily women, *or* were in relationships only or primarily with women

within the past 5 years. Women who did not meet researcher criteria for a heterosexual or lesbian sexual orientation were excluded from study participation.

3. **Body mass index**

I used weight (in light clothing, without shoes) and height measurements collected at the first clinic visit to calculate BMI. BMI is a standard measure of body fat calculated by dividing weight in kilograms by the square of height in meters (kg/m^2 ; CDC, 2011). For descriptive purposes, I dichotomized the sample into participants who were obese ($\text{BMI} \geq 30$) and not obese ($\text{BMI} < 30$).

4. **Body dissatisfaction**

a. **Body Size Drawings**

The Body Size Drawings (BSD) instrument developed by Fallon and Rozin (1985) presents participants with nine body silhouettes ranging from very thin (1) to very heavy (9), originally created by Stunkard, Sorensen, and Schulsinger (1980) for obesity research. Of these nine numbered silhouettes, participants selected which silhouette “most closely matched your own,” “you would most like to have,” “most women would like to have,” and “you believe most partners/spouses would like best.” Consistent with past research on lesbian body image (Beren, et al., 1996; Siever, 1994), I created a self-ideal discrepancy score by calculating the absolute value of the difference between the silhouette numbers rated “most closely matched you own” and “you would most like to have.” These discrepancy scores served as a measure of implicit perceptual body dissatisfaction.

b. **Eating Disorder Inventory-2**

Participants completed the Body Dissatisfaction subscale of the EDI-2 (EDI-2-BD) as part of their packet of take home questionnaires. Participants responded to nine

items such as “I think that my thighs are too large,” on a 6-point scale from ranging “Always” to “Never,” ($\alpha = .92$). The EDI-2-BD commonly demonstrates strong internal consistency (Garner, Olmstead, & Polivy, 1983) and has been used in numerous studies of lesbian body image (Morrison, et al., 2004).

c. **Multidimensional Body-Self Relations Questionnaire**

Participants completed the Appearance Evaluation subscale and Body Areas Satisfaction Scale of the MBSRQ (T. A. Brown, Cash, & Mikulka, 1990; Cash, 2000) as part of their take home questionnaire. The Appearance Evaluation subscale of the MBSRQ (MBSRQ-AE) contains seven items such as “My body is sexually appealing” and “I like my looks just the way they are,” which participants rated on a 5-point Likert-type scale that ranges from “Definitely disagree” to “Definitely agree”. The reliability of this subscale in the current study was strong ($\alpha = .89$), consistent with past research. The MBSRQ-AE subscale has been used as a measure of body dissatisfaction in several studies of lesbian body image (Gettelman & Thompson, 1993; Peplau, et al., 2009; Wagenbach, 1997).

The Body Areas Satisfaction Scale (BASS) of the MBSRQ assesses eight distinct body areas and attributes, such as “Face (facial features, complexion),” “Weight,” and “Muscle Tone,” as well as overall appearance. Participants rated these attributes on a 5-point scale ranging from “Very dissatisfied” to “Very satisfied,” ($\alpha = .83$). The BASS's one month test-retest reliability ranges from 0.74 to 0.86 (Cash, 2000). In studies of lesbian body image, the BASS has been used in tandem with the Appearance Evaluation subscale of the MBSRQ (Gettelman & Thompson, 1993; Wagenbach, 1997).

Given that the MBSRQ-AE and BASS are valenced toward body satisfaction, whereas higher values on the EDI-2-BD and BSD reflect greater dissatisfaction, for simplicity I reverse

scored the MBSRQ-AE and BASS. As a result, higher values on all four measures reflect greater body dissatisfaction.

5. **Lesbian-specific predictors**

a. **Lesbian community involvement**

To obtain a behavioral account of community involvement, participants responded to a 12-item measure asking how often they attend or participate in lesbian cultural events, clubs, and organizations. They responded to items such as “Lesbian social club or group,” with a 5-point scale ranging from “Never” to “Every day,” with a sixth option “Not available in the area.” For the purpose of data analysis, I recoded “Not available in the area” responses as “Never.” I used the mean of the scale to represent the frequency of engagement in the lesbian community. The Cronbach’s alpha of this scale was .68, suggesting moderate internal consistency. Given that the scale represents the cumulative frequencies of diverse behaviors, we would not necessarily expect high reliability. For descriptive purposes I created a count variable of the number of lesbian community activities participants endorsed overall.

Participants also responded to a single item assessing community connectedness: “On a scale from 0 to 10, with 0 being “not at all” and 10 being “very much”, how connected do you feel to the lesbian community in the greater Pittsburgh area?”

b. **Perceived discrimination**

Participants responded to modified items from the “situation” version of the Experiences of Discrimination Scale (EOD; Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005). The EOD is a commonly used measure of self-reported racial discrimination, which has been modified for assessment of discrimination based on sexual orientation (McCabe, et al., 2010; McLaughlin, et al., 2010). Participants responded to the question: “Have you

experienced discrimination, been prevented from doing something, or been hassled or made to feel inferior in any of the following situations because of your sexual preference (heterosexual, bisexual, homosexual)?" Participants marked "yes" or "no" for the following settings: "In your family," "At school," "Getting a job," "At work," "At home," "Getting medical care," and "On the street or in a public setting." Consistent with past studies (Krieger, et al., 2005; McCabe, et al., 2010), I summed the number of settings in which participants self-reported experiences of discrimination to create an interval measure of perceived discrimination. For descriptive purposes I also created a dichotomous variable to illustrate the percentage of lesbian participants who did and did not perceive discrimination in any setting.

c. **Internalized heterosexism**

Lesbian participants rated 10 items such as "I am proud that I am a lesbian" and "If someone offered me the chance to be completely heterosexual, I would accept the chance," on a 5-point Likert-type scale ranging from "Agree Strongly" to "Disagree Strongly," ($\alpha = .77$). These items were adapted from the Internalized Homophobia (IHP) scale (Herek & Glunt, 1995), which correlates with other relevant measures, and has been used with both gay male and lesbian samples (Herek, Cogan, Gillis, & Glunt, 1997).

E. **Data Analysis**

1. **Descriptive analyses**

To determine if participant characteristics were equivalent across groups I compared the lesbian and heterosexual samples on age, race, income, education, and geographic location. I used SPSS 19.0 (SPSS, 2010) to conduct ANCOVA analyses for age, income, education, and geographic location, and a logistic regression for race, controlling for all other

demographic variables in each analysis. I also compared the two groups on BMI and obesity rate, controlling for all demographic variables.

2. **Between group analyses**

I conducted between group analyses using the four body dissatisfaction measures: the BSD ideal-actual discrepancy (BSD), the Body Dissatisfaction subscale of the EDI-2 (EDI-2-BD), the MBSRQ Appearance Evaluation subscale (MBSRQ-AE), and the MBSRQ Body Areas Satisfaction Scale (BASS). I examined the intercorrelations among these measures within the lesbian and heterosexual samples separately to see if the measures operated in the same way. I then compared the two groups on all four body dissatisfaction measures in separate ANCOVA analyses, controlling for age, race, education, income, geographical location, and BMI.

3. **Within group analyses**

To test the relative influences of lesbian community involvement, perceived discrimination, and internalized heterosexism on body dissatisfaction within the lesbian sample, I used structural equation modeling (SEM; Kline, 2005). Prior to constructing the measurement model, I examined the reliability of the three multi-item body dissatisfaction measures (EDI-2-BD, MBSRQ-AE, BASS) to determine if they should serve as unitary indicators of their respective variables. All reliabilities were above $\alpha = .75$ so I included all three as intact scales in the model. I also examined the extent to which the four body dissatisfaction measures (including the BSD) were correlated with each other to assess the construct validity of the overall latent variable and identify any multicollinearity problems. All bivariate correlations were between .62 and .82 among the lesbian sample suggesting that the measures were strongly correlated, but did not exceed a cutoff of $r = .85$ which can signal multicollinearity problems (Kline, 2005).

For the predictors of body dissatisfaction among lesbian women I performed an exploratory factor analysis (EFA) on the lesbian community participation and internalized heterosexism measures. Utilizing Principal Component Analysis (PCA) and a Varimax rotation in SPSS 19.0, the lesbian community participation scale best fit a three-factor solution. The first factor represented general lesbian social activities such as participating in a lesbian social club or group and attending a lesbian concert or cultural event. The second factor encompassed lesbian community services and support, such as attending a lesbian support group, calling a lesbian hotline, and utilizing lesbian health care services. The third factor included specialized, ongoing lesbian social activities such as serving on a lesbian sports team, going to a lesbian bar or nightclub, and participating in a lesbian religious group. Together the three factors accounted for 47.25% of the variance among variables. Given that the overall reliability of the 12-item scale was $\alpha = .68$ and the three factors were conceptually meaningful, I decided to represent this measure as three separate factors in the structural equation model. The community connectedness measure also served as a separate individual indicator of the overall latent variable, lesbian community involvement.

The EFA on the 10-item internalized heterosexism measure suggested a two-factor solution. The first factor comprised eight of the 10 items, and accounted for 35.76% of the total variance. The second factor encompassed two items and accounted for 13.69% of the variance. Given that the second factor is not comprised of enough variables to be considered well-defined, and the overall reliability of the scale is strong ($\alpha = .77$), I decided to enter the full 10-item scale as a unitary measure of internalized heterosexism. For perceived discrimination, I entered the 7-item EOD interval scale as the only indicator of the latent construct perceived discrimination.

To test whether internalized heterosexism moderated the effect of perceived discrimination on body dissatisfaction I included an interaction term in the SEM model. I used Mathieu, Tannenbaum, and Salas' (1992) approach to moderated SEM (MSEM) which derives the factor loading and error estimate for the interaction term from information about the main effects variables obtained from the measurement model. Specifically, Mathieu, Tannenbaum, and Salas calculate the reliability of the observed interaction term from the reliabilities of the main effect variables using the following equation from Bornstedt and Marwell (1978):

$$r_{\xi_1, \xi_2 \cdot \xi_1, \xi_2} = [(r_{\xi_1 \cdot \xi_1} * r_{\xi_2 \cdot \xi_2}) + r_{\xi_1 \xi_2}^2] / (1 + r_{\xi_1 \xi_2}^2),$$

where $r_{\xi_1, \xi_2 \cdot \xi_1, \xi_2}$ is the reliability of the product, $r_{\xi_1 \cdot \xi_1}$ and $r_{\xi_2 \cdot \xi_2}$ are the reliabilities of the components of the product, and $r_{\xi_1 \xi_2}^2$ is the square of the correlation between the components of the product. One then uses this reliability to compute the error estimate of the observed interaction term by multiplying the observed variance of the interaction term by one minus the reliability, and calculating the factor loading on the latent interaction term as the square root of the reliability. This approach performs similarly to other approaches to MSEM tested by Cortina, Chen, and Dunlap (2001), and is one of the most straightforward from a conceptual and operational level.

To apply Mathieu, Tannenbaum, and Salas' approach I used SIMPLIS syntax provided by Cortina et al. (2001). I centered the main effects variables prior to calculating the product of the measures (Cortina, et al., 2001) to help reduce the relationship between the product and main effect variables. Centering the main effect variables removes their scale values, which reduces the relationship between the main effect variables and the product derived from them. Although this may not completely remove the relationship between the main effect and interaction terms,

to ensure the model would be identified I specified that there be no relationship between these variables.

