The relationship between internalized homonegativity and body image concerns in sexual minority men: a meta-analysis

The Relationship Between Internalized Homonegativity and Body Image Concerns in Sexual Minority Men: A Meta-Analysis

Abstract

It remains unclear whether internalized homonegativity, a recognized predictor of internalizing mental health problems, is related to body dissatisfaction in sexual minority men. We conducted a meta-analysis to investigate the association between the two variables. A literature search and the application of the inclusion criteria enabled us to locate 14 studies. Two of these were excluded from the meta-analysis because needed data were missing; the remaining 12 studies were included. The results showed positive and statistically significant associations between internalized homonegativity and different elements of body image concerns, indicating that higher levels of internalized homonegativity were related to higher levels of body image dissatisfaction in sexual minority men. Specifically, the pooled effect sizes were: internalized homonegativity and muscularity-oriented body dissatisfaction, $r_+ = .19$; internalized homonegativity and thinness-oriented body dissatisfaction, $r_+ = .16$; internalized homonegativity and body surveillance, $r_+ = .17$; and internalized homonegativity and body-related distress, $r_+ = .28$. Limitations and future research directions are discussed as well as implications for clinical practice.

Keywords: internalized homonegativity, body image, sexual minority, gay, bisexual, MWSM, meta-analysis

Body dissatisfaction reflects the level of discontent that individuals feel about their appearance (Tatangelo, McCabe, Mellor, & Mealey, 2016). Much of the empirical literature on body image evaluation suggests that gay men experience higher levels of concern over body image, are less accurate in their body weight estimations, and are more likely to suffer from eating disorders than heterosexual men (e.g., Peplau et al., 2009; Russel & Keel, 2002; Strong, Singh, & Randall, 2000). For instance, a meta-analysis compared the body satisfaction of gay and heterosexual men (Morrison, Morrison, & Sager, 2004) and found that gay men had a significantly more negative body image than heterosexual men; the effect size for the difference (d = .29) was small. Nevertheless, when studies included in the meta-analysis used the Body Dissatisfaction subscale of the Eating Disorder Inventory to assess body dissatisfaction, the effect size (d = .40) was moderate, with gay men feeling more dissatisfied than heterosexual men. This suggests that gay men are at greater risk of body dissatisfaction than heterosexual men.

Compared to heterosexual men, sexual minority men display higher scores in both the *drive for thinness* and the *drive for muscularity* (Kaminski, Chapman, Haynes, & Own, 2005; Yelland & Tiggemann, 2003), and conformity to gender norms can be a mediating factor (Krueger, 2017). However, sexual minority men may present higher scores on measures of the drive for thinness and, at the same time, on the drive for muscularity in line with the model of aesthetic perfection in vogue in the gay community that requires lean muscularity (Kaminski et al., 2005; Yelland & Tiggemann, 2003). Considering that masculinity and muscularity are often viewed as synonymous and that a muscular physique is seen as an emblem of heterosexuality in Western countries (Fabris, Longobardi, Prino, & Settanni, 2018), the drive for

muscularity may be a special concern for sexual minority men. The expectation of being discriminated against for belonging to a sexual minority group enhances the distress of not conforming to a masculine-body ideal. Consequently, gay men may worry about being "masculine" and experience pressure to conform to the masculine-body ideal. Consequently, they may desire a powerful physique as a form of defense against the experience of discrimination. More generally, some authors have shown that abuse and maltreatment such as bullying are correlated with concern about muscle size (Boyda & Shelvin, 2011; Wolke & Sapouna, 2008). Experiences of childhood victimization may drive these individuals (who have been victimized) to seek a stronger and more threatening physique by increasing their muscularity to compensate for a sense of danger and inferiority. This mechanism may also involve men who have internalized homonegativity. Moreover, coherent with the threatened masculinity hypothesis, heterosexual men, in response to a threat to their masculinity, tend to reject effeminate gay men and engage in hypermasculine -type behaviors (Hunt, Fasoli, Carnaghi, & Cadinu, 2016). This behavior can also be adopted by gay men with threatened masculinity (Hunt et al., 2016), and improving their muscularity can be a way of reaffirming their masculinity (Luciano, 2007; Mills & D'alfonso, 2007). The need to appear "masculine" is particularly enhanced in people who have a negative sexual identity (Bianchi, Piccoli, Zotti, Fasoli, & Carnaghi, 2017; Hunt et al., 2016).

In addition, sexual minority men may be dissatisfied with their body image when they feel too thin. Some authors have suggested that this can be explained by the stigma attached to HIV and the possible association between excessive thinness and illness, making these men less attractive and repelling sexual partners (Kaminski et al., 2005; Tate & George, 2001). However, more generally, gay and bisexual men are exposed to

male body image models featuring leanness and muscularity. In recent decades, the mass media have been proposing an increasingly muscular ideal male body image (Leit, Pope, & Gray, 2001; Pope, Olivardia, Gruber, & Borowiecki, 1999). Gay and bisexual men are exposed to these aesthetic models and may develop body dissatisfaction as a result of the comparison between the models proposed by media and the assessment of their own body image (Duggan & McCreary, 2004; Hobza, Walker, Yakushko, & Peugh, 2007), as suggested by social comparison theory (Festinger, 1954). This may give rise to pressure to achieve the ideal of aesthetic perfection. Achieving this ideal could foster greater acceptance by the LGBT community as well as increasing the chances of forming romantic and/or sexual relationships. As observed by Kassel and Franko (2001), the marked importance attached to physical appearance in the LGBT community makes these individuals more inclined to suffer from body dissatisfaction.

The Sexual Minority Stress theory may be a useful framework for understanding how people belonging to sexual minorities experience their body within the social environment (e.g., Mason & Lewis, 2016; Siconolfi et al., 2016). According to Meyer (2003), minority stress is defined as "the excess stress to which individuals belonging to stigmatized social categories are exposed, by effect of their minority social standing" (p. 675). Minority stress is, therefore, a form of chronic psychosocial stress derived from being a member of a minority group that is stigmatized and marginalized.

