Fat talk is predicted by body dissatisfaction and social comparison with no interaction effect: Evidence from two replication studies.

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Abstract

Verbal denigration of personal body size and shape ("fat talk") is correlated with, and can have a causal influence on body dissatisfaction and disordered eating. What is less clear is who is most likely to fat talk. To address this, Corning and Gondoli (2012) conducted a study confirming that a woman's body dissatisfaction directly predicted their fat talk. But this effect was scaled so that the likelihood of engaging in fat talk intensified if she had a stronger tendency to socially compare: the relationship was multiplicative. Here, we carried out two replications of Corning and Gondoli's (2012) study, the first with 189 UK participants and the second with 371 US participants. We found that multiple regression models predicting fat talk showed additive, but not multiplicative relationships. A robust Bayesian meta-analysis combining the results of our two studies with the results of the original study confirmed this. In conclusion, these studies show an additive relationship between fat talk and social comparison on fat talk.

Keywords: Replication study; Social Comparison; Fat talk; Body dissatisfaction

Word count: 5,159 (base text)

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Introduction

Body image research has often focused on body dissatisfaction because of its role in the development and maintenance of eating disorders (Cash & Deagle, 1997; Polivy & Herman, 2002; Stice, 1994). However, body dissatisfaction is not exclusive to individuals who have eating disorders. In fact, in affluent countries and those influenced by Western culture, it is not uncommon for women to report elevated rates of body image disturbance and disordered eating to such an extent that it is described as "normative discontent" (Bearman, Presnell, Martinez, & Stice, 2006; Rodin, Silberstein, & Striegel-Moore, 1984; Schaefer et al., 2019; Swami et al., 2010).

Body dissatisfaction can arise from sociocultural pressures that either explicitly or implicitly advocate for any body size or shape which an individual does not currently have or that is challenging to achieve (e.g., muscular ideal; curvy body types for those with thin frames, etc.). For women in Western societies, such pressures are traditionally directed towards an ideal of thinness (e.g., Garner, Garfinkel, Schwartz, & Thompson, 1980; McCarthy, 1990). Such pressures can arise from a wide variety of sources, including peer teasing about weight and shape, the extent to which people view appearance-related media, as well as, for some, their capacity to model parental body dissatisfaction (Sharpe, Naumann, Treasure, & Schmidt, 2013). Another well-studied potential factor in the development of body dissatisfaction is conversations about appearance, or "fat talk" (Shannon & Mills, 2015). This commonly occurs between girls and/or women within the context of female-only social interaction (Nichter & Vuckovic, 1994; Salk & Engeln-Maddox, 2012). Typically, participants self-denigrate their own appearance. Ousley, Cordero, and White (2007) found that this derogatory talk primarily centers on five topics: (a) self-comparison to ideal eating and exercise habits; (b) fears of becoming overweight; (c) how eating and exercise habits compare to others; (d) evaluation of others' appearances, and (e) meal-replacements and muscle building strategies. Engeln and Salk (2016) showed that fat talk is common among women of all ages and across the full range of BMI. They found that younger women reported more fat talk than older women. With respect to body size, they found a systematic relationship whereby overweight and obese women reported the most fat talk and underweight women the least.

Research also suggests that this pattern of self-denigration should be considered as a social norm in which participants are expected to engage reciprocally (Britton, Martz, Bazzini, Curtin, & LeaShomb, 2006; Fouts & Burggraf, 1999; Tucker, Martz, Curtin, & Bazzini, 2007). Moreover, fat talk has been considered to be a phenomenon that is specific to Western societies (Martz, Petroff, Curtin, & Bazzini, 2009) with a common prevalence across countries. For example, Becker, Diedrichs, Jankowski, and Werchan (2013) investigated the relationship between fat talk, body image disturbance, and eating disorder pathology in a large sample of normal weight women from the US, UK, and Australia, all of whom were highly educated and mostly White. These authors found a pattern of results which mirrored those reported by Engeln and Salk (2016) with respect to age and body weight. Critically, Becker et al. (2013) showed that the frequencies of occurrence for these effects were more or less equivalent across all three countries. More recent research, however, suggests that non-Western cultures, such as in Japan, also exhibit the same phenomena (Takamura, Yamazaki, & Omori, 2019).