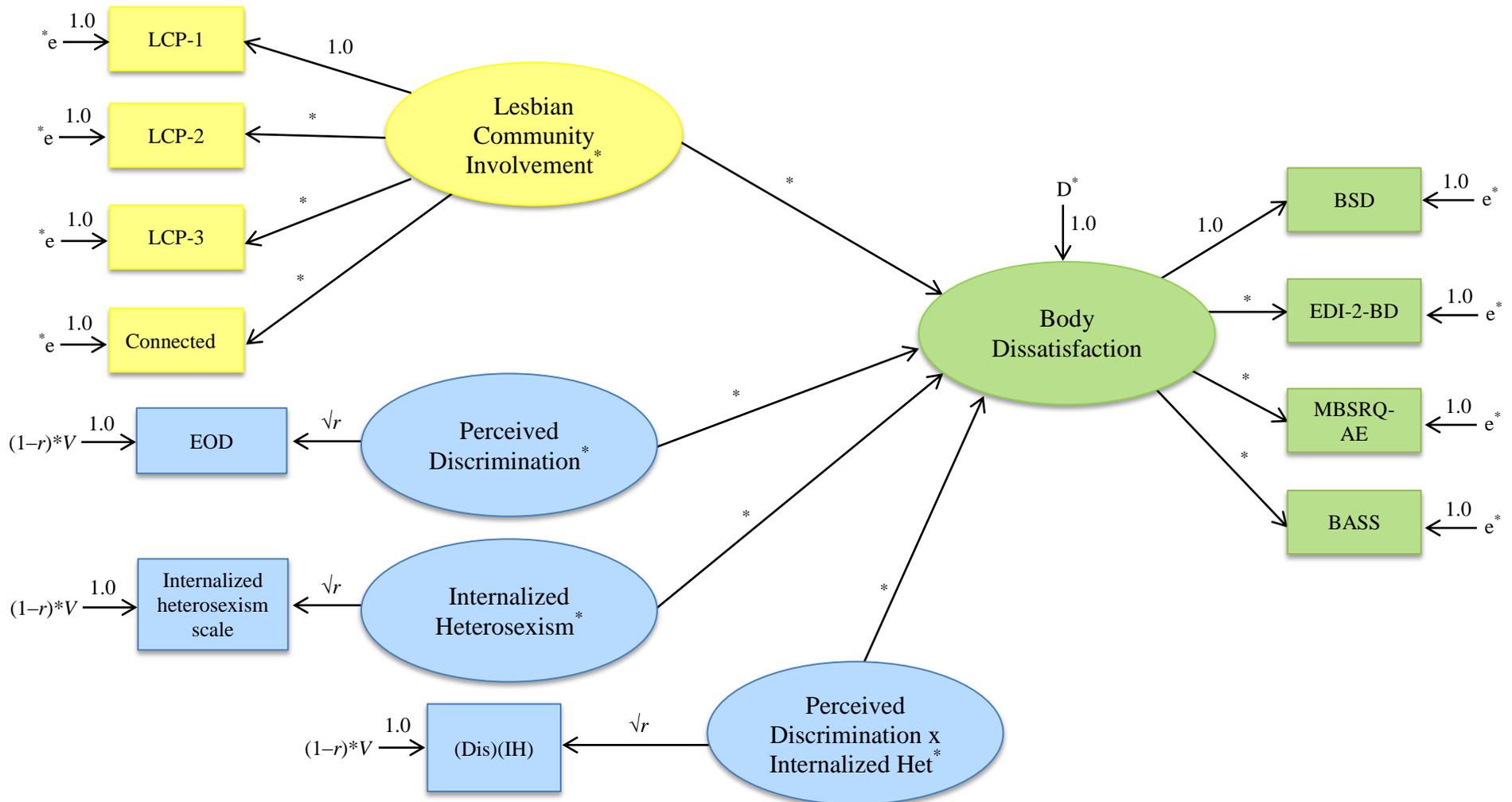
To determine if demographic covariates should be included in the model, I evaluated the relationship between the five demographic covariates (age, income, education, race, and place of residence) and the latent dependent variable, body dissatisfaction, using linear regression in SPSS. None of the demographic covariates were significantly related to body dissatisfaction so I did not include them in the structural model. I present the full structural model and measurement model in Figure 2.

a. **Additional data checks**

A total of 48 participants (10%) were missing entire model variables, and 38 (79%) of this group were missing three variables or more. Given that most participants missing any model variable were missing large blocks of data, I decided to perform a listwise deletion of these 48 cases. This left 431 lesbian participants in the SEM analytic sample.

After eliminating cases with missing variables I examined each variable for univariate normality and examined overall multivariate normality among the variables. I computed univariate distribution statistics in SPSS (SPSS, 2010) and considered skewness of absolute values greater than 3.0 (Chou & Bentler, 1995) and kurtosis indices greater than 20.0 (Kline, 2005) as reflecting non-normal variables. All but one variable met these criteria for normality. The second factor of the lesbian community participation measure had a skew of 3.08, which is just above the cutoff. I used the multivariate normality test offered in LISREL's 8.80 (Joreskog & Sorbom, 2006) PRELIS program to estimate multivariate normality. The test of multivariate normality suggested that the model variables were significantly skewed (34.95, $z = 38.16$, $p < .001$) with a high kurtotic index (189.56, $z = 15.04$, $p < .001$).

Figure 2. SEM model of body dissatisfaction among lesbian women in the ESTHER Project.



Notes. Asterisks indicate parameters to be estimated. Reliability of interaction term derived from the Mathieu, Tannenbaum, and Salas (1992). r = reliability, V = variance; LCP-1-3 = lesbian community participation measure, factors 1-3; connect = community connectedness; EOD = Experiences of Discrimination Scale; BSD = Body Size Drawings; EDI-2-BD = Body Dissatisfaction scale of the Eating Disorder Inventory-2; MBSRQ-AE = Appearance Evaluation subscale of the Multidimensional Body-Self Relations Questionnaire; BASS = Body Areas Satisfaction Scale of the MBSRQ.

b. **Model estimation**

I used maximum likelihood (ML) as my estimation method in LISREL 8.80 (Joreskog & Sorbom, 2006). ML is one of the most common estimation techniques and is conceptually and operationally simple compared to other approaches. It does not require a complicated weight matrix or a large sample to run analyses (Cortina, et al., 2001). Although it assumes a multivariate normal distribution, it is fairly robust to moderate violations of the normality assumption (Anderson & Gerbing, 1984). However, given that the test of multivariate normality suggested highly skewed and kurtotic multivariate relationships, I decided to employ the Robust Maximum Likelihood (Robust ML) estimation method with Satorra-Bentler's scaled test statistic (Satorra & Bentler, 1994). Robust ML estimates the model based on an asymptotic covariance matrix. The output for this estimation method includes the Satorra-Bentler Scaled Chi-Square statistic, which is adjusted for non-normality.

I approached estimation by first testing the measurement model and then testing the structural model. This two part estimation approach was originally recommended by Anderson and Gerbing (1988) and continues to be a commonly recommended estimation approach (Kline, 2005; Weston & Gore, 2006). I looked for an improvement in model fit of the structural model over the measurement model using a chi-square difference test, which determines if the chi-square values of the measurement and structural model are significantly different. I also examined the unstandardized factor loadings and path coefficients of the structural model to determine significance.

To evaluate overall model fit, I examined multiple fit indices. For absolute fit, I examined the Satorra-Bentler Scaled Chi-square value. Given that Chi-square tests are often significant when sample size is large and thus power is high (Henson, 2006), I used Kline's (2005)

recommendation of dividing the Chi-square statistic by the model's degrees of freedom and considered values less than 3.0 as demonstrating acceptable fit.

I also examined several incremental fit indices including the CFI, RMSEA, and SRMR. The CFI, or comparative fit index, ranges from 0 to 1.0 with values close to 1.0 indicating good fit. It examines the improvement of fit of the current model over a null model in which there are no relationships among variables. Based on Hu and Bentler's (1995) original recommendation, I considered a CFI greater than .90 as indicating acceptable fit. There has been some suggestion that a cutoff of .95 is more appropriate (Hu & Bentler, 1998), but also acknowledgement that this depends on sample size and model complexity. I used the .90 cutoff but remained cautious in interpreting a CFI between .90 and .95.

The root mean square error of approximation (RMSEA) corrects for model complexity; if two models explain the observed data equally, the more parsimonious model will have a more favorable RMSEA value. A RMSEA value of .00 indicates perfect fit to the data. A general guideline for RMSEA is a .10 cutoff with a maximum upper bound of the 90% confidence interval (CI) of .10 (Browne & Cudek, 1993). As with CFI, some recent studies have suggested a more stringent cutoff value for RMSEA, specifically .06 (Hu & Bentler, 1998). Similar to the CFI value, I used .10 as my cutoff but was cautious in interpreting a RMSEA between .06 and .10.

The standardized root mean square residual (SRMR) examines the differences between data and model predictions, averages these residuals, and then takes the square root of the average. The SRMR ranges from 0.0 to 1.0, and it is zero when the model matches the data perfectly. It is enhanced when the measurement model has high factor loadings, and is relatively resistant to violations of assumptions of normality (Iacobucci, 2010). A common cutoff for

SRMR is .10, although a more stringent cutoff of .08 may be appropriate for large sample sizes and less complex models (Weston & Gore, 2006). Again, I used the .10 cutoff, but remained less confident in a SRMR value between .08 and .10.

For the moderation analysis, I tested two nested structural models: one model with the interaction term and one without. To compare the nested models, I examined differences in the significance of parameter estimates, of the amount of explained variance for body dissatisfaction, computed a chi-square difference test, and examined improvement in incremental fit indices.

III. RESULTS

A. Sample Characteristics

Table I provides descriptive information about the analytic sample. For illustrative purposes I collapsed several data categories, but included the full scales for covariate analysis. The mean age of the sample was 47.59 ($SD = 7.34$). African American women made up 8.0% of participants, with the remaining participants identifying as Caucasian American. Overall, the sample was highly educated; 65.3% of participants reported having a bachelor's degree or higher. Census data from 2006 to 2010 estimated that 33.8% of women in Pittsburgh had a bachelor's degree (U.S. Census Bureau, 2010). Similarly, the sample had a higher household income relative to the Pittsburgh population. Nearly half of participants (45.6%) reported a household income of \$60,000 and above compared to the median household income of \$36,019 (U.S. Census Bureau, 2010). The majority of participants (77.1%) reported living in the city of Pittsburgh itself or a surrounding suburb. Over a third of the sample (36.4%) was obese (i.e., had a BMI of 30 or greater), which is similar to national obesity estimates for women during that time (35.3% during 2005-2006; Ogden & Carroll, 2010).

