Published in final edited form as:

Pers Individ Dif. 2011 October 1; 51(6): 699–703. doi:10.1016/j.paid.2011.06.008.

The valence of sex: Automatic affective associations in erotophilia and erotophobia

Kathryn R. Macapagal, M.Ed.^{a,b,c} and Erick Janssen, Ph.D.^{a,b}

^a Department of Psychological and Brain Sciences, Indiana University, 1101 East Tenth Street, Bloomington, Indiana, 47405, USA

^b The Kinsey Institute, 1165 East Third Street #313, Bloomington, Indiana, 47405, USA

Abstract

Sexual stimuli may elicit positive and negative emotions that can impact sexual thoughts, responses, and behavior. To date, most research on affect and sexuality has focused on conscious processes and affective states. Less is known about how automatic and trait-level affective processes influence our reactions to sexual stimuli. This study used a priming task with backward masking and a trait measure of *erotophobia-erotophilia* – the tendency to respond to sex on a negative-to-positive continuum – to improve our understanding of the role of automatic and affective processes in response to sexual stimuli. Erotophilic individuals demonstrated automatic associations between sexual primes and positively-valenced targets, whereas erotophobic individuals classified negatively-valenced targets faster regardless of whether primes were sexual or neutral. The findings suggest that the valence of sexual stimuli can be processed automatically and is associated with trait-level affective responses to sex. Implications for research on risky sexual behavior and sexual dysfunction are discussed.

Keywords

backward and forward masking; erotophobia-erotophilia; sexual stimuli; affect; automatic processes; priming

1. Introduction

Sex is associated with a range of emotions and meanings. For some, the thought of sex activates positive feelings and pleasant recollections of previous sexual experiences, whereas for others, it may elicit mixed or negative feelings and aversive, even painful memories. Indeed, research supports the notion that sexual stimuli have the potential to elicit multiple affective responses, and that these, in turn, may impact one's sexual responses and behavioral tendencies in sexual situations. For example, subjective sexual arousal has been associated with positive affective states in both men (e.g., Rowland, Cooper, & Slob, 2006) and women (e.g., Laan, Everaerd, van Bellen, & Hanewald, 1994). Others have found that in individuals with sexual dysfunction, sex elicits emotions such as distress, anxiety and fear,

© 2011 Elsevier Ltd. All rights reserved.

^cCorresponding author. 1101 East Tenth Street, Bloomington, Indiana 47405. Phone: +1 812-856-7216; Fax: +1 812-856-4544; karmacap@indiana.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

which are linked to avoidance behaviors (e.g., Wiegel, Scepkowski, & Barlow, 2007). Furthermore, there is evidence that sex can be associated with mixed or ambivalent affect (e.g., Peterson & Janssen, 2007).

Most studies on the connection between sex and affect so far have focused on the conscious experience of affect and on affect as a state, as opposed to a trait, level. With few exceptions (e.g., Brauer, de Jong, Huijding, Laan, & ter Kuile, 2009; Oliver, Watson, Gannon, & Beech, 2009), researchers have not addressed the possibility that positive and negative emotional associations with sex can be activated – and impact behavior – automatically. Thus, our understanding of the link between affect and sexuality is mainly derived from studies assessing individuals' immediate, consciously experienced reactions to sexual stimuli, and not as much on their implicit and more general affective responses to sex. In an attempt to address these issues, the current study was designed to examine the roles of unconscious and trait-level affective mechanisms during the processing of sexual stimuli.

1.1. Automatic processes, affect, and sex

Automatic processes typically occur outside an individual's conscious awareness and are labeled “automatic” because they are engaged instantly and with little to no conscious effort when stimuli are presented (Schneider & Shiffrin, 1977). Automatic processing of a stimulus triggers associative memory networks, thereby increasing the accessibility of relevant cognitions, emotions, and meanings (e.g., Fazio & Olson, 2003). In contrast, controlled processes occur downstream and at a higher cognitive level than do automatic processes, and stimulus appraisal and evaluation at this level are more time consuming and require conscious effort (Schneider & Shiffrin, 1977).