Mills and Fuller-Tyszkiewicz (2017) carried out a recent meta-analytic review of 35 cross-sectional, experimental, and longitudinal studies to quantify the association between fat talk and key components of body image. Specifically, they examined body dissatisfaction, body surveillance, body shame, perceived pressure to be thin, internalization of the thin ideal, body checking, and appearance-based comparisons. Based on cross-sectional data, the authors concluded that there was a positive association between engaging in fat talk and body dissatisfaction, which had a moderate effect size ($r = .34$). Mills and Fuller-Tyszkiewicz (2017) also concluded that both cross-sectional and longitudinal data support the idea that fat talk is a risk factor for the development of body image disturbance rather than an outcome of it, a finding that is consistent with a previous meta-analytic review (Sharpe et al., 2013). They found limited investigation of, and evidence for the reverse: that body dissatisfaction might lead to engagement in fat talk.

Aside from body dissatisfaction, a number of studies have shown that engagement in as well as exposure to fat talk is correlated with, and causally implicated in, maladaptive responses that increase the risk of eating disorders (Polivy & Herman, 2002; Shannon & Mills, 2015). These include perceived sociocultural pressure to be thin (Arroyo & Jake Harwood, 2012) and appearance investment (Engeln, Sladek, & Waldron, 2013; Rudiger & Winstead, 2013). Such findings have led to experimental attempts to curb fat talk since it represents a clinical risk. In one study, 191 female students were asked to recall or imagine a fat talk episode (Mills, Mort, & Trawley, 2019). They were then randomly assigned to one of four responses to this experience: being challenged, ignored, reassured, or having the fat talk reciprocated. While the results were somewhat mixed, challenging fat talk resulted in increased perceived support and lower feelings of shame. More recently, the participation of 105 White female students in The Body Project (Becker & Stice, 2011) was associated with decreases in their in self-reported fat talk frequency, family fat talk frequency and weight concern (Vanderkruik, Conte, & Dimidjian, 2020). The Body Project is a group-based cognitive dissonance-based intervention that aims to prevent the onset of eating disorders by challenging the thin ideal and promoting body acceptance for adolescent and college aged women (Stice, Rohde, Gau, & Shaw, 2009).

Fat talk and social comparison

Corning and Gondoli (2012) raised the question of what factors promote fat talk? They proposed that a primary factor for initiating fat talk conversation could be an individual's propensity to engage in social comparison, whereby one's own appearance is compared to that of one's peers (Festinger, 1954). While most people engage in social comparison, some are more predisposed to do so than others (Gibbons & Buunk, 1999). If they do, they are more likely to experience low self-esteem, more social anxiety, public self-consciousness, neuroticism, and sensitivity to other people's behaviors (Gibbons & Buunk, 1999). It is also the case that women with disordered eating behaviours tend to engage in everyday social comparisons as well as body-related social comparisons more than healthy controls do (Corning, Krumm, & Smitham, 2006).

Corning and Gondoli (2012) provide a compelling example to illustrate the putative role of social comparison in a fat talk exchange: Person one: "My arms are so fat and flabby; no matter what I do, they are so embarrassing." Person two: "At least you can wear a regular bathing suit to the pool. I have to wear long shorts to cover my huge thighs." A reasonable interpretation might be that Person one perceives herself as unattractive because she believes her arms are worse than other women's. Person two has come to a similar conclusion in relation to her thighs, but perceives her own situation to be worse, because she believes her thighs are worse than her friend's arms. From a quantitative perspective, we contend that examples like this comprise two distinct components, which are likely to have different impacts on the inter-relationship between fat talk, body dissatisfaction, and social comparison. The first component is simply the frequency with which individuals may engage in such exchanges, for example, how many times a week they engage in fat talk / social comparison. Under these circumstances, we suggest that the relationships between fat talk, body dissatisfaction, and social comparison are likely to be additive – i.e. a regression model predicting fat talk from body dissatisfaction and social comparison as explanatory variables should show independent (additive) effects of body dissatisfaction and social comparison on fat talk with no interaction between them. The second component, as alluded to by Corning and Gondoli (2012, p. 529), is that: "conversants may use fat talk conversations to judge the magnitude of their own perceived transgressions and shortcomings. As one woman discloses her recent faltered attempt at (dietary) restraint, her conversation partner learns about herself (i.e., that she is similar to, better than, or worse off than her friend in this regard)." In this situation, we suggest that the relationship between fat talk, body dissatisfaction, and social comparison could be multiplicative – i.e. a regression model predicting fat talk from body dissatisfaction and social comparison would show a significant interaction between body dissatisfaction and social comparison. For example, by using fat talk and social comparison scales that focus on magnitude, it is conceivable that social comparisons that reveal perceived differences between dyads that exceed some threshold (e.g., "I feel three times bigger than you, not just two times") might constitute a tipping point beyond which fat talk might suddenly start to accelerate. And the location of this tipping point may require individuals to be sufficiently dissatisfied with their bodies for it to happen. Under these circumstances, a pattern of fat talk might accelerate with increasing body dissatisfaction/social comparison rather than increase linearly would constitute a multiplicative model.