From this perspective, sexual minority individuals, in addition to the stressors that all individuals encounter, experience external and internal stressors related to living in a heterosexist society (that is, a society where heterosexuality is prescribed as normal and anything that deviates from that model is rejected, marginalized or punished) (Meyer, 1995, 2003), such as, experiences of violence, discrimination, and harassment.

These experiences may become internalized, leading to negative views of oneself and other sexual minorities (e.g., internalized homonegativity, Szymanski, Kashubeck-West, & Meyer, 2008).

Internalized homonegativity is defined as the degree to which individuals belonging to a sexual minority have internalized negative feelings, attitudes, beliefs, behaviors, and assumptions about their homosexuality —often unconsciously— as part of their self-image and individual identity (Balsam, 2001; Herek, 2000; Meyer, 1995; Rostosky, Riggle, Gray, & Hatton, 2007). This incorporation can result in negative feelings about oneself (e.g., guilt and shame, low self-esteem, and other emotional difficulties) when individuals recognize their homosexuality or bisexuality (Herek, 2007; Meyer & Dean, 1998; Szymanski et al., 2008). In addition, internalized homonegativity may prompt sexual minorities to monitor their appearance in an attempt to appear heterosexual, thereby reducing the risk of additional stigmatization and harassment. In this way, research has provided mixed support for the relationship between internalized homonegativity and sexual minority men's body image concerns - with some studies finding that experiences of internalized homonegativity significantly and positively predict higher levels of both thinness-oriented and muscularity-oriented body dissatisfaction (e.g., Siconolfi et al., 2016), body surveillance and body shame (e.g., Wiseman & Moradi, 2010), whereas other studies have found non-significant relationships (Brewster, Sandil, DeBlaere, Breslow, & Eklund, 2017; Hunt, Gonsalkorale, & Nosek, 2012, Siconolfi, Halkitis, Allomong, & Burton, 2009). Hence, additional research is needed to clarify the relationship between these variables specifically for sexual minority men.

We primarily aimed to conduct a meta-analytic review to quantitatively integrate the results of the scientific evidence on relationships between internalized homonegativity and different elements of body dissatisfaction in sexual minority men (gay and bisexual men) and provide a pooled effect of this link, given the inconsistencies in the results of empirical studies that have previously investigated this association.

Method

A meta-analytic study was carried out following the checklist in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009).

Study Selection Criteria

To be included in the meta-analysis, each study had to fit the following criteria:(1) the study had to be published in a peer-reviewed journal to ensure data quality; (2) the article had to describe an original and quantitative study; (3) the study had to use instruments that were described as measuring "body satisfaction or dissatisfaction"; (4) the study had to use instruments that were described as measuring "internalized homonegativity"; (5) the study had to empirically examine the relationship between internalized homonegativity and body satisfaction or dissatisfaction; (6) the study sample had to consist of sexual minority men (mostly); (7) the study had to provide sufficient data to enable the calculation of a correlation coefficient; and (8) due to language limitations, the study had to be written in English, Spanish or Italian.

Qualitative studies, literature reviews, meta-analyses, commentaries, editorials, and studies that did not measure internalized homonegativity and its relation to body image in sexual minority men were excluded from the review.

Search Strategy

The database search was undertaken between May 2017 and July 2017. Several electronic databases were consulted: Web of Science, PubMed and Google Scholar. The search terms used were internalized homophobia, homonegativity, body image and body dissatisfaction. Additional studies were located by using the references cited in the relevant studies and references in articles identified through the computer search of literature reviews. Figure 1 presents a flowchart describing the screening and selection of the studies. The selection was performed independently by two researchers. The degree of interviewer agreement in selecting the studies was 90% (kappa = .90). Additionally, for those studies where there was disagreement, a conciliation process was undertaken. In this process, disagreements were resolved by consensus.

The search strategy produced a total of 1,408 references. The titles and abstracts of these references were scanned, and 65 relevant studies were pre-selected based on the inclusion and exclusion criteria. Duplicate studies were then eliminated (n = 6), leaving a total of 59 studies.

The complete text of each of the 59 studies was reviewed, and 46 studies were excluded for not meeting the inclusion criteria. The remaining 14studies were written in English and published in a peer-reviewed journal during the period 2005–2017. Two of these were excluded from the meta-analysis because they did not report the required statistical data on the association between internalized homonegativity and body image

dissatisfaction (Brennan, Crath, Hart, Gadalla, & Gillis, 2011; Siconolfi et al., 2009). This left 12 studies, which were subsequently included in the meta-analysis.

Coding the Studies

The coding process was carried out in a standardized and systematic way, and a protocol for extracting the characteristics of the studies was developed and applied to each study. The study characteristics coded were: country where the study was carried out and year of its publication, sample size, sexual orientation of the respondents, sampling method, mean age of the respondents (in years), ethnic distribution of the sample, education levels of the respondents, tools used to assess internalized homonegativity and body image concerns, and statistics reported to calculate the effect sizes.

The literature offers no clear methodological checklist for use in cross-sectional studies designed to analyze the relationships between two variables, as in the present study. The methodological quality of the studies was therefore assessed by applying an *ad hoc* 10-item checklist. Each item was given a score of 1 when the study met the criterion or 0 otherwise. A total quality score was calculated for each study by summing the corresponding quality item scores (range: 0–10), with a higher score indicating a higher overall quality. These items were: (1) a sampling procedure that ensured a representative sample; (2) specific criteria for eligibility and for exclusion; (3) a sexual orientation assessment; (4) specific timing of data collection; (5) a sufficiently detailed description of the methodology to allow replication; (6) sound assessment instrumentation; (7) inclusion of the evidence that statistical assumptions were

examined; (8) standardized and specified conditions of participation; (9) adequate statistical analyses; and (10) appropriate conclusions based on the data collected.

The data were coded independently by two reviewers. To assess the interrater reliability of the effect size extraction process, intraclass correlations for continuous variables and kappa coefficients for qualitative variables were performed. Reliability coefficients were satisfactory, with intraclass correlations ranging from .98 to 1 for continuous variables and kappa coefficients equal of 1 for all qualitative variables. Disagreements were resolved by consensus.

Computing of Effect Sizes

The effect size index was the Pearson correlation coefficient calculated between a scale of IH and a scale of muscularity and thinness-oriented body dissatisfaction or other scale of body dissatisfaction (Borenstein, Hedges, Higgins, & Rothstein, 2009).