Priming is one of the most widely used approaches to investigate the role of automatic processes in emotion and behavior (e.g., Bargh, 1992; Marcel, 1983). A common variant of priming relies on brief, nonconscious presentations of a stimulus (the “prime”) and the exploration of its effect on subsequent behavior. For example, following a prime, decision times in response to a second, consciously-presented stimulus (the “target”) can be measured and serve as an indicator of the strength and direction of an individual's automatic associations between the prime and target. A number of studies have shown that emotional meanings of stimuli can be activated automatically, and that the strength of the association between a stimulus and its emotional representation determines the likelihood of activation (e.g., Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Hermans, de Houwer, & Eelen, 1994; Zajonc, 1980). The same has been found for sexual stimuli. For example, in a series of studies (Gillath, Mikulincer, Birnbaum, & Shaver, 2007; Janssen, Everaerd, Spiering, & Janssen, 2000; Spiering, Everaerd, & Janssen, 2003) participants were asked to categorize sexual and neutral targets that were preceded by subliminally-presented sexual and neutral primes. In each of these studies, sexual primes, relative to neutral primes, decreased response times to sexual targets, indicating that the primes speeded participants' ability to identify congruent targets. Furthermore, sexual primes not only facilitate responses to sexual target stimuli, they also influence genital and subjective sexual arousal (Gillath et al., 2007; Janssen et al., 2000; Ponseti & Bosinski, 2010).

Together, these studies indicate that sexual information presented outside individuals' conscious awareness activates sexual associative networks, thereby facilitating physiological and psychological responses to sexual stimuli. However, these findings do not speak to the relevance of valence. That is, although they show that ‘sex primes sex’, they do not address the question of whether these priming effects are due to the sexual meaning of the primes, or whether their affective value contributes to their effects on subsequent behaviors. In addition, few studies have used priming paradigms to examine individual differences in automatic affective associations with sex, although some work has been done in clinical

samples (e.g., Brauer et al., 2009; Oliver et al., 2009). In one study (Gillath, Mikulincer, Birnbaum, & Shaver, 2008) women, but not men, were found to be more willing to self-disclose to a romantic partner after exposure to nonconscious sexual primes. Further, men, but not women, were more willing to give up activities or relationships for their partner after exposure to sexual primes.

Thus, previous research provides initial support for the notion that sexual information can activate different affective associations on an automatic level, and that the strength and direction of these associations may depend on a variety of individual characteristics. However, so far, researchers have largely inferred affective links between primes and outcomes of interest, instead of testing them directly. Indeed, especially in nonclinical samples, research is lacking on the role of automatic processes in the activation of positive and negative responses to sexual stimuli, and the factors that could explain differences in such responses between and among individuals.

1.2. Individual differences in affective responses to sex

The personality dimension of *erotophobia-erotophilia* is a widely-studied factor relevant to positive and negative associations with sex (Fisher, Byrne, White, & Kelley, 1988). Erotophobia-erotophilia, as measured by the Sexual Opinion Survey (Fisher et al., 1988) is conceptualized as a single dimension of normal variations in affective and evaluative responses to sex that are associated with approach-avoidance tendencies in sexual situations. Persons on the erotophobic side of the spectrum tend to have negative responses to sexual stimuli relative to persons on the erotophilic side, who tend to have positive responses to sexual stimuli. These response dispositions are believed to result from learning and socialization about sex (Byrne, Fisher, Lamberth, & Mitchell, 1974). Specifically, early or frequent exposure to restrictive or open attitudes, beliefs, and expectancies about sex, combined with one's own positive or negative experiences with sexual situations or stimuli may contribute to propensities to view sex as either more positive or negative. Normative data indicate that erotophobia-erotophilia is a valid construct cross-culturally, and that erotophilic tendencies are more characteristic of persons who are male, younger, nonreligious, and higher in socioeconomic status (Fisher et al., 1988).

