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Dress and Sex: A Review of Empirical Research Involving Human Participants and Published in Refereed Journals

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REVIEW

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Dress and sex: a review of empirical research involving human participants and published in refereed journals

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Abstract

Our research purpose was to assess research addressing relationships between dress and sex. Our review was focused on a 25 years span (i.e., 1990–2015) and on empirical research utilizing human participants published in refereed journals. Three main areas of research emerged: (1) dress used as cue to sexual information, (2) dress and sexual violence, and (3) dress, sex, and objectification. Our analyses revealed parents do invest their young children with sex-typed dress however sometimes children demand to wear such dress. Some women intentionally use dress to communicate sexual information but inferences about women who wear sexy dress can be misinterpreted and are sometimes negative. Observers link wearing sexy dress to violence including sexual coercion, sexual harassment, sexual assault, and unwelcome groping, touching, and grabbing. Certain items of sexy dress that reveal the body have been linked to self-objectification. The fit of the items may also contribute to the body revealing nature of clothing styles that elicit self-objectification. The use of sexual images of women and children has increased over time and viewing such images is also linked to self- and other-objectification. Suggestions are provided for future research.

Introduction

Review of the progress in any area of inquiry is significant as this assessment enables theory development, identification of trends in topics, funding, and research strategies (Lennon et al. 2001) as well as uncovers future research needs and directions (Damhorst 1990). Several such evaluations have been completed on dress topics including the meanings of dress (Damhorst 1990), the influence of dress on behavior (Johnson et al. 2008), and dress and aging (Twigg 2007) among others.

Our interest was in providing a review of empirical research that utilized human participants and that addressed relationships between dress and sex. Several previous researchers either reviewed empirical dress research or performed a content analysis of such research (Damhorst 1990; Johnson et al. 2008, 2014; Lennon et al. 1995, 2001, 2014; Oliver and Mahoney 1991; Twigg 2007). Those studies, published since 1990, focused specifically or partly on dress research with human participants. Although Lennon et al. (2014) noted that dress conveys information related to various aspects of sex (e.g., likelihood of being sexually harassed, intentions concerning sexual activity), none of the

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reviews/content analyses focused specifically on research using human participants that studied relationships between dress and sex. Hence, our initial research goal was to provide a review of the empirical research that contained investigations of relationships between dress and any aspect of sex (e.g., sexual activity, sexual orientation, sexiness) and was published in refereed journals. This review is useful to both faculty and students interested in pursuing research on connections between dress and sex or who teach courses that include such content as it provides a synthesis of available research and identifies knowledge gaps.

Literature review

Our review focused on 1990–2015 as a reasonable time span. In addition, a few US news events in or around 1990 attracted media attention and focused attention on sex and dress; this makes 1990 a good starting point for our review. In 1990 the court case Hopkins v. Price Waterhouse was finally decided (Lewin 1990). Ann Hopkins was denied partnership at Price Waterhouse. A partner took her aside and explained that her chances of partnership would improve if she would walk, talk, and dress more femininely, as well as wear makeup and jewelry and as a result she sued the firm for sex discrimination.

Two other events in 1991 gained national attention because they were nationally broadcast to millions of viewers (Gray 2016; Jordon 1991). Anita Hill testified on live television before the US Senate Judiciary committee regarding the sexual harassment experienced while working for Clarence Thomas (Gray 2016). Although that case did not involve dress, it did bring sexual harassment to national attention. Also in the same year, William Kennedy Smith was found not guilty of sexual assault. During that nationally televised trial (Jordon 1991), a photo of the bra worn by the survivor was admitted as evidence. The defense maintained that because the lacy bra with faux pearls was undamaged, the survivor was not tackled and did not struggle as she had testified (Lennon et al. 1999). These events with their focus on sex may have inspired some dress scholars in their research.

Methods

Our research review focused on empirical social science research using human participants that was published in English in refereed journals. We were interested in research located in refereed journals because this research is vetted by academic peers and information is easily available about the peer-review process. As a result, conceptual papers, theoretical pieces, legal analyses, books, and historical works were not included.

To locate research for our review we conducted database searches using pairs of the following keywords: fashion, dress, clothing, or provocative clothing and sex, sexualization, sexualized, objectification, or gender. The databases used were Academic Search Premier, PsycINFO, and Google Scholar. We used the article abstracts to determine whether the articles were reports of empirical social science research that examined a relationship between dress and sex and used human participants. Article abstracts were also used to group the articles into thematic categories that represented a body of research. Article references were used to identify articles not located using the database search. This process resulted in identification of the articles that formed the basis of our

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review. Abstracts of the articles and key words were used to identify major topical areas (defined as areas wherein several researchers had conducted research).

For our purposes dress was defined as the total arrangement of noticeable body modifications and all material objects added to the body in the form of supplements (Roach-Higgins and Eicher 1992). In the research located through the database search, some of the examples of dress studied included clothing color, jewelry, sheer clothing, cosmetics use, and breast augmentation. Also in these articles, the term sex was used to describe the feelings, thoughts and behaviors associated with being either male or female, being involved in sexual matters, and/or being interested in sexual activity.

Results

Following the outlined procedure, three broad areas of research on dress and sex emerged: (1) research that examined people's use of dress as a cue to infer sexual information, (2) research that examined people's use of dress to make connections between dress and sexual violence, and (3) research that examined dress, sex, and objectification. For each of these three areas, our presentation includes documenting the theories (see Table 1) researchers used to guide their investigations when so noted, indicating the research strategy employed to conduct the research, summarizing major findings, articulating future research opportunities, and suggesting theoretical frameworks to guide future research.

