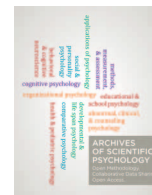




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SPECIAL SECTION: HETERODOX ISSUES IN PSYCHOLOGY

The Devil Wears Stata: Thin-Ideal Media's Minimal Contribution to Our Understanding of Body Dissatisfaction and Eating Disorders

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ABSTRACT

It is not uncommon for the general public to hear from scholars and advocates that images of thin women in the media are linked to body dissatisfaction and eating disorders among women viewers. However, does the evidence base support such claims? A review of the literature suggests that public claims about media effects in this realm are often misleading and considerable evidence exists to warrant caution in claiming causal effects. Relationships between thin models in media and women's body satisfaction are likely nuanced and complex, but there does not appear to be evidence that western media caused an epidemic of eating disorders in western countries. Regarding body dissatisfaction, media appears to have little influence on most women but for a small number it may remind them of their body dissatisfaction, although it is unlikely that media caused this body dissatisfaction in the first place.

SCIENTIFIC ABSTRACT

That media thinness (media depicting unrealistically thin actresses or models) contributes to female body dissatisfaction and, potentially, eating disorders has been often reported as established fact for decades. However, like many fields of psychology, particularly those linked to advocacy efforts, a gulf exists between the rhetoric used by some scholars and advocates, and the actual data available to support such claims. This article will document that the evidentiary base for media thinness effects is neither as consistent nor as high-quality as reported. Consistent methodological issues across many studies have increased the potential for spurious positive findings. Best practice approaches to reduce demand characteristics, ensure careful matching of experimental conditions, and control for other important variables in correlational studies are uncommon. Further, studies that do use best practices tend to return weaker evidence for effects. Although examples of good science in this field do exist, overall it may risk ideological rigidity, wherein advocacy goals are primary over careful examination of data. Suggestions for improvement are offered, along with recommendations that media research consider theories of consumer motivation rather than direct effects of content.

Keywords: thin-ideal, TV, body dissatisfaction, eating disorders, mass media

The issue of whether thinness media (media depicting unrealistically thin actresses or models) contributes to body dissatisfaction or eating disorders in women¹ has been debated for decades. To some

degree, these debates parallel similar debates in other areas of media effects such as for violent media (Markey, Males, French, & Markey, 2015), sexy media (Steinberg & Monahan, 2011), pornography

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¹ It is noted that parallel efforts examine the potential for a muscularity ideal influence on men's body dissatisfaction. This article will focus exclusively on women, given that thin-ideal media issues have received both more scholarly and public advocacy attention.

(Diamond, 2009), or media addiction (Kardefelt-Winther, 2015) in which public health or moral advocacy and scientific inquiry may intermingle. It is not uncommon to read scholars claim that causal links between media thinness and women's body dissatisfaction if not clinical eating disorders are factually true and without doubt. Often, such claims imply a consistent evidence base. I do not doubt that an honest, interesting data-based argument could be made for media thinness effects, just as an honest, interesting data-based argument could be made against such effects. However, pursuit of advocacy goals may result in a form of confirmation bias within the field in which theory-supporting evidence is advanced uncritically, ambiguous evidence favorably interpreted as supportive of thin-ideal theories, and nonsupportive evidence largely ignored. In this article, I present evidence *against* the belief that media thinness causes body dissatisfaction and eating disorders in women, as well as theoretical arguments why we should not likely observe such effects.

In any academic debate, it is tempting to paint with too broad a brush. As such, I would like to acknowledge a few important issues upfront. First, though I may discuss some concerns such as confirmation bias or my-side bias (a cognitive bias in which evidence supportive of one's beliefs is judged more leniently than is evidence that contradicts one's beliefs) I wish to make it clear that such discussions should not be taken to imply bad faith. Further, my-side bias appears to be a widespread human phenomenon irrespective of intelligence or educational background (Stanovich, West, & Toplak, 2013), and individuals on any side of a debate, pro or con (this author included) are susceptible to such influences. Acknowledging such human frailties among scientists can help us evaluate our scientific efforts. Second, it should be acknowledged that few scholars on either side of the debate conclude that thin-ideal media is the only contributor to body dissatisfaction. Most theories of media effects acknowledge that other variables ranging from genetics to peers to family also may influence body dissatisfaction. Thus, the debate regards whether thin-ideal media is *one* cause of body dissatisfaction not whether it is the *only* cause of body dissatisfaction. Third, although I will make the argument that media thinness research has been limited by major, systematic flaws that were repeated in multiple studies, I wish to make it clear that this is a phenomenon that is not remotely unique to this field, but common among many areas in psychological research. Last, it is acknowledged that media beauty ideals depend not just on thinness, but (for women) other factors such as body shape (i.e., the "hourglass" figure), muscle tone, breast size, skin and hair, long legs, facial symmetry, and so forth. However, thinness appears to be a common focus perhaps because this component allows for advocacy efforts to generalize to dangerous eating disorders such as anorexia nervosa.

