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The Price Had Better Be Right: Women's Reactions to Sexual Stimuli Vary With Market Factors

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Abstract
Two experiments tested when and why women's typically negative, spontaneous reactions to sexual imagery would soften. Sexual economics theory predicts that women want sex to be seen as rare and special. We reasoned that this outlook would translate to women tolerating sexual images more when those images are linked to high worth as opposed to low worth. We manipulated whether an ad promoted an expensive or a cheap product using a sexually charged or a neutral scene. As predicted, women found sexual imagery distasteful when it was used to promote a cheap product, but this reaction to sexual imagery was mitigated if the product promoted was expensive. This pattern was not observed among men. Furthermore, we predicted and found that sexual ads promoting cheap products heightened feelings of being upset and angry among women. These findings suggest that women's reactions to sexual images can reveal deep-seated preferences about how sex should be used and understood.

Keywords
sex, judgment, decision making, sex differences, sexual economics

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Women generally show spontaneous negative attitudes toward sexual images (Griffitt & Kaiser, 1978; Sengupta & Dahl, 2008), and sexual economics theory offers a reason why: The use of sexual imagery is inimical to women's vested interest in sex being portrayed as infrequent, special, and rare (Baumeister & Vohs, 2004). Sexual economics theory formed the basis of our hypothesis that heterosexual women, more than men, want sex to be seen as highly valued and of great worth. They do so for two reasons: Women are simply not as desirous of sex (Baumeister, Catanese, & Vohs, 2001), and sex is costlier for women (biologically, physically, and socially; Schwartz & Rutter, 1998). Gender differences in the costs of sex emerge in part from gender differences in parental investment costs (Symons, 1979; Trivers, 1972). That is, the inherent contribution to reproduction is simply larger and more sustained over time for women as compared with men, which makes women choosier about when and with whom they are willing to be sexual.

Sexual economics theory proposes that for a woman, sex should take place when it is worth the risk, meaning that there ought to be something that she gets out of it (more than the sex itself). This preference that sex should be accompanied by gains to the woman—such as money, time, affection, commitment, children, or respect—affects women's reactions to sexual portrayals. Women more readily accept sexual scripts, stories, and images when they are linked with relationship, pecuniary, or other resource transfers from men to women than when they are not so accompanied (Dahl, Sengupta, & Vohs, 2009).

This line of reasoning suggests that women's negative attitudes toward sexual imagery should improve if sex is depicted in a manner consistent with their values—that

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sex is rare, precious, and exclusive. Using sex to promote an expensive product does just that, by associating sex with high value. In contrast, using sexual images to promote an inexpensive product fosters undesirable associations between sex and cheapness, commonness, or low value, which is antithetical to women's preferences about how sex should be understood.

Therefore, we predicted that women would find sexual imagery distasteful when used to promote a cheap product, but that this reaction would soften if the product being promoted was expensive. We predicted that this pattern would not be observed among men because they do not have a vested interest in associating sex with high value.

Furthermore, we envisioned sexual imagery used to sell cheap products as invoking stronger feelings of being upset and angry among women than men. We focused on these feelings because they arise often in response to perceptions of exploitation or offense (Hansen, 2007), which we predicted would be especially salient among women seeing sex used to peddle cheap goods. More to the point, these feelings might arise because women view the mere use of sexual advertising itself as cheapening sex. We expected no significant interactive effect of gender and product price on positive affect, as positive and negative reactions to sexual stimuli are known to be orthogonal (Griffitt & Kaiser, 1978). To summarize, we predicted that women who viewed a sexual ad that promoted a cheap (as opposed to expensive) product would report feeling more upset and angry. We did not expect to see this pattern among men or in reports of positive emotions. Furthermore, negative emotions involving feeling upset and angry were expected to statistically account for attitudes toward the ad—a mediation hypothesis.

In two experiments, we tested and found support for these hypotheses. The experimental design was the same for both experiments, with the key and important exception that the ads in Experiment 1 promoted only a woman's watch, whereas the ads in Experiment 2 promoted both a man's and a woman's watch. Experiment 2 allowed us to rule out an alternate explanation for the results of Experiment 1 and provided a replication of the effects.