Studies have found that erotophilic individuals are more likely to apply condoms (Sanders et al., 2006) and are more open to discussing sexual health matters (Herbenick, Reece, & Hollub, 2009) than their erotophobic counterparts. In contrast, erotophobic individuals are more likely to stigmatize individuals with sexually transmitted infections (Smith & Nave, 2007), and they demonstrate lower levels of sexual knowledge and are less likely to seek out sex education (Fisher et al., 1988; Gerrard, Kurylo, & Reis, 1991). In addition, some have found that erotophobic individuals voluntarily look at sexual stimuli for shorter durations than erotophilic individuals (Becker & Byrne, 1985), suggesting that erotophobia and erotophilia translate into biases relevant to the processing of sexual stimuli, possibly even outside of an individual's conscious awareness. However, no studies to date have examined the relevance of erotophobia-erotophilia to our understanding of automatic affective responses to sexual stimuli.

1.3. The current study

The present study used a priming paradigm to examine the relationship between automatic associations with sexual stimuli and erotophobia-erotophilia, a personality trait reflecting individual differences in negative and positive attitudinal responses to sex. First, it tested the hypothesis that nonconsciously-presented sexual stimuli activate positive affective associations in erotophilic individuals and negative affective associations in erotophobic individuals. Second, we sought to replicate previous research that found that sexual primes,

in comparison to neutral ones, facilitate responses to sexual targets, indicating that sexual meanings or associations can be activated automatically regardless of the valence of the stimulus (Gillath et al., 2007; Janssen et al., 2000). Because erotophobia-erotophilia is characterized by sensitivity to the affective-evaluative valence of sexual stimuli, and not necessarily sensitivity to sexual stimuli in general, we did not expect the erotophobic and erotophilic groups to differ in the effects of sexual primes on responses to sexual targets. That is, sexual primes, in comparison to neutral ones, were expected to facilitate responses to sexual targets in both groups. Further, we sought to demonstrate that erotophilic and erotophobic persons differ in their automatic affective associations with sex. Thus, group differences were expected to emerge when sexual primes were followed by positively- and negatively-valenced targets. More specifically, we predicted that after sexual primes, as compared to neutral ones, erotophilic individuals would respond faster to positive targets and erotophobic individuals would respond faster to negative targets. Ultimately, while existing research on erotophobia-erotophilia focuses on individuals' subjective, conscious affective responses to sexual stimuli, this study sought to be the first to show that such responses also can be activated nonconsciously through priming, and that nonconscious affective responses to sexual stimuli have the potential to impact choice behavior and decision making in sexual situations.

2. Method

2.1. Participants and Measures

Fifty-eight heterosexual undergraduate students (28 men and 30 women, median age = 19 years) participated in the study for partial course credit. Study approval was obtained from the university's Human Subjects Committee.

SOS (Fisher et al., 1988). The SOS is a 21-item scale that measures normal variations in affective-evaluative responses to sex along a single dimension of erotophobia-erotophilia. Items address respondents' attitudes toward a number of sexual behaviors (e.g., masturbation, fantasizing about sex, same-sex partners, oral sex). Specifically, the scale consists of 10 erotophobia items assessing negative affective responses to sex (e.g., "I do not enjoy daydreaming about sexual matters") and 11 erotophilia items assessing positive affective responses to sex (e.g., "Seeing a pornographic movie would be sexually arousing to me"). Participants rate each item on a 7-point scale, ranging from 1 (strongly agree) to 7 (strongly disagree). Respondent scores on the SOS are obtained by subtracting the sum of the erotophobia items from the sum of the erotophilia items, and a constant of 67 is added to the difference. Possible scores on the scale range from 0 (most erotophobic) to 136 (most erotophilic). The Cronbach alpha of the SOS in this study was .79.

2.2. Procedure

After providing informed consent, participants received instructions from the experimenter and were seated alone in a darkened, closed testing room in front of a computer screen. Participants viewed a 3-minute neutral film clip to allow them to adjust to the conditions of the room and to establish a baseline mood state prior to the priming task.

2.2.1. Priming Task—The priming task consisted of two sets of 80 trials presented in counterbalanced order. One set examined effects of prime-target congruence and included four conditions, each with 20 trials: sexual prime-sexual target, sexual prime-neutral target, neutral prime-sexual target, and neutral prime-neutral target. A second set of trials examined the effects of sexual and neutral primes on positively- and negatively-valenced targets and also involved four conditions, each with 20 trials: sexual prime-positive target, sexual prime-negative target, neutral prime-positive target, and neutral prime-negative target.