Dress as cue to sexual information

Within this area of research on relationships, between dress and sex, researchers were interested in whether individuals used items of dress as cues to infer sexual information about another. The content of the inferences investigated included another's biological sex, sexual intentions, how others might/did respond to someone wearing sexy dress, and motivations for wearing sexy dress.

Dress and biological sex

Since cultures offer different forms of dress (e.g., skirts, jewelry), colors (e.g., pink, blue), and dress details (e.g., ruffles) that are worn more by members of one sex than the other, researchers have documented the use of sex-specific items of dress to communicate biological sex. For example, Pomerleau et al. (1990) visited the homes of young children to learn whether mothers and fathers provided sex-typed environments and clothing to their children. Use of dress cues to signal biological sex was evident as boys were dressed in blue, red, or white, while girls were dressed in pink or multi colors and had more jewelry than boys. Girls often had yellow bedding and the boys blue. The researchers speculated that supplying young children with gendered environments might have an impact on preferences and specific abilities in children but did not address this idea in their research.

Another team of researchers examined whether an infant's treatment might be impacted if the infant wore a clothing color traditionally linked to the opposite sex. Specifically, Ben-Zeev and Dennehy (2014) used prospect theory to conduct an experiment testing the effect of color (pink versus blue) of male infant clothing on health decisions concerning that infant. Participants were told to that their task was to select one of two

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Table 1 Authors, dates of publication, and theories cited in each of the three topical areas reviewed

Authors	Date	Theory cited
Dress as a cue to sexual information		
Ben-Zeev and Dennehy	2014	Prospect theory
Grammer et al.	2004	Evolutionary psychology
Halim et al.	2014	Cognitive theories of gender development
Haselton et al.	2007	Evolutionary psychology
Niesta-Kayser et al.	2010	Evolutionary psychology
Smolak et al.	2014	Objectification theory
Vaillancourt and Sharma	2011	Evolutionary psychology
12 Other research studies	1990–2014	No theory cited
Dress and sexual violence		
Bernard et al.	2015	Just world theory
Farris et al.	2006	Signal detection theory
Farris et al.	2010	General recognition theory
Flowe et al.	2011	Alcohol myopia theory
Lynch	2007	Theory of alienation, objectification theory, and foucauldian feminist theory
Johnson and Workman	1992	Attribution theory
Johnson and Workman	1994	Attribution theory
Workman and Freeburg	1999	Attribution theory
Workman and Johnson	1991	Symbolic interaction
Workman and Orr	1996	Attribution theory
6 Other research studies	1991–1995	No theory cited
Dress, sex, and objectification		
Aubrey	2006	Objectification theory
Aubrey and Frisby	2011	Objectification theory
Aubrey et al.	2009	Objectification theory
Bernard et al.	2015	Just world theory
Fredrickson et al.	1998	Objectification theory
Fuller-Tyszkiewicz et al.	2012	Objectification theory
Green et al.	2012	Objectification theory
Gurung and Chrouser	2007	Objectification theory
Hebl et al.	2004	Objectification theory
Johnson et al.	2007	Objectification theory
Martins et al.	2007	Objectification theory
Nezlek et al.	2015	Objectification theory
Tiggemann and Andrew	2012	Objectification theory
Vandenbosch and Eggermont	2012	Objectification theory, social cognitive theory
1 Other research study	2013	

vaccines for three male infants in an orphanage. Vaccine A was only available in limited quantities and if it was chosen only one infant could receive it, but the treatment was known to be effective (less risk averse option). Vaccine B could be given to all three infants, but was known to be ineffective such that there was a 1/3 probability that all three babies would stay healthy and a 2/3 probability that no infant would stay healthy (risk taking option). As compared to when infants wore blue, when the infants wore pink participants were more likely to select the risk taking option. The researchers concluded

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that a male infant dressed in pink violated a gender norm and consequently incurred riskier decisions. However, other variables (e.g., beliefs about fairness) were not controlled for and may have been possible influences on participant's decision making.

Rather than parents investing their children with gender-specific clothing, sometimes children insist on wearing sex-typed clothing. Using cognitive theories of gender development, Halim et al. (2014) investigated appearance rigidity among young Caucasian children (ages 3–5 years). Appearance rigidity involves insisting on wearing dress items that are closely tied to one sex or avoiding dress items linked to the opposite sex. Few boys demonstrated appearance rigidity, but a majority of girls demonstrated appearance rigidity at least once. Rigidity was linked to children who indicated it was important to them to be a girl or boy (measured using items adapted from adult identity measures). Repeating the study with 4 year old children from ethnically diverse backgrounds, incidents of appearance rigidity were even higher as over half of both the girls and boys demonstrated it.

Dress and sexual intentions of the wearer

In addition to communicating biological sex, another area of interest to researchers has been use of "sexy" dress[1] to communicate sexual desire or attract sexual attention from others. As the dress items that comprise "sexy" are subject to fashion and thus, change over time, researchers in their attempts to investigate inferences and behaviors linked to such dress have labeled and operationalized this variable differently. Regardless of how sexy dress was operationalized, some women say they use dress to communicate their sexual desire to men and attract sexual attention from men (Grammer et al. 2004; Montemurro and Gillen 2013; Smolak et al. 2014). For example, using reasoning based in evolutionary psychology, Grammer et al. found that women used alluring and bold clothes (.i.e., sheerness) to court a partner, meet new people, and flirt. Additionally, researchers have reported that people believe women use dress to indicate sexual interest or intent. For example, Koukounas and Letch (2001) reported both men and women thought that women used sexy dress to indicate sexual interest and that men perceived more sexual intent than women. Earlier, Haworth-Hoeppner (1998) reported that men more often than women indicated they believed women's clothing choice was actually used to signal sexual intent.