The effect sizes were independently extracted by two coders. To assess the reliability of the extraction process we calculated inter-rater reliability, which was very satisfactory, with intraclass correlations of 1.

For each study, the Pearson correlations were translated to Fisher's Z in order to normalize their distributions and stabilize their variances, with $Z_r = \frac{1}{2} Log_e\left(\frac{1+r}{1-r}\right)$ and sampling variance $V(Z_r) = 1/(n-3)$, n being the sample size of the study.

Following the statistical analyses, the Fisher's Z of the individual effect sizes and the mean effect sizes and their confidence limits were translated back into the Pearson correlation metric to aid in their interpretation using $r = \frac{e^{2Z_r} - 1}{e^{2Z_r} + 1}$, with e being

the base of natural logarithms (Borenstein et al., 2009). To simplify the practical interpretation of the effect sizes obtained in the meta-analyses, the guidelines proposed by Cohen (1988) were applied. Following these guidelines, correlation coefficients of about .10, .30, and .50 (in absolute values) can be interpreted as reflecting a low, moderate, and large relationship between the variables, respectively. It is worth noting that a correlation of .10, although of low magnitude, can still be considered to have practical relevance.

Statistical Analysis

Separate meta-analyses were carried out with the effect sizes calculated according to the type of body dissatisfaction (muscularity-oriented body dissatisfaction, thinness-oriented body dissatisfaction, and other scales of body dissatisfaction, such as body surveillance and body-related distress). In order to statistically combine the results from the studies, a random effects model was chosen. This model assumes a genuine diversity in the results of the various studies and incorporates the variance between studies into the calculations. That is, each study is considered to estimate its own population effect size (Borenstein et al., 2009). This model yields results that are identical with those of the fixed-effect model in the absence of heterogeneity and allows the conclusions to be generalized to a wider array of situations. A pooled correlation coefficient and its corresponding 95% confidence interval (CI) were calculated. In addition, the statistical significance of the pooled correlation was assessed using a Z test.

A forest plot was constructed to represent the individual and pooled effect size estimates, with their 95% CIs, and to allow visual inspection for study heterogeneity.

When there were only two articles available to study a given relationship, the mean effect size was calculated to improve the association estimation and offer the confidence interval, taking into account that its precision would be quite low. In these cases, the forest plots were not represented.

To assess the heterogeneity among the individual effect sizes, both Cochran's *Q*-statistic and the I^2 index were calculated (Borenstein et al., 2009; Huedo-Medina, Sánchez-Meca, Marín-Martínez, & Botella, 2006). When the effect sizes are homogeneous, the *Q*-statistic follows a chi-squared distribution with *k*-1 degrees of freedom, *k* being the number of studies. A *Q* statistic with a *p* value < .05 is indicative of heterogeneity among the effect sizes. The degree of heterogeneity was estimated with the I^2 index, which can be interpreted as the percentage of total variation across the studies due to their different characteristics. I^2 values around 25%, 50%, and 75% denote low, moderate, and large heterogeneity, respectively. One of the advantages of the I^2 is that it is not affected by the number of studies considered (Higgins & Thompson, 2002; Huedo-Medina et al., 2006).

Finally, since all the studies included in the meta-analysis were published papers, we assessed whether publication bias might be a threat to the validity of the mean effect size. A funnel plot using Duval and Tweedie's (2000) trimand fill method was applied. This technique uses available data to impute missing (unreported) studies and recalculates the overall effect that would have been observed had they been included. In addition, Egger's test was applied. A non-statistically significant result of the *t*-test for the hypothesis of an intercept equal to zero allows publication bias to be discarded as a threat to the validity of the pooled effect (Sterne & Egger, 2005). When the meta-analysis only included two studies, the funnel plot and Egger test could not be

used due to the small number of studies (Sterne & Egger, 2005; Sterne, Gavaghan, & Egger, 2000; Thornton & Lee, 2000).

All statistical tests were interpreted assuming a significance level of 5% (α = .05) using two-tailed tests. The statistical analyses were carried out with the program Comprehensive Meta-Analysis 3.0 (Borenstein, Hedges, Higgins, & Rothstein, 2014).

Results

Descriptive Characteristics of the Studies

The main characteristics of the 14 studies included in the meta-analytic study are described in Table 1. It was noted that many of the studies were conducted in the United States (n = 7); three were carried out in Canada, two in Australia, one in Italy, and one multi-national study was carried out in Canada, the UK, and the United States.

All the studies applied a cross-sectional design and used non-probabilistic sampling methods, such as convenience and snowball sampling. These methods are recommended when recruiting from marginalized and stigmatized social groups, such as sexual minority individuals (Patton, 2002).

All participants were volunteers who had mostly been recruited online through blogs, listservs, and websites of groups or organizations dedicated to sexual minority men's issues (e.g., Tumblr, Facebook pages, and Craigslist posts), as well as through tear-tab flyers with study information in venues frequented by sexual minority men, pride events, or universities. In some cases, the participants were motivated with rewards (Brennan, Craig, & Thompson, 2012; Brennan et al., 2011; Brennan et al., 2015; Reilly & Rudd, 2006; Siconolfi et al., 2009; Siconolfi et al., 2016).

The studies' sample sizes ranged from 53(Bianchi et al., 2017) to 591 (Siconolfi et al., 2016) participants. The age of participants ranged from 16 (Brennan et al., 2011; Brennan et al., 2012) to 76 (Brennan et al., 2012), with a mean age approximately 31.64 years. In eight of the 14 studies, the majority of the participants identified themselves as white, while the percentages of other racial and ethnic groups varied. Additionally, most of the participants in each study had received at least some college education.

Although most of the samples were made up of sexual minority men, in some cases (n = 5) the samples included a low proportion of heterosexually-identified participants or participants who were unsure of their sexual orientation. For instance, 2.3% of the participants in the study by Siconolfi et al. (2009) were not sure of their sexual orientation; 4% and 3% self-identified as heterosexual men in the study by Brennan et al. (2012) and Brennan et al. (2011), respectively; 2% and 1% self-identified as mostly heterosexual men in the study by Wiseman and Moradi (2010) and the study by Brewster et al. (2017), respectively. However, these participants had had sex with another man at least in the past year or over their life time. In the rest of the studies (n = 9), the sample was composed exclusively of gay men and bisexual men, with gay men predominating.