The priming task stimuli consisted of 280 color photos. Of these, 80 sexual and 80 neutral images served as primes, and 40 each of positive, negative, neutral, and sexual images served as targets. The sexual images were taken from the IAPS (Lang, Bradley, & Cuthbert, 2008) and the Hot/Cool Picture Set (Finn, Rickert, & Lucas, 2004, unpublished raw data), and depicted nude heterosexual couples engaged in sexual activity. The positive targets (e.g., children, sporting events) and negative targets (e.g., weapons, people with negative affect) were taken from the IAPS. Neutral images of plants were taken from the public domain. The mask was a scrambled color image used previously by Spiering et al. (2003). The mask and all stimuli were scaled to the same size and were presented using DirectRT v. 2004 (Empirisoft Corporation, New York) on a CRT computer monitor. No primes or targets were repeated, and primes and targets within each set were presented in random order.

Trials consisted of a forward and backward masked presentation of one of two types of primes followed by one of two types of targets. Prior to each trial, a fixation dot was presented and followed by a blank screen. The masked prime was then presented for 30 ms, immediately followed by a target. Prime duration was established in a pilot study based on the method described in Janssen et al. (2000). When the target appeared, answer choices (i.e., positive or negative; neutral or sexual) were depicted on the lower left and right corners of the computer screen. The target was shown until the participant indicated his or her response.

Participants were told that each trial would consist of a series of flashing images followed by a still image, and that the still image would consist of neutral and sexual photos in one part of the task, and positive and negative photos in another part of the task. Participants were instructed to indicate as quickly and accurately as possible whether the still pictures were either neutral or sexual, or positive or negative, by pressing one of two keys. Following a brief practice task, participants advanced to the priming task.

2.2.2. Recognition Task—A recognition task assessed participants' ability to discriminate between stimuli included and not included during the priming task. Participants were shown a series of target and distractor images presented in random order and asked to indicate, using one of two keys, whether they thought they may have seen the image at any time during the experiment, and to guess if they were not sure.

Fifty stimuli randomly selected from the priming task were used in the recognition task. Images consisted of 10 each of the sexual and neutral primes and targets, and 5 positive and 5 negative targets. These stimuli were randomly intermixed with 30 not previously used distractor images, which consisted of equal numbers of stimuli in each category.

2.3. Data Reduction and Analysis

Data reduction was modeled after the procedure outlined in Janssen et al. (2000). Trials with decision times longer than 1500 ms and 3 SDs above a participant's mean were discarded, resulting in 5% (543 of 9280) of trials excluded from analysis. A total of 209 response errors were also excluded from analysis. An average of 9.4 trials per participant was discarded based on these procedures. Overall, trials with affective targets were excluded more often than trials with sexual or neutral targets. While affective trials required participants to evaluate both content and valence in order to make a decision, the congruent-incongruent trials required participants to evaluate content only, which may have led to longer response times and the potential for more errors.

Participants' accuracy during the recognition task was determined by calculating hit and false alarm rates and positive and negative predictive values. In line with past quasi-

experimental research using the SOS (e.g., Kyes, 1990), continuous scores were dichotomized to facilitate between-group comparisons of the different study conditions. Participants with SOS scores above the median (80.5) were assigned to the erotophilic group, and those below the median were assigned to the erotophobic group. Decision time data were analyzed using a 2 (SOS: Erotophobia/Erotophilia) $\times$ 2 (Target) $\times$ 2 (Prime-Target Congruence: Congruent/Incongruent) mixed-factor analysis of variance (ANOVA) for the neutral and sexual targets, and a 2 (SOS) $\times$ 2 (Prime: Neutral/Sexual) $\times$ 2 (Target: Positive/Negative) mixed-factor ANOVA for the affective targets. Significant interactions were examined using one-way ANOVAs and *t*-tests.

