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The Heat of the Moment: The Effect of Sexual Arousal on Sexual Decision Making

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ABSTRACT

Despite the social importance of decisions taken in the ‘‘heat of the moment,’’ very little research has examined the effect of sexual arousal on judgment and decision making. Here we examine the effect of sexual arousal, induced by self-stimulation, on judgments and hypothetical decisions made by male college students. Students were assigned to be in either a state of sexual arousal or a neutral state and were asked to: (1) indicate how appealing they find a wide range of sexual stimuli and activities, (2) report their willingness to engage in morally questionable behavior in order to obtain sexual gratification, and (3) describe their willingness to engage in unsafe sex when sexually aroused. The results show that sexual arousal had a strong impact on all three areas of judgment and decision making, demonstrating the importance of situational forces on preferences, as well as subjects’ inability to predict these influences on their own behavior.

INTRODUCTION

The sex drive is a vitally important motivational force in human behavior, from the perspective of both the individual and the society. Sexual motivation plays a direct role in considerable economic activity, including pornography and prostitution, and a less direct role in diverse industries and activities such as night-time entertainment, advertising, and fashion. Sexual motivation and behavior also underlies numerous social ills, including sexually transmitted disease, unwanted pregnancies, and sex-related crimes.

Despite the importance of the topic, most of the information we have about the effect of sexual arousal on judgment, choice, and behavior more generally, comes from personal or vicarious experience. Unlike the extensive research on, for example fear (e.g., LeDoux, 1996; Lerner & Keltner, 2001; Panksepp, 1998), there has been very little research tracing out the diverse effects of sexual arousal on judgment and decision making. In this paper, we examine the effect of sexual arousal in young male adults on three aspects of judgment and choice: (1) their preferences for a wide range of sexual stimuli and activities, (2) their willingness to engage in morally questionable behaviors in order to obtain sexual gratification, and (3) their willingness to engage in unsafe sex when sexually aroused.

[...]

THE STUDY

Method

Research participants were given a laptop computer and were asked to answer a series of questions using a small handheld keypad. The keypad and the program that administered the questions were designed to be operated easily using only the non-dominant hand. In the control (non-aroused) treatment, subjects answered the questions while in their natural, presumably not highly aroused, state. In the arousal treatment, subjects were first asked to self-stimulate themselves (masturbate), and were presented with the same questions only after they had achieved a high but sub-orgasmic level of arousal.

[...]

Subjects

Research participants were 35 University of California, Berkeley male undergraduates recruited with ads placed around campus, who received \$10 per session in exchange for participating. Before the experimental session subjects were informed about the experiment, including the fact that it would involve masturbation, signed a consent form, and were randomly assigned to one of the three order-conditions.

Table 1. The three experimental order-conditions

| Condition | Treatment 1 | Treatment 2 | Treatment 3 | Analysis |
|----------------|---------------|---------------|---------------|------------------|
| N ($n=11$) | Non-aroused 1 | | | – |
| AN ($n=12$) | Aroused 2 | Non-aroused 3 | | 2 versus 3 |
| NAN ($n=12$) | Non-aroused 4 | Aroused 5 | Non-aroused 6 | 5 versus (4+6)/2 |

Design

The experimental design was a mixed within- and between-subjects design (as described in Table 1). In the N condition, subjects answered the questions in the non-aroused treatment, returned the laptop to the experimenter on the following day, and were paid \$10. In the AN condition, subjects first participated in the arousal treatment; then, when they returned the laptop the following day, they were informed about the second session and were asked to participate in the non-aroused treatment. After completing the non-aroused treatment, the subjects returned the laptop to the experimenter and were paid \$20. In the NAN condition, the subjects first answered the questions in the non-aroused treatment; then, when they returned the laptop, they were asked to participate in the aroused treatment. When they returned the laptop again, they were asked to participate in another non-aroused session. After completing this second non-aroused treatment subjects returned the laptop to the experimenter and were paid \$30. In all cases there was at least a one-day delay between participation in the different sessions.

Results

First, we examined the impact of the arousal treatment on the reported levels of online arousal. Figure 2 presents the mean reported level of arousal in the arousal treatment as a function of the session's duration. Note that the range of the scale in Figure 2 is from 75 to 100, since participants were not permitted to answer questions until their self-reported arousal level, as indicated on the arousal thermometer, reached the required level of 75%. As can be seen in Figure 2, reported momentary arousal kept increasing during the experiment. It is important to note that all the subjects completed the sessions, and no one reported that they accidentally ejaculated during the session (subjects were instructed to press the tab key if they ejaculated, which would have ended the session).