My arguments in this article will flow along a path as follows. First, I will document claims made by scholars in this field that problematically exaggerate the evidence for media effects, potentially misinforming the public. Second, I will highlight systematic methodological issues that limit confidence in current evidence for media effects. Third, I will consider current evidence *against* media effects. And lastly, I will highlight new theory advancing why media exposure may not be sufficient to cause significant change to individuals' body satisfaction.

Statements by Scholars and Advocates

A starting concern about the media thinness effects field is that scholars have often adopted language implying that media has consistent, well-documented, strong causal influences on women's body dissatisfaction despite the absence of a research base matching such a description (see Table 1 below). This concern mirrors concerns for the rhetoric/data divide observed in other media effects fields (Kardefelt-Winther, 2015; Markey et al., 2015; Steinberg & Monahan, 2011). It is important to document the scholarly rhetoric of concern. Quite often, critiques of

rhetoric are met, in reply, by protests that no exaggerations have occurred and all scholarly language has been appropriately moderate even if, in fact, this is not the case (see the exchange between Markey, French, & Markey, 2015 followed by Bushman, Romer, & Jamieson, 2015, with reply by Markey et al., 2015 as a prime example). Thus, documenting the current rhetoric used in the field can highlight the concerns and provide evidence that a scholarly field has moved beyond science and into an ideologically rigid.

Table 1 highlights a several examples of statements by scholars that arguably distort representations of the current evidence for media effects by uncritically suggesting vast consensus in evidence and ignoring null studies. These quotes include those from prominent researchers in the field and include a task force of the American Psychological Association. In fairness, there certainly are examples of more modest and accurate discussions of media effects (e.g., Giordano, 2015; Want & Saiphoo, 2017; Whyte, Newman, & Voss, 2016) but these appear to be exceptions rather than the cultural norm for the field as indicated in Table 1. Table 2 highlights statements from advocates and the popular press. As can be seen, statements can become even more extreme once in the popular press, but I argue that misleading claims by scholars allow cover for such statements in the press.

The problem of such statements is exacerbated by the presence of citation bias in which scholars selectively cite past evidence supporting their views, ignoring evidence that does not (Babor & McGovern, 2008). Among studies included in recent meta-analyses (Ferguson, 2013; Grabe, Ward, & Hyde, 2008), citation bias was very common to the point of being nearly universal. That problematic claims by scholars tend to produce even more hyped claims by news media has likewise been well documented. These included false claims regarding a steep rise in eating disorders and claims that research has directly linked thinness in media to eating disorder prevalence (Radford, 2015, 2011).

These concerns about exaggerated rhetoric and citation bias are not merely cosmetic, as they can point to systematic biases within the field that can influence study results. Given the wider replication crisis within psychology, it is not unreasonable to suggest that, given the problems of methodological flexibility, researcher degrees of freedom and the garden of forking paths (Gelman & Loken, 2013) that research results may become distorted when a particular result is so clearly favored. These concepts related to methodological flexibility, garden of forking paths, and so forth, all refer to problems in the way in which psychological research had historically been conducted wherein researchers were presented with multiple options for data analysis, with different analytic strategies producing different results. In such an environment, scholars likely purposefully or unconsciously pick analytic strategies that confirm their personal beliefs over those that do not. Indeed, the relationship between citation bias and spuriously high effect sizes has been documented in other areas of media research (Ferguson, 2015).

Methodological Issues

As with many research fields that have a public advocacy component, evidence regarding media effects is often interpreted both selectively and uncritically. The failure of scholars to critically evaluate research evidence allows for methodological issues to promulgate and become calcified. In effect, the same methodological problems are repeated from study to study, becoming endemic, so long as they provide palatable data. Indeed, some methodological issues may become common specifically because they increase the likelihood of statistically significant findings. Historically, statistically significant results have been easier to publish (McShane, Böckenholt, & Hansen, 2016), and may better comport with moral advocacy agendas related to media (Bowman, 2016; Ferguson, 2013). These circumstances may put pressure on researchers to engage in questionable researcher

Table 1

Rhetorical Statements by Scholars Exaggerating the Consistency of Media Effects Evidence on Body Dissatisfaction