Definition of internalized homonegativity

The studies used nine different definitions of internalized homonegativity; but all of them measured the level of internalized homonegativity with a validated scale (see Table 1). The tools most commonly used were the Internalized Homophobia Scale (IHP, Martin & Dean, 1987) (n = 3), followed by the Internalized Homonegativity Scale

(IHS, Bell & Weinberg, 1978) and the Internalized Homophobia Scale (HIS*, Herek, Gillis, & Cogan, 2009) (*n* = 2).

Definition of body image concerns

As Table 1 shows, the studies assessed different elements of body image, such as muscularity-oriented body dissatisfaction (*n* = 9), thinness-oriented body dissatisfaction (*n* = 4), body surveillance (*n* = 2), body-related distress (*n* = 2), and body shame (*n* = 1) using different measurement instruments for these components of body image. For instance, the assessment instruments used for muscularity-oriented body dissatisfaction were the Drive for Muscularity Scale (DMS, McCreary & Sasse, 2000) (*n* = 6), the Drive for Muscularity Attitudes Questionnaire (DMAQ; Morrison, Morrison, Hopkins, & Rowan, 2004) (*n*=1), the Muscularity subscale from the Male Body Attitudes Scale (MBAS, Tylka, Bergeron, & Schwartz, 2005) (*n* = 1), and the Drive for Muscularity Scale (Martins, Tiggemann, & Kirkbride, 2007) (*n* = 1). Concerning thinness-oriented body dissatisfaction, the assessment instruments used were the Eating Disorder Inventory (EDI, Garner, 1991, Garner, Olmstead, & Polivy, 1983) (*n* = 2), the Body Fat subscale from Male Body Attitudes Scale (MBAS, Tylka et al., 2005) (*n* = 1), and the Drive for Thinness Scale (Martins et al., 2007) (*n* = 1). Finally, for Body Surveillance, studies used the Body Surveillance body subscale of the Objectification Body Consciousness Scale (OBCS, McKinley & Hyde, 1996) (*n* = 2).

Assessment of the Methodological Quality of the Studies

All studies employed sound instruments (reliability and validity) to assess internalized homonegativity and body image concerns. In addition, all of them assessed

the sexual orientation of the participants, which ensured that, mostly, they could all be grouped as sexual minority men (gay men or bisexual men), as it can noted in Table 1.

Most of the studies met the following criteria: (1) specified criteria for eligibility and/or exclusion; (2) described the methodologies employed in enough detail to allow replication; (3) employed appropriate statistical analyses (however, no studies provided data on power analysis or confidence intervals around the effect sizes measured, for instance, correlation coefficients); and (4) drew appropriate conclusions based on the empirical evidence.

The criteria that were least likely to be met by the studies were: (1) using representative sampling procedures (e.g., employing the mailing list of a gay men's organization, snowball sampling through sexual minority organizations, or widespread community contacts such as through pride events); (2) specifying the timing of the data collection; (3) presenting the evidence that statistical assumptions were examined; and (4) standardizing the conditions under which the participants were involved in the research program. The majority (n = 11) of the studies used online surveys in which standardizing the conditions was not considered possible.

The Overall Links Between Internalized Homonegativity and Body Concerns

To assess the relationship between internalized homonegativity and body concerns, separate meta-analyses were conducted. Figure 2 shows the forest plot for the meta-analysis about the link between internalized homonegativity and muscularity-oriented body dissatisfaction (n = 9). It was noted that the pooled effect size for the relationship between internalized homonegativity and muscularity-oriented body dissatisfaction was r_+ = .19, (95% CI = .16, .23; p<. 001), showing that the greater the internalized

homonegativity, the higher the level of muscularity-oriented body dissatisfaction. Following Cohen's (1988) criteria, a correlation coefficient of $r_+ = .19$ can be interpreted as reflecting a low-medium (but relevant) relationship. In addition, there was no heterogeneity among individual effect sizes ($Q(8) = 5.28$, $p = .727$, $I^2 = 0\%$).

The pooled effect size for the link between internalized homonegativity and thinness-oriented body dissatisfaction was $r_+ = .16$, (95% CI = .09, .23; $p < .001$, $n = 3$); for the association between internalized homonegativity and body surveillance, $r_+ = .17$, (95% CI = .10, .24; $p <. 001$, $n = 2$); and for the link between internalized homonegativity and body-related distress, $r_+ = .28$, (95% CI = .17, .37; $p <. 001$, $n = 2$). In these meta-analytic studies, no statistically significant heterogeneity among individual effect sizes was observed, ($Q(2) = 1.52$, $p = .468$, $I^2 = 0$ %; $Q(1) = 0.57$, $p = .449$, $I^2 = 0$ %, and $Q(1) = 1.10$, $p = .295$, $I^2 = 8.87$ %; respectively).

It can be observed that the pooled effect size was higher for the link between internalized homonegativity and body-related distress ($r_+ = .28$) than for internalized homonegativity and muscularity-oriented body dissatisfaction ($r_+ = .19$); internalized homonegativity and body surveillance ($r_+ = .17$); and internalized homonegativity and thinness-oriented body dissatisfaction ($r_+ = .16$). As there was overlap between the confidence intervals for the pooled effect sizes, the difference between the pooled effect sizes was not statistically significant.

Analysis of Publication Bias

Figure 3 presents the funnel plot with the trimand fill method for the meta-analysis. There was no asymmetry in the funnel plot; consequently, the trimand fill method did not require the imputation of effect sizes. Additionally, Egger's test did not

reach statistical significance (b_0 = -1.05, T (7) = 1.60; p = .155). Therefore, based on the results of these different analyses, publication bias can be reasonably discarded as a threat to our meta-analytic findings.