These last two studies took place over a decade ago. Beliefs about women's use of dress to communicate sexual interest may be undergoing change as findings from Moor's (2010) research suggests that women may select sexy dress to appear attractive rather than to convey their interest in having sex. Moor had male and female Israeli students view a photo of a woman wearing low cut tight jeans with a short top that exposed her breasts and midriff. Participants were asked to explain why the woman was so dressed. Men indicated women's primary intentions for wearing sexy dress were temptation and seduction. Women indicated the woman dressed that way to gain affection. Over half the women shared that they sometimes dressed in body revealing clothing; of those, nearly three-fourths indicated that they did so to look attractive, not to indicate their sexual intent.

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[1] Several terms have been used in research to describe sexy dress including provocative dress, body-revealing dress, revealing dress, and suggestive dress (Guéguen 2011; Gurung and Chrouser 2007; Moor 2010; Sheldon and Parent 2002; Whatley 2005).

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In addition to specific styles of dress, researchers have been interested in dress color as a sexual cue. Guéguen (2012) showed male business students a single photo of a young woman wearing a t-shirt. Compared to when the woman wore blue, green, or white, men rated women wearing red as more attractive and as having more sexual intent. Elliot et al. (2013) continued research on the red-attractiveness-sexuality link in an African country as a step in determining whether response to red was universal. In that society the meaning of red was generally negative and had no link to overt romantic connotations. When a black and white photo of a woman was framed in red as compared to blue, men rated the woman as more attractive, indicated they were more interested in courting her, and were more likely to volunteer to meet her. Even though additional work is needed, an early indication is that the red-attractiveness-sexuality effect may hold true across cultures. Finally, Pazda et al. (2014) conducted experiments and found that women rated another woman wearing red as sexually receptive, were likely to derogate the sexual fidelity of a woman wearing red, and indicated they would guard their romantic partners from such a woman!

In contrast to using experimental designs, Montemurro and Gillen (2013) conducted in-depth interviews with US women, from 20 to 68 years old, to investigate the ways in which they expressed their sexuality. These women shared they thought women expressed their sexuality through their body language, their clothing choices, and their cosmetics use. They noted that as women age it becomes difficult to express sexuality because clothing used previously was not appropriate or available. Additionally, marital status and motherhood impacted expressions of sexuality; married women were concerned about sending the wrong message and mothers were concerned about being perceived as "not good" mothers if they signaled sexuality via dress.

These women also provided their views about other women who dressed sexy. For them, overtly sexy dress suggested insincerity, a low social class, and a lack of morals and values. Older women commented that young women dressing sexy were immature and were participating in their own sexual objectification. In contrast, others indicated it was okay to show off your body when you were young and looked your best.

Reactions to women wearing sexy dress

How individuals respond to women who wear sexy dress has also been studied. Guéguen (2011) conducted a field experiment and measured the time it took for a man to approach a woman when she was dressed either in a very short skirt and an off-the-shoulder tightly fitted top with a plunging neckline or in a long skirt and blouse. As compared to when dressed in the long skirt, women wearing sexy clothing were approached in less time, were assigned a higher probability of agreeing to a date, and were assigned a higher probability of agreeing to have sex on a first date.

Applying an evolutionary psychology perspective, Niesta-Kayser, et al. (2010) investigated the effect of women wearing red on heterosexual men's planned behaviors in two experiments. They argued that red means sex for heterosexual men in the US due to the frequent use of red to "symbolize lust, passion, and sexuality" (p. 901). In the initial experiment participants viewed a photo of a woman wearing either a red or green shirt.

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Participants who viewed the photo of the woman wearing red planned to ask her more intimate questions than those assigned to the woman wearing green. In a second experiment, the researchers asked participants to place one chair near another for the purpose of having a conversation. Participants expecting to interact with a woman wearing red (versus blue) placed their chair closer than participants expecting to interact with a woman wearing blue.

Subsequently, Elliot et al. (2013) also argued that women wear red because it has romantic and sexual connotations. In an initial experiment young women were told they were going to interact with an unknown attractive man, unattractive man, or average looking woman. Participants then selected either a green or red shirt to wear; women expecting to interact with the attractive man were more likely to select the red shirt than the green one. In a second experiment, the colors red and blue were used and only two conditions were employed: attractive man or woman. Again, women believing they were going to interact with an attractive man were likely to select the red shirt.

When women select dress to enhance their sexual appeal the effect may not be as desired. Glick et al. (2005) found that as compared to a female receptionist, a female manager who emphasized her sexiness evoked less positive emotions, less job competence, and less intelligence. Subsequently, Gurung and Chrouser (2007) found that women wearing sexually stimulating attire were often seen as unintelligent and incapable. Outside the workplace, Vaillancourt and Sharma (2011) utilized evolutionary theory in an experiment wherein young women reacted to a confederate who wore sexy dress or conservative dress. Participants indicated a woman wearing sexy clothing was bitchy, indicated it was unlikely they would befriend her, introduce their boyfriends to her, or leave boyfriends alone with her.

Motivations for wearing sexy dress

In addition to the goal of appearing sexy or attractive, researchers have uncovered other incentives for constructing a sexy appearance via dress. Focusing on body modifications, Solvi et al. (2010) interviewed women scheduled for breast augmentation to uncover their motivations. Several women indicated their primary incentive was to appear feminine. They shared that large breasts provided a way to appear sensual and sexy. Further, a desire to wear certain clothing styles (e.g., low cut tops) was also key to their decision to augment their breasts.