Citation	Comment
Tiggemann, Slater, and Smyth (2014)	Over the last decade and a half there has been a virtual explosion of studies linking exposure to thin ideal images, such as those depicted in fashion magazines, to women's body dissatisfaction or disturbed eating.
Bell and Dittmar (2011)	According to socio-cultural theory, negative body image emerges as a result of perceived environmental pressure to conform to a culturally-defined body and beauty ideal. The mass media may be seen as <i>the</i> single biggest purveyor of this ideal, promoting an unrealistic and artificial image of female beauty that is impossible for the majority of females to achieve (emphasis original).
Lopez-Guimera et al. (2010)	People are often unaware—and mass media work hard to keep it that way—of the extent to which, and just exactly how mass media play an important role in promoting consumerism, body objectification, and internalization of the current beauty ideal. . . . Mass media are an extremely important source, if not the principal source, of information and reinforcement in relation to the nature of the thin beauty ideal, its importance, and how to attain it.
American Psychological Association (2007)	. . . strong empirical evidence indicates that exposure to ideals of sexual attractiveness in the media is associated with greater body dissatisfaction among girls and young women. . . . Frequent exposure to cultural beauty ideals via the media has been shown to be associated with higher rates of eating disorders, both for individuals and for the population at large.
Bruns and Carter (2015)	When women are exposed to photographs of thin, attractive women, they experience an immediate decrease in body satisfaction.
Harrison (2013)	After more than 20 years of research including meta-analyses, there is little disagreement that media exposure affects young people's perceptions of their bodies and predicts eating pathology concurrently and over time.
Spettigue and Henderson (2014)	. . . mass media surrounds us with images of the "thin ideal" for females, an ideal that has become increasingly thin since the 1950's and, thus, increasingly unrealistic for most girls and women. The messages and images that focus on the value of appearances and thinness for females have a significant negative impact on body satisfaction, weight preoccupation, eating patterns, and the emotional well-being of women in western culture. Research has demonstrated that the media contributes to the development and maintenance of eating disorders.
Hawkins, Richards, Granley, and Stein (2004)	. . . the portrayal of women in mass-circulation fashion magazines can have a powerful influence on women's self-appraisals . . . our findings suggest that such presentations may be one powerful contributor to the development of eating disorders.
Hogan and Strasburger (2009)	Of significant concern, studies have revealed a link between media exposure and the likelihood of having symptoms of disordered eating or a frank eating disorder.
Grabe, Ward, and Hyde (2008)	Research in this area has produced more than 100 studies whose findings not only demonstrate the proposed links but also provide evidence that body image disturbance prospectively predicts eating pathology.
British Medical Association (2000)	It would appear that one of the main reasons why anorexia nervosa and bulimia nervosa are culturally-bound syndromes is that they depend on the culture of thinness pervading those nations where disorders are prevalent. One of the most important means of generating and maintaining the culture of thinness are those adopted purposely or accidentally through the media and advertising.
McLean, Paxton, and Wertheim, 2016	It has been established that media, and particularly advertising, influence attitudes, decision making, and behaviours. . . . Specifically, meta-analyses have confirmed that greater exposure to appearance-focused media in experimental and correlational studies is associated with higher levels of body dissatisfaction and disordered eating attitudes and beliefs in vulnerable individuals.
Loeber et al. (2016)	Media exposure to thin beauty ideals has been shown to have a negative influence on body satisfaction, mood and self-esteem in women. Importantly, exposure to the thin ideal can also lead to changes in ED related symptoms, especially in those subjects who are at high risk for the development of an ED.
Blond (2008)	Numerous studies have shown that exposure to images of attractive women has a negative effect on females' satisfaction with their appearance and contributes to unhealthy behaviours such as restricted eating and excessive exercise. . . . Currently, societal pressure on men's appearance is increasing as more and more images of muscular male bodies appear in movies, music videos, commercials, and magazines. Continuous exposure to such images may have profound impacts on men's body dissatisfaction. With new generations raised in cultures saturated with these images, future increases in male body dissatisfaction may be expected. Already, incidences of muscle dysmorphia, steroid use, and cosmetic surgery are rising among men.

practices to obtain "statistical significance" (Simmons, Nelson, & Simonsohn, 2011). Indeed, in this field, particularly among experimental studies, poorer research designs are associated with higher effect sizes (Ferguson, 2013). It would be interesting to examine in the future, should a pool of preregistered studies develop, whether these produce different effect sizes than do nonpreregistered studies.

It is worth noting, methodological problems exist among both studies that do and do not find evidence for effects, although, as noted above, there is some reason to believe they may be more common among those with statistically significant findings. Further, even if certain methodological problems increase the risk of Type I error, most such errors are undoubtedly made in good faith. However, overall, understanding these methodological problems and their widespread nature helps us put the current pool of evidence into perspective.

Demand Characteristics

Demand characteristics exist when features of a study unintentionally advertise the desired behaviors study authors hope participants will engage in.² This puts pressure on participants to behave in ways consistent with those hypotheses even if these differ from their actual naturalistic behaviors. The problem of demand characteristics has been known for decades (Orne, 1962) and scholars continue to observe that researchers remain poorly suited to identifying demand characteristics when they exist (Sharpe & Whelton, 2016).

² Theoretically, empiricists should not desire any particular outcome but rather objective truth. However, both the pressure for positive, and thus publishable, findings as well as the advocacy nature of this and other fields create incentives for scholars to prefer novel, interesting findings over null findings.

Table 2

Rhetorical Statements by Advocates and News Media Exaggerating the Consistency of Media Effects Evidence on Body Dissatisfaction and Eating Disorders