Experiment 1

Method

Participants and design. Eighty-seven undergraduates (47 women) participated in a 2 (gender) × 2 (price: cheap vs. expensive) between-subjects design that used a sexy ad to promote a product. Two additional conditions (n = 46) assessed women's attitudes to nonsexual ads that varied in price (cheap vs. expensive). All participants were subjected to a cognitive load while they perused the ads, so that the ads would elicit spontaneous reactions (Gilbert, Krull, & Pelham, 1988).

Procedure. To induce cognitive load, we had participants silently rehearse 10 digits while viewing three ads for 20 s each. The second ad promoted Chaumet women's watches. Participants in the sexual condition saw explicit sexual imagery taking up the majority of the ad, with an image of the product in the bottom corner (see Sengupta & Dahl, 2008, for the images). In the nonsexual condition, the same product was positioned in the same place, but the ad showed majestic snowcapped mountains, which researchers often use for comparison with sexual scenes (LaTour, 1990). The ads listed specifications such as price, which varied by condition: $1,250 (expensive) or $10 (cheap).

Next, participants released the cognitive load by reporting the digits. They rated their attitudes toward the target ad using two scales (1 = *unlikeable/bad*, 7 = *likeable/good*; α = .86). Emotional reactions were assessed using separate scales measuring positive and negative affect (1 = *none*, 7 = *very much so*). Participants indicated the extent to which the ads made them feel happy, energized, in a good mood, and interested (α = .88) and the extent to which the ads made them feel upset, disgusted, unpleasantly surprised, and angry (α = .83). Responses to items were averaged to create indices.

Results

Ad attitudes. A key hypothesis was that women's attitudes toward the use of sexual images to promote a product would be less negative when the product was expensive than when it was cheap. We also predicted that men's attitudes would be unaffected by price of the product. A 2 (gender) × 2 (price) analysis of variance (ANOVA) of the data from the sexual condition revealed the predicted interaction, $F(1, 83) = 4.97$, $p < .05$, $h_p^2 = .056$, as well as a main effect of gender, $F(1, 83) = 14.86$, $p < .001$, $h_p^2 = .152$ (Fig. 1). Women reported more positive attitudes toward sexual imagery that promoted an expensive watch than toward sexual imagery that promoted a cheap watch, $F(1, 83) = 7.55$, $p < .01$, $h_p^2 = .144$. Men's reactions did not differ by price condition, $F < 1$.

We assessed women's attitudes toward the two nonsexual ads to rule out the possibility that women simply like expensive products (irrespective of sexual content). As expected, that did not seem to be the case, as women's attitudes did not vary with product price when a mountain scene promoted the product, $F < 1$ (Fig. 1).

Emotional reactions. A second hypothesis was that the Gender × Price interaction would predict self-reported

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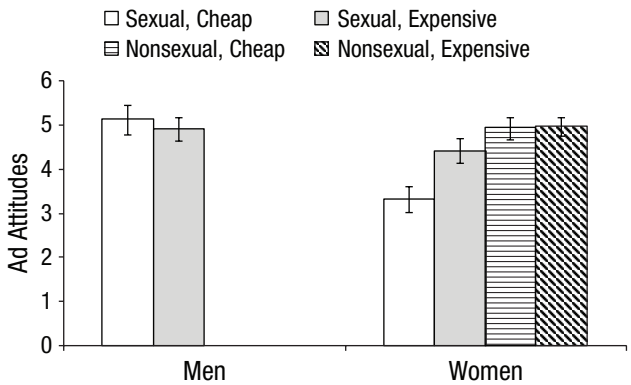

Fig. 1. Ad attitudes as a function of gender, nature of the imagery (sexual vs. nonsexual), and price condition (cheap vs. expensive) in Experiment 1. Error bars indicate standard errors.

negative affect. This hypothesis was supported, $F(1, 82) = 3.68$, $p = .059$, $h_p^2 = .043$. As expected, men's self-reported negative emotions did not vary with price condition ($F < 1$), whereas women showed the predicted pattern of stronger negative emotions after viewing a sexual ad promoting a cheap rather than expensive watch, $F(1, 82) = 5.43$, $p < .05$, $h_p^2 = .088$ (Fig. 2).

Also as expected, women's negative emotions did not vary with watch price when women viewed nonsexual ads, $F < 1$ (Fig. 2). Hence, as was the case with attitudes, product price affected only women and only when they viewed sexual images.