To test their proposal, Corning and Gondoli (2012) used a correlational design to measure body image concerns, propensity for social comparison, and tendency to engage in fat talk in 143 female undergraduate students at a Midwestern university in the United States. In their study, they used the Iowa-Netherlands Comparison Orientation Measure (INCOM, Gibbons & Buunk, 1999) and the 9-item Fat Talk Scale (Clarke, Murnen, & Smolak, 2010) to measure social comparison and fat talk respectively. Critically, both of these psychometric tasks focus on the frequency of events. Therefore, we would have expected to see only additive, rather than multiplicative outcomes from their multiple regression analysis in which they used the combination of social comparison propensity and body image concern to predict engagement in fat talk. However, next to the predicted additive main effects, they did find a statistically significant interaction: the slope for fat talk engagement as a function of body image concern was steeper for participants who were more likely to engage in social comparison than those who were not. Intriguingly, Arroyo and Brunner (2016) also found a non-significant trend for an interaction between propensity for social comparison and social network usage when predicting fat talk.

The present studies

Given the discrepancies between what we would have predicted theoretically, and what Corning and Gondoli (2012) found, we sought to replicate their study. Because the social comparison and fat talk measures they used are, in essence, both frequency estimates, we expected to replicate the main, additive effects of body dissatisfaction and social comparison when predicting women's propensity to engage in fat talk. We did *not* expect to find a significant interaction between body dissatisfaction and social comparison, when predicting fat talk. Replication studies are an important part of the research process because they allow for greater confidence in the findings, and provide a measure of how well the research field is performing (Zwaan, Etz, Lucas, & Donnellan, 2018). However, the so-called replication crisis in psychology (Open Science Collaboration, 2015), and in other fields, has seen many findings replicated less often than expected. In this study, we undertake a replication effort based on two studies and we synthesize our key findings via Bayes Factors and a Robust Bayesian Meta-analysis.

Study 1

Method

Participants. Female participants, over 18 years of age, were recruited from students at a large university in the North-East of England. Our target was 360 participants (2.5 times the original sample size, Simonsohn, 2015) but due to time constraints we fell substantially short of this. While 214 participants started the survey, only 197 completed it, and 8 participants did not provide height or weight (Final sample size: 189; Age range: 18 to 64, M= 25.34 years, SD = 10.57 years; Original study: M = 19.06, SD = 1.24).

Procedure and Measures. After providing informed consent, participants completed an online survey with the same three measures from Corning and Gondoli (2012).

A composite scale with 16 items, based on the combination of the Body Dissatisfaction scale and the Drive for Thinness scale from the Eating Disorder Inventory (EDI) (Garner, Olmsted, & Polivy, 1983). This scale reflects attitudes towards body parts and difficulties with food consumption and weight gain. Sample items are: “I think that my hips are just the right size” or “I am terrified of gaining weight”. Each statement was rated on a five point response scale (*1 = never, 5 = always*). In their original paper, Garner, Olmsted, and Polivy (1983) claim reliability coefficients of .80 or greater. Here, we found excellent internal consistency ($\alpha = .94$). Corning and Gondoli (2012) found $\alpha = .92$. Higher scores reflect greater body image concerns.