Women experience biological changes that may also motivate wearing sexy dress. Taking an evolutionary psychology perspective, Haselton et al. (2007) investigated changes in women's appearance during high and low fertility phases. Women in their high fertility phase wore clothing that revealed skin and were rated by observers as trying to be attractive. Similarly, Durante et al. (2008) had women draw an illustration of what they would wear to a singles party when the women were in their high versus low fertile phases. As compared to their low fertile phase, when the women were near their high fertile phase, their drawings indicated they planned to wear outfits that were sexy and body revealing.

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Future research

Parents do invest their young children with sex-typed dress however; sometimes the children themselves demand to wear such dress. Future researchers may want to investigate young children's appearance rigidity and possible consequences as the children develop. For example, an experiment could be developed that investigates to what extent the themes present in children's clothing (e.g., rocket ships for boys, hearts for girls) shape conversations that adults have with these children. Would dinosaur themed dresses change the nature of an adult's conversation with a young girl? Longitudinal research could also be conducted to investigate to what extent providing a child with a gendered environment impacts the child's clothing preferences.

Inferences about women who wear sexy dress can be correctly interpreted, misinterpreted, and are sometimes negative. There appear to be inconsistent findings concerning women's motives for wearing sexy dress. Additional research might confirm whether both men's and women's beliefs about motives underlying women's use of sexy dress have changed in the past decade. In addition, cross-cultural investigations of women's expressions of sexuality through dress as well as the use of sexy dress to express empowerment would further our understanding of women and their beliefs about and use of sexy dress.

Dress and sexual violence

Within this area of research, researchers were interested in whether an individual's dress motivated another's acts of sexual violence (e.g., harassment, rape, unwelcomed touching) or put people at risk for becoming victims of sexual violence. In most of these studies, what researchers measured was the likelihood that violence would be directed toward a woman as a function of the sexy dress she wore.

Dress and beliefs about or self-reports of sexual violence

Vali and Rizzo (1991) conducted an atheoretical survey of US psychiatrists addressing the role of young women's revealing apparel in inciting sex crimes. A significant majority believed that when young women wore revealing clothing they were at risk of sex crimes. Participants also indicated that parents should consider what girls' attire signals to men.

Nearly 20 years later, Moor (2010) investigated women's revealing dress and experiences of sexual violence. Moor found no relationship between wearing sexy dress and actual experiences of violence. Moor concluded that since victims and non- victims of violence did not differ in terms of their use of sexy dress, women are not responsible for sexual violence due to their sexy dress. However, Moor did not investigate people's beliefs about relationships between use of sexy dress and experiences of violence or how widespread these beliefs might be.

Dress and sexual harassment

Interested in people's everyday beliefs about relationships between dress and sexual violence, Workman and Johnson (1991) employed an experiment to investigate the effects of cosmetics use (a body modification) and participant sex on undergraduates' inferences concerning likelihood of provoking sexual harassment and of being sexually harassed. Symbolic interaction guided their research. When wearing heavy cosmetics the

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model was rated highest on the likelihood of provoking sexual harassment followed by the moderate and no cosmetics condition. Men rated the model as more likely to provoke sexual harassment and to be sexually harassed than women. When wearing no cosmetics the model was judged least likely to be sexually harassed. Thus the minimal cue of cosmetics use was related to likelihood of sexual harassment.

Later, Johnson and Workman (1992) used attribution theory to study the effect of provocative clothing and sex of observer on attributions of sexual harassment. Undergraduate men and women viewed a photo of a young woman dressed in provocative (dark suit jacket, low cut blouse, short skirt, dark hose, high heels) or non-provocative (dark suit jacket, high cut blouse, below the knee skirt, neutral hose, moderate heels) clothing. Both men and women rated the provocatively dressed model as more likely to be sexually harassed and to provoke sexual harassment. However, the dress effects could be due to any one or any combination of blouse style, skirt length, hose color, or shoe style. Soon after, Johnson and Workman (1994) expanded their research on sexual harassment, sex of observer, and victim dress to include attributions of blame for an incident and likelihood of future harassing behaviors. Attribution theory again guided their research. As compared to a non-provocatively dressed woman, respondents judged that a provocatively dressed woman could have prevented the incident, was more likely to have provoked the incident, was more likely to have inadvertently done something to bring about the advances, and had a supervisor who was more likely to make complementary appearance comments and was more likely to expect to date the woman. As in their previous study, it was unclear whether it was specific aspects of dress that led to these results or whether it was an overall (gestalt) appearance of provocativeness that caused the results.

Dress and sexual assault

Inferences concerning sexual assault such as date rape in response to women wearing sexy dress are similar to inferences concerning sexual harassment. Cassidy and Hurrell (1995) investigated the effect of a female victim's clothing (i.e., provocative, conservative, no information) in an experiment with high school students. The students read a date rape scenario and made judgments about the victim's responsibility, whether the assailant's behavior was justified, and whether the victim was actually raped. Provocative and conservative dress were undefined. The victim was judged more responsible and the behavior of the assailant rated as more justifiable when she wore provocative dress as compared to the two other photo conditions. Finally, the incident was more likely to be labeled as rape in the conservative dress condition than in the other two conditions.

Subsequently, Workman and Orr (1996) and Workman and Freeburg (1999) used attribution theory to study the effects of sex of observer, rape myth acceptance, and victim dress on attributions of acquaintance rape and on attributions of responsibility and blame. Whereas other researchers manipulated many aspects of dress (e.g., Maurer and Robinson 2008; Whatley 2005) or did not explain what aspects were manipulated (Cassidy and Hurrell 1995) to convey provocativeness or sexiness of dress, Workman and Orr manipulated only one aspect of dress: skirt length. A model was photographed wearing a skirt that was 3 inches below the knee, was knee-length, or was three inches above the knee. The minimal cue of skirt length did not affect labeling the incident as rape,

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but did affect judgments of victim responsibility for the rape. Building on Workman and Orr (1996), Workman and Freeburg (1999) again tested skirt length along with sex of observer for its effect on attributions of responsibility for a date rape. Students attributed more responsibility to a victim wearing a short skirt than a moderate or long skirt.

