

## BEHAVIOR

## Gender Differences in the Automatic Attention to Romantic Vs Sexually Explicit Stimuli

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## ABSTRACT

**Introduction:** Gender differences in sexual responses and cognitive and emotional processing to romantic and sexually explicit stimuli have been reported. However, these differences seem to depend on the automaticity of the task that is being used, thus suggesting that gender differences may be the result of specific mechanisms rather than a generalized effect.

**Aim:** To expand previous basic processes research on gender differences to romantic vs sexually explicit stimuli, focusing on potential differentiating mechanisms influencing male and female sexual responses, we aim to investigate gender differences on automatic attention to sexual stimuli, and to test its relationship with sexual excitation proneness.

**Methods:** 26 women and 30 men (heterosexual) performed an automatic attention task, in which romantic and sexually explicit stimuli were presented as distractors, that is, stimuli to be ignored, while a concurrent letter discrimination task was performed, followed by a self-report task assessing subjective sexual and emotional responses to the stimuli.

**Main Outcome Measures:** Percentage of accuracy and response times (RTs) to discriminate the target letters were used as markers of automatic attention, with lower accuracy and longer RTs reflecting a higher degree of attentional capture by the distractor stimuli (romantic and sexually explicit). Participants completed self-report ratings on emotional valence, general arousal, and sexual arousal toward romantic and sexually explicit stimuli. They further reported on their sexual excitation proneness.

**Results:** Findings revealed that sexually explicit pictures yielded more automatic attention capture. However, this effect was superseded by pornography consumption, which likely reflects a habituation mechanism. Also, data revealed gender-x type of picture interaction effects only at the self-report task, with men rating sexually explicit stimuli as more sexually exciting, and women rating these stimuli as less pleasant. No relationship was found between automatic attention proxies and sexual excitation proneness.

**Clinical Translation:** While therapeutic strategies are used as tools to improve attention to sexual stimuli (and, hence, increase sexual arousal), the current findings suggest that the specific pathways by which attention influences sexual response are still to be established. Also, gender differences on the subjective appraisal of sex stimuli suggest that therapeutic approaches, consisting on exposure techniques, must recognize gender specificities.

**Strengths & Limitations:** To our knowledge, this is the first study applying an automatic attention task to the field of sex research, thus adding new inputs to the topic of attention, gender differences, and sexual response. However, there is very limited research in the field of automatic attention, which may limit the interpretation of our findings, at the moment.

**Conclusion:** Whereas both genders do not seem to differ in automatic attention toward romantic and sexually explicit stimuli, their responses do differ in their subjective appraisal of the stimuli. Furthermore, despite theoretical assumptions on the relationship between attention and sexual response, automatic attention seemed

Received February 13, 2018. Accepted June 15, 2018.

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<https://doi.org/10.1016/j.jsxm.2018.06.008>

not to be related to sexual excitation proneness. **Carvalho J, Czop O, Rocha M, et al. Gender differences in the automatic attention to romantic vs sexually explicit stimuli. *J Sex Med* 2018;15:1083–1092.**

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**Key Words:** Gender Differences; Romantic Stimuli; Sexually Explicit Stimuli; Attention; Emotions; Subjective Sexual Arousal; Sexual Excitation

## INTRODUCTION

Gender differences in sexual response and preferences for erotic materials have been described.<sup>1,2</sup> Some of these differences can be captured by the way men and women respond sexually, cognitively, and emotionally to sexual stimuli, in research paradigms varying the content of the sexual materials. Within this regard, a special focus has been given to the effects of romantic vs sexually explicit contents in sexual arousal, behavior, and in the individuals' emotional state. These effects have been usually tested in paradigms combining automatic measures of sexual arousal or behavior (eg, paradigms measuring psychophysiological sexual arousal or sexual primes) and subjective measures, including self-report questionnaires and ratings.

In general, studies combining physiological—sexual arousal being a more automatic and biologically driven response<sup>3</sup>—and subjective assessment of sexual arousal have shown that men and women increase their genital responses when exposed to sexually explicit stimuli (displaying sexual intercourse, with a primary focus on the genital interaction), as compared to romantic stimuli (focusing on the affective interaction rather than on the genitals of the characters). However, whereas men tend to report increased subjective sexual responses to the sexually explicit materials, women tend to report lower levels of subjective sexual arousal,<sup>4–6</sup> as well as more negative emotions<sup>5</sup> to this kind of stimulus, as compared with the romantic ones. A divergent pattern was found in Carvalho and colleagues' study,<sup>7</sup> in which the authors combined audiovisual explicit material with romantic/relational imagery. In this case, women were found to report increased subjective sexual arousal to a sexually explicit film clip when told to fantasize about their partner. The merging of a sexually explicit content, usually regarded as a male-centered content, with a cognitive task involving a prototypical female content, may have driven the results, by leading women to feel more comfortable and, hence, report more subjective sexual arousal to a sexually explicit stimulus.<sup>7</sup> Indeed, in self-report tasks (such as the ones reporting the levels of subjective sexual arousal), people are expected to modulate their sexual responses as a function of what one believes is acceptable.<sup>8,9</sup> Importantly, however, in tasks relying on automatic processing, sexual responses are expected to be less dependent on the social expectations endorsed by participants.<sup>8,9</sup> This assumption is reflected in the study by Spiering, Everaerd, and Laan.<sup>10</sup> In this study, no differences were found between men and women performing a categorization task, involving romantic vs sexually explicit stimuli preceded by sexual primes (an implicit

level of information processing). However, gender differences emerged in the subjective evaluation of these stimuli (a conscious level of appraisal), with men reporting sexual pictures significantly more arousing than women. According to the authors, gender differences seem to be absent in basic cognitive processing, emerging in affective tasks that depend on the conscious appraisal of sexual information. In a similar vein, in Thompson and O'Sullivan's study,<sup>11</sup> men and women were presented with an Implicit Association Task (IAT; ie, an automatic level of response assessing individuals' preferences), in which sexual and romantic themes should be assigned to a pleasant vs unpleasant condition. Furthermore, participants responded on sexual permissiveness and romantic attitudes (ie, a controlled level of response). Findings revealed that despite the absent gender differences at the IAT (both genders preferred the romantic themes), in the explicit task, men reported more sexual permissive attitudes, whereas women reported more romantic attitudes. This set of findings suggests that gender differences in the processing of romantic vs sexually explicit stimuli may emerge within specific mechanisms of processing and appraisal, rather than representing a generalized effect. More specifically, it seems that gender differences emerge more consistently in studies targeting explicit mechanisms (eg, subjective reports) instead of studies investigating implicit processes (eg, implicit attitudes or implicit memory). Against this background, the aim of the present study was to expand previous research on gender differences in the processing of romantic vs sexually explicit stimuli, by including an experimental task aimed at measuring automatic attention, a cognitive dimension that remains to be tested in the field of sex research, and that may provide new insights on the differentiating processing mechanisms between men and women. Furthermore, attentional processes have been consistently reported in the literature as fundamental to the understanding of male and female sexual responses and difficulties. Key models conceptualizing male and female sexual functioning encompass aspects involving attention, and how individuals attend to, and process, environmental and cognitive sexual cues.<sup>12,13</sup> In addition, current intervention approaches, aimed at targeting sexual problems and difficulties, are also based on the assumption that attentional processes impact on human sexual response and may be used for the benefit of treatments.<sup>14,15</sup>

Automatic or exogenous attention (also known as stimulus-driven attention) allows the redirection of endogenous or goal-directed attention to relevant stimuli in the environment that require the allocation of processing resources,<sup>16</sup> as may be the case

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