Although the sample reported higher income and education levels than did the surrounding population, within the study cohort the lesbian and heterosexual subsamples did not differ from one another on income or education (see Table I). In zero-order analyses the lesbian and heterosexual samples differed significantly on education but this effect became attenuated and non-significant after including demographic covariates. The lesbian and heterosexual groups did not differ on age or geographic location. Study investigators selected the lesbian and heterosexual comparison groups to have equal proportions of African American and Caucasian American women, and that data reduction process was successful, as evidenced by no statistical

TABLE I

SAMPLE CHARACTERISITCS OVERALL AND BY SEXUAL ORIENTATION: ANALYTIC ESTHER PROJECT SAMPLE

	Lesbian (<i>n</i> = 479) <i>n</i> (%)	Heterosexual (<i>n</i> = 400) <i>n</i> (%)	Total (<i>n</i> = 879) <i>n</i> (%)	<i>p</i>
Age [Mean (<i>SD</i>)]	47.38 (7.12)	47.84 (7.60)	47.59 (7.34)	0.529 ^b
35-39	67 (14.0)	59 (14.8)	126 (14.3)	0.455 ^b
40-44	115 (24.0)	89 (22.3)	204 (23.2)	
45-49	121 (25.3)	95 (23.8)	216 (24.6)	
50-54	91 (19.0)	65 (16.3)	156 (17.7)	
55-64	85 (17.7)	92 (23.0)	177 (20.1)	
Race ^a				0.888 ^b
Caucasian American	441 (92.1)	368 (92.0)	809 (92.0)	
African American	38 (7.9)	32 (8.0)	70 (8.0)	
Household income (<i>n</i> = 863)				0.459 ^b
<\$25,000	65 (13.7)	60 (15.5)	125 (14.2)	
\$25,000-\$39,999	79 (16.6)	67 (17.3)	146 (16.6)	
\$40,000-\$59,999	106 (22.3)	85 (21.9)	191 (21.7)	
\$60,000-\$74,999	70 (14.7)	41 (10.6)	111 (12.6)	
\$75,000+	155 (32.6)	135 (34.8)	290 (33.0)	
Education				0.058 ^b
High school or less	37 (7.7)	56 (14.0)	93 (10.6)	
Some college	117 (24.4)	95 (23.8)	212 (24.1)	
Bachelor's degree	119 (24.8)	99 (24.8)	218 (24.8)	
Graduate degree	206 (43.0)	150 (37.5)	356 (40.5)	
Geographic location				0.250 ^b
Rural area	25 (5.2)	21 (5.3)	46 (5.2)	
Small city or town	57 (11.9)	50 (12.5)	107 (12.2)	
Medium-size city	26 (5.4)	23 (5.8)	49 (5.6)	
Suburb near a large city	164 (34.2)	167 (41.8)	331 (37.7)	
Large city	207 (43.2)	139 (34.8)	346 (39.4)	
BMI [Mean (<i>SD</i>)] (<i>n</i> = 878)	29.71 (7.89)	28.21 (6.74)	29.03 (7.42)	0.001 ^c
Not obese (BMI < 30)	279 (58.4)	279 (69.8)	558 (63.5)	>0.001 ^c
Obese (BMI ≥ 30)	199 (41.6)	121 (30.3)	320 (36.4)	

Notes. ESTHER = Epidemiologic Study of HEalth Risk in Women, *SD* = standard deviation, BMI = body mass index.

^a Groups selected to have similar proportions across lesbian and heterosexual samples.

^b Controlling for age, race, income, education, and geographic location, excluding variable under analysis.

^c Controlling for age, race, income, education, and geographic location.

difference between the two groups on race. Lesbian participants were more likely to be obese than were heterosexual participants (41.6% vs. 30.3%; OR = 1.79, $\chi^2(1, N = 862) = 14.53, p > .001$), and had a higher mean BMI, $F(1, 862) = 11.68, p = .001$, controlling for all demographic variables.

Table II provides descriptive information about the psychosocial covariates that served as predictors of lesbian body dissatisfaction. On the lesbian community participation measure, the mean amount of time spent in an activity was between “Never” and “Several times a year” ($M = 0.43, SD = 0.32$). Over a third of lesbian participants reported engaging in one or more community activity monthly. On average, participants reported engaging in three to four types of community activities of the twelve listed.

Over three quarters of the lesbian sample reported ever experiencing discrimination due to sexual orientation. The average number of settings that participants reported discrimination was around two. On the internalized heterosexism scale, the mean response to items was 1.53 ($SD = 0.53$), a value in between “disagree[ing] strongly” and “disagree[ing] somewhat” with internalized heterosexist attitudes. Around a fifth of the lesbian sample strongly agreed with one or more internalized heterosexist attitude.

B. Comparing Lesbian and Heterosexual Women’s Body Dissatisfaction

I analyzed four measures of body dissatisfaction: the Body Dissatisfaction subscale of the EDI-2 (EDI-2-BD), the Appearance Evaluation subscale and Body Areas Satisfaction Scale of the Multidimensional Body-Self Relations Questionnaire (MBSRQ-AE and BASS, respectively), and the actual-ideal discrepancy score of the Body Size Drawings (BSD). Table III provides the intercorrelations among the four measures for the total as well as lesbian and heterosexual samples. All four measures demonstrated strong pairwise correlations. The MBSRQ-AE and

TABLE II

DESCRIPTIVE INFORMATION ABOUT PSYCHOSOCIAL COVARIATES: LESBIAN PARTICIPANTS FROM THE ESTHER PROJECT ANALYTIC SAMPLE, n = 479

	Mean	<i>SD</i>
Lesbian Community Involvement		
Frequency of participation in community activities, “Never” (0) to “Every day” (5)	0.43	0.32
Percentage of participants engaging in community activity monthly or more	38.4%	
Number of community activities over the past year (out of 12)	3.62	2.51
Self-rated community connectedness (0 – 10)	4.88	2.82
Perceived Discrimination		
Lifetime number of settings in which participant perceived discrimination (out of 7)	1.93	1.71
Percentage of participants reporting any lifetime sexual orientation discrimination	76.8%	
Internalized Heterosexism		
Agreement with internalized heterosexist attitudes (1-5)	1.53	0.53
Percentage of participants who strongly agreed with at least one internalized heterosexist attitude	18.2%	

Notes. ESTHER = Epidemiologic Study of HEalth Risk in Women, *SD* = standard deviation.

TABLE III

CORRELATIONS BETWEEN BODY DISSATISFACTION MEASURES AMONG THE TOTAL ANALYTIC SAMPLE, LESBIAN SAMPLE, AND HETEROSEXUAL SAMPLE

Body dissatisfaction measure	BSD	EDI-2-BD	MBSRQ-AE	BASS
BSD	—	.62 (.64/.58)	.63 (.62/.65)	.60 (.62/.59)
EDI-2-BD		—	.73 (.77/.68)	.73 (.76/.69)
MBSRQ-AE			—	.81 (.82/.81)
BASS				—

Notes. Correlations are represented as Total Sample (Lesbian Sample/Heterosexual Sample). BSD = Body Size Drawings, Actual-Ideal Discrepancy; EDI-2-BD = Eating Disorder Inventory-2, Body Dissatisfaction subscale; MBSRQ-AE = Multidimensional Body-Self Relations Questionnaire, Appearance Evaluation subscale; BASS = Body Areas Satisfaction Scale, from the MBSRQ.

BASS, both components of the MBSRQ, demonstrated the highest correlation ($r = .81$), and both MBSRQ measures showed an equally strong correlation to the EDI-2-BD (both $r = .73$). The BSD demonstrated somewhat less strong correlations with the other three measures (r s between .60 and .63), but given that the BSD measures body dissatisfaction implicitly and with a visual analogue scale, the correlations between the BSD and the other three measures were remarkably strong.

The pattern of correlations among the measures was similar for the lesbian and heterosexual groups. The two MBSRQ measures (MBSRQ-AE and the BASS) continued to demonstrate the highest correlations within both groups, and they both had strong and similar correlations with the EDI-2-BD in both groups. Like the overall pattern, both the lesbian and heterosexual samples had more moderate but still strong correlations between the BSD and the other three measures. Given that the patterns of correlations in the lesbian and heterosexual samples were very similar overall, the measures appeared to be operating similarly within the two groups. I included all four as outcome variables in between group analyses.

Table IV contains descriptive information about the four body dissatisfaction measures overall and by sexual orientation, as well as the results of the between groups comparisons. On the BSD, controlling for all demographic variables and BMI, lesbian participants did not significantly differ from heterosexual participants on reports of their actual figure size, $F(1, 853) = .02, p = .899$. However, when excluding BMI as a covariate, lesbian women reported a larger actual figure size than did heterosexual women, $F(1, 855) = 7.62, p = .006$, consistent with their higher average BMI in the sample. Lesbian participants reported a larger ideal figure size than did heterosexual participants, $F(1, 852) = 17.31, p < .001$. As predicted, heterosexual participants

TABLE IV***BODY DISSATISFACTION BY SEXUAL ORIENTATION AND OVERALL WITHIN THE ESTHER PROJECT SAMPLE***

Body Dissatisfaction Measure	Lesbian <i>M (SE)</i> ^a	Heterosexual <i>M (SE)</i> ^a	Total <i>M (SE)</i> ^a	<i>p</i>
BSD				
Actual Figure (1 – 9)	4.90 (0.04)	4.89 (0.04)	4.89 (0.03)	0.899 ^b
Ideal Figure (1 – 9)	3.47 (0.03)	3.28 (0.03)	3.38 (0.02)	>0.001 ^b
Actual-Ideal Discrepancy	1.48 (0.04)	1.63 (0.04)	1.56 (0.03)	0.006 ^b
EDI-2-BD (0 – 5)	2.80 (0.05)	3.13 (0.05)	2.97 (0.04)	>0.001 ^b
MBSRQ-AE (1 – 5)	2.90 (0.03)	2.98 (0.04)	2.94 (0.03)	0.121 ^b
BASS (1 – 5)	2.78 (0.03)	2.92 (0.03)	2.85 (0.02)	0.001 ^b

Notes. ESTHER = Epidemiologic Study of HEalth Risk in Women, *M* = mean, *SE* = standard error, BSD = Body Size Drawings; EDI-2 = Eating Disorder Inventory-2, Body Dissatisfaction subscale; MBSRQ-AE = Multidimensional Body-Self Relations Questionnaire, Appearance Evaluation subscale; BASS = Body Areas Satisfaction Scale, from the MBSRQ

^a All means and standard errors are adjusted for age, race, income, education, geographic location, and body mass index (BMI).

