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The Use of Dress in Objectification Research[1]

To objectify another person (i.e., other-objectification) is to dehumanize that person and treat him or her as an object (Nussbaum, 1995). The related term sexual objectification refers to treating another as the object of sexual desire (Bartky, 1990). According to Fredrickson and Roberts (1997) self-objectification occurs when individuals internalize an outsider's objectified view of themselves. Self-objectification is believed to occur in two forms: trait and state. The trait form refers to the propensity to view oneself through the lens of others across situations. The state form is the similar experience that is evoked or induced by contexts such as viewing idealized images of others or being the target of an objectifying gaze (Gay & Castano, 2010) and is conceptualized as a temporary condition. Researchers have shown that both other-objectification (e.g., Aubrey, Hopper, & Mbure, 2011; Johnson, McCreary, & Mills, 2007) and self-objectification can have harmful effects (e.g., Hebl, King, & Lin, 2004).

The topic of objectification has generated interest among dress researchers (e.g., Lee & Johnson, 2009; Lennon, Zheng, & Fatnassi, 2016). Dress is defined broadly as both supplements added to the body (e.g., clothing, jewelry) as well as modifications (e.g., cosmetics use, gaining weight) made to the body (Roach-Higgins & Eicher, 1992). Investigating other-objectification, Lennon, Zheng, and Fatnassi (2016) content analyzed Halloween costumes and found that women's costumes were more objectifying (i.e., body-revealing) than men's costumes. Based on the results of a follow-up experiment, they also reported that women who wore body-revealing

[1]We defined objectification research as research guided by objectification theory that focused on the act of objectification, its consequences, and/or its relationships with other variables.

Halloween costumes were objectified by others. Investigating outcomes of self-objectification, Lee and Johnson (2009) reported that young women who self-objectified also practiced at least one risky appearance management behavior. Thus, these researchers demonstrate that dress and the behaviors engaged in to manage that dress are related to objectification. On the other hand, a few objectification scholars, outside the clothing and textiles field, have acknowledged or credited the use of clothing (body supplements) in facilitating (e.g., Prichard & Tiggemann, 2005; Tiggemann & Andrew, 2012) or resisting objectification (Fredrickson & Roberts, 1997). In that work, Roach-Higgins and Eicher's (1992) definition of dress was not used.[2]

Given that clothing (body supplements) can facilitate objectification (e.g., Prichard & Tiggemann, 2005; Tiggemann & Andrew, 2012) and theoretically can be used to strategically resist objectification (Fredrickson & Roberts, 1997), it is of interest to determine the extent to which body supplements play a role in objectification. Fredrickson and Roberts also argue that women can "opt out of the system of objectification" (p. 192) with their bodies, suggesting that body modifications affect objectification, which later was supported by empirical evidence (e.g., Gervais, Vesico, & Allen, 2012; Holland & Haslam, 2013). Thus, it is of interest to study the role of dress in both forms on objectification. Thus, the first research purpose was to determine the extent to which experimental objectification research used dress in either or both forms (i.e., modification, supplement) to induce self- and/or other-objectification.

According to Tiggeman and Andrew (2012) some objectification researchers may have discounted the role of clothing (body supplements) in objectification. They argue that the role of

[2] In what follows we adopt the authors' terms in reporting and reviewing research (e.g., clothing, fashion).

clothing, within the context of self-objectification, has been under studied. Furthermore, they cite Frith and Gleeson's (2004) argument that clothing and fashion are viewed as "frivolous, trivial, and inconsequential" (Tiggeman & Andrew, p. 646) and thus undeserving of serious academic analysis. If dress (in both forms) does play a role in objectification and since body supplements have been evaluated as unimportant and trivial, then it is questionable whether appropriate procedures were followed when using dress stimuli in experimental objectification research. Therefore, the second research purpose was methodological and designed to determine the extent to which researchers followed correct procedures relative to establishing internal validity when using dress stimuli.

Literature Review

Objectification Theory (Fredrickson & Roberts, 1997) was offered to forward an understanding of the consequences of being female in a sexually objectifying culture. According to this theory, girls and women living in media-saturated, Western cultures are scrutinized, evaluated, and often objectified by others. They are objectified in everyday social interactions (e.g., visual inspection), in media depictions of social interactions, and in media portrayals depicting women as mere bodies and body parts. When women and girls are objectified by others (i.e., experience other-objectification) one outcome is self-objectification; they may internalize another's perspective and see themselves as objects to be evaluated primarily for their physical attributes (Strelan & Hargreaves, 2005; Lindner, Tantleff-Dunn, & Jentsch, 2012). Fredrickson and Roberts also identified other outcomes of objectification; these included women's heightened concern with bodily appearance, experience of body shame, reduced opportunities for peak motivational states, and a diminished awareness of internal bodily states.