Citation	Comment
National Eating Disorder Association (2018)	We live in a media-saturated world and do not control the message . . . research is increasingly clear that media does indeed contribute and that exposure to and pressure exerted by media increase body dissatisfaction and disordered eating.
Mirror-Mirror.org (2018)	Media and body image is important because we are absolutely bombarded with media images these days and those images have a huge effect on our mental health and the way we see ourselves . . . the unrealistic images we see in the media can contribute to the development of eating disorders like anorexia and bulimia.
Rader (2012)	If the media does not revise its ideal standard of beauty, more and more women could end up as victims of media-triggered eating disorders.
Barclay (2016)	This vast rift between what Americans look like and the images they see isn't without consequence. The prevalence rates of anorexia and bulimia reached .6% by 2007, meaning that nearly 2 million Americans will experience one of these eating disorders in their lifetimes.
Vitelli (2013)	Recognizing the risk associated with presenting adolescents with an unrealistic standard for beauty can help combat the current [sic] obsession with physical thinness. Popular media figures appear to play a strong role in promoting unhealthy eating habits that can endanger the health of young people.
Rojas (2014)	Social media helps fuel some eating disorders (headline).
DeGroat (1997)	While the appearance of waif-like models in the media may send a dangerous message about eating disorders, general fitness and fashion magazines and television shows with thin characters also play a key role in influencing irregular eating patterns of young women, says Kristen Harrison, assistant professor of communication studies . . . "It seems clear that young women's patterns of disordered eating, including both attitudinal and behavioral tendencies, are related not only to the types of media they expose themselves to, but also to the way they perceive and respond to specific mass media characters," Harrison says. "This relationship may seem obvious to readers who are concerned with this issue and openly acknowledge the possibility that the media operate as transmitters of potentially dangerous socially desirable values and norms. Nonetheless [sic], it bears restating for the benefit of any members of the research community and the general public who still believe media messages to be largely ineffectual in the lives of young people."
<i>The Illusionists</i> (2017)	Japanese women are under incredible pressure to have an ideal body just like top models and manga characters. The problem is that the desire to look this way does not come from the women themselves, it's often imposed by society and mass media.
Sigman (2010)	However, new research shows there is a much stronger link between visual media and eating disorders. Repeated exposure to images of thin women alters brain function and increases our propensity to develop eating disorders . . . the prevalence of thin women on television is a public-health issue requiring urgent action.
Ross (2015)	Today, the media is a far more powerful influence than ever before, sometimes taking precedence over friends, family or other real women. Whereas women used to look at role models who were average-sized, women are now comparing themselves with images (some of which are merely computerized conglomerations of body parts) that are unrealistically thin. In the old days, a young girl grew up wanting to look like her mother or best friend. Now she wants to look like Angelina Jolie.
Government Equalities Office (2014)	Our culture is infused with messages linking individual worth with physical appearance—the growth of social media has brought celebrity culture into young people's bedrooms, and young people report feeling increasingly besieged by sexualized and unrealistic images of beauty.
Common Sense Media (2015)	When the media celebrates certain types of behaviors and appearances, it can leave a strong impression on kids, shaping their ideas of what will make them popular, attractive, and happy (or the opposite: unpopular, unattractive, and unhappy). . . . Kids may compare their own appearances to those of celebrities, models, animated TV characters, or toys—body shapes that may be unrealistic or just plain unattainable. This kind of comparison can lead to body shame and low body esteem, which can lead to serious behaviors. ^a

^a A meta-analysis of the current author was cited as evidence for this claim, which would be an example of a misleading or inappropriate citation (Ferguson, 2013, concluded largely the opposite). Similarly, the conclusions of Want (2009), were more nuanced than the language of this claim about meta-analyses, and the meta-analysis of Holmstrom (2004) was ignored altogether.

A recent meta-analysis (Ferguson, 2013) found that serious demand characteristics were widespread in the media thinness field, so much so as to be, once again, nearly universal (see also, Want, 2014). These issues took the form of close pairing of media thinness stimuli (the IV) with measures of body dissatisfaction (DV), whether in experimental or correlational research, without any distractor tasks to reduce hypothesis guessing. For instance, in a basic correlational study, researchers might ask participants (most often college student women) how many thin actresses or models they viewed and, next, how happy they felt about their bodies. Experiments accomplish much the same by presenting thin models, then asking about body dissatisfaction. Such procedures make the hypothesis obvious, particularly for college-educated women who likely have already been exposed to media effects theories.

In fairness, levels of demand characteristics do vary between studies. At the extreme are studies in which participants are simply

informed of the hypothesis at the outset (e.g., Champion & Furnham, 1999). Some studies make rudimentary efforts at reducing demand characteristics, either by using (often rather thin) cover stories or (equally thin) post hoc probing for suspiciousness, although even these were fairly uncommon. In most of these cases where rudimentary efforts were made, close pairing of the IV and DV remained problematic.

Some degree of demand characteristics is probably universal to psychological experimentation (Sharpe & Whelton, 2016). By very nature of volunteering for a psychological experiment, many or most participants will become curious as to the hypothesis or, indeed, how the experimenter may be *tricking* them. However, some steps can be taken to reduce demand characteristics. A cover story can help, although distractor tasks to separate the IV from DV, and provide participants opportunities to guess about other, but irrelevant, features of the experiment may be more effective in reducing demand char-

acteristics. Studies that include such efforts have been relatively few, but generally have produced effects that more closely approximate null effects than those without such efforts (e.g., Ferguson, Munoz, Contreras, & Velasquez, 2011; Whyte et al., 2016).