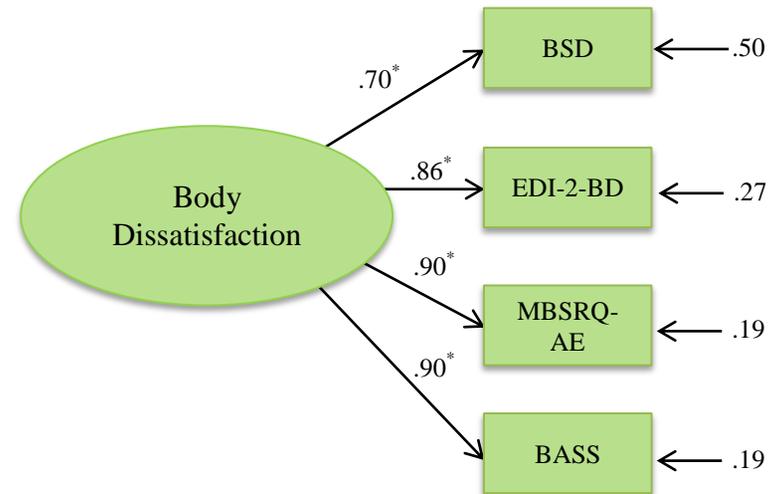
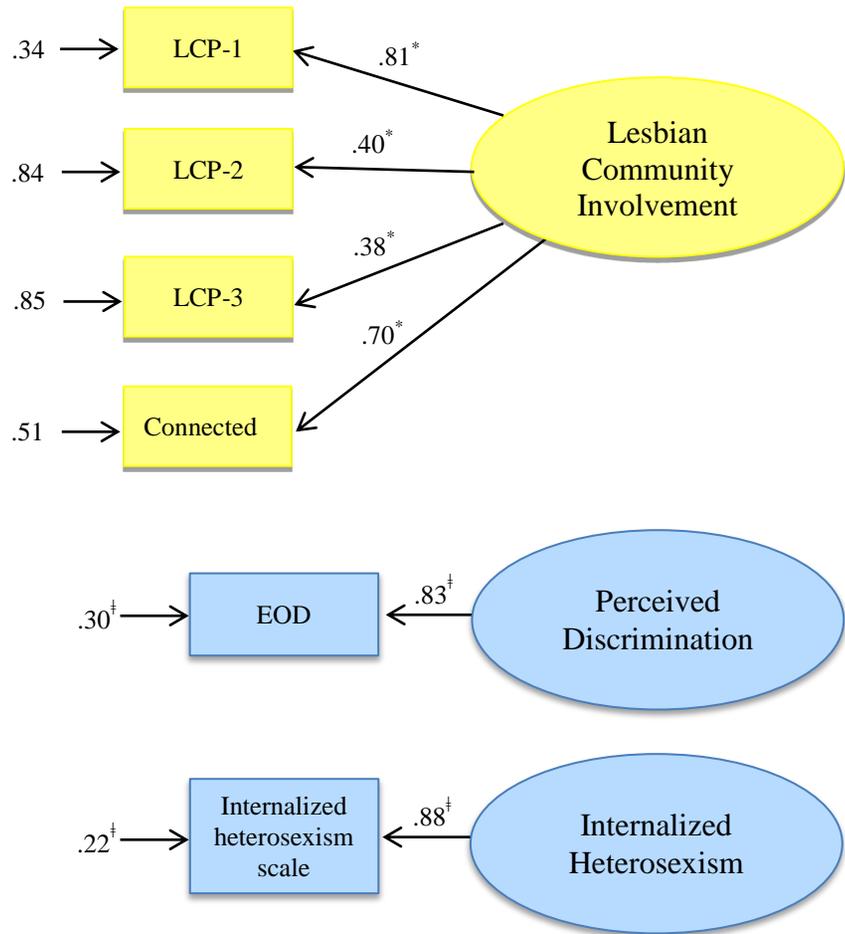
^b Controlling for age, race, income, education, geographic location, and BMI.

had a larger discrepancy between their reported ideal and actual figures than did lesbian participants, $F(1, 852) = 7.63, p = .006$, suggesting greater implicit body dissatisfaction. For the total sample the average level of body dissatisfaction reported on the EDI-2-BD corresponded to “often” thinking negatively about one’s body (see Table IV). As predicted, heterosexual participants reported a significantly higher level of body dissatisfaction than did lesbian participants, $F(1, 799) = 20.06, p < .001$. On the BASS, the overall mean participant response was just below the mid-point of the scale, a response between “neither satisfied nor dissatisfied” and “mostly satisfied” with areas of one’s body. As with the EDI-2-BD, heterosexual participants reported greater body dissatisfaction than did lesbian participants on the BASS, $F(1, 798) = 10.49, p = .001$. The mean overall value on the MBSRQ-AE was around the mid-point of the scale, reflecting neither agreement nor disagreement with appearance evaluation items. Lesbian participants did not differ significantly from heterosexual participants on this measure, $F(1, 798) = 2.41, p = .121$.

C. **Modeling Risk and Protective Factors for Lesbian Body Dissatisfaction**

Figure 3 presents the results of measurement model estimation with standardized factor loadings and error estimates. All factor loadings were significant at $p < .05$. The Satorra-Bentler Scaled Chi-Square statistic was statistically significant, $\chi^2(31, N = 431) = 51.61, p = .012$, indicating inadequate fit of the model to the data. However, given the large size of the sample, the chi-square statistic is likely to be significant even if the model has adequate fit. I considered a recommended 3.0 cutoff ratio of the chi-square value over the degrees of freedom to adjust for sample size. The ratio was below the 3.0 cutoff value (1.66), suggesting acceptable fit. The incremental fit indices also suggested good fit: the CFI was 0.99, above the 0.95 conservative cutoff, the SRMR was 0.039, below the 0.08 conservative cutoff, and the RMSEA was 0.039

Figure 3. Standardized factor loadings and error estimates for the measurement model of body dissatisfaction and lesbian-specific risk and protective factors in the ESTHER Project.



Notes. Fit of measurement model: $\chi^2(31, N = 431) = 51.61, p = .012$; comparative fit index = .99; standardized root mean square residual = .039; root mean square error of approximation = .039 (90% CI = .019-.058). LCP-1-3 = lesbian community participation measure, factors 1-3; connect = lesbian community connectedness measure; EOD = Experiences of Discrimination Scale; BSD = Body Size Drawings; EDI-2-BD = Body Dissatisfaction scale of the Eating Disorder Inventory-2; MBSRQ-AE = Appearance Evaluation subscale of the Multidimensional Body-Self Relations Questionnaire; BASS = Body Areas Satisfaction Scale of the MBSRQ. * $p < .05$. †fixed values.

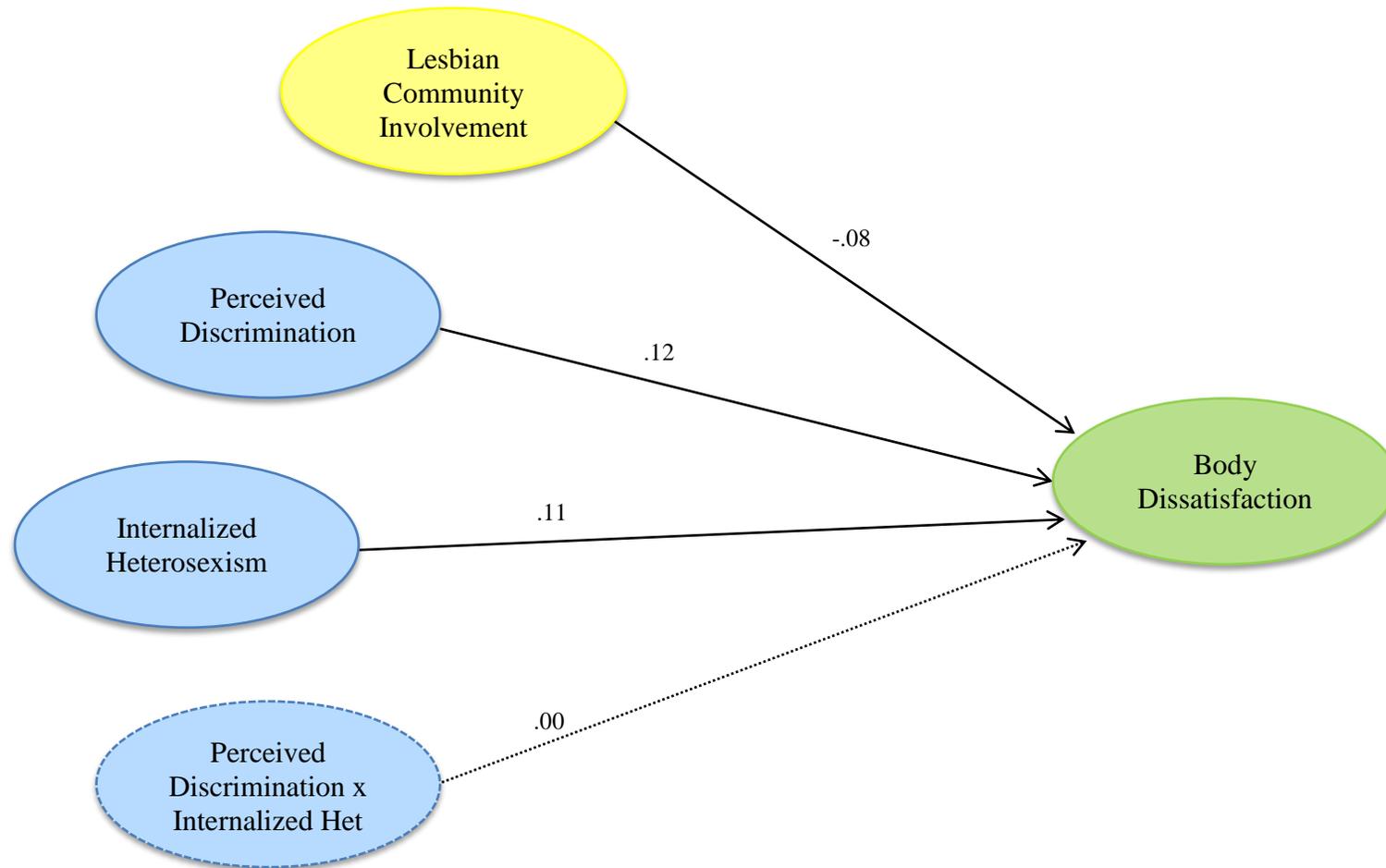
with a 90% confidence interval of 0.019 to 0.058, indicating that the 90% CI remains below the 0.06 conservative cutoff.

Figure 4 presents the core conceptual model that lesbian community involvement, perceived discrimination, and internalized heterosexism contribute to body dissatisfaction and that the interaction of perceived discrimination and internalized heterosexism would be more predictive of body dissatisfaction than either main effect alone. Included in Figure 4 are the standardized parameter estimates of this structural model with and without the interaction term.

Although all of the parameter estimates were in the hypothesized direction, none of the estimates were statistically significant in either structural model. Given that the interaction term had a relationship of zero with body dissatisfaction, the relationships between the other variables and body dissatisfaction are the same with and without the interaction term. The percentage of variance accounted for in the dependent variable, body dissatisfaction, was 3.2% for both models, Hayduk's (2006) Blocked-Error- $R^2 = .032$.

The fit indices of both structural models demonstrated acceptable fit, but did not demonstrate a significant improvement over their respective measurement models. The structural model without the interaction term had a statistically significant Satorra-Bentler Scaled Chi-Square statistic that was identical to the chi-square statistic of the measurement model, $\chi^2(31, N = 431) = 51.61, p = .012$. Similarly, the Satorra-Bentler Scaled Chi-Square statistic for the structural model with the interaction term was statistically significant and identical to the chi-square statistic for a measurement model including the interaction term, $\chi^2(37, N = 431) = 53.15, p = .042$. The RMSEA (0.039), CFI (0.99), and SRMR (0.039) incremental fit indices for the structural model without the interaction term were identical to the measurement model values without the interaction term, and the CFI (0.99), RMSEA (0.032; 90% CI = .007 - .050), and

Figure 4. Standardized parameter estimates for the full and nested structural model of body dissatisfaction among lesbian women in the ESTHER Project.