3. Results

3.1. Sample Characteristics and Manipulation Check

Scores on the SOS ranged from 31-112, with a mean of 79.1 ($SD = 16.2$). Application of the median split resulted in identical numbers of erotophobic ($N = 29$) and erotophilic ($N = 29$) participants. SOS scores were significantly different for the erotophobic ($M = 66.2$, $SD = 11.5$) and erotophilic groups ($M = 91.6$, $SD = 8.4$; $p < .001$) and did not significantly differ between men ($M = 80.5$) and women ($M = 77.4$; $p > .4$). Participant sex and the order in which the sets of trials were presented did not affect our findings and will not be reported here.

Results of the recognition task are presented in Table 1. Hit and false alarm rates, as well as positive and negative predictive values, were under .5. This indicated that participants did not discriminate well between primes and distractors in the recognition task and, thus, that the prime duration used in this study was successful across participants.

3.2. Neutral and Sexual Targets

The 2 (SOS) $\times$ 2 (Target) $\times$ 2 (Prime-Target Relationship) ANOVA yielded a main effect of Target, $F(1, 56) = 12.10$, $p = .001$, that showed participants took longer to classify sexual targets as sexual ($M = 669$ ms, $SE = 22.8$) than neutral targets as neutral ($M = 621$ ms, $SE = 16.0$). The analysis also produced a main effect of Prime-Target Relationship, $F(1, 56) = 15.80$, $p < .001$, which showed that participants classified targets significantly faster when the primes and targets were congruent ($M = 635$ ms, $SE = 18.7$) compared to when they were incongruent ($M = 655$ ms, $SE = 18.5$). No other significant effects were found.

3.3. Affective Targets

The 2 (SOS) $\times$ 2 (Prime) $\times$ 2 (Target) ANOVA yielded a Target $\times$ SOS interaction, $F(1, 56) = 13.97$, $p < .001$. Follow-up tests showed that erotophobic participants classified negative targets ($M = 794$ ms, $SE = 25.1$) faster than positive targets ($M = 838$ ms, $SE = 25.7$). The analysis also yielded a Prime $\times$ Target $\times$ SOS interaction, $F(1, 56) = 5.40$, $p < .05$. Follow-up paired samples *t*-tests comparing Prime $\times$ Target decision times for the separate SOS groups revealed that erotophilic individuals classified positive targets primed with sex ($M = 775$ ms, $SE = 22.1$) faster than negative targets primed with sex ($M = 809$ ms, $SE = 25.2$), $t(28) = -2.58$, $p < .05$; Figure 1), whereas there was no difference in decision times to trials with neutral primes. *T*-tests on the erotophobic group revealed no effects of the primes. No other significant effects were found.

4. Discussion

This study used a priming task to examine the accessibility of positive and negative affective associations with sexual stimuli in erotophilic and erotophobic individuals. As predicted, regardless of group membership, decision times were faster during congruent trials than

during incongruent trials, implying that erotophilia, in comparison to erotophobia, was not associated with greater accessibility of sexual meanings. This finding is consistent with previous research and provides additional support for the notion that sexual meanings can be activated automatically (Janssen et al., 2000).

Differences between groups emerged when targets were not sexual, but positive or negative in valence. As expected, erotophilic individuals classified positive targets primed with sexual stimuli faster than negative targets primed with sexual stimuli, indicating that erotophilia may be characterized by easier accessibility of positive meanings on an automatic level. Unexpectedly, erotophobic individuals classified negative targets faster than positive targets regardless of prime type. Although erotophobia-erotophilia is thought to tap into approach-avoidance behaviors specifically relevant to sex (Byrne et al., 1974), it is possible that erotophobia overlaps with general avoidance tendencies that translate into a processing bias for negative meanings or threats, which could explain the tendency to respond quickly to negative targets. Moreover, the content of our sexual primes may not have been negative enough to activate negative associations specific to sex in erotophobic participants. Alternatively, negative meanings attributed to sexual stimuli may be generated exclusively on a conscious level in erotophobic individuals, which would be consistent with Brauer et al. (2009), who found that women with dyspareunia demonstrated negative associations with sex only on the level of controlled processing.