We tested the specificity of the Gender × Price interaction by examining positive mood. We did not expect that positive mood would be predicted by the interaction, and indeed, an ANOVA revealed only a main effect of gender, with men reporting more positivity than women, $F(1, 83) = 15.98$, $p < .001$, $h_p^2 = .165$.

Mediation. We hypothesized that a sexual ad that promoted a cheap watch would arouse negative emotions in women, but not men, which in turn would account for women's poor attitudes toward the ad. This mediational hypothesis was already supported by the significant interactive effects of gender and price on the outcomes of negative emotions and ad attitudes. Next, we correlated negative emotions and ad attitudes, and observed the expected significant (negative) relationship, $r(82) = -.69$, $p < .01$.

Last, we tested our mediation hypothesis. With negative emotion as the covariate and the main effects of gender and price and their interaction as predictors of ad attitudes, the previously significant Gender × Price interaction dropped to nonsignificance, $F(1, 81) = 1.82$, $p > .17$, whereas negative emotion remained a significant predictor, $F(1, 81) = 44.43$, $p < .001$, $h_p^2 = .354$, Sobel $z = 1.84$, $p < .07$.

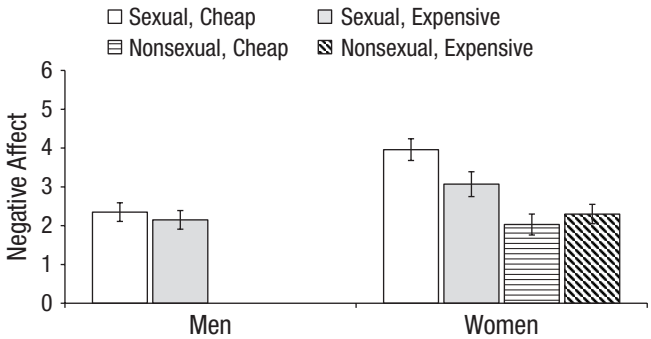

Fig. 2. Self-reported negative affect as a function of gender, nature of the imagery (sexual vs. nonsexual), and price condition (cheap vs. expensive) in Experiment 1. Error bars indicate standard errors.

Discussion. Women and men viewed three advertisements, one of which depicted a sexual scene used to sell an expensive or a cheap watch. We predicted and found that women who saw a sexually charged image used to sell a cheap product felt more upset emotionally and thought more poorly of the ad, compared with women who saw a high-priced product promoted with sexual images. Men reported equivalent reactions to the sex-based ads regardless of product price. We also checked whether women generally would like ads showing expensive products by showing some of them ads using a breathtaking mountain landscape to sell an expensive or cheap watch. As expected, women did not rate those ads any differently as a function of price. Further, women viewing cheap products sold with sex felt more upset than women in the other conditions (Fig. 2; all ts > 2.20, ps < .03), and that is what drove their negative reactions to the ad—a mediational effect.

Experiment 2

Experiment 2 had two major aims. One was to replicate the results of Experiment 1. The other was to test an alternate explanation for the observed effects. Perhaps the null effect of price condition for men's ratings was not due to men's reactions to sexual imagery being independent of connotations of rarity, preciousness, and value—as we claim—but was instead due the product being irrelevant to them. Consequently, in our second experiment, we made a small but significant change: The ad promoted both a man's and a woman's watch. From a sexual economics perspective, this change should not matter because we assume that men's attitudes about sex are not a function of its connection to high worth. Therefore, we predicted that men's attitudes and emotions toward the images would not vary significantly with the price of the watches.

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Women's reactions to the images were predicted to be less negative when the sexual ad showcased expensive watches rather than cheap ones, as in Experiment 1. Mountain scenes again formed the basis for the nonsexual ads, and we predicted that there would be no differences in women's reactions to those ads as a function of watch price.

Method

Participants and design. Participants were 212 adults (107 female). They participated in a 2 (gender) × 2 (price: cheap vs. expensive) design with 2 hanging control conditions in which nonsexual ads (cheap vs. expensive) were viewed only by women.