A social comparison measure, the Iowa-Netherlands Comparison Orientation Measure (INCOM, Gibbons & Buunk, 1999), consists of 11 items rated on a 5-point response scale (*1 = I disagree strongly to all characteristic or true of me, 5 = I agree strongly*). Sample items are: “I always like to know what others in a similar situation would do” or “I often like to talk with others about mutual opinions and experiences”. This measure is reliably associated with self-monitoring, self-awareness, and neuroticism and had good reliability. In their original paper, Gibbons and Buunk (1999) reported a reliability coefficient $\alpha = .83$. In this sample, we found $\alpha = .89$, and Corning and Gondoli (2012) reported $\alpha = .83$. Higher scores indicate a greater tendency to compare oneself with others. We note that this measure is not specific to social appearance comparisons, but is nevertheless the measure used by Corning and Gondoli (2012).

The 9-item Fat Talk Scale (Clarke et al., 2010) assesses the degree to which an individual engages in fat talk with friends. Each item describes a situation where the protagonist “Naomi” engages in fat talk. A sample item is: “Naomi is hanging out with a friend when she looks in the mirror and says, "I really need to start working out again. Honestly, I am so flabby"”. A participant indicates how often their own response would be similar to Naomi on a 1 (*never*) to 5 (*always*) scale. In the original paper, Clark and colleagues (2010) reported $\alpha = .90$. In our sample, the scale had excellent reliability, $\alpha = .96$. Corning and Gondoli (2012) found $\alpha = .90$. Higher scores indicate a greater tendency to engage in fat talk.

Participants provided their height and weight, from which we calculated BMI. Our sample was within the normal range ($M = 23.61$, $SD = 4.97$; Corning and Gondoli (2012): $M = 22.20$, $SD = 2.7$). 66.66% were classified as normal weight, 5.82% were underweight, 16.40% were overweight and 10.58% were obese. The respective values from Corning and Gondoli (2012) were 80.42%, 5.59%, 12.59% and 1.49%. Our sample was thus slightly heavier in terms of BMI than the original sample.

The procedure was approved by the local ethics committee of the corresponding author. Participants were fully debriefed upon completion of the study.

Data analysis. We used R (R Development Core Team, 2008) to perform the same analyses as Corning and Gondoli (2012): correlations and hierarchical ordinary least squares regressions with the fat talk scale as the outcome variable. The first regression model contained only BMI as a predictor, the second model contained BMI, body image concern, and social comparison as predictors. This constituted the additive model. The third and final model contained all variables from the second model and the interaction between body image concern and social comparison. Variables were centered prior to all regression analyses (Aiken & West, 1991). The analysis plan was preregistered (Brandt et al., 2014). Our analysis document, data and code, including further analyses can be found in the electronic supplementary materials (ESM) hosted on the Open Science Framework (OSF).

Results

Correlations. Like Corning and Gondoli (2012), body image concerns were strongly and positively correlated with fat talk engagement ($r = .71$, $p < .0001$). There were moderate correlations between social comparison and body image concerns and between social comparison and fat talk engagement (respectively: $r = .39$, $p < .0001$, $r = .46$, $p < .0001$).

Regressions. The columns labelled Models 1-3 in Table 1 show the output for the Ordinary Least Squares (OLS) regression models for Study 1, with fat talk as the outcome variable in each case. The model parameters are expressed as standardized coefficients together with their standard errors. Model 2, like Corning and Gondoli (2012), supported main effects of body dissatisfaction and social comparison. Model 3 showed that there was no evidence for the interaction (Interaction term: $p = .381$, see OSF). In addition, the sign was in the *opposite direction* to that reported in Corning and Gondoli (2012).

Table 1

Hierarchical OLS regression models to predict engagement in fat talk. Models 1-3 refer to Study 1 and Models 4-6 refer to study 2. Standardised coefficients (+/-SE).