Fredrickson and Roberts (1997) also noted how women can resist objectification by

63 monitoring their appearance when wearing fashionable clothing lest it be too revealing. Other
64 strategies mentioned to avoid the "objectification limelight" (likelihood of objectification)
65 include avoiding cosmetics use, wearing loose fitting clothing, and wearing comfortable shoes,
66 presumably because comfortable shoes are seldom attractive or sexy. This assumption is
67 supported by researchers who found that a shoe[3] rated as the sexiest of 20 pairs of shoes was also
68 rated as the most uncomfortable (Kaiser, Schutz, Chandler, & Lieder, 1985).

69 **Inducing Self-objectification Using Dress**

70 Early objectification research focused on self-objectification and its harmful effects on the
71 self-objectified (Budesheim, 2011). Self-objectification has been experimentally evoked in many
72 ways as an independent variable (Calogero, 2011) including manipulations of dress as
73 supplements (e.g., clothing) and as body modifications (e.g., Michaels, Parent, & Moradi, 2013),
74 yet such manipulations have not been routinely identified as such. Calogero identified three ways
75 state self-objectification was evoked in experiments: the swimsuit-sweater paradigm, exposure to
76 objectified images (manipulating clothing and/or bodies), and mere exposure situations
77 (exposure to words or environmental cues linked to objectification such as mirrors, scales, and
78 fashion magazines). All three can directly or indirectly use dress to evoke self-objectification.

79 **Swimsuit-sweater paradigm.** The swimsuit-sweater paradigm was used by Fredrickson,
80 Roberts, Noll, Quinn, and Twenge (1998). In their second experiment Fredrickson et al. evoked
81 self-objectification in male and female undergraduates who dressed in a revealing garment (a
82 swimsuit); however, self-objectification was not evoked in participants who dressed in a non-
83 revealing garment (a crew neck sweater). Each participant tried on the garment in a private
84 dressing room and evaluated its fit in a full-length mirror. While wearing the garment

[3] This shoe was described by the authors as a slinky sandal.

participants completed measures of trait and state self-objectification, body shame, took a math test, and performed a taste test. Both men and women self-objectified as assessed by a measure of state self-objectification called the Twenty Statements Test (i.e., TST), which assesses a temporary state of self-objectification. However, only women in the swimsuit condition scored lower on the subsequent math test than same-sex participants in the sweater condition, supporting predictions of objectification theory. Using the same experimental scenario, Hebl et al. (2004) extended this research to men and women from four ethnic groups. College students evaluated themselves in a sweater or in a one-piece swimsuit (men wore a one piece Speedo swimsuit). The men and women wearing the swimsuits self-objectified and scored lower on the subsequent math test than did those wearing the sweaters; this result held in all ethnic groups.

Exposure to objectified media images. Harper and Tiggemann (2008) evoked self-objectification in undergraduate women via exposure to objectified images. Experimental stimuli were product ads that showed products only (control condition) or showed products with a thin idealized woman in the ad (thin idealized woman condition). Participants exposed to the thin idealized woman condition scored higher in self-objectification than participants in the control condition. Aubrey and Gerding (2015) exposed female undergraduates to music videos that varied in sexual objectification of the female artist. In the sexually objectified condition, artists had a high degree of body exposure, multiple detailed shots of sexual body parts were featured, and movement and gestures were suggestive. In the control condition, music videos by the same artists were used that were low in the previous criteria. Participants exposed to the sexually objectified music videos were more likely to self-objectify than those exposed to control videos.

Mere exposure situations. Dress has facilitated objectification in certain environments such as fitness centers. Prichard and Tiggemann (2005) reasoned that objectification was likely

to occur in fitness centers due to environmental features such as mirrors, users who wear body-revealing clothing, and posters of people with idealized bodies wearing body-revealing clothing. They reasoned that women wearing revealing clothing in these environments are opting into the "objectification limelight" and hence would be more likely to self-objectify than those who wore baggy clothing. It was "predicted that tighter and more fashionable exercise clothing would be related to increased self-objectification" (p. 21). Class members, but not instructors, who wore tight exercise clothing scored higher on self-objectification than those who wore loose exercise clothing. Not surprisingly, self-objectification was also positively related to perceived "importance of wearing fashionable exercise clothing" (p. 26). The researchers reasoned that the instructors may have scored lower on self-objectification because it may be that only women who are comfortable with their bodies become aerobics instructors.