From our findings, it is unclear what, if any, automatic affective associations exist in erotophobia, and how strong those associations may be. Perhaps the primes activated weak negative, or even weak positive, meanings that were overridden by the conscious presentation of negative targets, which may speak to information processing differences in people with negative evaluative responses to sex. Or, erotophobia and erotophilia may represent separate constructs instead of polar opposites; individuals may be erotophobic, erotophilic, or a combination of both depending on the nature of the sexual stimulus, which also may explain our lack of effects in the erotophobic group.

Several limitations of this study should be noted. First, our sample size was relatively small. Additionally, the participants were not selected for this study based on extreme erotophobia-erotophilia scores but instead were assigned group membership based on the group's median SOS score. Future studies could recruit a larger, more diverse group of individuals to examine potential age cohort effects on erotophobia-erotophilia scores and accessibility of positive and negative thoughts related to sexual stimuli. Also, although this study focused on emotional meanings activated by sex, future studies can expand on our findings by investigating how unconscious affective processes impact sexual (and nonsexual) behavior. For example, although mood and automatic processes have been implicated in sexual risk taking (e.g., Bancroft et al., 2003; Macapagal, Janssen, Fridberg, Finn, & Heiman, in press) their roles remain poorly understood. One potential study might examine sexual and affective priming effects on a sexual decision making task to assess the involvement of automatic processes in sexual risk taking.

Priming studies may also be useful in examining the activation of approach-avoidance behaviors associated with sexual problems. For example, negative affect plays a key role in the sexual behavior of sexually compulsive men who have sex with men (Grov, Golub, Mustanski, & Parsons, 2010) and in the cognitive processing of sexual stimuli in men and women with sexual dysfunction (Wiegel et al., 2007). Examining how affective primes affect approach or avoidance behaviors to sexual stimuli may help illuminate automatic processing biases underlying sexually compulsive behaviors, or avoidance of sexual stimuli in individuals with sexual dysfunction.

Finally, our findings have broader implications for understanding information processing relevant to appetitive behaviors and self-regulation (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trotschel, 2001; Winkielman, Berridge, & Wilbarger, 2005). Not uncommonly, findings are generalized across appetitive behaviors including sex, eating, and substance and alcohol use, but it remains unclear precisely how much these behaviors share overlapping information processing mechanisms. Understanding automatic processes relevant to sex would enable us to compare and contrast them to those implicated in other appetitive behaviors and perhaps inform interventions aimed at reducing risky or compulsive sexual behavior.

Overall, we demonstrated that group differences in erotophobia-erotophilia are related to increased accessibility of affective associations with sexual stimuli. This study provided additional support for the notion that the meaning of sexual stimuli can be processed automatically, and it was the first to demonstrate that erotophilia-erotophobia may explain differences in positive and negative automatic affective associations with sex. Taken together, our findings further underscore the importance of affect and automatic cognitive processes in sexuality and contribute to literature implicating these mechanisms in sexual risk taking, sexual problems, and self-regulatory behaviors.

Acknowledgments

Predoctoral fellowships from NIH (TL1 RR025759 to A. Shekhar) and NIMH (F31 MH090895 to K.R. Macapagal) supported the first author during data collection and manuscript preparation.