Discussion

The purpose of the current review was to examine the relationships between internalized homonegativity and different elements of body image concerns in sexual minority men. We did this by conducting separate meta-analyses of the link between internalized homonegativity and muscularity-oriented body dissatisfaction, thinness-oriented body dissatisfaction, body surveillance and body-related distress. The meta-analyses revealed a small to moderate association between internalized homonegativity and different elements of body image concerns analyzed in samples of sexual minority men. Specifically, the results showed statistically significant positive relationships between internalized homonegativity and body dissatisfaction, including muscularity-oriented body dissatisfaction, thinness-oriented body dissatisfaction, body surveillance, and body-related distress. These findings suggest that higher levels of internalized homonegativity were related to greater body dissatisfaction.

An explanation might be that men who internalize homophobic attitudes, and thus have greater expectations of being stigmatized and marginalized for belonging to sexual minority groups, may desire a powerful physique as a form of defense against the experience of discrimination or may develop a negative body image as a result of their internalized homonegativity and shame (Boyda & Shelvin, 2011; Brennan et al., 2015; Kimmel & Mahalik, 2005; Wolke & Sapouna, 2008). Body dissatisfaction might be motivated by the desire to appear heterosexual and avoid or reduce the stigma

associated with having a sexual minority identity (Kozee & Tylka, 2006; Watson, Grotewiel, Farrell, Marshik, & Schneider, 2015). Gay men with threatened masculinity may develop a negative attitude towards effeminate gay men and may try to appear more masculine (Hunt et al., 2016); the drive for muscularity could be a way of achieving this goal (Luciano, 2007; Mills & D'alfonso, 2007).

In this area of research, systematic review can underline an interesting relationship between internalized homonegativity and dissatisfaction with one's muscularity (the drive for muscularity measures), considering that masculinity and muscularity are often viewed as synonyms and that homosexuality is often associated with femininity (Fabris et al., 2018). Concern about muscularity is the main characteristic of muscle dysmorphia, a subtype of body dysmorphic disorder that is studied particularly among men. Men with muscle dysmorphic symptoms present various psychiatric symptoms, disordered eating behaviors, and unhealthy behaviors (Longobardi, Prino, Fabris, & Settanni, 2017; Longobardi, Badenes-Ribera, Sánchez-Meca, & Fabris, 2017). Gay men seem to be more at risk to develop muscle dysmorphia since some evidence suggests that traumatic experiences such as homophobic bullying and humiliation play a role in the etiology of muscle dysmorphia (Fabris et al., 2018). These experiences of violence, discrimination, and harassment may become internalized, leading to negative views of oneself (Szymanski et al., 2008). Consequently, future research could investigate whether internalized homonegativity is not only a predictor of body dissatisfaction but also a risk factor for clinical conditions like muscle dysmorphia or the more general body dysmorphic disorder in sexual minority men. Taken globally, these findings underscore the importance of examining

minority stress factors (Meyer, 2003), such as internalized homonegativity, to better understand sexual minority men's body image concerns.

These findings are consistent with prior studies of sexual minority women that found that internalized homonegativity is related positively to body image dissatisfaction (Mason & Lewis, 2016; Watson et al., 2015) and predicted higher levels of body surveillance and body shame among sexual minority women (Haines et al., 2008; Watson et al., 2015). Nevertheless, Mason and Lewis (2016) found that social anxiety (or fear of negative evaluation) might mediate the relationship between internalized homonegativity and body dissatisfaction, at least among lesbian women. Therefore, understanding the link between internalized homonegativity and body image might provide a greater insight and empowerment for gay men and lesbian women undergoing treatment for body image distress (Kimmel & Mahalik, 2005). Consequently, there is a need for more studies of the relationship between internalized homonegativity and body image concerns and possible mediating factors.

Limitations and Areas for Future Research

Some limitations to this meta-analysis should be noted. First, given the low number of studies included in the meta-analysis, the results of our study represent only an initial approach toward determining the relationship between internalized homonegativity and body image concerns in sexual minority men. The paucity of previous research suggests that the study of the role of internalized homonegativity in body image evaluation among sexual minority men is in its infancy. More research into these topics is needed to allow a better understanding and awareness of the link between

these variables in sexual minority people. This might help to identify people at risk and refer them to mental health professionals.

In addition, most of the studies included in this meta-analysis were carried out in the United States using convenience samples taken from communities of gay and bisexual men (predominantly white and with at least some college education), which limits the generalization of these findings to other contexts. For instance, our results should not be generalized to sexual minority men of color, whose experiences are likely to be affected by their multiple marginalized identities.

Most of the studies recruited participants by placing advertisements on web pages, in chat rooms, on electronic bulletin boards, or on e-mail listservs targeted at men who have sex with men (e.g., Brewster et al., 2017; Kimmel & Mahalik 2005; Morrison, Morrison, & Bradley, 2007; Reilly & Rudd, 2006; Reilly, Yancura, & Young, 2013). As Filiault and Drummond (2009) point out, although Internet data collection has been recommended for recruiting populations that are difficult to reach, such as sexual minority people (Nosek, Banaji, & Greenwald, 2002), it is questionable whether samples derived from Internet sites are qualitatively or demographically representative of sexual minority men. For instance, samples of sexual minority men recruited via the Internet tend to be younger and less well-educated than samples derived through traditional methods (e.g., convenience samples from lesbian and gay organizations or community) (Filiault & Drummond, 2009). In addition, those who do not have access to a computer do not have the opportunity to participate in online studies. There is clearly a need for studies that use more diverse recruiting methods (e.g., Internet, convenience samples from lesbian and gay organizations, "pride" events, undergraduates and

snowball sampling) to gain a more representative samples of sexual minority individuals (Watson et al., 2015).

Finally, it is important to note that all the studies reviewed used a cross-sectional design, which did not allow us to draw inferences about cause-and-effect relationships. That is, we cannot know the extent to which internalized homonegativity may be a true risk factor that precedes body image concerns. Thus, there is a need for prospective or longitudinal research which might improve our understanding of how the link between sexual minority stressors and body image concerns develop.