Relationships between dress and objectification are not limited to contexts wherein people wear or are exposed to others wearing specific styles. Researchers have reported that merely imagining wearing specific garments evokes self-objectification. Tiggemann and Andrew (2012) asked participants to imagine wearing revealing or non-revealing clothing and complete measures of self-objectification and body image. Participants who imagined wearing body-revealing clothing expressed higher self-objectification, body shame, body dissatisfaction, and negative mood than participants who imagined wearing non-revealing clothing. These authors identified clothing as a neglected variable in body image research. In sum, although a few researchers have noted that a person's clothing can serve to enable (Prichard & Tiggemann, 2005; Tiggemann & Andrew, 2012) or resist objectification (Fredrickson & Roberts, 1997), dress variables are frequently overlooked and unarticulated factors in objectification research.

Other operationalizations of self-objectification. In a review Kahalon, Schnabel, and

Becker (2018) identified additional methods infrequently used to operationalize state self-objectification primarily with women. These methods include imitating social interactions in which women experience objectification (e.g., a man photographs female participants' bodies, participants recall a sexually objectifying experience), describing one's body from an observer's point of view, videotaping a woman's body and telling her someone else will evaluate it, and complementing female participants on their appearance. In one such study (Goldenberg, Cooper, Heflick, Routledge, & Arndt, 2011) participants in the objectifying condition received feedback that focused specifically on their body supplements ("that is a really cute outfit," p. 446). In another such study Calogero (2013) found that participants in the objectifying condition used more appearance-based descriptors than participants in the non-objectifying condition. Although the author does not report the extent to which these descriptors focused on body modifications or body supplements, it seems likely that both types of descriptors could be involved. Clearly, the methods described by Kahalon et al. (2018) focused participants' attention on how their bodies look; these operationalizations may also motivate body modifications since more general research demonstrates that objectifying experiences motivate body modifications (Fredrickson et al., 1998). Hence, dress is indirectly or directly involved in these operationalizations.

Inducing Other-objectification Using Dress

Objectifying images have also been used in experiments to evoke other-objectification, which is reasonable since exposure to such images evokes self-objectification and research shows that men and women who self-objectify are also likely to objectify others (Strelan & Hargreaves, 2005). Other-objectification has been evoked by exposing research participants to stimulus persons (a) who wear revealing clothing (e.g., Gurung & Chrouser, 2007), (b) whose bodies match the cultural ideal body type (e.g., Gervais et al., 2012), or (c) who vary in revealing

clothing and body type (e.g., Holland & Haslam, 2013).

To evoke other-objectification, Gurung and Chrouser (2007) selected images of female athletes wearing revealing or non-revealing clothing. The authors judged (other-) objectification based on participants' ratings of the stimulus persons' attractiveness, desirability, and extent to which she was sexually experienced. Female undergraduates were exposed to images of three athletes who either all wore revealing clothing or all wore non-revealing clothing. When the athletes were depicted in revealing clothing they were rated as more attractive, more desirable, and as being more sexually experienced than when in non-revealing clothing.

Gervais et al. (2012) defined other-objectification as the extent to which participants categorized (a) stimulus persons with ideal bodies with same-sex stimulus persons with ideal bodies or (b) stimulus persons with average bodies with same-sex stimulus persons with average bodies. The rationale was that other-objectification occurs if one person can be swapped out for another (i.e., are interchangeable objects). Authors noted that due to the constant exposure to body-focused objectifying images in the media, viewers tend to take an objectifying view of them. Men and women were exposed to stimulus persons who varied in body type (average, ideal). Ideal male and average and ideal female stimulus persons were objectified by both sexes.

Holland and Haslam (2013) were interested in assessing if some portrayals of women were more likely to be objectified than others. They varied both the clothing (lingerie vs smart-casual clothing) of stimulus persons and their body type (thin vs overweight). Female undergraduates saw only one of four such stimulus persons and completed three measures of objectification. The thin stimulus person was objectified more than the overweight one and those wearing lingerie were objectified more than those wearing smart-casual clothing. These results held for all three measures. For example, one measure was the attention paid to the stimulus

person's body. Participants focused more attention on the body of the thin stimulus person as compared to the overweight stimulus person and attended more to the stimulus person's body when she was wearing lingerie relative to when she was wearing smart-casual clothing.

In summary, much objectification research has been experimental in which self- or other-objectification was evoked using dress (revealing dress, idealized bodies, or other idealized images). Thus, a discussion of topics important in evaluating that research follows.

Experimental Research Designs

The basic process in an experiment is to test whether a practice or idea influences an outcome. The goal is to establish cause and effect between an independent variable and a dependent variable while controlling for all other variables that might possibly influence the dependent variable (Creswell, 2015). Typically, a researcher has at least two groups of participants: a treatment group and a control group. The treatment group is exposed to the variable that the researcher wants to test and the control group is not. For example, when researchers are interested in testing the effect of viewing objectified images on women's self-objectification, they need to develop two sets of stimuli: one containing objectified images and one representing non-objectified images. Problems can arise in developing these stimuli because people vary in their opinions concerning what comprises objectified images. To try to ensure that what the researcher believes are objectified images and what the eventual research participants will believe are objectified images, a pretest of the images to be used in the experiment is performed. Pretest participants are selected from the population from which the sample will be recruited. Pretests are necessary to assess the extent to which treatments are well operationalized (Bhattacherjee, 2012). If the researcher and the pretest participants agree that the selected images represent both types of images, operationalization of the variable is successful and the

research continues. If they do not agree, the researcher must find different images and pretest them until both parties agree on what are and are not objectified images. In objectification experiments the stimulus induces a temporary state of objectification within the participant and what is assessed is usually self-objectification or other-objectification.