Working in another area of sexual violence, Schult and Schneider (1991) conducted an experiment that varied victim rape history, sexual provocativeness (combining dress with context), and observer sex in perceptions of blame for sexual assault. In the low provocativeness condition, a woman wore sneakers, jeans, and a shirt and the rape occurred as she left the library. In the moderate provocativeness condition, the rape occurred as she left a bar, where she had been drinking, and she was dressed in a low cut dress. In the high provocativeness condition she had been dancing on a stage in a topless club, wore a g-string, high heels, and fishnet stockings, and the rape occurred as she left the club. Participants shifted blame from assailant to victim as sexual provocativeness increased. Here dress was confounded with victim behavior (dancing, drinking, studying at the library), so it is impossible to determine the pure effect of dress.

Loughnan et al. (2013) conducted research about sexual assault and dress. In that study undergraduates were exposed to one of two photos of a female student (Laura) who waitressed and was a part-time model. Two photos from her modeling portfolio were presented that used dress (e.g., a bikini, jeans and a top) to vary the amount of the body that was exposed. Participants then read an acquaintance rape scenario about Laura. Victim blame was assessed. Participants who saw Laura wearing the bikini attributed significantly more blame to her for the assault than participants who saw her wearing jeans and a top. While the specific dress items worn differed between conditions, more of the body was revealed in the bikini condition.

Researchers from Belgium and the UK (Bernard et al. 2015) also used objectification theory in their research about the consequences of sexual objectification in cases of sexual assault. Belgian undergraduate participants read a newspaper article about a sexual assault accompanied by a picture of the woman, a model, who was assaulted. One group of participants saw a photo of a woman wearing underwear and the other group saw a photo of only her face. When the victim was depicted wearing underwear the rapist was attributed less blame than in the other condition where only her face was depicted. However, the manipulation had no effect on victim blame. Similar to Loughnan et al. (2013), the dress manipulation was one of body exposure.

Flowe et al. (2011) conducted a field experiment examining effects of women's dress and women's and men's intoxication on participation in a hypothetical sexual assault. Alcohol myopia theory (Steele and Joseph 1990) was used to develop hypotheses. The clothing in the revealing condition was described as similar to clothing seen in women's clothing magazines; no information was provided about the conservative clothing. Men were recruited at a UK pub, shown a photo of a woman, given a breath alcohol test, and asked to imagine participating in a sexual assault scenario. In the scenario, the woman stops consenting to the sexual activity and information was provided about her intoxication. The outcome measure was whether or not participants would elect to continue sexual contact. Continued sexual activity was indicated when the woman wore revealing as compared to conservative clothing. There was also an interaction such that a

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hypothetical sexual assault was more likely when the participants' blood alcohol level was high and the woman wore revealing clothing.

Men's history of sexual coercion as a factor in sexual violence

Researchers have also been interested in establishing theoretical explanations for why differences exist between men and women in perceptions of sexual interest. Farris and her colleagues (Farris et al. 2006, 2010) studied sex differences in perceptions of sexual interest and offered two theoretical explanations for it. Sex differences could be due to sensitivity (i.e., men are insensitive to women's affective cues) or due to bias (i.e., men have a low ability to identify women as sexually interested). The researchers argued that comparing mean differences between men's and women's perceptions of sexual interest does not distinguish between the two explanations. Using signal detection theory Farris et al. (2006) found results supporting both explanations. In that study a group of men, those at risk of committing sexual coercion, made decisions about sexual interest that were influenced by sexy dress. Also men who were high in rape myth acceptance were likely to attribute sexual interest to women wearing sexy dress. Thus, individual differences in a history of sexual coercion and in attitudes and beliefs associated with sexual coercion influenced attributions of sexual interest to women wearing sexy dress.

Farris et al. (2010) were interested in determining whether an illusory correlation between sexual interest and provocative dress predicts a history of sexual coercion and risk with undergraduate men. General recognition theory was used to guide this research, which is a generalization of signal detection theory. Stimuli were 70 photos of women that conveyed sexual interest and 70 photos of women that conveyed friendliness. In half the photos the women wore conservative clothing and in the other half the women wore provocative clothing. Participants' task was to view the photos and categorize them as sexually interested, provocatively dressed; sexually interested, conservatively dressed; friendly, provocatively dressed; and friendly, conservatively dressed. A history of sexual coercion as well as endorsement of rape myths were positively related to perceptions of sexual interest when women wore provocative as compared to conservative dress.

Dress and actual sexual violence

Although several researchers have studied inferences concerning sexual violence or likelihood of engaging in sexual violence and how that might be linked to dress, few researchers have studied actual sexual behavior. One exception is Lynch (2007) who conducted fieldwork to examine female flashing behavior within a college homecoming celebration. She found that a dress style which might be considered not provocative becomes provocative when the behavior of the woman wearing it becomes suggestive (i.e., when she flashes). The relationship between dress and violence in this study was that women who attended the homecoming celebration were often coerced to flash. When women attended the celebration, they were often sexually groped and had their clothing yanked. They were also subjected to chants of "show your tits." Lynch cited the theory of alienation, objectification theory, and feminist theories as important to her research.

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Future research

Only two of the studies reviewed in this section directly investigated wearing sexy dress and actual violence and in both of those studies, no relationship was found. This finding contrasts with results indicating that sexy dress is linked to likelihood of sexual assault or harassment as well as to attributions of responsibility for sexual assault or harassment. Specifically, at least one group of professionals (psychiatrists) and several groups of undergraduates attributed sexual violence to women's sexy dress. Future researchers may wish to investigate this apparent difference.