	Engagement in fat talk					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
BMI	−0.083 (0.073)	−0.164** (0.049)	−0.169*** (0.050)	0.172*** (0.051)	0.033 (0.046)	0.025 (0.046)
Body image		0.655**** (0.054)	0.660**** (0.054)		0.489**** (0.048)	0.500**** (0.048)
Social comparison		0.192*** (0.053)	0.182*** (0.054)		0.141** (0.046)	0.145** (0.046)
Body image*Social comparison			−0.034 (0.038)			$0.064^{\dagger}$ (0.038)
N	189	189	189	371	371	371
R^2	0.007	0.564	0.566	0.029	0.313	0.318
Adjusted R^2	0.002	0.557	0.557	0.027	0.307	0.311
Residual Std. Error	0.997 (df = 188)	0.664 (df = 186)	0.664 (df = 185)	0.985 (df = 370)	0.831 (df = 368)	0.829 (df = 367)
F Statistic	1.313 (df = 1, 188)	80.234**** (df = 3, 186)	60.294**** (df = 4, 185)	11.223*** (df = 1, 370)	55.857**** (df = 3, 368)	42.824**** (df = 4, 367)

†p < .1; *p < .05; **p < .01; ***p < .001; ****p < .0001

Discussion Study 1

Our study showed statistically significant, independent contributions of body dissatisfaction and social comparison in predicting women's fat talk, and this is consistent with Corning and Gondoli's (2012) Model 2. However, we did not find support for an interaction effect between body dissatisfaction and social comparison on fat talk (see Model 3 in Table 1). Although our sample size was larger than the original study, it fell far short of our target sample size. Moreover, while there is good reason to assume that the effects reported by Corning and Gondoli (2012) should generalize from a UK to a US sample (Becker et al., 2013), our reliance on a UK based sample, instead of a US based sample, could be a reason why we did not find an interaction effect. Therefore, we ran another pre-registered study but with a larger sample based in the United States.

Study 2

Method

Participants. We recruited 375 participants based in the United States and who had student status at the time of enrollment via an online platform (Prolific, Palan & Schitter, 2018). They were paid (~$0.85) for their participation. Those who did not provide their height and weight were excluded from analysis, as was one participant who did not identify as female (Final N = 371, Age range: 18 to 53, M= 25.06 years, SD = 6.68 years; Original study: M = 19.06, SD = 1.24). The majority indicated that they were students (94.88%) and identified as European American (n = 195). Smaller numbers identified as Latina (n = 38), Asian American (n = 43), African American (n = 48), Native American (n = 3), Mixed (n = 30), or other (n = 14). The sample was somewhat larger in terms of BMI (M = 25.57, SD = 7.39) compared to Corning and Gondoli (2012). 52.56% were classified as normal weight, 8.09% were underweight, 16.71% were overweight and 21.02% were obese.

Procedure and Measures. The methods and procedure were the same as in Study 1. The three scales demonstrated good to excellent reliabilities (Body image concerns: α =

.92; Social Comparison: $\alpha = .84$; Fat talk: $\alpha = .88$).

Data analysis. We followed the same preregistered analytical procedures as in Study 1.

Results

Correlations. Body image concerns were moderately correlated with fat talk engagement ($r = .54$, $p < .0001$). There were somewhat weaker correlations between social comparison and body image concerns and between social comparison and fat talk engagement (respectively: $r = .31$, $p < .0001$, $r = .29$, $p < .0001$).

Regressions. The columns labelled Models 4-6 in Table 1 show the output for the Ordinary Least Squares (OLS) regression models for Study 2, with fat talk as the outcome variable in each case. The model parameters are expressed as standardized coefficients together with their standard errors. Model 5, like Corning and Gondoli (2012), supports the additive main effects of body dissatisfaction and social comparison. However, there was no longer a statistically significant effect of BMI, as was the case in Study 1. Model 6 did not support an effect of the interaction between body image concerns and social comparison ($p = .088$), but it was in the same direction as that reported in Corning and Gondoli (2012).

Discussion Study 2

In line with Corning and Gondoli (2012) and our Study 1, there was support for the main effects of body dissatisfaction and social comparison predicting engagement in fat talk. There was also a statistical trend for an interaction effect between body dissatisfaction and social comparison (Model 6). However, since the sample size for our second study was 2.5 times greater than that for Corning and Gondoli's (2012) original study, we do not take this as evidence in support for Corning and Gondoli's (2012) claim for a meaningful interaction effect.