It is possible, in addition, that priming effects may influence participants behaviors as well as demand characteristics. In communication research, priming involves the presentation of stimuli that activate related cognitive or affective states (Chang, 2014). In such conditions, a prime is best considered a *reminder* rather than an ultimate *cause* of those related cognitions or affects (the prime may or may not be the ultimate cause). This, of course, raises the question of why thinness in others would act as a reminder to some women to feel body dissatisfied. It is possible that thinness has been paired with positive outcomes in media, resulting in cognitive associations. It is also possible thinness is associated with actual success in mating and, thus, the cognitive associations develop through evolutionarily evolved tendencies to socially compare. Third, it is possible that the associations are created by the very antimedia advocacy campaigns that vocally claim that thinness should be associated with body dissatisfaction. Even if an experimental study should find links between media presentation and body dissatisfaction in a reliable and transparent way, it is possible such studies may mistake media as a *reminder* of body dissatisfaction for media as a *cause* of body dissatisfaction.

The study by Whyte and colleagues makes an interesting case example of how ambiguous results can result in differential interpretations of those results. The study presents a well-done short-term randomized exposure to thin models as opposed to average sized models. The study took pains to match conditions carefully and reduce demand characteristics. The study asked participants to rate their general attractiveness as well as specific body dissatisfaction. An analysis of exposure to model type on ratings of self-rated attractiveness were nonsignificant. However, when controlling for attractiveness, significant results were found for model condition on body dissatisfaction, although these results were of threshold significance ($p = .045$). A closer analysis of the effect size using means and standard deviations of the two groups suggest the overall effect size was $r = .103$ and the confidence interval for this effect crosses zero (95% confidence interval [CI] $[-.076, .274]$). Further, the same analysis without the attractiveness covariate returns nonsignificant results (Newman, personal communication, February 1, 2018). Thus, given two possible outcomes, one nonsignificant, the other threshold significant (but with an effect size crossing the zero mark) in one possible analysis, nonsignificant in the other (and it is not clear whether using the self-attractiveness rating as a covariate is the best decision or not), it is arguably possible to argue the study either is or is not supportive of the hypothesis of media effects. I argue that, on aggregate, data from this study argue against media effects.

Even if we ignore the findings for general attractiveness and focus on body dissatisfaction (and, in fairness, the original authors identify this as the primary outcome of interest to them), it is not clear how to interpret an effect size of $r = .103$. A reasonable debate could be had regarding whether this effect has practical significance or is merely trivial. Some scholars may argue that even small effects extended over populations can be meaningful, but I consider this argument unpersuasive for several reasons. First, this is speculative, not data-based. Second, the evidence from longitudinal analyses demonstrate considerably weaker evidence for effects than experimental studies (Ferguson, 2013) that provides data in contradiction to this line of reasoning. Third, effect sizes calculated for between-groups analyses from experimental studies do not provide information regarding population-level impacts and should not be assumed to do so. On balance, I argue

that the results from Whyte et al. (2016) best argue for null effects, although I welcome readers to examine the original report and decide for themselves. However its results may be interpreted, it certainly provides an example for a well-designed experimental study.

Poor Matching of Experimental and Control Conditions

A second methodological issue is that, though the focus of theory on media effects is often on *thinness*, few studies successfully isolate thinness as the variable of interest. This is typically because of the widespread failure of most experiments to use control conditions that are similar to experimental conditions on most variables other than thinness (Whyte et al., 2016). In many experiments, participants in an experimental condition may be exposed to thin models whereas participants in a control condition are exposed to *nonhuman objects*. The problem with such a contrast should be obvious. There is little doubt that people compare themselves more to other people than they do to, say, vacuums, or household cleaners, or automobiles. However, such contrasts fail to isolate beauty, let alone thinness. Even if we accept that exposure to beautiful others may make us feel worse about ourselves, most media effects studies fail to isolate *thinness* as an essential component of such evaluations (Ferguson, 2013).

As with the issue of demand characteristics, the identification of perfect control conditions is admittedly difficult. However, contrasts between attractive thin models and models who are attractive but are of more average body shapes would appear to be the obvious alternative.³ However, as with demand characteristics, evidence suggests that studies which attempt to control more carefully for confounding variables produce weaker evidence for media effects (Bruns, & Carter, 2015; Roberts & Good, 2010; Veldhuis, Konijn, & Seidell, 2014; Whyte et al., 2016).

A related issue that is worth noting is that experiments of media thinness are often limited, particularly when using slide shows of pictures (a common approach), by removing media images from the broader context in which they occur. This limits the generalizability of experimental findings to media contexts in which media is actually used in real-life (Want, 2014).

Issues With Meta-Analyses

Meta-analyses are sometimes treated as debate-enders, wherein a weighted average effect size dispenses the uncertainty that comes with mixed results from individual studies. However, the use of meta-analysis in this realm reveals the often fraught nature of this goal.

First, meta-analyses themselves do not agree. Meta-analyses of media effects on body dissatisfaction have concluded that there are no substantial effects (Holmstrom, 2004), that effect sizes are trivial, noncausal, and limited to certain populations high in neuroticism or pre-existing body dissatisfaction (Ferguson, 2013), that effects are small and, in some cases, may be artifactual (Want, 2009), or which more definitively interpret results as supportive of causal effects (Grabe et al., 2008; Groesz, Levine, & Murnen, 2002). In this sense, meta-analyses have not necessarily improved on narrative reviews for offering objective conclusions. Debates tend to hinge on what effect sizes are meaningful, whether bivariate or more controlled effects sizes are better to interpret, whether effects are real or spurious because of systematic methodological issues, and even which effect sizes are most appropriate for extraction for analysis.