Note: All paths are non-significant. Fit of model without interaction term: $\chi^2(31, N = 431) = 51.61, p = .012$; comparative fit index = .99; standardized root mean square residual = .039; root mean square error of approximation = .039 (90% CI = .019-.058). Fit of model with interaction term: $\chi^2(37, N = 431) = 53.15, p = .042$; comparative fit index = .99; standardized root mean square residual = .036; root mean square error of approximation = .032 (90% CI = .007-.050).

SRMR (0.036) of the full structural model with the interaction term were identical to the incremental fit indices of a measurement model containing the interaction term. The ratio between the chi-square statistic and the degrees of freedom of the full structural model was smaller (1.44) than the ratio of the structural model without the interaction term (1.66), suggesting better fit. However, a chi-square difference test between the full structural model and model without the interaction term suggested that there is no significant difference between the chi-square values of the two models, $\chi^2_{\text{difference}}(6, N = 431) = 1.54, ns$. Additionally, given that the two structural models did not demonstrate improved fit over their respective measurement models, any difference between the two would be attributable to a better fitting measurement model and not the predictive power of the interaction term.

Table V contains a covariance and correlation matrix of observed variables including variable means and standard deviations for study replication and result verification purposes.

TABLE V

COVARIANCE AND CORRELATION MATRICES WITH MEANS AND STANDARD DEVIATIONS FOR OBSERVED VARIABLES

	Body Dissatisfaction				Lesbian Community Involvement						
	BSD	EDI-2	AE	BASS	LCP1	LCP2	LCP3	Connect	EOD	IH	Interact
BSD	1.07	0.64	0.62	0.62	-0.02	0.03	0.10	0.00	0.04	0.03	-0.02
EDI-2	0.83	1.57	0.77	0.76	-0.05	0.04	0.05	-0.03	0.09	0.09	-0.01
AE	0.53	0.80	0.69	0.82	-0.12	-0.01	0.01	-0.07	0.09	0.10	0.02
BASS	0.43	0.64	0.46	0.45	-0.06	0.07	0.04	-0.05	0.07	0.10	0.02
LCP1	-0.01	-0.03	-0.05	-0.02	0.27	0.32	0.29	0.58	0.14	-0.09	-0.03
LCP2	0.01	0.02	0.00	0.01	0.05	0.11	0.30	0.23	0.10	-0.07	-0.03
LCP3	0.05	0.03	0.00	0.01	0.07	0.05	0.23	0.26	0.10	-0.06	-0.05
Connect	0.01	-0.12	-0.15	-0.09	0.84	0.21	0.35	7.78	0.08	-0.13	-0.05
EOD	0.07	0.19	0.13	0.08	0.13	0.06	0.08	0.37	2.99	0.01	-0.01
IH	0.02	0.06	0.04	0.04	-0.02	-0.01	-0.02	-0.19	0.01	0.27	0.04
Interact	-0.02	-0.01	0.02	0.01	-0.01	-0.01	-0.02	-0.11	-0.02	0.02	0.76
	BSD	EDI-2	AE	BASS	LCP1	LCP2	LCP3	Connect	EOD	IH	Interact
Mean	1.53	2.85	2.93	2.80	0.68	0.21	0.42	4.99	1.94	1.51	0.01
SD	1.03	1.25	0.83	0.67	0.52	0.33	0.48	2.79	1.73	0.52	0.87

Notes. Covariances appear in the lower left of the matrix, with variances on the diagonal in bold. Correlations appear in the upper right of the matrix. BSD = Body Size Drawings, Actual-Ideal Discrepancy; EDI-2 = Eating Disorder Inventory-2, Body Dissatisfaction subscale; AE = Multidimensional Body-Self Relations Questionnaire (MBSRQ), Appearance Evaluation subscale; BASS = Body Areas Satisfaction Scale, from the MBSRQ; LCP1- LCP3 = lesbian community participation measure, factors 1-3; connect = lesbian community connectedness measure; EOD = Experiences of Discrimination Scale; IH = internalized heterosexism scale; Interact = perceived discrimination x internalized heterosexism interaction term; *SD* = standard deviation.

IV. DISCUSSION

In the current study, I used a large community dataset of middle-aged lesbian and heterosexual women from the ESTHER Project in Pittsburgh, Pennsylvania, U.S.A., to explore body dissatisfaction among lesbian women. In the first stage of the study I compared lesbian to heterosexual women on four commonly used measures of body dissatisfaction, controlling for clinician-collected BMI and key demographic variables. In the second stage I tested a theoretically-based heuristic model of risk and protective factors for body dissatisfaction among lesbian women using structural equation modeling (SEM).

A. **Sexual Orientation Group Differences in Body Dissatisfaction**

Heterosexual participants demonstrated greater body dissatisfaction than did lesbian participants on three of four well-validated measures. Specifically, heterosexual women reported greater body dissatisfaction than lesbian women on the Body Size Drawings (BSD), the Body Dissatisfaction subscale of the Eating Disorders Inventory (EDI-2-BD), and the Body Area Satisfaction Scale (BASS) of the Multidimensional Body-Self Relations Questionnaire (MBSRQ). The women did not show significant differences on the Appearance Evaluation subscale of the MBSRQ (MBSRQ-AE), although the pattern of results was the same. The consistency of findings across measures is unsurprising given that all four measures were strongly intercorrelated, including the BSD, which uses a visual analogue scale and reflects implicit body dissatisfaction by drawing a comparison between figure drawings selected as “actual” and “ideal”. These high intercorrelations and consistent findings support the notion that these measures represent the same general body image construct: an evaluative, attitudinal measure capturing dissatisfaction with overall appearance and body characteristics. Importantly,

the scales also demonstrated the same pattern of intercorrelations in the lesbian and heterosexual samples, suggesting that they operated in similar ways within the two groups.

On the BSD, lesbian women not only demonstrated a smaller differential between the average figures selected as “actual” and “ideal”, but also showed differences on the “actual” and “ideal” figures chosen. Excluding BMI but including all demographic covariates, lesbian women selected a larger “actual” figure, accurately reflecting their higher mean BMIs in the sample. They were also more likely to select a larger figure shape as “ideal” than were heterosexual women. This suggests that not only do lesbian women have a smaller discrepancy between their current body size and what they aspire to, but what they aspire to is a larger size than do heterosexual women.

1. **Discussion of between group comparisons**

These findings support the hypothesis that lesbian women experience enhanced body image compared to heterosexual women, using more methodologically rigorous methods than past studies. BMI represents an important confounding factor in studies of body image and sexual orientation given the strong relationship between BMI and body dissatisfaction (Heffernan, 1996; Stice & Shaw, 2002) and higher rates of overweight and obesity among lesbian women generally (Aaron, et al., 2001; Boehmer, et al., 2007; Case, et al., 2004; Valanis, et al., 2000). In the current study, efforts were made to minimize the impact of BMI on group differences by recruiting well-matched samples of lesbian and heterosexual women and by controlling for BMI with clinician-collected data on height and weight. The groups ultimately had significantly different BMIs, but the average BMIs of both groups were in the overweight range (i.e., 25 to 30), suggesting more comparable groups than past studies even prior to statistical controls.

Measure selection has also complicated past findings, as body image is a multifaceted construct and researchers have not always been specific about the constructs they are measuring. Indeed, numerous studies in the lesbian body image literature show disparate findings depending on the type of measure used (i.e., Bergeron & Senn, 1998; Brand, et al., 1992). I selected four commonly used body dissatisfaction measures that all represent an attitudinal evaluation of one's overall appearance and body features. The measures had strong relationships to one another and, as a result, demonstrated the same pattern of results in the group comparisons. The measures also evidenced the same pattern of intercorrelations across groups, suggesting that lesbian and heterosexual respondents were interpreting them in a similar fashion.

The finding that, on average, lesbian women aim for a larger body type than do heterosexual women is consistent with past studies suggesting that heterosexual women have a thinner body ideal than lesbian women do (Bergeron & Senn, 1998; Brand, et al., 1992). Given that lesbian women are more likely to be overweight and obese than heterosexual women (Aaron, et al., 2001; Boehmer, et al., 2007; Case, et al., 2004; Valanis, et al., 2000), differences between lesbian and heterosexual women's reported body ideal could reflect an attempt to have body size goals that are relative to one's current weight. Indeed, there is support for the hypothesis that women with higher BMIs also have higher ideal BMIs (Tovee, Emery, & Cohen-Tovee, 2000). However, given the current finding that disparities in figure size remained significant after controlling for BMI, this explanation seems less likely. Another possibility is the sociocultural explanation that lesbian women value larger body types than do heterosexual women (Cohen & Tannenbaum, 2001; Swami & Tové, 2006). Swami and Tové (2006) found that lesbian women were more likely to prefer images of women with higher BMIs than were heterosexual women in a sample of women that did not have group differences in BMI. The

authors attributed this finding to sociocultural differences between the groups contributing to different standards of beauty. It seems likely that a similar phenomenon explains findings here. In fact, the current study provides a more stringent test of the differences in ideal body size between lesbian and heterosexual women, as I controlled for clinician-collected BMI in these analyses.

2. **Limitations**

Several aspects of study methodology in combination with a large sample size suggest that these analyses constitute a more rigorous test of sexual orientation differences in body dissatisfaction than past studies. However, in some ways these findings are limited in generalizability. The women in the analytic sample of the ESTHER Project were all adults between the ages of 35 and 64, with a mean age of 48. Although this includes a broad swath of adult women, women in their 20s and early 30s, and those over 65, may have different relationships with bodies, as well as important differences related to sexual identity development, that could reduce or accentuate group differences. The women in this study also had a higher level of education and higher household income than the overall Pittsburgh community. The lesbian and heterosexual analytic samples did not differ from each other on any demographic variables, however, suggesting that although participants were not fully representative of the Pittsburgh female population, the lesbian and heterosexual samples served as good comparison groups.

The participants in the ESTHER Project were also primarily Caucasian, limiting generalizability to other ethnic groups. Researchers have consistently found that African American women report greater body satisfaction than do Caucasian women (Grabe & Hyde, 2006; Kronenfeld, et al., 2010; Roberts, et al., 2006), and preliminary evidence suggests that

Latina women may have greater body satisfaction than Caucasian women, as well (Millstein, et al., 2008). Ethnic differences could interact with lesbian identity in a way that serves to reduce sexual orientation group differences among women from racial/ethnic groups that already experience greater body satisfaction overall. It is also possible that certain racial/ethnic and sexual identities produce an additive buffering effect against body dissatisfaction. Investigating the interaction of gender, race/ethnicity, and sexual orientation on body image will be an important next step in research, contributing to a growing literature on identity intersectionality in other topic areas (Balsam, Molina, Beadnell, Simoni, & Walters, 2011; Meyer, 2010; Stirratt, Meyer, Ouellette, & Gara, 2008).