Procedure. The procedure mimicked that of Experiment 1. Participants rehearsed a lengthy number while perusing three print ads, the second of which was for Chaumet watches. The ad pictured either a snowcapped mountain landscape (nonsexual ad) or a couple sexily embracing (sexual ad; Sengupta & Dahl, 2008). The product images were a man's and woman's watch. The ads were the same as in Experiment 1 except for the addition of the man's watch.

After reporting the digits and thus releasing the cognitive load, participants moved sliding scales (equating to 100 points) to evaluate the ads and their emotions. The dependent measures were ad attitudes (scale endpoints were *unlikeable/likeable* and *bad/good*; the index was the average of the two ratings; $\alpha = .95$) and negative affect (average of ratings for how upset, disgusted, unpleasantly surprised, and angry participants felt; endpoints: *not at all* and *very*; $\alpha = .89$). Positive emotions were measured by similar sliding scales, with which participants indicated the extent to which the ads made them feel happy, in a good mood, and interested ($\alpha = .91$).

Results

Ad attitudes and emotional reactions. As predicted, and as in Experiment 1, gender and price had an interactive effect on the two key outcomes in the sexual condition—ad attitudes: $F(1, 115) = 3.83$, $p = .05$, $h_p^2 = .032$; negative affect: $F(1, 115) = 6.51$, $p < .02$, $h_p^2 = .054$. Planned contrasts showed that women reported lower ad attitudes and higher negative affect when they saw a sexual ad promoting a cheap compared with an expensive watch, $F_{\text{attitudes}}(1, 48) = 4.99$, $p = .03$, $h_p^2 = .097$, and $F_{\text{negative affect}}(1, 48) = 4.29$, $p < .05$, $h_p^2 = .082$ (Figs. 3 and 4). As predicted, men's attitudes toward the sexy ad were not predicted by watch price, $F < 1$. Gender had a main effect on both ad attitudes and negative affect, with men reporting more positive attitudes, $F(1, 115) = 8.90$, $p < .01$, $h_p^2 = .074$, and less negativity, $F(1, 115) = 19.28$, $p < .001$, $h_p^2 = .144$.

We next performed three tests of specificity. First, we examined whether men's reports of negative emotions after the sexual ad also were predicted by price condition. As predicted and as in Experiment 1, they were not, $F(1, 67) = 2.17$, $p > .14$. Second, we tested whether women simply prefer advertisements that feature expensive products over advertisements for cheap products. As expected and as in Experiment 1, price condition did not influence women's ad attitudes, $F(1, 53) > 1.5$, n.s., or negative affect, $F < 1$, in reaction to ads displaying a snowcapped mountain scene (Figs. 3 and 4). Third, we again tested whether women and men would show different positive emotional reactions to the ads. We

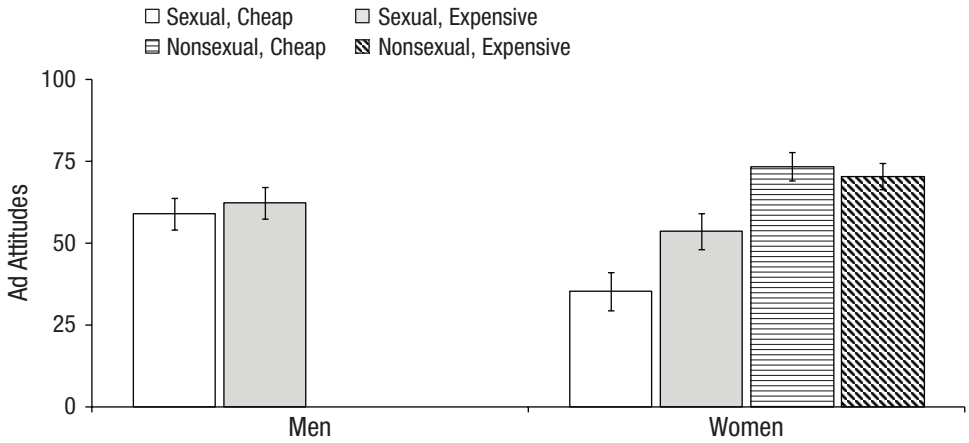

Fig. 3. Ad attitudes as a function of gender, nature of the imagery (sexual vs. nonsexual), and price condition (cheap vs. expensive) in Experiment 2. Error bars indicate standard errors.