REFERENCES

- Bancroft J, Janssen E, Strong D, Carnes L, Vukadinovic Z, Long JS. Sexual risk taking in gay men: The relevance of sexual excitation, mood and sensation seeking. *Archives of Sexual Behavior*. 2003; 32:555–572. [PubMed: 14574099]
- Bargh JA. The ecology of automaticity: Toward establishing the conditions needed to produce automatic processing effects. *American Journal of Psychology*. 1992; 105:181–199. [PubMed: 1621880]
- Bargh JA, Gollwitzer PM, Lee-Chai A, Barndollar K, Trotschel R. The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*. 2001; 81:1014–1027. [PubMed: 11761304]
- Becker MA, Byrne D. Self-regulated exposure to erotica, recall errors, and subjective reactions as a function of erotophobia and type A coronary-prone behavior. *Journal of Personality and Social Psychology*. 1985; 48:760–767.
- Brauer M, de Jong PJ, Huijding J, Laan E, ter Kuile MM. Automatic and deliberative affective associations with sexual stimuli in women with superficial dyspareunia. *Archives of Sexual Behavior*. 2009; 38:486–497. [PubMed: 18521733]
- Byrne D, Fisher JD, Lamberth J, Mitchell HE. Evaluations of erotica: Facts or feelings? *Journal of Personality and Social Psychology*. 1974; 29:111–116. [PubMed: 4809979]
- Fazio RH, Olson MA. Implicit measures in social cognition research: Their meaning and use. *Annual Review of Psychology*. 2003; 54:297–327.
- Fazio RH, Sanbonmatsu DM, Powell MC, Kardes FR. On the automatic activation of attitudes. *Journal of Personality and Social Psychology*. 1986; 50:229–238. [PubMed: 3701576]
- Finn, PR.; Rickert, ME.; Lucas, J. 2004. [Hot/Cool Picture Set].. Unpublished raw data
- Fisher WA, Byrne D, White LA, Kelley K. Erotophobia-erotophilia as a dimension of personality. *The Journal of Sex Research*. 1988; 25:123–151.
- Fisher WA, Grenier G, Watters WW, Lamont J, Cohen M, Askwith J. Students' sexual knowledge, attitudes toward sex, and willingness to treat sexual concerns. *Journal of Medical Education*. 1988; 63:379–385. [PubMed: 3361589]

- Gerrard M, Kurylo M, Reis T. Self-esteem, erotophobia, and retention of contraceptive and AIDS information in the classroom. *Journal of Applied Social Psychology*. 1991; 5:368–379.
- Gillath O, Mikulincer M, Birnbaum G, Shaver PR. Does subliminal exposure to sexual stimuli have the same effects on men and women? *The Journal of Sex Research*. 2007; 44:111–121.
- Gillath O, Mikulincer M, Birnbaum G, Shaver PR. When sex primes love: Subliminal sexual priming motivates relationship goal pursuit. *Personality and Social Psychology Bulletin*. 2008; 34:1057–1069. [PubMed: 18502980]
- Grov C, Golub SA, Mustanski B, Parsons JT. Sexual compulsivity, state affect, and sexual risk behavior in a daily diary study of gay and bisexual men. *Psychology of Addictive Behaviors*. 2010; 24:487–497. [PubMed: 20853934]
- Herbenick D, Reece M, Hollub A. Inside the ordering room: Characteristics of women's in-home sex toy parties, facilitators, and sexual communication. *Sexual Health*. 2009; 6:318–327. [PubMed: 19917201]
- Hermans D, de Houwer J, Eelen P. The affective priming effect: Automatic activation of evaluative information in memory. *Cognition & Emotion*. 1994; 8:515–533.
- Janssen E, Everaerd W, Spiering M, Janssen J. Automatic processes and the appraisal of sexual stimuli: Towards an information processing model of sexual arousal. *The Journal of Sex Research*. 2000; 37:8–23.
- Kyes KB. The effect of a “safer sex” film as mediated by erotophobia and gender on attitudes toward condoms. *The Journal of Sex Research*. 1990; 27:297–303.
- Laan E, Everaerd W, van Bellen G, Hanewald G. Women's sexual and emotional responses to male and female produced erotica. *Archives of Sexual Behavior*. 1994; 23:153–170. [PubMed: 7517135]
- Lang, PR.; Bradley, MM.; Cuthbert, BN. IAPS Manual. University of Florida; 2008.
- Macapagal KR, Janssen E, Fridberg DJ, Finn PR, Heiman JR. The relationship between impulsivity, sexual arousability, and intellectual ability on men's and women's Go/No-Go Task performance. *Archives of Sexual Behavior*. (in press).
- Marcel AJ. Conscious and unconscious perception: Experiments on visual masking and word recognition. *Cognitive Psychology*. 1983; 15:197–237. [PubMed: 6617135]
- Oliver CJ, Watson DG, Gannon TA, Beech AR. The effect of sexual priming cues on emotional recognition in nonviolent child sexual abusers: A preliminary study. *International Journal of Offender Therapy and Comparative Criminology*. 2009; 53:292–304. [PubMed: 18495845]
- Peterson ZD, Janssen E. Ambivalent affect and sexual response: The impact of cooccurring positive and negative emotions on subjective and physiological sexual responses to erotic stimuli. *Archives of Sexual Behavior*. 2007; 36:793–807. [PubMed: 17380376]
- Ponseti J, Bosinski HAG. Subliminal sexual stimuli facilitate genital response in women. *Archives of Sexual Behavior*. 2010; 39:1073–1079. [PubMed: 20041283]
- Rowland DL, Cooper SE, Slob AK. Genital and psychoaffective response to erotic stimulation in sexually functional and dysfunctional men. *Journal of Abnormal Psychology*. 2006; 105:194–203. [PubMed: 8723000]
- Sanders SA, Graham CA, Yarber WL, Crosby RA, Dodge B, Milhausen RR. Women who put condoms on male partners: Correlates of condom application. *American Journal of Health Behavior*. 2006; 30:460–466. [PubMed: 16893308]
- Schneider W, Shiffrin RM. Controlled and automatic human information processing: I. Detection, search, and attention. *Psychological Review*. 1977; 84:1–66.
- Smith GE, Nave CS. Illness transmission mode and perceiver personality: Factors affecting stigmatized perceptions of patients and sexual illness. *Social Behavior and Personality: An International Journal*. 2007; 35:853–860.
- Spiering M, Everaerd W, Janssen E. Priming the sexual system: Implicit versus explicit activation. *The Journal of Sex Research*. 2003; 40:134–145.
- Wiegel, M.; Scepkowski, L.; Barlow, D. Cognitive-affective processes in sexual arousal and sexual dysfunction.. In: Janssen, E., editor. *The Psychophysiology of Sex*. Indiana University Press; Bloomington, IN: 2007. p. 143-165.