Conclusion

To our knowledge, this is the first meta-analysis to examine the link between internalized homonegativity and body image evaluation among sexual minority men. The association found between these two variables provides an empirical foundation for the development and implementation of homonegativity prevention programs and recommendations for primary-level research. In this way, the experiences of heterosexism might prompt sexual minorities to maintain self-surveillance of their appearance in an attempt to appear heterosexual to reduce the risk of stigmatization and harassment (Brewster et al., 2014; Wiseman & Moradi, 2010). Although the analyses in this study do not establish a causal link between internalized homonegativity and body image dissatisfaction, our findings provide support for the view that internalized homonegativity may be an important risk factor for developing body image dissatisfaction. These findings might help practitioners in theory development and clinical practice. For instance, sexual minority men who are in treatment for body image distress might benefit of a valuable insight and empowerment whether they would

understand the link between internalized homonegativity and body image concerns (Kimmel & Mahalik 2005). Thus, interventions to reduce negative self-perceptions and attitudes (e.g., internalized homonegativity) might reduce levels of body dissatisfaction. Cognitive Behavioral Therapy (CBT) can be a useful intervention in improving cognitive, behavioral and affective minority stress processes (Pachankis, 2014; Pachankis, Hatzenbuehler, Rendina, Safren, & Parsons, 2015). CBT can help patients develop reactions that adapt more to the stigma, improve resilience and learn strategies to reduce maladaptive responses to minority stress (Pachankis et al., 2015). Among the mental health and health-risk behaviors associated with minority stress, body dissatisfaction could be seen as an intervention target, and an element of assessment in individuals asking for a psychological intervention and presenting issues related to minority stress. CBT has proved to be suited to treating body image concerns in a variety of populations, including LGBT (Blashill et al., 2017; Krebs et al., 2017). Furthermore, interventions based on cognitive dissonance have been shown to be successful in reducing body dissatisfaction (Brown, Forney, Pinner, & Keel, 2017).

Lastly, throughout the discussion, we have identified recommendations for future research arising from the current findings and review of the literature. These suggestions include (1) cross-cultural studies; (2) representative sampling of sexual minority men (e.g., probabilistic sampling with diverse recruiting methods); (3) investigation of potential moderators to advance theoretical understanding (e.g., social anxiety); (4) samples that include sexual minority people with multiple marginalized identities (e.g., people of color); and (5) prospective or longitudinal research.

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Table 1

Description of the study characteristics ($N = 14$)

Study/Country	*N*	Sampling method	Age (mean)	Ethnicity	Education level	Internalized Homophobia	Body Image	Effect size (*r*)
Bianchi et al. (2017) Italy	53 G	Convenience sample from a gay sport association	38.9	NR	NR	IHS*	DMS*; DTS; and, Physical appearance	-.065 (for DMS*); -.031 (for DTS); .072 (for physical appearance)
Brennan et al. (2012) Canada	400 G = 87.5%, B = 8.5%, H = 4%	Convenience sample from: Pride Toronto's Festival – 2008	34.1 Range: 16-76	White (62.3%), Black (16.3%), Asian (21%)	High School Diploma or less (18%), At least some college/university (82%)	IHS	DMS	.21
Brennan et al. (2011) Canada	383 G = 88%, B = 8%, H = 3%	Convenience sample from LGBT Pride Toronto's Festival – 2008	Range: 16-51+ Under age 40 (69%)	White (59.6%), Black/African/Caribbean (13.8%), Asian (19.6%), Other (7%)	High School Diploma or less (17.5%), College or University (82.5%).	IHS	BMI; DMS	NR
Brennan et al.	369 G = 84%, B =	Stratified sample:	33.1	Black/African Caribbean	High School or less (22%),	IHS**	DMS	.20

(2015) Canada	16%	online survey		(21.7%), East/South East Asian (27.4%), Latino/Hispanic/Brazilian (24.7%), South Asian (20.6%), Mixed (5.7%)	Postsecondary/college (26.8%), Bachelor degree or greater (51.8%).			
Brewster et al. (2017) USA	326 G = 82%, mG = 11%, B = 2%, mH = 1%, O = 3%	Convenience sample recruited online through blogs, listservs, and virtual communities for sexual minority men, as well as with tear tab flyers with study information in venues frequented by sexual minority men across New York City	28.71 Range: 18-62	White (69%), Multiracial (8%), Black (1%), Latino American (11%), Asian American/Pacific Islander (7%), Native American (1%), Other (3%)	Post-graduate degree (30%), 4year college degree (26%), College (22%), Postgraduate work 11%), 2years college degree (6%), High school diploma (5%)	IHP	OBCS-Surv; BPSS-M; and, DMS	.08 (for OBCS-Surv); .18 (for BPSS-M); .15 (for DMS)
Greentree and Lewsi (2011) Australia	72 G	Convenience sample from undergraduate psychology courses and	28.18 Range: 18-65	NR	NR	IHP	DMS; MBID	.18 (for DMS); .17 (for MBID)

		GLBTI group/organizations						
Hunt et al. (2012) Australia	64 G	Convenience Sample recruited online and by LGTB community and organization	26.92 Range: 18-35	NR	Failed to complete high school (*n* = 1); Graduate certificate or diploma (*n* = 4); High School Only (*n* = 8); Post-high school certificate (*n* = 12); Postgraduated degree (*n* = 17); Bachelors degree (*n* = 22)	IAT	DMS; EDI-dft	-.07 (for DMS); -.26 (for EDI-dft)
Kimmel and Mahalik (2005) USA	357 G	Convenience sample recruited from web-based discussion groups	34.85 Range: 18-74	White (87%), Latino (6%), Asian American (2%), Multiracial (2%), African American/Black (1%), Native American (0.6%), Other (4.1%)	Graduate degree (37%), College degree (33%), Some college (26%), High School degree (4%), No high school degree (1%)	IHP	BIQ; MBID	-.13 (for BIQ); -.30 (for MBID)