Even if pretest results show the operationalization of a variable was successful, it is possible that the treatment or stimuli may not be interpreted as intended by research participants. Researchers conduct a manipulation check to assess whether or not final participants interpret the images as expected. Referring to the objectification images example, the question is do participants in the treatment group interpret the images they viewed as objectifying and do participants in the control group interpret the images they viewed as not objectifying? Manipulation checks ensure that the independent variable (treatment) has been varied effectively in the context of the experiment (Mutz & Pemantle, 2015) and that the variable being tested and not a co-occurring variable, actually affected participants. Manipulation checks in experiments quantify the internal validity of the design (Flake, Pek, & Hehman, 2017).

Stimulus pretests and manipulation checks are important in experimental research and should be reported. Indeed, journal reviewers say that research reporting manipulation checks is more persuasive than research that does not (Sigall & Mills, 1998). However, simply conducting manipulation checks is insufficient as researchers have been criticized for the timing of their manipulation checks (Hauser, Ellsworth, & Gonzalez, 2018; Kidd, 1976). In the case of objectification research, since objectification can be evoked in situations of mere exposure and via exposure to media images, researchers may wish to have participants complete manipulation checks as their last task. Ideally, the manipulation check should not suggest to participants how experimenters want them to respond. An example of a commonly used manipulation check

measure is the Twenty Statements Test (TST). Directions for the TST simply instructs participants to write 20 statements about themselves and their identity in the form, "I am _____" (Fredrickson et al., 1998). These instructions do not cue particular responses.

If the manipulation check is conducted before assessing the dependent variable, the manipulation check can become, in effect, another manipulation. For this reason it is important for experimental researchers to report the order of experimental tasks and be clear where in the sequence of tasks that the manipulation check was completed. By making the manipulation check the last task for participants, it cannot affect the dependent variable (Hauser et al., 2018).

Development of experimental stimuli: Objectification research. In the previously reviewed experimental studies wherein objectification was manipulated as an independent variable, the researchers developed stimuli to evoke two or more levels of objectification and then assessed the effects on an outcome variable (the dependent variable). The independent and dependent variables were often but not always selected based on objectification theory (See Kahalon et al., 2018 for a review of self-objectification research). For example, in Fredrickson et al. (1998) men and women tried on an actual body-revealing garment (swimsuit) in the objectifying condition and a non-revealing garment (crew neck sweater) in the control condition. They then evaluated themselves in a full-length mirror. This activity was thought to evoke differing levels of self-objectification respectively because it increased participants' attention to the appearance of their bodies and required them to view their bodies as an observer would. Furthermore, Fredrickson and Roberts (1997) noted that loose clothing (e.g., crew neck sweater) allowed women to opt out of the "objectification limelight," whereas presumably tight or form-fitting clothing (e.g., swimsuits) did not. Thus, in Fredrickson et al. the manipulation of the independent variable was derived from objectification theory.

Continuing with the Fredrickson et al. (1998) example, once participants donned either the swimsuit or the sweater, they completed measures of body shame and indicated their desire to change body attributes (e.g., weight, shape of legs). Both of these concerns (i.e., dependent variables) were identified as possible outcomes in objectification theory. However, Kahalon et al. (2018) in a review of experimental self-objectification studies noted that researchers have moved beyond examining consequences of state self-objectification initially identified by the theory. For example, researchers have investigated physiological responses of undergraduate women (e.g., heart rate, skin conductive levels) (Green et al., 2012; Gay & Castano, 2010), amount of talking and self-presentation among undergraduates of both sexes (Saguy, Quinn, Dovidio, & Pratto, 2010), and undergraduate women's endorsement of rape myths (Fox, Ralston, Cooper, & Jones, 2015).