- Winkielman P, Berridge KC, Wilbarger JL. Unconscious affective reactions to masked happy versus angry faces influence consumption behavior and judgments of value. *Personality and Social Psychology Bulletin*. 2005; 31:121–135. [PubMed: 15574667]
- Zajonc RB. Feeling and thinking: Preferences need no inferences. *American Psychologist*. 1980; 35:151–175.

Highlights

Positive and negative sexual attitudes may impact automatic reactions to sex.

A priming task and a measure of erotophobia-erotophilia were used to test this idea.

Erotophilia facilitated links between sexual primes and positively-valenced targets.

Erotophobia did not affect responses to sex primes and negatively-valenced targets.

Automatic processing of valence of sex partly depends on affective responses to sex.

Figure 1.

Prime by Target interaction in erotophilic group. Erotophilic individuals responded significantly faster to positive targets primed with sex than to negative targets primed with sex, $p < .05$.

Table 1

Mean Number and Accuracy of Old-New Decisions in Recognition Task

	Sexual & Neutral				Sexual		Neutral	
	Primes (<i>n</i> = 20)	Distractors (<i>n</i> = 20)	Primes (<i>n</i> = 10)	Distractors (<i>n</i> = 10)	Primes (<i>n</i> = 10)	Distractors (<i>n</i> = 10)	Primes (<i>n</i> = 10)	Distractors (<i>n</i> = 10)
Decision								
“Seen before”	5.3	8.6	1.3	3.9	3.9		3.9	4.7
“Not seen before”	14.7	11.4	8.7	6.1	6.1		6.1	5.3
Hit rate	0.26 (0.14)		0.13 (0.13)				0.39 (0.23)	
False alarm rate	0.43 (0.17)		0.39 (0.18)				0.47 (0.25)	
Positive predictive value	0.37 (0.11)		0.21 (0.17)				0.44 (0.16)	
Negative predictive value	0.43 (0.07)		0.41 (0.07)				0.45 (0.14)	

Note. Values represent mean numbers of old-new decisions. For the accuracy measures, mean proportions and standard deviations (in parentheses) are provided.