Some researchers have isolated specific dress cues (hem length, cosmetics use) that affect judgments of the likelihood of sexual violence. In the future other specific dress cues may be isolated to assess their effects. Also promising is research into individual differences in men's history of sexual coercion and in rape myth acceptance that may contribute to attributions of women's sexual interest when wearing sexy dress. Continued research into such individual differences in men may be useful in devising treatments in the aftermath of incidents such as coercing women to flash.

Dress, sex, and objectification

Researchers who study twentieth century media using content analysis have documented that over time women and girls have increasingly been depicted as sex objects therein (e.g., Frith et al. 2004; Graff et al. 2013; Krassas et al. 2001; Millard and Grant 2006) and noted it was their clothing that has often been found to be objectifying (Aubrey and Frisby 2011; Goodin et al. 2011). Subsequently, researchers have shown interest in documenting the detrimental consequences for women to repeated exposure to these depictions. To explain some of the consequences, Fredrickson and Roberts (1997) developed objectification theory. The theory proposes that exposure to depictions of women and girls as sex objects as well as exposure to messages about the importance of appearance encourages women to be self-conscious about their appearance and to objectify their bodies. As objectification theory was developed primarily with women in mind, most of the extant research investigating relationships between dress, sex, and objectification focused on women.

Two types of objectification have been studied: self-objectification and other-objectification. Most of the research focus was on self-objectification (Budesheim 2011). Self-objectification can take two forms: trait self-objectification and state self-objectification. Trait self-objectification is an enduring psychological state characterized by an over-emphasis on physical appearance in appraisals of self-worth (Fredrickson et al. 1998). State self-objectification is a temporary form of self-objectification and refers to briefly viewing one's body as an object for sexual pleasure (Fredrickson et al. 1998). In the next sections, research is presented that documents wearing sexy dress contributes to self-objectification, and that being in an objectified state (due to dress) impacts behavior. In addition, research is presented that details outcomes of exposure to sexually objectified images presented by the fashion media and that verifies dress is a contributor to other-objectification.

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Dress as a contributor to self-objectification

Researchers have been interested in identifying triggers to self-objectification. For example, guided by objectification theory, Fredrickson et al. (1998) found that college women self-objectified if they viewed themselves in a mirror when wearing a swimsuit, but not if they viewed themselves wearing a bulky knit sweater. The manipulation had no effect on college men. Also using objectification theory, Hebl et al. (2004) studied self-objectification in college men and women of four ethnicities. Participants evaluated themselves in a mirror when wearing a one piece Speedo swimsuit or a sweater. Results showed that men and women of all four ethnicities self-objectified in the swimsuit condition, but not in the sweater condition. Martins et al. (2007) used objectification theory and adapted the procedure followed by Fredrickson et al. and Hebl et al. Participants were gay and straight men who tried on a Speedo swimsuit or a turtleneck sweater and evaluated themselves in a mirror. As a result of the manipulation, the gay men, but not the straight men, self-objectified in the swimsuit condition.

Tiggemann and Andrew (2012) used objectification theory to frame their research investigating whether simply imagining wearing certain items of dress might contribute to self-objectification. To assess this, undergraduate women completed a trait measure of self-objectification. Next, they imagined themselves in different settings wearing body-revealing clothing and non-revealing clothing. Next, participants completed measures of state self-objectification, negative mood, body shame, and body dissatisfaction. Imagining themselves in scenarios wearing body revealing clothing (i.e., bathing suits) resulted in higher state self-objectification, negative mood, body shame, and body dissatisfaction than when imagining themselves wearing non-revealing clothing (i.e., sweaters).

Using Objectification Theory, Fuller-Tyszkiewicz et al. (2012)were also interested in identifying factors that contributed to appearance self-consciousness, a variable that according to objectification theory preceded self-objectification. These researchers investigated the importance of four contextual variables, one of which was the clothing worn (minimal, moderate, fully clothed). Undergraduate women read scenarios and indicated which was likely to make them experience appearance self-consciousness. The highest feelings of self-consciousness were associated with being fully clothed, having looks that were below average, being in the presence of a stranger, and receiving negative comments. That being fully clothed rather than wearing minimal clothing led to self-objectification is inconsistent with other researchers (Fredrickson et al. 1998) and, according to the authors, may be due to these women believing that when fully clothed they would be scrutinized for their fashion knowledge and thus experience self-consciousness. The authors contended that it may not only be the skin revealing nature of clothing (i.e., that it shows skin) that actually elicits self-objectification but also the fit (i.e., tightness) of the clothing. Indeed, earlier researchers used swimsuits (e.g., Fredrickson et al. 1998) to evoke self-objectification, an item of clothing that is both body revealing and tight when worn. This view is consistent with Prichard and Tiggemann (2005) who said that "wearing tight and revealing clothing actually places women within the objectification limelight" (p. 20).

Dress and outcomes of self-objectification

Green et al. (2012), in the context of objectification theory, used a dress manipulation to investigate the relationship between state self-objectification and heart rate. They developed a within subjects' experiment for which young women tried on a swimsuit (objectified state) and a tracksuit (non-objectified state). After putting on the clothing, participants were attached to a heart rate monitor and evaluated themselves in a mirror for 5 min. Heart rate was measured at 6 s and at 5 min. After trying on the clothing, the women completed measures of anxiety, body preferences, and negative/positive affect. The women's heart rates were lower in the objectified condition than in the non-objectified condition; this was interpreted as indicating increased processing of environmental cues in the objectified state (i.e., paying increased attention to the clothing), which reduced the cognitive resources available for processing other stimuli.