Pretests and manipulation checks of experimental stimuli. Some objectification researchers have used pretests and manipulation checks. Aubrey and Gerding (2015), for example, studied objectification in music videos in undergraduate women using an objectifying (treatment) condition and a non-objectifying (control) condition. After identifying videos the researchers thought were objectifying or non-objectifying based on a set of predetermined criteria, they conducted a pretest of their stimuli with 19 undergraduate men and women. The pretest was conducted to ensure that the video content the researchers believed to be objectifying was the same or similar to video content that the final participants in the main research would interpret as objectifying. The students were given a definition of sexual objectification and rated each video on sexual objectification, the attractiveness of the artist, and their liking for the video. Based on those ratings three videos were selected to represent each condition. The videos in the objectifying condition had high ratings of sexual objectification and did not differ from each

other in terms of artist attractiveness or liking ratings. Non-objectifying videos featured the same artists. These videos had low sexual objectification ratings and did not differ from each other in terms of artist attractiveness or liking ratings. Results of this pretest gave the researchers confidence that their manipulation varied sexual objectification as intended.

Continuing with the previous example (Aubrey & Gerding, 2015), the researchers also performed a manipulation check to assess whether or not their selection of objectified videos was perceived as more objectifying than the control videos by participants in the main study. Because theoretically the independent variable (objectifying media images) should evoke a temporary state of self-objectification in the treatment condition, state self-objectification is frequently measured in manipulation checks. These researchers used the TST (Fredrickson et al., 1998) to assess state self-objectification. Analysis of participants' TST (state self-objectification) scores across the two conditions found that participants in the objectifying condition scored significantly higher on self-objectification than participants in the non-objectifying condition. Hence, the experimental manipulation was successful in evoking self-objectification and the researchers could conclude that any changes in their dependent variables were due to the objectifying treatment condition and not something else in the research environment.

Given that dress appears to play a significant yet unrecognized role in experimental research on objectification and pretests and manipulation checks are critical in establishing the internal validity of experimental designs, six research questions were developed to guide the research. In doing so, the focus was on experiments that assessed objectification as an outcome. RQ1: To what extent has dress in either or both forms (i.e., modification, supplement) been used to induce objectification in experimental research that also assessed objectification as an outcome? RQ2: To what extent has experimental research that used dress to induce

objectification and assessed objectification as an outcome focused on self-objectification or other-objectification? RQ3: To what extent has dress in either or both forms been used to induce self-objectification or other-objectification in experimental research? RQ4: To what extent have researchers provided rationales for using dress to induce objectification? RQ5: To what extent have stimulus pretests been used to develop the dress stimuli used to induce objectification? RQ6: To what extent have manipulation checks been used in studies that induced objectification using dress to assure successful inductions of objectification?

Method

A database search was conducted using three keyword sequences: (a) objectification, experiment, and dress; (b) objectification, experiment, and clothing; and (c) objectification, experiment, and body. We narrowed the search to full-text refereed academic publications published from January 2000 through December 2018. In this set of studies was one which was available online during that time period, but not printed until 2019. After deleting non-empirical articles (e.g., literature reviews, theory papers), 80 refereed empirical research articles containing the words in the keyword sequences remained and formed the basis of the content analysis. Fifty-seven articles reported one study, 16 reported two studies, six reported three research studies, and one reported six research studies. Thus, 113 distinct studies comprised the data set.

Two coders developed a coding scheme which was modified and adjusted during the coding process. Inter-coder reliability was calculated using Perreault and Leigh's (1989) reliability index for a subset of the data. Each coded variable was assessed and reliabilities for each of them was found to be acceptable (> .89). This index is more conservative than simple coder agreement and takes into account the number of coding categories for each coded variable. Each coder coded half of the remaining studies.

Results and Discussion

Main Analyses

Chi-square and descriptive statistics were used to analyze the data. Ninety-one of the 113 studies were experiments and 22 were not. Of those 22 studies, 11 used survey methodology, seven were content analyses, and four were ex post facto studies. Of the 91 experiments, attributes of body supplements (clothing) were used to induce objectification in 32 studies and body modification attributes were used in 28 studies. Hence, dress was used to induce objectification in 60 studies. However, of those 60 studies only 57 assessed objectification as an outcome variable; the other three assessed other outcomes (e.g., body satisfaction, body image variables, psychological well-being) as a function of the induction of objectification. Johnson et al. (2007) is an example of a study that induced objectification using dress, but did not assess objectification. The researchers used dress to vary objectification in media images of men and women and assessed men's body image and psychological well-being after exposure to the images. Hence in the rest of this section, we address the research questions based on the 57 studies that induced objectification using dress and also assessed objectification as an outcome.

Of those 57 studies, six manipulated two levels of dress. For example, using a 2 by 2 experimental design, Jiang (2018) manipulated the looseness/tightness of a stimulus person's clothing and the clothing's revealing nature (apparently in terms of the amount of skin showing) in a sample of undergraduate women. In five studies one clothing attribute and one body attribute were manipulated. For example, Bernard et al. (2019) varied the revealing nature of clothing (skin-to-clothing ratio) and body posture suggestiveness in a sample of men and women.