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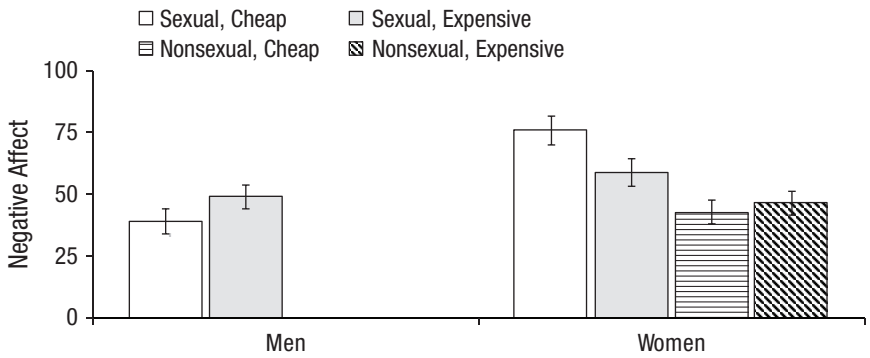

Fig. 4. Self-reported negative affect as a function of gender, nature of the imagery (sexual vs. nonsexual), and price condition (cheap vs. expensive) in Experiment 2. Error bars indicate standard errors.

predicted that they would not. An ANOVA predicting positive affect confirmed that positive-affect scores did not vary with the interaction of price and gender, $F(1, 115) = 1.51$, $p > .20$. These tests of specificity further support our hypotheses.

Mediation. We predicted that negative emotions would account for evaluations of the sexual ad. This mediation hypothesis required that we demonstrate that ad attitudes and negative-affect scores were correlated. As expected, they were, $r(119) = -.61$, $p < .001$. Next, we conducted an analysis of covariance with ad attitudes as the dependent measure, negative affect as the covariate, and the two main effects and their interaction term as the predictors. As expected, the interaction of gender and price was no longer significant after negative affect was statistically held constant, $F < 1$, whereas negative affect remained a significant predictor, $F(1, 114) = 50.41$, $p < .001$, Sobel $z = 2.40$, $p < .05$.

Discussion. Thus, viewers' reactions to sexual ads were a function of gender and the price of the product being promoted. Women reported more negative affect and unfavorable evaluations when the sexual ad attempted to sell cheap products rather than expensive ones.

Experiment 2 ruled out an alternate explanation of the results from Experiment 1 by featuring both a man's and a woman's watch in the ad. Even when men viewed an ad for a relevant product, their ratings were not dependent on the price of the product, which supports our contention that the concepts of sex and high worth are not interrelated for men.

In contrast, women's ratings, as predicted by sexual economics theory (Baumeister & Vohs, 2004), differed as a function of product price, such that when the sexual ad featured low-priced products, women did not much like the ad. Furthermore, Experiment 2 (and Experiment 1) ruled out the alternate explanation that women's reactions to the sexual ad simply reflected approval of expensive products: Women's reactions to an advertisement using a mountainous scene instead of a sexual one indicated that this was not the case. In line with sexual economics theory, the effect of product price on women's reactions was specific to sexually charged scenes.

General Discussion

Two experiments found that associating sex with high value softens women's otherwise negative attitudes toward sexual images. As predicted by sexual economics theory (Baumeister & Vohs, 2004), women reacted more favorably to sexual images when they were used to promote an expensive rather than a cheap product. The use of nonsexual comparison scenes confirmed that the effect was specific to sexual contexts. Emotion reports supported the proposition that pairing sex with cheapness elicits negative emotions among women, which in turn produces unfavorable attitudes. This mediational hypothesis was supported in both experiments. Men's reactions, as expected, were unaffected by whether sex was associated with a high- or low-priced product.

These findings have several implications. One is that women can be swayed to tolerate sexual imagery, as long as it comports with their preferences regarding when and why sex is used. A second, more profound implication is that women's reactions to sexual images reveal their preferences about how sex should be understood.

Author Contributions

K. D. Vohs, D. W. Dahl, and J. Sengupta developed the study concept. All authors contributed to the study designs. Data collection and analysis were overseen by K. D. Vohs, D. W. Dahl, and J. Sengupta, and data interpretation was done by all authors. K. D. Vohs drafted the manuscript, and D. W. Dahl and

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J. Sengupta provided critical revisions. All authors approved the final version of the manuscript for submission.

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Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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