Choices made in meta-analyses can also influence decisions. For instance, in examining the meta-analysis of Grabe et al. (2008) several

³ Modern computer software allows for the manipulation of images, potentially allowing for models to be their own control conditions.

of the included experiments contrasted thin models against more averaged sized models but also nonliving objects. As such, the experimental condition was contrasted against two control groups. In these experiments, the difference between thin and average size models was much lower than the contrast between thin models and nonliving control conditions. In such cases, the meta-analysis apparently eschewed the contrasts between different sized women, and included only the contrasts with nonliving objects. Such contrasts fail to isolate thinness and can cause spurious results. Thus, meta-analyses do not always provide clear information that isolates the variables of interest.

Current Evidence

Currently, there are over 200 studies, experimental, correlational, and longitudinal, which examine issues of media and body dissatisfaction. It is important to note that virtually none of these consider clinically diagnosed eating disorders, despite the implications of some scholarly claims. This is, undoubtedly, because diagnosed eating disorders remain rare and obtaining clinical samples, particularly for a field heavily reliant on college student participants, is difficult. This dearth of evidence connecting media to clinically diagnosed eating disorders has been recognized for some time (Striegel-Moore & Bulik, 2007) but has not dissuaded some scholarly claims about effects (e.g., American Psychological Association, 2007; Grabe et al., 2008; Hogan & Strasburger, 2008; Tiggeman, Slater, & Smyth, 2014). Some studies do consider survey reports of disordered eating symptoms, but these are not equivalent to clinically diagnosed eating disorders. Although some of the symptoms on these surveys may reflect severe behaviors (e.g., vomiting), many are fairly common and mild (e.g., dieting to lose weight). As such, even mean differences between groups, particularly where they are quite small, do not reflect the presence or absence of eating disorders.

Constructs related to body dissatisfaction do tend to correlate. So, for example, thin-ideal internalization tends to correlate with body dissatisfaction (e.g., Vartanian & Dey, 2013) with body dissatisfaction, in turn, predicting eating disorder symptoms (Karazsia, Murnen, & Tylka, 2017). An interesting find was that the prevalence of body dissatisfaction appears to be decreasing among women and girls over time (Karazsia et al., 2017) and some evidence has likewise suggested some decrease in the prevalence in bulimia nervosa since the peak in the 1970s (Hoek, 2006) with prevalence rates for anorexia nervosa remaining rare but stable (Litmanen, Fröjd, Marttunen, Isomaa, & Kaltiala-Heino, 2017). It is possible that social messages regarding body acceptance may be related to decreases in body dissatisfaction and bulimia nervosa, although it is more difficult to argue that representations of attractive models and actresses have ebbed significantly (and new concerns are raised about social media, see Murray, Maras, & Goldfield, 2016). This suggests that media may not clearly be the medium (or a medium) through which thin-ideal internalization occurs or, perhaps, that thin-ideal internalization may be a symptom of underlying body dissatisfaction rather than a cause. Multiple factors ranging from genetics to family environment to peers undoubtedly influence thin-ideal internalization, body dissatisfaction and eating disorders and relationships between the three do not provide evidence for media effects.

Based on prior meta-analyses (Ferguson, 2013; Grabe et al., 2008; Holmstrom, 2004; Want, 2009), current evidence can be best described as fitting into three relatively equal pools. The first are studies that find some evidence for media effects and have reasonably clear, unambiguous results (e.g., Brown & Dittmar, 2005; Harper & Tiggemann, 2008). The second are studies that do not find evidence for media effects and have reasonably clear, unambiguous results

(e.g., Hayes & Tantleff-Dunn, 2010; Veldhuis et al., 2014). The third pool are studies that return ambiguous, inconsistent, or unclear findings, but which are most often (though, in fairness, there are exceptions) selectively interpreted as supporting media effects (e.g., Becker, Burwell, Herzog, Hamburg, & Gilman, 2002; Bessenoff, 2006).

This issue of ambiguous findings is evident in one of most discussed studies, namely the Fiji study, examining eating issues before and after the introduction of TV on the island in the mid-1990s (Becker et al., 2002). The study used self-report surveys and concluded that eating disorder pathology increased after the introduction of TV among Fijian girls. However, a close examination of their main results (their Table 1) indicates some inconsistencies. Self-reported vomiting to reduce weight increased, as did overall eating symptoms (though marginal at $p = .030$). However, bingeing symptomatic of bulimia nervosa did not increase, nor did Body Mass Index (BMI) reduce over time as one might expect from girls embracing a thin ideal. A multivariate analysis of TV ownership and self-reported eating disorder symptoms became nonsignificant when only controlling for study year, and it is likely effect sizes would be further attenuated were more theoretically reasonable variables controlled. Thus, the Fiji study reported some increases (but not all) in *self-reported* symptoms, but no evidence that this resulted in actual weight-reducing behaviors among adolescent girls. The sample size was also small ($n = 63$ and Time 1, 65 at Time 1). Nor did the study isolate media effects from the variety of other social changes occurring in increasingly Westernized Fiji at this time. Thus, though the Fiji study is often interpreted as clear evidence for a media effect, its results are inconsistent and ability to isolate media from other Westernizing social effects negligible.