Descriptive analyses were used to address RQ1: To what extent has dress in either or both forms (i.e., modification, supplement) been used to induce objectification in experimental

research that also assessed objectification as an outcome? Dress was used in 57 of the 91 studies (62.6%) to induce objectification and assess objectification as an outcome. Of 91 experiments that induced objectification, body supplements (clothing attributes) were used in 31 (34.1%) and body modifications (body attributes) were used in 26 (28.6%). Thus dress was used to induce objectification in 57 studies, about 2/3 of the experiments studied.

Descriptive analysis was used to address RQ2: To what extent has experimental research that used dress to induce objectification and assessed objectification as an outcome focused on self-objectification or other-objectification? Of the 57 studies that induced objectification using dress and assessed objectification as an outcome, 39 (68%) assessed self-objectification only, 17 (29.8%) assessed other-objectification only, and one (1.7%) assessed both self-objectification and other-objectification. Hence, when dress was utilized, self-objectification was studied about twice as much as other-objectification.

To address RQ3 descriptive statistics were used. RQ3: To what extent has dress in either or both forms been used to induce self-objectification or other-objectification in experimental research? Self-objectification was induced by body supplements (clothing attributes) in 22 studies (21 studies that assessed self-objectification plus one that assessed both types of objectification) and was induced by body modifications (body attributes) in 18 studies. Hence, of the 91 experimental objectification studies, 44.0% induced self-objectification using dress. Of those 91 studies, 24.2% induced self-objectification using body supplements and 19.8% induced self-objectification using body modifications.

Other-objectification was induced using body supplements (clothing attributes) in 10 (nine studies that assessed other-objectification and one that assessed both types of objectification) studies and was induced using body modifications (body attributes) in eight

studies. Thus, of the 91 experimental studies, 19.8% induced other-objectification using dress; 11% induced other-objectification using body supplements and 8.8% induced other-objectification using body modifications.

RQ4 asked: To what extent have researchers provided rationales for using dress to induce objectification? Studies were coded as providing no rationale, citing others' research without providing any other rationale, or providing a specific rationale. Results of Chi-square analysis show a pattern of results that is unlikely due to chance, $\chi^2(2) = 11.325$, $p < .0001$. Specifically of the 57 studies that assessed objectification as an outcome and evoked objectification using dress, 25 (43.9%) provided no rationale for using dress and 19 (33.3%) cited others' research but failed to provide a rationale. Only 13 (22.8%) actually provided a rationale for using dress as the means to induce objectification. For example, Bernard et al. (2019) described their (dress) manipulation as varying skin-to-clothing ratio. They noted that when stimulus persons are depicted in bikinis or lingerie the skin-to-clothing ratio is higher than when they are depicted as fully dressed (lower skin-to-clothing ratio). They also cited research showing that when people are presented with a high skin-to-clothing ratio they are dehumanized, denied human qualities (mind and moral status), are perceived as having less agency, and are perceived similarly to everyday objects.

RQ5 and RQ6 focused on the use of pretests and manipulation checks of dress stimuli. Studies were coded as having a manipulation check, having a pretest, having both a manipulation check and a pretest, or as having neither a stimulus pretest nor a manipulation check. Chi-square analysis revealed a pattern of results unlikely due to chance, $\chi^2(3) = 27.987$, $p < .0001$.

RQ5 asked: To what extent have stimulus pretests been used to develop the dress stimuli used to induce objectification? Of the 57 studies that used dress to evoke objectification and assessed objectification as an outcome, 17 (29.8%) used pretests to develop stimuli; 40 (70.2%)

384 did not. Nine of those 17 studied self-objectification, seven studied other-objectification, and one
385 studied both. For example, Daniels (2012) pretested 40 photos; in the main study, one hypothesis
386 focused on the extent to which middle and high school girls and college women would self-
387 objectify after viewing experimental photos and another focused on the extent to which
388 participants would objectify the individual in the experimental photo (i.e., other-objectify).
389 RQ6 asked: To what extent have manipulation checks been used in studies that evoked
390 objectification using dress and assessed objectification as an outcome to assure successful
391 inductions of objectification? Of those 57 experimental studies, 22 (38.6%) performed
392 manipulation checks. In 16 of the 22 studies that performed manipulation checks researchers
393 assessed self-objectification only, in three studies researchers assessed both self-objectification
394 and other-objectification, and in three studies researchers assessed other-objectification only.
395 Thus, in 19 (33.3%) of the studies assessing self-objectification researchers conducted
396 manipulation checks. For example, Quinn, Kallen, and Cathey (2006) used the swimsuit-sweater
397 paradigm with college men and women to evoke self-objectification and used the TST as a
398 manipulation check. It is notable that manipulation checks in two of the 19 studies concerned
399 with self-objectification were unclear and not well-described.
400 Combining the pretesting and manipulation checking results, 21 (36.8%) studies did not
401 report conducting either a stimulus pretest or a manipulation check. It is unknown however,
402 whether these researchers actually failed to conduct pre-tests and manipulation checks or failed
403 to report them. A mere three (5.3%) studies reported conducting both a pretest and a
404 manipulation check. The apparent lack of stimulus pretesting and manipulation checking and the
405 lack of clarity in describing each are serious deficits in this body of research. However,
406 calculating from figures presented by Kahalon et al. (2018) who analyzed a different set of self-