Use of sex in fashion advertising and self-objectification

Using objectification theory, Aubrey (2006) conducted a 2-year panel study with undergraduate men and women to test whether the media socialized individuals to self-objectify as well as to habitually monitor their appearance (i.e., body surveillance). The researchers questioned whether exposure to sexually objectifying television programs (77) and magazines (61) measured during 1 year would increase self-objectification and body surveillance the following year. Surprisingly, exposure to these media increased body surveillance only for men. One explanation for this sex difference might be that for women body surveillance is normative and thus not as susceptible to an external influence as it is for men. Later, Vandenbosch and Eggermont (2012), using objectification theory and social cognitive theory, examined the effect of viewing sexually objectifying fashion advertisements on adolescent girls in Belgium. Results demonstrated a direct effect of viewing sexually objectifying fashion magazines on internalization of beauty ideals and an indirect effect on self-objectification through the internalization of beauty ideals.

Earlier, Aubrey et al. (2009) used objectification theory to demonstrate short-term objectifying effects due to exposure to fashion advertisements featuring sexy images using an experiment. Undergraduate women viewed either control photos (e.g., places and things) or experimental photos with high skin exposure (e.g., images from *Glamour, Maxim* or Victoria's Secret apparel catalogues). As compared to the control group, the experimental group self-objectified more and used more negative words to describe their own appearance.

Dress that aids sexual objectification of others (other-objectification)

Given that dress can contribute to self-objectification, researchers have been interested in understanding the role of dress in the sexual objectification of others perhaps because self-objectification has been linked to other-objectification (Strelan and Hargreaves 2005; Lindner et al. 2012). In one study framed using objectification theory, undergraduate white women from the US Midwest viewed and rated well-known female Olympian athletes appearing in either provocative or sports attire (Gurung and Chrouser 2007). Lower ratings of capability (strength, determined, capable) as a function of the provocative dress manipulation and higher ratings of objectification (attractive, sexually

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experienced, desirable) traits were interpreted as evidence of sexual objectification. By this definition, provocative attire led to sexual objectification of the women athletes but the sports appropriate clothes did not. In addition, as compared to when wearing sports attire, when wearing provocative dress the athletes were rated less strong, less capable, less determined, less intelligent, less self-respecting, but more feminine.

In similar research using objectification theory, Nezlek et al. (2015) had undergraduate men and women view and rate four photos (2 male athletes and 2 female athletes). In the control condition the athletes wore their athletic dress and in the experimental condition the athletes wore dress that revealed skin. Lower ratings of competency and abilities as a function of the revealing dress manipulation plus an attribution of sexualized traits were interpreted as evidence of sexual objectification. By this definition, men sexually objectified both male and female athletes while women sexually objectified only female athletes.

While it is important to document the existence of other-objectification, it is critical to understand its consequences. Loughnan et al. (2013) conducted an experiment to assess outcomes. In the control condition a woman wore jeans and a white top. In the experimental condition she wore a bikini. To assess other-objectification, undergraduate men and women rated the extent to which the stimulus person engaged in mental activities (mind attribution) and completed a moral concern scale. Participants who viewed the bikini-clad woman attributed less mind and less moral concern to her than participants viewing the woman in jeans and a top, a finding the researchers interpreted as demonstrating sexual objectification of the woman wearing the bikini. Subsequently, participants read a date rape scenario, assessed victim blame, and victim suffering. The woman in a bikini was attributed less suffering but more blame than the woman wearing jeans.

Similarly, Bernard et al. (2015) used just world theory to investigate the extent to which the objectification of a rape survivor might alter perceptions of the perpetrator. The dependent variables were the extent to which the survivor was blamed and the extent to which the perpetrator was blamed. Male and female participants read a stranger rape scenario and within that scenario was a picture of the rape survivor who was described as a model for a lingerie brand. In the control condition, a picture of the model's face accompanied the scenario. In the experimental condition, a full body picture of the model wearing underwear accompanied the scenario. A manipulation check revealed that as compared to the control condition, both men and women in the experimental condition rated the survivor as a sex object. Hence, the researchers claimed that the model was sexually objectified due to these ratings. Less blame was attributed to the perpetrator in the experimental condition; there was no sex of participant effect or interaction on rapist blame. Furthermore, men attributed more blame to the survivor than did women. Both Bernard et al. (2015) and Loughnan et al. (2013) demonstrate how other-objectification biases interpretations of sexual violence. These biases have implications for perpetrator sentencing as well as for overcoming the effects of sexual violence.

Furthermore, other-objectification is linked to negative outcomes for the objectifier. Using objectification theory for guidance, researchers exposed undergraduate men to objectified advertising images of women or men (in revealing dress) as well as to neutral consumer product images (Johnson et al. 2007). Men who saw the images of women in revealing dress expressed more anxiety and more hostility than those who saw the

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images of men in revealing dress or the neutral images. In other research Aubrey and Frisby (2011) also used objectification theory in a study of sexual objectification of women in music videos. If a female artist wore clothing that exposed her body, the videos were assumed to be sexually objectifying. Men who saw videos of female artists high in sexual objectification were more accepting of interpersonal violence and reported more adversarial sexual beliefs as compared to men who saw videos of female artists low in sexual objectification.

Future research

Research needs to be continued on the topic of self-objectification as well as on other-objectification as participants in most published research is limited to groups of predominately Caucasian female undergraduates. Relationships between self-objectification and dress needs to be studied with diverse participants (e.g., age, ethnicity, sexual orientation, gender). Additionally, researchers are inconsistent in how they define sexual objectification and how it is demonstrated. We echo Budesheim's (2011) call for a clear definition of sexual objectification and how it is manifest. In terms of other-objectification, researchers have found that women objectify other women, but not men; whereas men objectify other men as well as women (Bernard et al. 2015; Loughnan et al. 2013; Nezlek et al. 2015). Future research will benefit by continued use of male stimuli in experiments to further investigate links between other-objectification and dress, possible antecedents and outcomes, and gender differences.