Thus, at present it is most accurate to conclude that empirical data on media thinness effects is inconsistent, and that, where seen, effects tend to be small, potentially trivial, and difficult to isolate from other social effects particularly in correlational studies. Evidence becomes weaker when other factors such as genetics or peer or family factors are controlled (Ferguson, 2013). This is in contrast to other areas of research that have returned more convincing results for genetic (Keski-Rahkonen et al., 2005; O'Connor et al., 2017), peer (Ferguson, Munoz, Garza, & Galindo, 2014), and family (Vartanian, Foreich, & Smyth, 2016) impacts on body dissatisfaction among women. Although body dissatisfaction is undoubtedly multidetermined, this does not mean *all have won and must have prizes* but rather that each hypothesis must stand or fall on its own merits.

None of this need necessarily preclude any argument in favor of media effects. It is possible that a cogent argument could be made for media effects, while acknowledging inconsistencies in the data. It is also possible that social comparison with others' attractiveness may exist, but that thinness is not the key component (given the failure of so many studies to isolate thinness, this is not an unreasonable hypothesis). Indeed, some scholars have recently argued that an *athletic ideal* rather than media thinness may impact women's body satisfaction (Bell, Donovan, & Ramme, 2016). However, the greatest concern is that so many current arguments for media thinness is the lack of attention to research evidence conflicting with this theoretical viewpoint.

Rethinking Media and Body Dissatisfaction

A Theoretical Structure for Limited Media Effects

The fundamental structure of social comparison theory (Lindner, Tantleff-Dunn, & Jentsch, 2012) that suggests individuals evaluate their self-worth in part by comparison to others on multiple fronts, is

not in doubt. However, current research evidence is weaker than often advertised regarding the role of media in this process, and the role of media thinness specifically. Research evidence has not clearly documented a crucial role for media, nor that model thinness is a critical component in self-evaluation. If we accept that some women with pre-existing neuroticism or body-dissatisfaction may feel worse when viewing attractive models, though other women may ignore such models or even feel better about themselves (Ferguson, 2013; Roberts & Good, 2010), it may be more accurate to consider that media simply *reminds* some individuals of their body concerns, not causes it in the first place. It is worth considering why media has so little impact as a causative agent of body dissatisfaction. With that in mind, I propose several conclusions:

1. Media is a far weaker agent of social comparison than peers.
2. Thinness is, at best, only one aspect of social comparison related to attractiveness.
3. Body dissatisfaction typically arises through a combination of genetic risk with stress created through perceived *mate value* or the self-perception that one is able to attract desirable mates (Hromatko, Bajoghli, Rebernjak, Joshaghani, & Tadinac, 2015).
4. Media largely mirrors, rather than causes, prevailing cultural beauty standards.

Developing theory to explain why a set of hypotheses *do not* work is a relatively rare phenomenon. Technically, null theories are not required . . . the burden of proof remains on a theory of presumed relationships and, should the evidence appear wanting, the theory is falsified and no null replacement is required. The reality, in social science, is more complex, with numerous theories laboring on as *undead theories* despite weak or inconsistent evidence. Indeed, despite the visibility of psychology's replication crisis, it is difficult to think of a single social science theory that, based on failed replications, is universally accepted as discredited by the field of psychology (theories that posit near-magical effects such as ESP may come closest).

Catalyst Model

The Catalyst Model (Ferguson et al., 2014) is a fairly straightforward diathesis stress model, which suggests that body dissatisfaction results from an interaction between genetic predisposition and early life events. Symptoms of body dissatisfaction may be worsened under times of stress (including those related to sexual relationships, such as breakups or perceived difficulty in finding a desirable mate). Peers and families are potentially considered to be significant impacts on women and girls' body dissatisfaction. However, media is considered to be too distal to have substantial impact on body dissatisfaction.

One concern is that media research has often failed to consider two main issues, particularly in the way that media effects are communicated by researchers to the public (as in Table 1). First, a considerable amount of media research appears to assume that people learn from fictional media similarly to real-life events. Second, communications of media effects often take a globalized, *one size fits all* approach in which media effects are presented as global, predictable, and uniform rather than idiosyncratic to the motivations of individual users. In fairness, there are exceptions to this, particularly among scholars who embrace a *uses and gratifications* approach (Sherry, Lucas, Greenberg, & Lachlan, 2006) that prioritizes user motivations over content as drivers of behavior.