The experimental design included some comparisons between, and some within, the subjects (see Table 1). The minimum delay of one day between the experimental sessions was designed to minimize contamination effects of repeated exposure to the questions. To test whether repeated exposure to the questions in fact had any impact on the responses, three tests were conducted.

In the first-order test all four non-aroused treatments were compared in a two-factor mixed ANOVA, with all the different responses by the same subject (all the questions) as a within-subject factor, and the four types of non-aroused treatments as a between-subject factor. We used this model to examine the effect of the different non-aroused treatments controlling for the different questions and for individual subjects effects. This analysis revealed that none of the non-aroused treatments were statistically different from the others [$F(3, 43)=0.17, p=0.92$], that the questions were statistically different from each other [$F(32, 1376)= 60.88, p<0.001$], and that the interaction between them was not significant [$F(96, 1376)=0.65, p=1$].

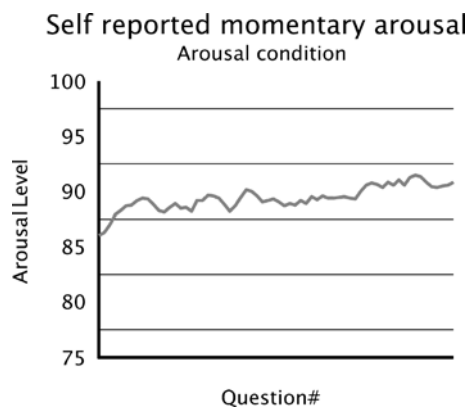


Figure 2. Momentary self-reported arousal in the arousal condition. Note that the abscissa is in terms of questions, and that in this condition, subjects could not answer any questions until their arousal was at least 75

[...]

Based on this lack of order effects, and for simplicity of presentation, we present the main results as a within-subjects ANOVA, focusing on the comparison between the aroused and non-aroused treatments. For this analysis the N condition was eliminated from the analysis (since it has no within subjects comparison), and the responses of each subject in the two non-aroused treatments in the NAN condition were averaged, resulting in a within-subject comparison across the arousal and non-aroused conditions for each of the questions (see last column of Table 1).

The task included 20 different items that elicited subjects' preferences for sexual stimuli and activities. To examine the effect of the state of arousal on these items, we analyzed them with a 20 (questions) x 2 (state of arousal) fully within ANOVA. The overall model revealed a significant main effect for the arousal state [$F(1, 23) = 53.81, p < 0.001$], an overall significant main effect for the questions factor [$F(19, 437) = 43.31, p < 0.001$], and an overall significant interaction between arousal state and the questions factor [$F(19, 437) = 1.98, p = 0.009$]. These results suggest that the arousal state had a significant effect on the responses to the different questions, that the questions were not all the same, and that the arousal state had a differential effect on the different questions. Therefore, we followed these analyses with a set of 20 independent paired *t*-tests for each of the questions. As can be seen in Table 2, subjects found a variety of potential sexual activities to be more attractive under high arousal than they did under low arousal. From the 20 questions of this type only one activity (Do you prefer to have sex with the light on?) was viewed as less appealing by those in the arousal condition than by those in the non-aroused condition, though not significantly so ($p = 0.46$). One activity (Can you imagine having sex with a man?) was viewed as more appealing, but not significantly so ($p = 0.14$) by those who were aroused, and one question was only marginally significant (Would you find it exciting to spank your sexual partner? $p = 0.1$). The remaining 16 questions were all significantly different in the predicted direction. A one-sample sign test over all 20 items revealed a highly significant effect ($p < 0.001$), indicating that, overall, arousal fundamentally increases predicted enjoyment and liking for the diverse activities that we queried subjects about.
[...]

Table 2. Mean response, standard deviations, and differences for the different questions on the attractiveness of different activities