Morrison et al. (2007) Canada/USA/UK	66 G	Convenience sample recruited from internet. (on-line survey)	35.5	NR	NR	IHI	DMAQ; MGIS	.23 (for DMAQ); -.42 (for MGIS)
Reilly and Rudd (2006) USA	213 G	Sample recruited from advertisement (word-of-mouth; flyers, post in chat rooms or electronic bulletin boards).	34.3 Range: 18-32	White (87.3%)	NR	NHAI	MBRSQ (Appearance orientation; evaluation and satisfaction subscales)	-.25
Reilly et al. (2013) USA	542 G	Convenience sample recruited from advertising on www.gay.com	32.6 Range: 18-66	White (72.7%), Latino/Hispanic (9.7%), Asian (5.1%) Native American (1.8%), African American (1.7%), Multirace (5.5%), Other (2.2%)	Bachelor's degree or higher (52.7%)	SIHS	SMAQ; SPAS	.165 (for SMAQ); .29 (for SPAS)
Siconolfi et al. (2009) USA	219 G = 90.9%, B = 6.8%, U = 2.3%	Convenience sample recruited from Ney York City LGBT Pride Week - 2007	33	White (64%), Black/African American (8.2%), Asian/Pacific Islander (9.1%), Latino (18.3%),	Master/doctorate (30.1%), Bachelor (37%), College/associated degree (22.8%), High	LGBIS	EDI-bdt	NR

				Other (less 1%)	school diploma or Ged (7.3%), Not high school (2.3%)			
Siconolfi et al. (2016) USA	591 G = 41.46%, B = 58.54%	Convenience sample recruited from multiple venues including social media sites on the Internet, city streets and parks, gay identified events, community centers, and snowball sampling	Range: 18-19	Latino/Hispanic (38.07%), White (29.27%), Black (14.72%), Asian/Pacific Islander (4.91%), Multiracial (13.03%)	NR	four items from Thiede et al. (2003)	MBAS muscularity subscale; MBAS body fat subscale	.25 (for MBAS musculari ty subscale); .16 (for MBAS body fat subscale)
Wiseman and Moradi (2010) USA	231 (97% men and 2% trangend er) G = 66%, mG = 20%, B = 12%, mH =2%	Convenience sample recruited online	32.67 Range: 17-30	White (77%), Latino/Hispanic (5%), Asian American or Pacific Islander (4%), African American (1%), Multiracial (2%), Other (2%)	NR	IHS*	OBCS-Surv; OBCS-Shame	.18 (for OBCS-Surv); .36 (for OBCS-Shame)

Note. G = Gay Men, B = Bisexuals, H = Heterosexuals, mG = mostly gay, mH = mostly heterosexual, O = Others, U= unsure of their sexual orientation. NR= Not Reported

Internalized Homophobia definition: IAT = Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998); IHI = Internalized Homonegativity Inventory (Mayfield, 2001); IHP = Internalized Homophobia Scale (Martin & Dean 1987); IHS* = Internalized Homophobia Scale (Herek, Gillis, & Cogan, 2009); IHS** = Internalized Homophobia Scale (Herek, Cogan, Gillis, & Glunt, 1998); IHS = Internalized Homonegativity Scale (Bell & Weinberg, 1978); LGBIS-Internalized homonegativity = Internalized Homonegativity/Binegativity subscale of Lesbian, Gay, Bisexual Identity Scale (Mohr & Fassinger, 2000); NHAI = Nungesser Homosexual Attitudes Inventory (Nungesser, 1983); SIHS = the Short Internalised Homonegativity Scale (Currie, Cunningham, & Findlay, 2004).

Body Image definition: BIQ = Body Image Ideal Questionnaire (Cash & Szymanski, 1995); BPSS-M = Body Parts Satisfaction Scale for Men (McFarland & Petrie, 2012); DMAQ = Drive for Muscularity Attitudes Questionnaire (Morrison et al., 2004); DMS = Drive for Muscularity Scale (McCreary & Sasse, 2000); DMS* = Drive for Muscularity Scale (Martins, Tiggemann, & Kirkbride, 2007); DTS = Drive for Thinness Scale (Martins et al., 2007); EDI-bd = modified version of Body Dissatisfaction subscale of Eating Disorder Inventory (Garner, Olmstead & Polivy, 1983); EDI-dft = Drive for Thinness subscale of Eating Disorder Inventory (Garner, 1991); MBAS = Male Body Attitudes Scale (Tylka et al. 2005); MBID = Male Body Ideal Distress (Kimmel & Mahalik, 2004); MBSRQ = Multidimensional Body-Self Relations Questionnaire (3 subscales: Appearance-orientation; Appearance-evaluation; Appearance-satisfaction) (Brown, Cash, & Mikulka, 1990.); MGIS = Male Genital Image Scale (Winter, 1989); OBCS-Surv = Body Surveillance subscale of the Objectification Body Consciousness Scale (McKinley & Hyde, 1996); OBCS-Shame = Body Shame subscale of the Objectification Body Consciousness Scale (McKinley & Hyde, 1996); SMAQ = the revised Swansea Muscularity Attitudes Questionnaire (Edwards & Launder, 2000); SPAS = the revised Social Physique Anxiety Scale (Molt & Conroy, 2000).