Regarding the first issue, the Catalyst Model states that media effects are likely to be minimal for most users because people treat and learn from media differently than they do real-life events. From this we would expect real-life influences to be far more powerful than media influences. In this sense, the Catalyst Model is not incompatible with Social Comparison Theory (Lindner et al., 2012), but modifies it by suggesting, in effect, we are more likely to compare ourselves to peers with whom we are in competition rather than distal figures in the media. This appears to be supported by studies that include both influences in comparison (e.g., Dunkley, Wertheim, & Paxton, 2001; Ferguson et al., 2011, 2014; Presnell, Bearman, & Stice, 2004). Some studies suggest that peer conversations about media may be related to body dissatisfaction, even if media has no direct effect (Clark & Tiggenmann, 2006), which may suggest how some peer effects may have been misunderstood as media effects. This observation makes sense given that, for any potential mate, individuals are more likely to compete with individuals within their social circle than media figures whom will never cross their paths. Social media may represent one exception given the potential for negative peer interactions in this format (Smith, Hames, & Joiner, 2013). Thus, body dissatisfaction can be thought of as arising from perceived mating value compared with one's peers.

Regarding the second issue, discussion of general effects, particularly the idea that some "naughty" media causes predictable harms fits well with advocacy goals targeting media. Although typically framed with protectionist intent toward girls and women, some scholars (Gill, 2012) have argued that, to some degree, such theories are patronizing of women insofar as they position women as hapless victims of media. In reality, girls and women are active agents in selecting, interpreting and, ultimately, shaping the media they consume. Theories that have posited general, predictable effects of media have typically fared poorly in regards to data, despite the enthusiasm they generate from scholars investigating these issues. However, noting that media does not have clear, predictable effects that coincidentally fit a moral agenda does not mean that media has no effect whatsoever. However, media effects in this realm, as most, may have less to do with causal relationships between naughty content and undesired outcomes, but may be shaped to a far greater degree by the a priori well-being, motivations and intentions of the consumers themselves.

Ultimately it is these consumers who shape the media themselves. Whether media creates or merely mirrors prevailing social trends has been an ongoing debate. No doubt the answer is complex, but convincing evidence has not arisen that media is a prime creator of beauty standards, particularly if we consider such standards to be otherwise arbitrary. Some evidence suggests that beauty standards are indicative of biological *fitness* and may vary from culture to culture based on the environmental circumstances such as food availability that determine fitness (e.g., Rhodes, 2006). Media then may do more to reflect than create beauty standards. In demonstrating the shallowness of our own attraction, we may follow a common path of shooting the messenger.

Concluding Thoughts

Critics of this article may express that the potential for idiosyncratic media effects is already considered in thinness media research. However, though some slight examples no doubt exist (including the dark, devilish hole of mediator/moderator analyses) I am not suggesting simply these types of minor moderations, but rather that the foundational conceptualization of media effects need be reexamined. In particular, the entire tendency to express media effects, in this realm and others, as "Media M causes people to do Y" should be jettisoned in favor of "Media M may be associated with some people doing Y under some conditions, but only if they wanted to in the first place,

whereas it is associated with other people doing X or Z, and many people, perhaps most, doing nothing at all.” This would be a more honest depiction of most media effects, even if less likely to generate newspaper headlines or grant funding.

Suggestions for improvement are fairly clear (Want, 2014; Whyte et al., 2016) and include taking steps to distance IVs and DVs in both experiments and correlational studies to reduce demand characteristics. Experiments need to more carefully match control and experimental conditions on variables other than the one of interest (i.e., thinness). Correlational studies need to be careful to include multivariate controls, and meta-analyses likewise need to focus less on potentially spurious bivariate effects sizes, and focus instead on better controlled partial *rs* or standardized regression coefficients. Multivariate controls should include those that are theoretically relevant, such as from the Catalyst Model. These would include (ideally) genetic predisposition, peer influences and competition, family warmth, and neurotic personality. In longitudinal studies, Time 1 body dissatisfaction should also be controlled. Improper controls can result in model misspecification, which can include issues related to both overcontrol (preregistered mediation models may be of value in examining developmental paths with longitudinal data), and the inclusion of irrelevant variables that do little to reduce the potential for spuriously high effect sizes. Parsimonious models are generally desirable. Evidence from some recent analyses suggest that use of standardized regression coefficients as compared with bivariate correlations, may decrease bias in meta-analysis (Furuya-Kanamori & Doi, 2016; Pratt et al., 2010). This appears to be because bivariate correlations between studies are more heterogeneous than commonly assumed and tend to be upwardly biased. Preregistration of studies can also reduce researcher expectancy effects that lead to false positive results. These suggestions are not new, but remain rarely implemented in most studies in this realm.

Like most areas of media effects, a wide chasm exists between the enthusiasm with which some scholars and advocates proclaim causal effects and the consistency, quality, and size of effect of the data summoned to support such claims. Why this happens so regularly when media effects are in question is a topic worthy of consideration itself. However, current data in media effects related to women’s body dissatisfaction are unable to support conclusions for clear, causal, harmful media effects. Much of the research that is available suffers from systematic, though easily fixable flaws; what research evidence exists that avoids most such flaws provides little evidence for causal media effects. Further, there are good theoretical reasons why powerful media effects should not be expected. If we are serious in understanding body dissatisfaction and, by extension, eating disorders, we may first need to acknowledge the limited role of media so focus can fall on more important considerations.

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