Much remains for future researchers to clarify the various means by which sexual objectification (both self- and other-objectification) is assessed and manifested. Dress clearly plays an important role in both types of objectification, facilitating objectification. The use of physiological measures may help to elucidate how objectification occurs and what its effects are. Objectification theory also holds promise for researchers studying dress and violence. Longitudinal research may benefit researchers studying dress as a cue to sexual information to assess its effect on human development. Cross-cultural studies are recommended regarding dress as an expression of sexuality, as well as relationships between dress and sexual violence.

Conclusions

In the review we identified three topical research areas focused on dress and sex: (1) dress as cue to sexual information, (2) dress and sexual violence, and (3) dress, sex, and objectification. Across these three topical areas, it is clear that dress is used to infer a range of information about sex. Based on our review, the research on dress, sex, and objectification is the most recent of the three topical research areas we have defined. That research began after objectification theory was proposed by Fredrickson and Roberts in (1997); whereas the research on dress as a cue to sexual information dates from 1990 and the research on dress and sexual violence dates from 1991 (see Table 1). Furthermore, the research on dress, sex, and objectification is clearer and more focused than research in the other two categories because nearly all of it all relies on objectification theory as a framework, while researchers working in the other two topical areas have relied on a variety of theories or have sometimes not used theory at all. The research on dress as a cue to sexual information is the most varied of the topical trends and overlaps with some

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of the research on dress and violence. Although unacknowledged in the research, the research on sex, dress, and objectification overlaps with the research on dress and violence because that research has focused on violence in the context of sexually objectifying experiences.

In terms of theories used by the researchers cited here, objectification theory guided the most research. Attribution theory was used most often in research on dress and sexual violence. The use of objectification theory to explain and predict dress and violence seems to hold promise because sexual violence is a sexually objectifying experience. Evolutionary theory was cited most often by researchers studying dress as a cue to sexual information and the topic could benefit from an overarching theory to move it forward.

Of particular use to researchers interested in advancing research on the topic of dress as a cue to sexual information is Livesley and Bromley's (1973) four-stage model of person perception. Cue selection is the first stage in the perception process. During this stage, a perceiver chooses dress cues that are meaningful to him or her. The reason a specific aspect is chosen may be a characteristic of the cue (e.g., its sheerness, its color), something about the context in which the cue is perceived, or some aspect of the perceiver (e.g., sex of perceiver). Interpretative inference is the second stage. During this stage the perceiver makes inferences based on the cues selected and the associated meanings (e.g., sheer clothing = sexy). The third stage is extended inferences. At this stage perceivers can draw additional inferences about the perceived person based on the information already inferred (e.g., sexy = kissable), as well as draw inferences about the people and places linked with the perceived person. The final stage is anticipatory set. During this period the perceiver makes decisions concerning how to act relative to the perceived person.

An example of how this model can be applied to research on dress as a cue to sexual information is Ben-Zeev and Dennehy's (2014) research. In this research, a pilot study established that it was more of a gender violation for boys to wear pink than for girls to wear blue. In experiment 1, the cue of baby boys' clothing color (pink or blue) was varied. The baby's proposed treatment was affected when the child wore pink. Although neither interpretative or extended inferences were assessed, the researchers suggest that seeing a baby dressed in a feminine way (pink clothing) could have led to inferences that the baby is weak as well as fragile and consequently impacted the child's proposed treatment (anticipatory set).

As this review details, researchers in the 1990s and later investigated the extent to which young women might be held responsible (or blamed) for their own sexual assaults and sexual harassment and how body revealing dress was implicated in those inferences. However, the process by which dress evoked those inferences was not explained in those studies. Objectification theory provides the rationale; researchers have demonstrated that revealing dress evokes objectification of the woman so dressed (Fredrickson et al. 1998; Hebl et al. 2004) and that objectification leads to inferences regarding responsibility for sexual assault and sexual harassment (Loughnan et al. 2013). We believe that all the research in the two sections: dress and sexual violence; and dress, sex, and objectification can be guided and explained by objectification theory. Following is an example from the dress and sexual violence section to demonstrate how objectification theory can be applied to that research.

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Johnson and Workman ([1994](#)) studied the extent to which victim dress affects judgments of responsibility for sexual harassment. Undergraduates saw a photo of a young woman who wore revealing or non-revealing clothing. According to objectification theory and subsequent research, the revealing clothing leads to other-objectification (Gurung and Chrouser [2007](#); Loughnan et al. [2013](#)), and the other-objectification (i.e., objectification of the stimulus person) leads to the negative inferences about the woman: that the woman in revealing clothing was likely to provoke the sexual harassment, to have done something to bring about the harassment, and could have prevented the harassment.

Limitations

Our review is limited by the keywords used in our initial searches, which are typically selected by authors before the manuscript submission process. To the extent that authors did not identify fashion, dress, or clothing in their keywords, their work would not have been identified. Some authors may not consider body modifications an aspect of dress; hence searching for research about dress may not have located some relevant articles related to sex and body modifications such as tattoos or piercings.

As noted previously, we restricted our search to social science articles investigating relationships between dress and sex that represented empirical research with human participants published in refereed journals. That ruled out concept papers, theory papers, historical papers, books, and legal analyses. We opted to focus on refereed journals with their established peer review processes that vet the quality of the research conducted. This decision may have also left out work relevant to our topic from the humanities, which is often disseminated in books.

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