objectification experiments, 41% of the self-objectification studies they reviewed reported conducting manipulation checks. This percentage is higher than our figure of 33.3% of studies that used dress to induce self-objectification. This difference could be a function of our focus on research that used dress.

Conclusions

Objectification was manipulated using dress in a majority of the sample studies; yet, in many studies no rationale for the use of dress was provided. A majority of researchers provided no evidence of manipulation checks or pretests of stimuli. These practices call into question the validity of reported findings since manipulation checks ensure that the independent variable has been varied effectively (Mutz & Pemantle, 2015) in the sample under investigation and pretests are necessary to determine how well treatments are manipulated and operationalized (Bhattacherjee, 2012). Thus, researchers using these studies to formulate arguments for conducting research and as the basis for their own research need to acknowledge the lack of reported pretests and manipulation checks as major limitations and as probable explanations for inconsistent findings across studies.

In addition, although not a specific research objective, we noted in this body of literature that numerous terms were used without definitions to describe how dress was varied to operationalize self- and other-objectification. Examples include objectified vs. non-objectified dress or non-revealing clothes vs. self-sexualized dress. An exception is de Vries and Peters (2013) who called their conditions objectifying and neutral. The stimulus in the objectifying condition was a woman with a high degree of skin exposure (wearing lingerie) and the stimulus in the neutral condition was a landscape with no people in it. As has been previously noted (Budesheim, 2011), clarity is needed in operationalizing all forms of objectification. While it is a

researcher's prerogative to use whatever term she or he chooses to describe the empirical variable under investigation and the related concept it represents, the use of such a broad assortment of terms without definitions does raise several important questions. For example, is an objectified image the same as or different from a sexualized image? If one has an appearance focus is that individual also self-objectifying? If a person is self-sexualizing is she also self-objectifying? Failure to clearly define terms leads to results that are potentially inconsistent and flawed and nearly impossible to synthesize.

Finally, we also noted that there is disagreement and inconsistency in the experimental research literature with respect to definitions of and use of the concepts of sexual objectification, self-objectification, and sexualization and how they are or should be operationalized (Budesheim, 2011; Kahalon et al., 2018; Lennon et al., 2016). As noted previously, the term sexual objectification has been used to describe a situation wherein a person is treated as an object for others' sexual use (Bartky, 1990) and can be viewed as one type of objectification. Budesheim defined sexual objectification as the process of "focusing only on women's appearance and thinking of them solely in terms of their sexual appeal" (p. 169). Trait self-objectification can be viewed as a subcategory of objectification and has been defined as internalizing an observer's perspective on the body and treating the body as if it is capable of representing the self (Linder & Tantleff-Dunn, 2017). State self-objectification can also be viewed as a subcategory of objectification and has been defined as "including three components: preoccupation with one's physical appearance, viewing oneself as an object, and adopting a third-person perspective" (Kahalon et al., 2018, p. 3). In contrast, sexualization is defined as any one of the following situations: (a) when a person's value is based solely on his/her sexual appeal/behavior, (b) when a person's physical attractiveness is based on him/her being sexy, (c)

when a person is treated as an object for the sexual use of others, instead of as an independent decision-maker, or (d) when sexuality is imposed on a person (APA Task Force on the Sexualization of Girls, 2007). Integrating these definitions, it could be concluded that sexualization is the umbrella concept and that objectification is simply one of its forms. Lack of consensus on conceptual definitions is a probable contributor to inconsistencies in operationalization and experimental manipulation.

Recommendations Related to Research

Kahalon et al. (2018) proposed a model of women's self-objectification in which state self-objectification is evoked by an objectifying situation. A sizable number of studies reviewed herein that induced objectification did so using dress. In Kahalon et al.'s model the researchers noted that objectifying situations trigger (a) appearance monitoring, (b) discrepancy from appearance standards, (c) the "sex object" schema, and (d) stereotype threat. The researchers proposed that these mechanisms result in subsequent affective responses, cognitive deficits, motivations to improve appearance, and behaviors found in objectification research. We believe that objectification theory combined with Kahalon et al.'s model offers an opportunity for dress researchers to expand current interests to the objectification context. Examples of how this model can inform dress research are offered that focus on mechanisms triggering objectification.