Although these findings suggest that lesbian women experience less body dissatisfaction as measured by attitudinal evaluations of appearance and body features, it remains possible that lesbian women are similar to heterosexual women or actually experience worse outcomes on other components of body image. Bergeron and Senn (1998) found that while lesbian and heterosexual women differed on some body image variables they reported similar degrees of body disparagement, an affectively laden measure that captures a strong loathing or hatred toward one's body. This component of body image was not studied here, but may be more pronounced than other aspects of body dissatisfaction among lesbian women given possible overlap with internalized heterosexist attitudes. I also did not assess preoccupation with weight and shape in the current study. Both Brand and colleagues (1992) and Peplau and colleagues (2009) found that heterosexual women reported greater preoccupation with their physical appearance than did lesbian women, even while finding no significant differences on other body image constructs. Given this, it seems likely that body preoccupation is another component of body image that lesbian women experience enhanced outcomes on. Future research should

investigate these distinct facets of body image to help us better understand sexual orientation differences.

B. **Investigating Culturally-Specific Contributors to Body Image among Lesbian Women**

To contextualize body dissatisfaction outcomes among lesbian women I tested a model of several theoretically- and empirically-derived culturally-specific factors. These included lesbian community involvement, which served as a proxy measure of lesbian sociocultural influences, perceived sexual orientation-related discrimination, and internalized heterosexism, the internalization of society's negative attitudes toward homosexuality (Szymanski & Chung, 2003a). I also tested the interaction of discrimination with level of internalized heterosexism to examine the hypothesis that discrimination may only influence a woman's self-concept and body image if she strongly internalizes the stigma surrounding her lesbian identity. I analyzed the relationship between these three variables and the interaction term with body dissatisfaction in a combined SEM model. The measurement model provided a good fit to the data, suggesting that the measures I selected to represent underlying latent constructs worked well together. However, the structural model, with and without the interactive effect, did not show any improvement in model fit, suggesting that specifying the relationship between these variables and body dissatisfaction does not help us better predict dissatisfaction outcomes. Although the relationships between the three main predictors and body dissatisfaction were all in the hypothesized direction, none were statistically significant.

1. **Modeling protective factors for lesbian body dissatisfaction**

One explanation for the failure to find a significant relationship between lesbian community involvement and body dissatisfaction involves the difficulty of capturing cultural

influences with survey-based, cross-sectional designs. The literature on body image among lesbian women suggests several key sociocultural influences on body dissatisfaction, including different standards of beauty in the lesbian community, the rejection of thinness norms as part of a rejection of heterosexual values, and a reduced emphasis on physical appearance in lesbian mate selection. In this study I attempted to capture these lesbian cultural influences by assessing the degree to which women participated in and felt connected to the lesbian community, working from a social learning theory framework. However, a simple index of lesbian community involvement does not fully capture the extent to which a woman is being influenced by the attitudes and norms of the lesbian community. This may be especially true for cultural influences involving mate selection; the lesbian community involvement measures did not capture the influence of having a female romantic partner or dating lesbian women generally, instead focusing on group activities such as attending lesbian cultural events and going to lesbian bars/clubs.

In addition to the conceptual limitations of the community involvement measure, the association of lesbian community involvement with body dissatisfaction was constrained by low variance in community involvement within this sample. Statistically, it is difficult to model a relationship when the predictor of the effect does not vary much by participant. The measure itself did not appear to have appropriate time points to report engagement in lesbian activities, as most women used the lower half of the scale ranging from participating in an activity “Never” to “Monthly” and hardly used the “Weekly” and “Every day” time points.

Given that the women in the ESTHER Project were all over the age of 34, their participation in a specific set of lesbian settings and social activities over the previous year may not accurately capture their experience of lesbian cultural influences. The community

involvement measure did not assess committed romantic partners or exposure to lesbian-g geared media (magazines, books, etc.), both of which may be more common among women over 34, and did not capture women's past participation in lesbian community activities. Additionally, although sexual identity theories suggest that lesbian community involvement increases with greater sexual identity development (Bardone-Cone, et al., 2008; Coleman, 1982; Kaufman & Johnson, 2004), it is possible by age 35 many women have already reached later stages of development, leading to greater involvement overall, but less variability, among older age groups. As a result, the age boundaries of the current sample may help explain the reduced variance in the lesbian community involvement measure.

The lack of a significant relationship between lesbian community involvement and body dissatisfaction in the current study adds to already equivocal findings on lesbian community participation as a predictor of body image. Among community samples of lesbian women, Heffernan (1996) found that participation in lesbian-focused activities was associated with less weight concern, while Beren and colleagues (1996) did not find a relationship between lesbian community affiliation and body dissatisfaction. Future research should attempt to capture specific, theoretically-based facets of lesbian cultural influences on body image, such as the influence of having or actively seeking a lesbian romantic partner, and the cumulative effects of exposure to a lesbian community. Researchers should also attempt to study cultural influences with experimental designs. A common paradigm in the general body image literature is to experimentally manipulate women's exposure to mainstream media images and then assess changes in body dissatisfaction (Grabe, et al., 2008). A similar manipulation could be employed among lesbian women using lesbian magazines, other media, and even interactions with lesbian "confederates" as stimuli.

Another sociocultural explanation that was not directly explored in the current study, but may be key to understanding lesbian cultural influences on body dissatisfaction, involves masculine and feminine traits and identification with “butch” and “femme” lesbian subgroups. Masculine-identifying, or “butch,” women may be more likely to value a larger body size and distance themselves from heteronormative standards of beauty that include the thinness ideal. In support of this hypothesis, Lakkis, Ricciardelli, and Williams (1999) found that expression of feminine traits partially mediated the cross-sectional relationship between sexual orientation and body dissatisfaction among a sample of lesbian and heterosexual women. This finding may reflect the general influence of feminine traits on body image-related outcomes, which is a consistent finding in the heterosexual literature (Murnen & Smolak, 1997), but may also relate to butch/femme subcultural differences. To my knowledge, researchers have yet to do a direct comparison of body dissatisfaction among lesbian women who identify as “butch” and “femme”. Ludwig and Brownell (1999) investigated subgroup differences but made distinctions between lesbian feminists, lesbian sports-based culture, and lesbians who identified with the “punk” music scene, and did not specifically address butch versus femme subgroups. Given theoretical support and Lakkis, Ricciardelli, and Williams’ (1999) findings, butch and femme differences may be a fruitful avenue of research for the study of lesbian cultural influences on body dissatisfaction.

2. **Modeling risk factors for lesbian body dissatisfaction**

Although most of the literature on body image among lesbian women points to protective factors that lead to enhanced body image compared to heterosexual women, the minority stress literature suggests that stressors such as discrimination and stigmatization lead to negative mental health outcomes that could include body dissatisfaction. To my knowledge, this

study served as a first attempt at modeling the relationship between an environmental minority stressor: perceived discrimination, and body dissatisfaction among lesbian women. More work has been done with internalized heterosexism, which is sometimes considered a minority stressor and other times considered a moderator of minority stress effects. Theorists have posited specific relationships between internalized heterosexism and body dissatisfaction among lesbian women such that lesbian women with high internalized heterosexism will experience greater body dissatisfaction (L. S. Brown, 1987; Haines, et al., 2008). Reilly and Rudd (2006) found that internalized heterosexism predicted body image among a sample of gay and bisexual men, and Haines and colleagues (2008) found that internalized heterosexism was associated with negative eating attitudes among lesbian women through body surveillance and body shame. The current study aimed to replicate these findings, while also examining internalized heterosexism as a moderator of the hypothesized effect of perceived discrimination on body dissatisfaction.

In the SEM model estimated here, neither perceived discrimination, internalized heterosexism, nor their interactive effect demonstrated a significant relationship with body dissatisfaction. One explanation for these findings involves construct measurement. Unlike lesbian community involvement and body dissatisfaction, in this study there was only one indicator each for the perceived discrimination and internalized heterosexism constructs, and the measures themselves were not especially strong. Although commonly used in the field, the Experiences of Discrimination (EOD) scale designed to capture perceived discrimination suffers from imprecise time frame measurement. The measure does not ask participants to consider a specific period of time when indicating whether they have experienced discrimination in certain settings, indirectly making the scale a *lifetime* measure of discrimination. Given that we might expect discrimination experiences to influence body dissatisfaction in real time, having no time

boundary on reporting discrimination events may diminish the predictive power of this measure on body image. The 10-item internalized heterosexism measure, adapted from the Internalized Homophobia (IHP) scale (Herek & Glunt, 1995), contains many dire items regarding feelings toward one's homosexual identity that may not be subtle enough to capture internalized heterosexism in the early 21st century. These include: "I would like to get professional help in order to change my sexual orientation from lesbian to straight" and "If someone offered me the chance to be completely heterosexual, I would accept the chance." This measure was also not designed for lesbian women, but for sexual minority individuals in general. There are other existing measures that may better capture the phenomenon of internalized heterosexism among lesbian women, including the Lesbian Internalized Homophobia Scale (LIHS; Szymanski & Chung, 2001), which Szymanski and Chung designed specifically for lesbian women and contains more subtle assessments of internalized heterosexism.

Given that the lesbian sample from the ESTHER Project was exclusively comprised of middle-aged women, the level of internalized heterosexism evidenced in the sample may be somewhat restricted. Like lesbian community involvement, internalized heterosexism is a key variable thought to change (in this case, decrease) with sexual identity development (Bardone-Cone, et al., 2008; Coleman, 1982; Kaufman & Johnson, 2004). Although being in later stages of identity development is not synonymous with age, women who are older may be more likely to be at later stages of development, leading to reduced expression of internalized heterosexism. Unfortunately, it is difficult to verify this in the current sample as the internalized heterosexism measure has no standardized cutoffs, preventing interpretation of the measure's scale values in an absolute sense.

Beyond measurement and sample restrictions, it is also likely that the model of risk factors for body dissatisfaction among lesbian women requires modification. For example, discrimination may not directly affect body dissatisfaction; there may be more proximal variables that influence body image. Examining mental health outcomes among sexual minority women, Lehavot and Simoni (2011) found that victimization related to sexual orientation was directly associated with substance use, but only indirectly related to depression and anxiety by lessening social-psychological resources, such as support. In the case of body dissatisfaction, self-esteem and depression may serve as mediators of the relationship between minority stressors and body dissatisfaction. Researchers have documented a relationship between internalized heterosexism and low self-esteem among lesbian women (Szymanski & Chung, 2001), and self-esteem is correlated with body dissatisfaction (Franzoi & Shields, 1984; Vohs, et al., 2001). Depression could also serve as an important mediator given its documented relationship with internalized heterosexism in lesbian women in Haines and colleagues' study (2008), and its link to body dissatisfaction (Grabe, et al., 2007).

It is also possible that discrimination is not a major contributor to body dissatisfaction. Experiencing discriminatory events may be more likely to lead to "externalizing" disorders such as substance abuse (McCabe, et al., 2010) than to "internalizing" outcomes such as body dissatisfaction. Childhood sexual abuse (CSA) may be more closely associated with body image. Several studies have shown a link between CSA and obesity among lesbian women (Aaron & Hughes, 2007; Smith, et al., 2010), an outcome strongly related to body dissatisfaction (Stice & Shaw, 2002). A direct link between CSA and body dissatisfaction has also been documented in several populations (Dunkley, et al., 2010; Grilo & Masheb, 2001; Kenardy & Ball, 1998; Murray, et al., 2008; Preti, et al., 2006), but has not yet been explored in lesbian women. Given

that lesbian women are more likely to report CSA than are heterosexual women (Alvy, et al., in press; Austin, et al., 2008; Balsam, et al., 2005), CSA may serve as an important minority stressor to examine in relation to lesbian body dissatisfaction.