Bayes Factors and Robust Bayesian Meta-analysis

Our analyses repeatedly showed main effects that were consistent with those of Corning and Gondoli (2012), but interaction effects that were not consistent. The frequentist methods used are based on the statistical significance of an F-test associated with the R^2 change, when moving from a main effects model to an interaction model. However, while such a significance test can provide some evidence, it does not quantify the relative weight of evidence for the interaction model over the main effects model, whereas Bayes Factors (BFs) do (Morey, Rouder, & Jamil, 2015). Simply put, a BF is the evidence of one hypothesised model versus another and this therefore allows one to quantify and compare the evidence for one model versus another. There are many rules of thumb for the interpretation of BFs (Jarosz & Wiley, 2014). Here, we rely on qualifications for evidence by Jeffreys (1961) (BF = 1 - No evidence, 1 $<$ BF $<=$ 3 - Anecdotal, 3 $<$ BF $<=$ 10 - Moderate, 10 $<$ BF $<=$ 30 - Strong, 30 $<$ BF $<=$ 100 - Very strong, BF $>$ 100 - Extreme). It is possible to convert the reported changes in R^2, when moving from the main effects models to interaction models, to BFs in order to quantify the strength of evidence (Morey et al., 2015). Using this approach, Corning and Gondoli's (2012) original study showed anecdotal evidence in favor of the interaction effect over the main effects model (BF = 1.57). In contrast, our studies showed, moderate and anecdotal evidence favoring the main effects model over the interaction model (BF Study 1 = 5.66; BF Study 2 = 1.71).

Next, we wanted to estimate the evidence for an interaction effect model versus a main effects model across all studies. To this end, we used Robust Bayesian Meta-analysis (Maier, Bartoš, & Wagenmakers, 2021). This meta-analytic approach requires effect sizes as input. These effect sizes need to be a part of a "common family", such as an odds ratio or Hedges g, rather than directly analyzing R^2 change. Each individual effect size for the interaction effect model is based on the R^2 change between the additive and multiplicative models (i.e., between model 2 and 3 in Corning and Gondoli (2012), and between models 2 & 3 as well as between 5 & 6 in our Table 1). Using this value, we can derive an estimate for Hedges' g, using the F-distribution (Lipsey & Wilson, 2001). In general, Hedges' g and Cohen's d are extremely similar. We opted for these effect sizes, rather than for example odds ratios, as they are commonly used in psychology and suggestions for interpretation of these values exist. Successive values 0.01, 0.20, 0.50, 0.80, 1.20, & 2.0 represent very small, small, medium, large, very large, and huge effect sizes respectively (Sawilowsky, 2009). Both Hedges' g and Cohen's d have an upwards bias (an inflation) in results of up to about 4%. The two statistics are very similar except when sample sizes are below 20, when Hedges' g outperforms Cohen's d. Hedges' g is therefore sometimes called the corrected effect size.

In the meta-analysis, the sign of the effect size was reversed for Study 1, as this interaction effect is in the *opposite* direction compared to Corning and Gondoli (2012), as can be seen in Figure 1 (More details can be found on the OSF). The meta-analytic estimate for Hedges' g from the Robust Bayesian Meta-analysis is 0.02, with a 95% CI ranging from 0 to 0.2, suggesting no effect. In Robust Bayesian Meta-analysis, we can then also use BFs to quantify the evidence for the null hypothesis (absence of an effect) versus the alternative hypothesis (presence of an effect). In our case, the null hypothesis implies favoring the main effects model over the interaction model, whereas the alternative hypothesis implies favoring the interaction effect over the main effects model. When quantifying the evidence, the Robust Bayesian Meta-analysis provided moderate evidence for the "null model", and thus favored the main effects model over the interaction model (BF = 5.26).

General Discussion

Both of our replication studies corroborated Corning and Gondoli's (2012) finding that the frequency of engagement in fat talk can be predicted by two independent main effects: body dissatisfaction and the frequency of social comparison. However, unlike Corning and Gondoli (2012) we found no robust evidence for an interaction effect between body dissatisfaction and social comparison on fat talk in our data, and the robust Bayesian