| Question | Non-aroused | Aroused | Difference | <i>p</i> [<i>t</i> (23)] |
|--|-------------|-----------|------------|---------------------------|
| Are women's shoes erotic? | 42 (5.9) | 65 (4.06) | 23 | <0.001 |
| Can you imagine being attracted to a 12-year-old girl? | 23 (4.11) | 46 (6.08) | 23 | <0.001 |
| Can you imagine having sex with a 40-year-old woman? | 58 (3.32) | 77 (2.07) | 19 | <0.001 |
| Can you imagine having sex with a 50-year-old woman? | 28 (4.80) | 55 (4.69) | 27 | <0.001 |
| Can you imagine having sex with a 60-year-old woman? | 7 (2.55) | 23 (4.61) | 16 | <0.001 |
| Can you imagine having sex with a man? | 8 (2.47) | 14 (3.78) | 6 | =0.14(ns) |
| Could it be fun to have sex with someone who was extremely fat? | 13 (4.30) | 24 (5.29) | 11 | <0.05 |
| Could you enjoy having sex with someone you hated? | 53 (6.04) | 77 (3.59) | 24 | <0.001 |
| If you were attracted to a woman and she proposed a threesome with a man, would you do it? | 19 (4.97) | 34 (7.10) | 25 | <0.005 |
| Is a woman sexy when she's sweating? | 56 (3.1) | 72 (5.62) | 16 | <0.01 |
| Is the smell of cigarette smoke arousing? | 13 (3.88) | 22 (6.00) | 9 | <0.03 |
| Would it be fun to get tied up by your sexual partner? | 63 (5.09) | 81 (4.49) | 18 | <0.005 |
| Would it be fun to tie up your sexual partner? | 47 (3.22) | 75 (3.89) | 28 | <0.001 |
| Would it be fun to watch an attractive woman urinating? | 25 (5.57) | 32 (5.53) | 7 | <0.03 |
| Would you find it exciting to spank your sexual partner? | 61 (5.35) | 72 (4.70) | 11 | <0.1 |
| Would you find it exciting to get spanked by an attractive woman? | 50 (3.40) | 68 (5.29) | 18 | <0.003 |
| Would you find it exciting to have anal sex? | 46 (4.91) | 77 (3.58) | 31 | <0.001 |
| Can you imagine getting sexually excited by contact with an animal? | 6 (2.55) | 16 (4.19) | 10 | <0.02 |
| Do you prefer to have sex with the light on? | 52 (5.84) | 50 (5.15) | -2 | =0.46(ns) |
| Is just kissing frustrating? | 41 (4.43) | 69 (4.37) | 28 | <0.001 |

Note: Each question was presented on a visual-analog scale that stretched between "no" on the left (0) to "possibly" in the middle (50) to "yes" on the right (100).

GENERAL DISCUSSION

This study examined the effect of high levels of sexual arousal on the subjective attractiveness of different activities, on self-reported willingness to take various morally dubious measures to procure sex, and on willingness to engage in risky sexual activities. Our results on attractiveness of activities suggest that sexual

arousal acts as an amplifier of sorts. Activities that are not perceived as arousing when young males are not sexually aroused become sexually charged and attractive when they are, and those activities that are attractive even when not aroused, become more attractive under the influence of arousal. By showing that, when aroused, the same individual will find a much wider range of activities sexually appealing than when not aroused, these findings weigh in against the view of sexual preferences as being purely an individual difference variable—i.e., as dispositionally rather than situationally determined. Certainly, there are robust individual differences in sexual preferences and in the likelihood of engaging in various behaviors, but there also seem to be striking intra-individual differences caused, in our study, by externally caused variations in arousal level.

[...]

Limitations

As an initial investigation into the effect of sexual arousal on judgment and decision making, our study inevitably suffers from serious limitations. For example, it is important to note that we did not observe actual behavior. It is therefore possible that the effect of sexual arousal was not to change the desirability of different actions and activities, but to make respondents more willing to admit to their feelings. If this were the case, however, we should expect to see a stronger effect for items that people are embarrassed about (e.g., finding a 12-year-old girl attractive, or being excited by animals), but the effects were fairly similar across these types of items and those that were unlikely to draw much shame (e.g., being attracted to a 40-year-old).

A second limitation incumbent in not observing actual behavior is that we have no way to ascertain whether respondents' predictions of their own behaviors are more accurate when subjects respond under treatments of arousal or non-arousal. [...]

A third limitation concerns the lack of control that we had over the experimental setting. We had subjects conduct the experiment in the privacy of their own residence so as to provide privacy and reduce inhibitions, but this limited our ability to ensure that they carefully and conscientiously carried out the instructions. [...]

Yet a fourth limitation is that the study focused only on men, so it is possible that the observed effects do not generalize to women. [...]

In sum, the current study shows that sexual arousal influences people in profound ways. This should come as no surprise to most people who have personal experience with sexual arousal, but the magnitude of the effects is nevertheless striking. At a practical level, our results suggest that efforts to promote safe, ethical sex should concentrate on preparing people to deal with the "heat of the moment" or to avoid it when it is likely to lead to self-destructive behavior. Efforts at self-control that involve raw willpower ... are likely to be ineffective in the face of the dramatic cognitive and motivational changes caused by arousal.

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