In this study I also attempted to test the hypothesis that discrimination would influence body dissatisfaction primarily among participants with high internalized heterosexism. Given the measurement limitations of the main effects variables, this interaction was not adequately tested here. Additionally, if the relationship between these risk factors and body dissatisfaction is fully mediated by a more proximal variable such as depression or self-esteem, then the interactive effect would also be more appropriately modeled as a mediated effect.

If subsequent studies using more refined measures and improved model specification do not find a relationship between minority stressors and body dissatisfaction among lesbian women, it is likely that minority stressors do not serve as risk factors for this specific health outcome. Lesbian cultural norms and attitudes may completely buffer any deleterious effects of minority stressors on body image. This would be consistent with the finding here and in other methodologically rigorous studies (Owens, et al., 2003; Polimeni, et al., 2009) that lesbian women experience less body dissatisfaction than do heterosexual women despite lesbian women's sexual minority status.

3. **Developmental trajectories of lesbian body dissatisfaction**

Few researchers have examined the role of sexual identity development in body image among lesbian women. Krakauer and Rose (2002) found that lesbian women retrospectively reported less weight concerns after "coming out" as lesbian, and lesbian women who had been "out" longer reported less current weight concern than those who came out more recently. Unfortunately, this is the only study to date on this topic, and suffers from retrospective

reporting bias and the likelihood that women who have been “out” longer also differ on other variables such as age.

Sexual identity theories predict that as a woman’s lesbian identity becomes more established she experiences less internalized heterosexism and has greater involvement in the lesbian community (Bardone-Cone, et al., 2008; Coleman, 1982; Kaufman & Johnson, 2004). These developmental variables were central to the current study; support for my model would have been consistent with the hypothesis that as a lesbian woman moves toward later stages of identity development she experiences less body dissatisfaction. However, given the results of SEM modeling, the present study did not lend support to this theory.

C. **Study Implications**

This study replicated past findings that lesbian women experience less body dissatisfaction than do heterosexual women, suggesting that lesbian identity or some aspects of lesbian culture are “protective” against a near-normative trend toward body dissatisfaction among women. Although not fully understood at present, this buffering effect of lesbian identity on body dissatisfaction contributes to a growing literature of protective effects on lesbian health. Researchers have found that lesbian women who participate in a sexual minority community are less likely to report psychological distress than those who do not (Lewis, Derlega, Berndt, Morris, & Rose, 2001; Morris, Waldo, & Rothblum, 2001), possibly due to enhanced social support and identification with similarly stigmatized others (Herek & Garnets, 2007; Lewis, Kholodkov, & Derlega, 2012). It is important that we continue to identify culturally-specific resources among sexual minorities, given high baseline rates of several mental health disorders in this population (Cochran, et al., 2004; Cochran, et al., 2003; Hughes, 2005).

This study also highlights the importance of examining how multiple identities interact to produce different health outcomes. The body image literature has primarily focused on gender identity while, for a long time, ignoring race, ethnicity, and sexual orientation. There is now considerable support for analyzing the intersection of race and gender on body image (Grabe & Hyde, 2006; Kronenfeld, et al., 2010; Roberts, et al., 2006), and growing support for examining sexual orientation, as well. Future studies should attempt to look at the intersection of multiple identities, including other sexual minority identities like bisexuality, and additional identities such as disability status and social class.

D. **Concluding Remarks**

By conducting a methodologically rigorous comparison of lesbian and heterosexual women's body dissatisfaction, and investigating lesbian-specific risk and protective factors for body dissatisfaction with SEM modeling, this project attempted to illuminate unanswered questions regarding body dissatisfaction among lesbian women. The findings on lesbian and heterosexual differences support the hypothesis that, on average, lesbian women experience less body dissatisfaction than heterosexual women. The outcome of the figure drawing analyses further suggests that lesbian women have a larger ideal body size than do heterosexual women above and beyond the influences of actual body size. None of the hypothesized predictors of body dissatisfaction among lesbian women were supported in the current study. Given significant differences between lesbian and heterosexual women's body image, however, identifying sociocultural mechanisms whereby women's sexual orientation influences body dissatisfaction seems especially important. Further research should aim to help us understand the underlying phenomenon and ultimately provide clinically useful information to enhance women's health.

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APPENDIX

SELECTED ITEMS FROM THE ESTHER PROJECT

Demographics

From Recruitment Phone Screening:

Age: _____

Which of the following best describes your racial/ethnic heritage? (**NOTE: Read all responses and check all that apply**)

- American Indian or Alaska Native
- Asian
- Black or African-American
- Hispanic or *Latina*
- Native Hawaiian or Other Pacific Islander
- White
- Other (Specify: _____)

I mentioned before that one of the lifestyle differences we are looking at is sexual orientation. Now I would like to ask you a few questions about how you identify yourself.

How do you identify your sexual orientation?

- Heterosexual or Straight
(Ask question #8 only)

8. Since age 18, have your sexual partners been...

- Only men**
- Both men and women
- Only women

- Bisexual (Ask question #9 only)
- Lesbian or Gay (Ask question #9 only)
- Other (Specify) _____ Ask question #9)

9. Over the past five years, has your emotional, physical, and romantic attractions been towards

- Only women**
- Primarily women**
- Women and men equally (*ask question #10*)
- Primarily men
- Only men

10. Over the past five years have your relationships been

- Only women**
- Primarily women**
- Women and men equally
- Primarily men
- Only men

From the First Clinic Visit Questionnaire:

Which of the following categories represents your total household income from all sources?

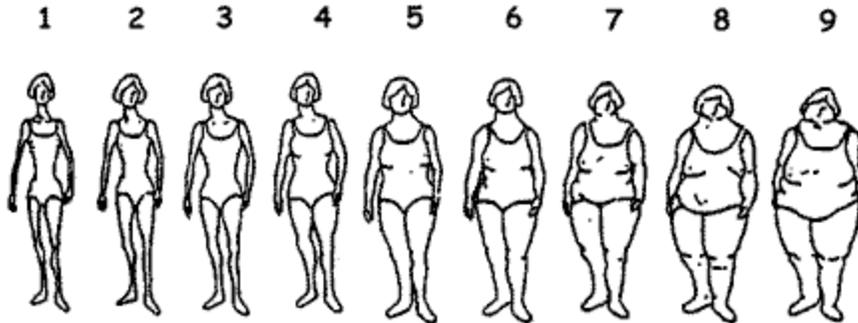
- 1 Less than \$15,000
- 2 \$15,000 - \$24,999
- 3 \$25,000 - \$39,999
- 4 \$40,000 - \$59,999
- 5 \$60,000 - \$74,999
- 6 \$75,000 or more

What is the highest grade or year of school you have completed?

- 1 Less than 12 years
- 2 High school diploma or GED
- 3 Some college, 2-year degree or diploma, technical school
- 4 Bachelor's degree
- 5 Graduate or professional degree

Which of the following categories comes closest to the type of place where you presently live? (The city of Pittsburgh would be categorized as a large city.)

- 1 In open country but not on a farm
- 2 On a farm
- 3 In a small city or town (under 50,000 residents)
- 4 In a medium-size city (50,000 – 250,000 residents)
- 5 In a suburb near a large city
- 6 In a large city (> 250,000 residents)

*Body Image***From the First Clinic Visit Questionnaire:****Body Size Drawings (BSD)**

Using the silhouettes above, mark the box of the appropriate figure that...

most closely matches your own:

1 2 3 4 5 6 7 8 9

you would most like to have:

1 2 3 4 5 6 7 8 9

most women would like to have:

1 2 3 4 5 6 7 8 9

you believe most partners/spouses would like best:

1 2 3 4 5 6 7 8 9

From the Take-Home Questionnaire:**Eating Disorder Inventory-2 (EDI-2)****Body Dissatisfaction Subscale:**

The following are a series of statements about your attitudes, feelings, and behavior. Some of the items relate to food or eating. Other items ask about you. Please place an “X” over the box that indicates how often each statement is true about you.

	<u>Always</u>	<u>Usually</u>	<u>Often</u>	<u>Sometimes</u>	<u>Rarely</u>	<u>Never</u>
I think that my stomach is too big.	5 <input type="checkbox"/>	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>
I think that my thighs are too large.	5 <input type="checkbox"/>	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>
I think that my stomach is just the right size.	5 <input type="checkbox"/>	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>
I feel satisfied with the shape of my body.	5 <input type="checkbox"/>	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>
I like the shape of my buttocks.	5 <input type="checkbox"/>	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>
I think my hips are too big.	5 <input type="checkbox"/>	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>
I think that my thighs are just the right size.	5 <input type="checkbox"/>	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>
I think my buttocks are too large.	5 <input type="checkbox"/>	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>
I think that my hips are just the right size.	5 <input type="checkbox"/>	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>

Multidimensional Body-Self Relations Questionnaire

Appearance Evaluation Subscale:

The following pages contain a series of statements about how people might think, feel or behave. Please read each statement and place an "X" over the box that represents the extent to which each statement pertains to you personally.

	<u>Definitely disagree</u>	<u>Mostly disagree</u>	<u>Neither agree nor disagree</u>	<u>Mostly agree</u>	<u>Definitely agree</u>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
I like the way I look without my clothes on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My body is sexually appealing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like my looks just the way they are.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Most people would consider me good-looking.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like the way my clothes fit me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I dislike my physique.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am physically unattractive.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Body Areas Satisfaction Scale:

Place an "X" over the box that represents how satisfied you are with each of the following areas or aspects of your body.

	<u>Very dissatisfied</u>	<u>Mostly dissatisfied</u>	<u>Neither satisfied or dissatisfied</u>	<u>Mostly satisfied</u>	<u>Very satisfied</u>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Face (facial features, complexion)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hair (color, thickness, texture)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lower torso (buttocks, hips, thighs, legs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mid torso (waist, stomach)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Upper torso (chest or breasts, shoulders, arms)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Muscle tone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Lesbian Community Involvement

From the First Clinic Visit Questionnaire, Lesbian Participants Only:

How often do you attend or participate in the following types of events, social activities, or groups?

	<u>Every day</u>	<u>Weekly</u>	<u>Monthly</u>	<u>Several times a year</u>	<u>Never</u>	<u>Not available in area</u>
a. Lesbian only community or social activity	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
b. LGBT gay rights or political groups	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
c. Lesbian social club or group	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
d. Lesbian/Feminist/Women's bookstore	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
e. Lesbian sports team or recreational activity	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
f. Lesbian/gay bar or nightclub	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
g. Lesbian support or discussion group	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
h. Lesbian concert or cultural event	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
i. Lesbian hotline or information center	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
j. Lesbian health care services	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
k. Lesbian/gay religious group	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>
l. Lesbian/gay community center	4 <input type="checkbox"/>	3 <input type="checkbox"/>	2 <input type="checkbox"/>	1 <input type="checkbox"/>	0 <input type="checkbox"/>	-7 <input type="checkbox"/>

On a scale from 0 to 10, with 0 being “not at all” and 10 being “very much”, how connected do you feel to the lesbian community in the greater Pittsburgh area? Place an “X” over the box that represents the most appropriate number on the scale.