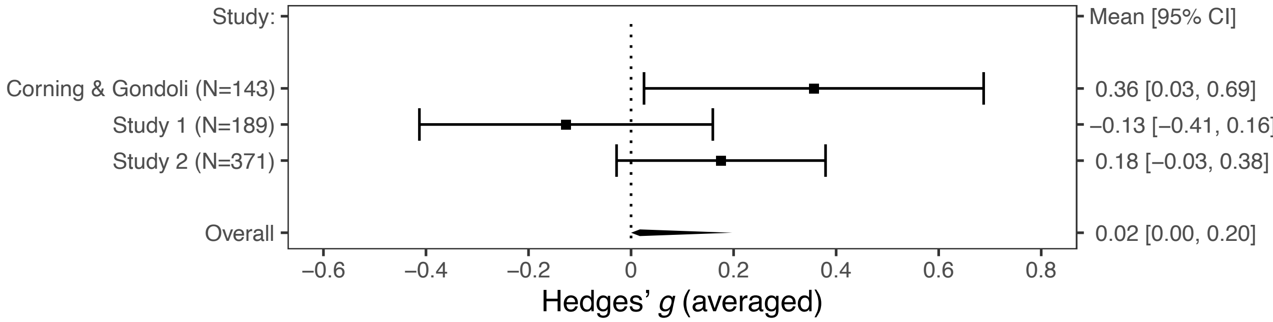

Figure 1. Forest plot for interaction effect of body image concerns and social comparison on engagement in fat talk from a Robust Bayesian Meta-analysis.

meta-analysis of all three studies supports this conclusion. Thus, there is no substantial evidence that the effects of social comparison are stronger for those participants who score higher on body image concerns.

Statistical mechanisms that might have caused an interaction

Which mechanisms could account for the significant interaction effect documented in Corning and Gondoli (2012)? Some statistical scenarios can be ruled out. For example, it is unlikely that the significant interaction term in Corning and Gondoli's (2012) analysis is accounted for by multicollinearity in their OLS regression model, because the correlation between the two predictors was only moderate ($r = .26$). Moreover, simulations suggest that this level of multicollinearity is unlikely to have a strong impact on the detection of an interaction effect (Shieh, 2010). Another scenario is known as "common method variance bias" (Siemsen, Roth, & Oliveira, 2010). This bias arises as a result of shared variance among measured variables when they are all assessed using a commonly shared method, in this case psychometric scales. "Common method variance bias" is also unlikely to account for the interaction observed by Corning and Gondoli (2012), because simulations suggest that, if anything, this bias would lead to an underestimate of the strength of the interaction effect (Siemsen et al., 2010). There is, however, a very broad range of other statistical scenarios which plausibly could have given rise to a significant interaction term in an OLS regression (review in Jaccard & Turrisi, 2003). These include: measurement error in the predictors (e.g., Jaccard & Turrisi, 2003; Muff & Keller, 2015; Whisman & McClelland, 2005), confounding (e.g., Greenland, 2009), heteroscedasticity (e.g., Lubinski & Humphreys, 1990), non-normality (e.g., Jaccard & Turrisi, 2003), non-linearity in main effects (e.g., Matuschek & Kliegl, 2018), and outliers (e.g., Jaccard & Turrisi, 2003). We are unable to pinpoint which specific statistical mechanism may have produced the interaction effect in Corning and Gondoli's (2012) analysis. However, any of these scenarios, combined with low statistical power, could have led to a false positive interaction effect. It is well-known that interaction effects in multiple regression suffer from low statistical power (e.g., McClelland & Judd, 1993). Bayes factor analyses suggested that even in the original study there was only anecdotal support for the interaction effect over a main effects model. The absence of a strong theoretical rationale for the interaction effect, low statistical power, and a failure to replicate the interaction effect across two studies lead us to conclude that the original interaction effect is likely not supported.