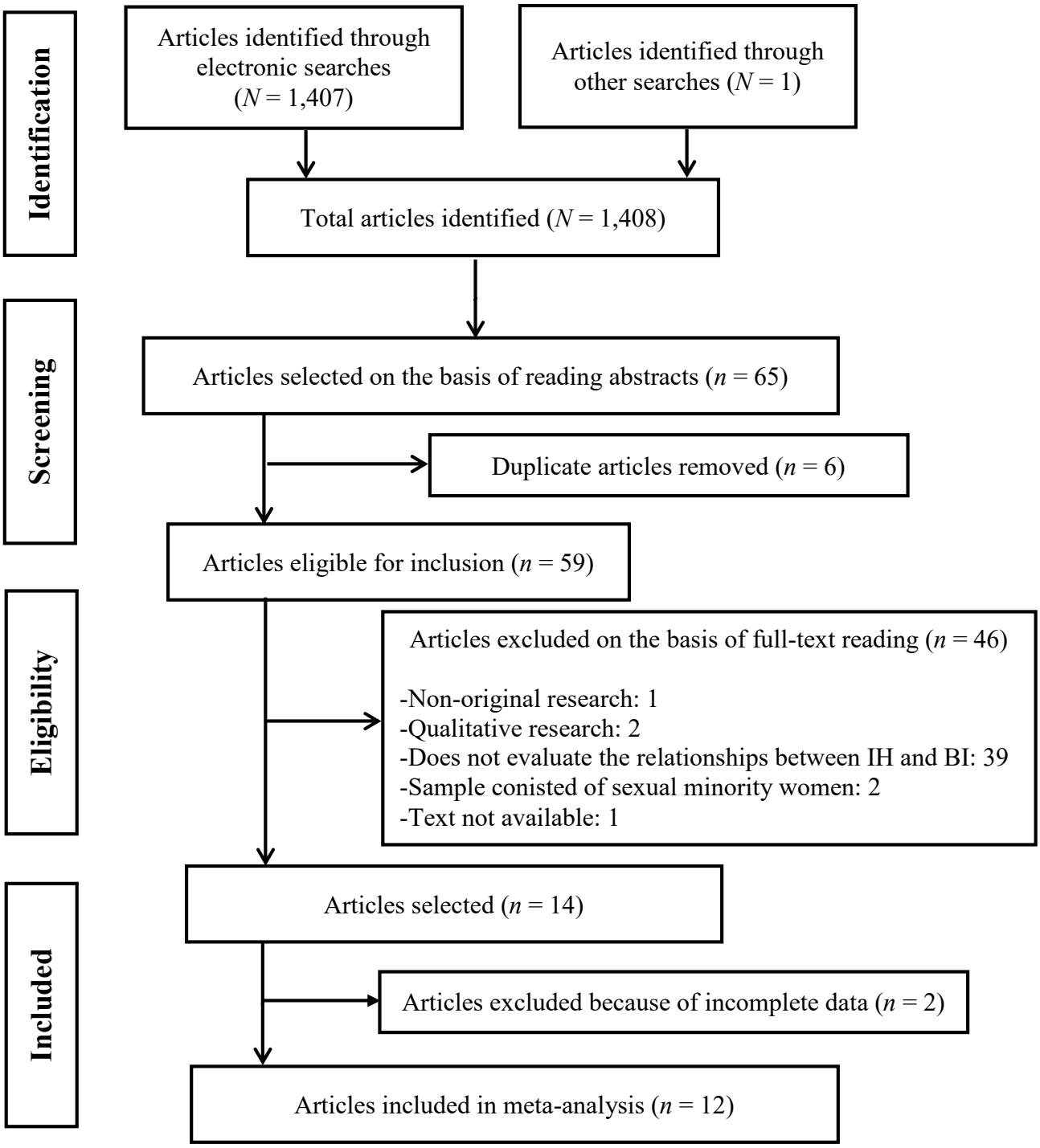

Figure 1. Flowchart of the systematic review and meta-analysis of the relationships between internalized homophobia and body image dissatisfaction in sexual minority men

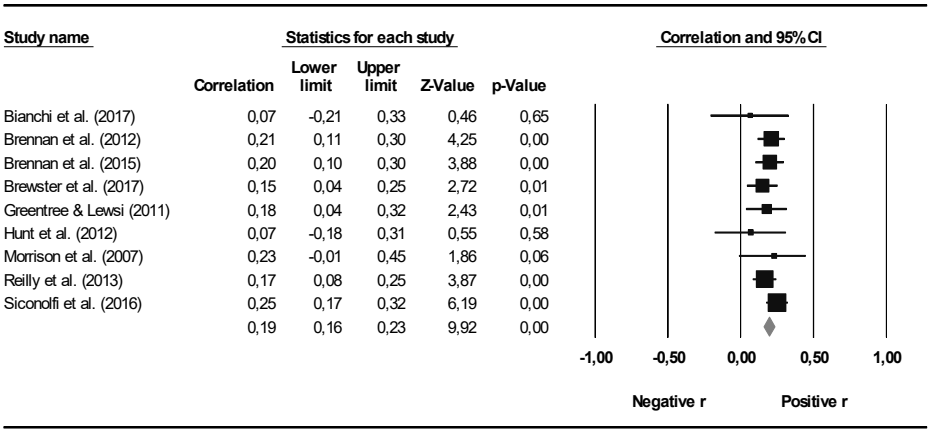

Figure 2. Forest Plot of the association between internalized homophobia and and muscularity-oriented body dissatisfaction (n = 9)

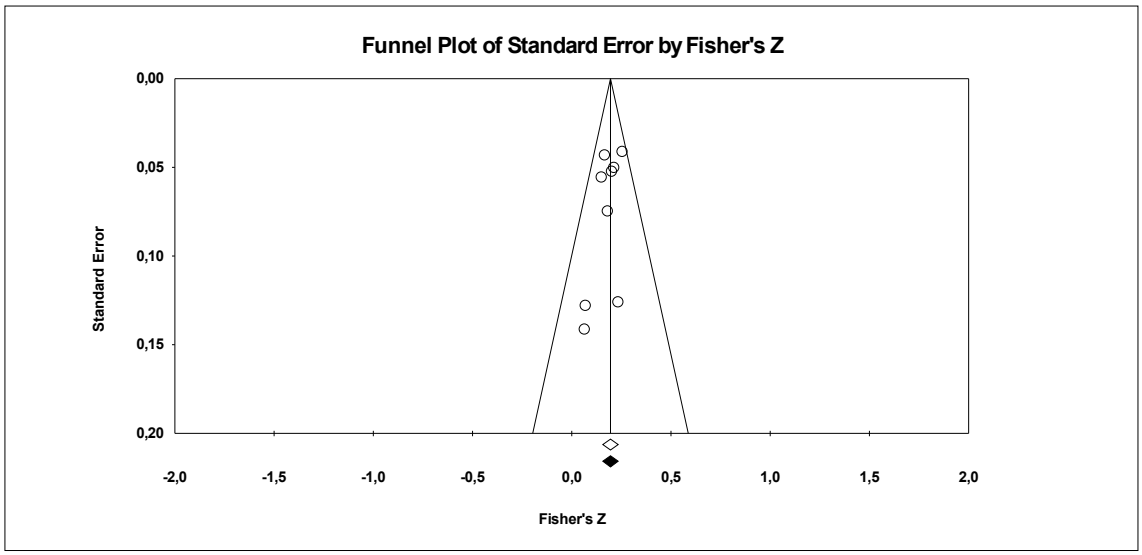

Figure 3. Funnel Plot of the relationships between internalized homophobia and body image dissatisfaction to assess publication bias. White circles represent each of the studies included.