Not at all Very much
all much
 0 1 2 3 4 5 6 7 8 9 10

*Perceived Discrimination***From the First Clinic Visit Questionnaire:**

Have you experienced discrimination, been prevented from doing something, or been hassled or made to feel inferior in any of the following situations because of your sexual preference (heterosexual, bisexual, homosexual)?

	<u>Yes</u>	<u>No</u>
In your family	1 <input type="checkbox"/>	0 <input type="checkbox"/>
At school	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Getting a job	1 <input type="checkbox"/>	0 <input type="checkbox"/>
At work	1 <input type="checkbox"/>	0 <input type="checkbox"/>
At home	1 <input type="checkbox"/>	0 <input type="checkbox"/>
Getting medical care	1 <input type="checkbox"/>	0 <input type="checkbox"/>
On the street or in a public setting	1 <input type="checkbox"/>	0 <input type="checkbox"/>

*Internalized Heterosexism***From the First Clinic Visit Questionnaire, Lesbian Participants Only:**

Because of societal attitudes about lesbians, and gay people in general, people may have mixed/conflicting feelings about their sexual orientation. Please tell me how much you agree or disagree with the following statements.

	<u>Agree strongly</u>	<u>Agree somewhat</u>	<u>Neither agree nor disagree</u>	<u>Disagree somewhat</u>	<u>Disagree strongly</u>
a. I have no regrets about being lesbian/gay.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. I have tried to stop being attracted to women in general.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. I am proud that I am a lesbian.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
d. If someone offered me the chance to be completely heterosexual, I would accept the chance.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
e. I wish I weren't a lesbian.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
f. Being lesbian is a satisfactory and acceptable way of life for me.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
g. I feel that being a lesbian is a personal shortcoming for me.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
h. As a lesbian, I am lovable and deserving of respect.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
i. I would like to get professional help in order to change my sexual orientation from lesbian to straight.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
j. I am not worried about anyone finding out that I am a lesbian.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

VITA

Lisa M. Alvy, M.A.

EDUCATION

University of Illinois at Chicago, Clinical Psychology Ph.D. Program, August 2007 - present

Advisor: David J. McKirnan, Ph.D.; GPA: 4.0

Dissertation, defended April 26, 2012: *Contextualizing Lesbian Body Image: Comparisons with Heterosexual Women and Lesbian-Specific Factors*

Committee: David J. McKirnan, Ph.D., Tonda L. Hughes, R.N., Ph.D., Jon Kassel, Ph.D., Stephanie Riger, Ph.D., Mary-Ellen Mackesy-Amiti, Ph.D.

M.A., Clinical Psychology, University of Illinois at Chicago, May 2009

Thesis: *Depression, Sexual Risk, and Psychosocial Vulnerability in Men who Have Sex With Men (MSM)*

Committee: David J. McKirnan, Ph.D., Brian Mustanski, Ph.D., Jon Kassel, Ph.D., & Linda Skitka, Ph.D.

B. A., Summa cum Laude, University of California at Berkeley, May 2005

Major in Psychology, with Honors (Psychology GPA 4.0; Overall GPA 3.986)

Thesis: *Attention Manipulation During Exposure to Fictional Television: Effects on Gender Stereotyping*

Advisor: Christina Maslach, Ph.D.

CLINICAL EXPERIENCE

July 2012 – Present **Clinical Psychology Pre-Doctoral Internship, University of Illinois Medical Center**
Chicago, IL

August 2010 – May 2012 **Health Psychology Externship, University of Illinois Medical Center**
Chicago, IL

July 2009 – June 2012 **Office of Applied Psychological Services (OAPS), Clinical Assistant, University of Illinois at Chicago**
Chicago, IL

August 2008 – Dec. 2011 **Office of Applied Psychological Services (OAPS) Therapy Practicum**
Chicago, IL

Sept. 2008 – August 2010 **Office of Applied Psychological Services (OAPS) Testing Practicum**
Chicago, IL

Specialty areas: HIV/AIDS; obesity and bariatric surgery; chronic pain; sleep disorders; medical patients; inpatients; LGBT individuals; ethnic minorities

RESEARCH EXPERIENCE

Aug. 2009 – **Research Assistant, Chicago Health and Life Experiences of Women Study**
 May 2012 *University of Illinois, Chicago, IL*

Sept. 2007 – **Research Assistant, Howard Brown Health Center**
 May 2012 *Chicago, IL*

Sept. 2005 – **Project Coordinator, Children’s Digital Media Center**
 June 2007 *Georgetown University, Washington D.C.*

May – **Project Coordinator, Parent-Adolescent Health Communication Study**
 August 2005 *University of California, San Francisco*

TEACHING EXPERIENCE

Summer 2009 **Psychology Department, University of Illinois, Chicago**
 Teaching Assistant for Introduction to Clinical Psychology

Spring 2009 & Fall 2008 **Psychology Department, University of Illinois, Chicago**
 Teaching Assistant for Field Work in Applied Psychology

Summer 2008 **Psychology Department, University of Illinois, Chicago**
 Teaching Assistant for Psychology of Women and Gender

Spring 2008 **Psychology Department, University of Illinois, Chicago**
 Teaching Assistant for Psychology Research Methods

PROFESSIONAL DEVELOPMENT

Spring 2011 **Structural Equation Modeling (SEM) Seminar**
 Four-week SEM seminar conducted by the UIC School of Public Health

October 2008 **HIV Care for the Mental Health Clinician Seminar**
 One-day seminar by the American Psychiatric Association, Office of HIV Psychiatry

June 2008 **Motivational Interviewing (MI) Training Seminar**
 Two-day Motivational Interviewing seminar conducted by Howard Brown Health Center

AWARDS AND HONORS

Oct. 2012 UIC College of Liberal Arts and Sciences Ph.D. Student Travel Award

Dec. 2011 Chancellor’s Graduate Research Fellowship, competitive renewal

- April 2011 Chancellor's Graduate Research Fellowship
- May 2010 Christopher Keys Award for Early Outstanding Research Achievement
- May 2005 UC Berkeley Psychology Department Citation
- 2004-2005 UC Berkeley Psychology Department Undergraduate Research Fellowship
- May 2005 Psi Chi, inducted May 2005
- April 2004 Phi Beta Kappa, inducted April 2004

PUBLICATIONS & MANUSCRIPTS

- Alvy, L. M. (*under revision*). Do lesbian women have better body image?: An empirical investigation and search for sociocultural mechanisms.
- Alvy, L. M., Hughes, T. L., Kristjanson, A., & Wilsnack, S. (*in press*). Sexual identity group differences in child abuse and neglect. *Journal of Interpersonal Violence*.
- Matthews, A. K., Cho, Y. I., Hughes, T. L., Johnson, T. P., & Alvy, L. M. (*in press*). The influence of childhood physical abuse on adult health status in sexual minority women: The mediating role of smoking. *Women's Health Issues*.
- McKirnan, D. J., Du Bois, S. N., Alvy, L. M., & Jones, K. (2013). Health care access and health behaviors among men who have sex with men: The cost of health disparities. *Health Education & Behavior, 40*(1), 32-41.
- Alvy, L. M., McKirnan, D., Du Bois, S. N., Jones, K., Ritchie, N., & Fingerhut, D. (2011). Health care disparities and behavioral health among men who have sex with men. *Journal of Gay & Lesbian Social Services, 23*(4), 507-522.
- Alvy, L. M., McKirnan, D. J., Mansergh, G., Koblin, B., Colfax, G. N., Flores, S., Hudson, S., & Project MIX Study Group (2011). Depression is associated with sexual risk among men who have sex with men, but is mediated by cognitive escape and self-efficacy. *AIDS & Behavior, 15*, 1171-1179.
- Alvy, L. M., & Calvert, S. L. (2008). Food marketing on popular children's websites: A content analysis. *Journal of the American Dietetic Association, 108*, 710-713.

PRESENTATIONS & POSTERS

- Alvy, L. M. (2013, March). *Putting lesbian body image in context with culturally-specific modeling*. Poster accepted for presentation at the Society of Behavioral Medicine Annual Meeting, San Francisco, CA.

- Alvy, L. M. (2012, October). *Lesbian women demonstrate less body dissatisfaction in a large community sample of middle-aged women*. Paper presented at the American Public Health Association Conference, San Francisco, CA.
- Alvy, L. M. (2012, October). *Presurgical psychological evaluations for spine surgery*. Presentation for the University of Illinois Medical Center Health Psychology Seminar Series, Chicago, IL.
- Alvy, L. M. (2011, April). *Interactions between mood, stress, and pain in sickle cell disease*. Presentation for the University of Illinois Medical Center Health Psychology Seminar Series, Chicago, IL.
- Alvy, L. M. (2010, December). *Bariatric evaluations: Psychologists' role in bariatric surgery*. Presentation for the University of Illinois at Chicago Clinical Psychology Department, Chicago, IL.
- Alvy, L. M. (2010, December). *Feminist perspectives in clinical psychology*. Presentation for the University of Illinois at Chicago Clinical Psychology Department, Chicago, IL.
- Alvy, L. M., Du Bois, S. N., McKirnan, D. J., Richie, N., Fingerhut, D., Jones, K., & Holland, C. (2010, April). *Healthcare access among men who have sex with men*. Poster presented at the Western Psychological Association Annual Convention, Cancún, Mexico.
- Du Bois, S. N., Holland, C. M., McKirnan, D. J., Fingerhut, D., Bird, J., & Alvy, L. (2009, August). *A reason to start: Merely taking ART predicts sexual safety*. Poster presented at the American Psychological Association Annual Convention, Toronto, Canada.
- Alvy, L. M., McKirnan, D. J., Mansergh G., Colfax, G. N., Hudson, S., Koblin, B., Flores S., & Project MIX Study Group (2009, May). *Depression, vulnerability, and sexual risk among men who have sex with men*. Poster presented at the Association for Psychological Science Convention, San Francisco, CA.
- Pempek, T. A., Calvert, S. L., & Alvy, L. M. (2009, April). *Advergaming for promoting healthy food consumption in low-income children*. Poster presented at the Society for Research in Child Development Biennial Meeting, Denver, CO.
- Alvy, L. M. (2009, February). *Depression, sexual risk, and psychosocial vulnerability in men who have sex with men (MSM)*. Presentation for the University of Illinois at Chicago Clinical Psychology Department, Chicago, IL.
- Veluz, A. K., McKirnan, D. J., & Alvy, L. M. (2007, November). *Qualitative analysis of HIV risk and motivations to change in drug-using men who have sex with men (MSM)*. Poster presented at the American Public Health Association Conference, Washington, DC.
- Alvy, L. M., & Calvert, S. L. (2007, May). *Food marketing on popular children's websites: A content analysis*. Paper presented at the International Communications Association Conference, San Francisco, CA.