Limitations

There are some notable limitations to our two studies. Firstly, our samples are from Western, Educated, Industrialized, Rich and Democratic societies (WEIRD, Henrich, Heine, & Norenzayan, 2010). Moreover, an additional limitation is that we sampled from student populations within these societies which could be problematic for generalization (Gallander Wintre, North, & Sugar, 2001). However, cross-cultural research in this area would suggest that we should expect to find similar results in other women, in other cultures (Becker et al., 2013; Takamura et al., 2019). Second, the composition of our samples in terms of self-reported BMI is slightly different from Corning and Gondoli (2012), especially for Study 2. This is however, not necessarily an issue as a broader range could be expected with a larger sample. Nonetheless, it is possible that the interaction effect between body image concerns and social comparison on engagement with fat talk only occurs in the healthy range. On the OSF, we present additional analyses which effectively rule out this possibility. If anything, there is even weaker evidence for an interaction effect when one restricts the BMI range. Finally, apart from sampling more diverse populations, future work might benefit from experimental and longitudinal studies which tease apart the relative influence of social factors next to fat talk on body image disturbances. Such studies are necessary to establish the causality and direction of the effects. In addition, studies would benefit from capturing social comparison, fat talk and body image disturbance via behavioral measures, rather than self-reports (Baumeister, Vohs, & Funder, 2007). Moreover, future research should consider the distinction between general measures of social comparison, versus those which focus specifically on physically based social comparisons (cf. Thompson, Heinberg, & Tantleff-Dunn, 1991).

Conclusion

In two replication studies, we found that women's frequency of fat talk was predicted by independent contributions from a frequency measure of general social comparison and body dissatisfaction. A robust Bayesian meta-analysis of these two studies, together with the original study by Corning and Gondoli (2012), support this additive model over a multiplicative model. Unlike Corning and Gondoli (2012), we found no evidence for an interaction term between social comparison and body dissatisfaction when predicting fat talk, and hence no evidence for a multiplicative model.

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Appendix A

Appendix Table A1.

Table A1

Hierarchical OLS regression models to predict engagement in fat talk. Models 1-3 refer to Study 1 and Models 4-6 refer to Study 2. Standardised coefficients (+/-SE). DFT : Drive for Thinness.

	Engagement in fat talk					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
BMI	−0.083 (0.073)	−0.079 (0.051)	−0.083 (0.051)	0.172*** (0.051)	0.088* (0.044)	0.080† (0.044)
DFT		0.609**** (0.054)	0.612**** (0.055)		0.477**** (0.047)	0.486**** (0.047)
Social comparison		0.222**** (0.055)	0.214*** (0.056)		0.139** (0.046)	0.148** (0.046)
DFT*Social comparison			−0.028 (0.043)			0.061 (0.038)
N	189	189	189	371	371	371
R^2	0.007	0.530	0.531	0.029	0.313	0.318
Adjusted R^2	0.002	0.522	0.521	0.027	0.308	0.311
Residual Std. Error	0.997 (df = 188)	0.689 (df = 186)	0.690 (df = 185)	0.985 (df = 370)	0.831 (df = 368)	0.829 (df = 367)
F Statistic	1.313 (df = 1; 188)	69.893**** (df = 3; 186)	52.371**** (df = 4; 185)	11.223*** (df = 1; 370)	55.972**** (df = 3; 368)	42.783**** (df = 4; 367)

†p < .1; *p < .05; **p < .01; ***p < .001; ****p < .0001

Appendix B

Appendix Table B1

Table B1

Hierarchical OLS regression models to predict engagement in fat talk. Models 1-3 refer to Study 1 and Models 4-6 refer to Study 2. Standardised coefficients (+/-SE). Body Diss. : Body Dissatisfaction.

	Engagement in fat talk					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
BMI	−0.083 (0.073)	−0.204*** (0.054)	−0.207*** (0.054)	0.172*** (0.051)	0.057 (0.049)	0.055 (0.049)
Body Diss.		0.603**** (0.057)	0.607**** (0.058)		0.372**** (0.050)	0.375**** (0.050)
Social comparison		0.230**** (0.056)	0.223*** (0.057)		0.206**** (0.047)	0.207**** (0.047)
Body Diss.*Social comparison			−0.027 (0.040)			0.031 (0.041)
N	189	189	189	371	371	371
R^2	0.007	0.507	0.508	0.029	0.235	0.236
Adjusted R^2	0.002	0.499	0.498	0.027	0.228	0.227
Residual Std. Error	0.997 (df = 188)	0.706 (df = 186)	0.707 (df = 185)	0.985 (df = 370)	0.877 (df = 368)	0.878 (df = 367)
F Statistic	1.313 (df = 1; 188)	63.763**** (df = 3; 186)	47.789**** (df = 4; 185)	11.223*** (df = 1; 370)	37.588**** (df = 3; 368)	28.297**** (df = 4; 367)

†p < .1; *p < .05; **p < .01; ***p < .001; ****p < .0001