Dress researchers have studied appearance monitoring, but not in experimental objectifying contexts (e.g., Lee & Johnson, 2009; Rudd & Lennon, 2000), although Lee and Johnson did base their study on objectification theory. Directly using objectification theory to inform research, dress researchers could use the swimsuit-sweater paradigm to induce self-objectification, then measure likelihood of engaging in various appearance management behaviors and subsequent cognitive performance.

Dress researchers have studied the effects of exposure to idealized media images in experiments (e.g., Jung, 2006; Jung, Lennon, & Rudd, 2001; Yu, 2014). Arguably the researchers actually manipulated both self- and other-objectification, but objectification theory was not used to guide the research or interpret the findings. In these studies participants perceived discrepancy from idealized standards and consequently experienced affective changes (e.g., body dissatisfaction, appearance dissatisfaction, decreased positive mood). Such results can be further investigated and explained in the context of objectification theory. According to Kahalon et al.'s (2018) model, a result of experiencing discrepancy from ideal standards is impaired cognitive performance. To build this body of knowledge, dress researchers could use the model to investigate impaired cognitive functioning after exposure to idealized images.

Many dress researchers have studied revealing dress which reliably evokes the "sex object" schema. One recent study demonstrated, using objectification theory, that women wearing revealing dress were more likely to be objectified by others than women wearing dress that was not revealing (Lennon et al., 2016). However, most of the dress research that has focused on revealing dress was not conducted in the objectification theory context. For example, Workman, Johnson, and their colleagues (e.g., Johnson & Lee, 2000; Workman & Freeburg, 1999) studied dress and sexual violence and used attribution theory to explain why revealing dress leads to inferences that implicate women in their own sexual assault and sexual harassment. However, applying objectification theory shows that body-revealing dress can induce both self- and other-objectification and that such objectification results in negative inferences. Using objectification theory to explore these issues could contribute new understanding of why offenders may receive light sentences in cases of sexual violence wherein survivors are often blamed. For example, according to Kahalon et al. (2018) people who are objectified (women wearing body-revealing

dress) are de-humanized, denied personhood, associated with fewer human concepts, and perceived to be less moral, warm, and competent. Perhaps it is because people link these attributes with survivors of sexual assaults that they are lenient with perpetrators.

Finally, experimental researchers interested in the effects of media images may inadvertently evoke self- or other-objectification in research and subsequent negative consequences as a result of that objectification. Hence, researchers should be clear in informed consent information to describe all such possible effects of participation. Participants should be thoroughly debriefed and possible effects of the potentially objectifying manipulation should be identified. A short survey after a manipulation check could be used to assess negative consequences (e.g., body dissatisfaction, anxiety) and a research team member could follow up with concerned participants who could be referred to community or campus counseling services.

Recommendations Related to Teaching

Manipulations of objectification, although not known by that name, may be part of textiles, clothing, merchandising, and design curricula and may be harmful. For example, Calogero, Pina, and Sutton (2014) found that a subtle manipulation (i.e., exposure to sexually objectifying cues in a scrambled sentence task) increased women's body shame and intent to have cosmetic surgery. Obvious manipulations of objectification may be common in course activities. The Fredrickson et al. (1998) and subsequent similar studies using the swimsuit-sweater paradigm confirm that trying on clothes and evaluating oneself in a mirror in a private dressing room can be an objectifying experience. To the extent that having men and women try on clothing is common in fashion design classes where apparel items are a course outcome, care should be taken to focus the activity on how the garment fits the body and not on how the garment makes the body look. Apparel construction courses could ask students to construct garments in

children's sizes and fit garments on dress forms rather than constructing items for adults or themselves. When finished these garments could be donated to social service agencies.

In some apparel programs body scanning, which may also be an objectifying experience, is a component of the curriculum. Grogan, Gill, Brownbridge, Warnock, and Armitage (2016) found that women who were body scanned felt threatened and vulnerable when exposed to their scanned bodies. Similarly, Ridgway (2018) reported both men and women wanted to engage in more appearance management behaviors after exposure to their scanned bodies. Additionally, after viewing their scanned bodies, the participants experienced declines in body satisfaction and mood. Grogan et al. suggested researchers be cautious when scanning women, especially if they already have body concerns. Ridgway suggested that faculty using body scanning as part of the curricula consider alternative ways to acquire body dimensions since requiring self-scanning may result in negative psychological outcomes. She recommended completing body scanning assignments using dress forms, mannequins, or a fit model with no university affiliation.

Limitations

The study is limited by the keywords, databases, and time frame used. For example, use of the words clothing and dress in our database searches likely resulted in a heavier representation of objectification research that varied dress in the current sample than a random sample would have yielded. Alternatively, authors may not have selected dress or clothing as keywords even though they were used to operationalize objectification. Any research not available in full text would also not have been part of the study sample.

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