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The Effect of Emotional Arousal on Subsequent Sexual Arousal in Men

Sharlene A. Wolchik, **Vicki E. Beggs**, **John P. Wincze**, **David K. Sakheim**, **David H. Barlow**, **Matig Mavissakalian**

Brown University Medical School and Brown University

Abstract

The effect of emotional arousal on subsequent sexual arousal was assessed in 14 men 18 to 34 years of age. Subjects initially viewed either one of two emotionally arousing videotapes (depression-and-anger- or anxiety-and-anger-producing) or a neutral videotape (a neutral travelogue), each of which was followed by an erotic videotape. Sexual arousal was measured physiologically with a penile strain gauge. Although there were no differences in the level of sexual arousal during the antecedent emotionally arousing or neutral video-tapes, sexual arousal during the subsequent erotic videotapes was differentially affected by them. Sexual arousal following the anxiety-and-anger videotape was greater than that following either the depression-and-anger videotape or the neutral travelogue. Also, prior exposure to the neutral travelogue resulted in greater sexual arousal than did the videotape producing depression and anger.

Investigation of the interaction between emotional arousal and sexual arousal has theoretical (see Wolpe, 1978) as well as clinical implications. Researchers and clinicians have generally assumed that anxiety and depression interfere with sexual functioning (e.g., Kaplan, 1974; Masters & Johnson, 1970), and anxiety reduction procedures play a major role in the treatment of sexual dysfunctions in men and women. Although several researchers have examined the relationship between sexual and emotional arousal (e.g., Bancroft, 1970; Dutton & Aron, 1974), only recently have investigators assessed the interaction of these two arousal states with physiological measures. Hoon, Wincze, and Hoon (1977) examined the interaction of anxiety and sexual arousal by measuring vaginal blood volume with photoplethysmography instrumentation in seven female subjects. When these women viewed a sexually explicit tape first, vaginal blood volume decreased more rapidly during a subsequent anxiety condition than during a neutral condition. However, when a sexual tape followed an anxiety or neutral condition, the anxiety preexposure produced quicker and larger vaginal blood volume increases than did the neutral preexposure.

To date, no studies have employed physiological measures of sexual arousal to examine the relationship between emotional and sexual arousal in men. The purpose of the present study

Vicki Beggs is currently at the Erie County Medical Center, Buffalo, New York. David Barlow and David Sakheim are currently at the State University of New York at Albany. Matig Mavissakalian is at the Western Psychiatric Institute and Clinic, Pittsburgh, Pennsylvania.

Requests for reprints should be sent to Sharlene A. Wolchik, who is now at the Psychology Department, Arizona State University, Tempe, Arizona 85821.

was to assess whether the “anxiety” stimulus used by Hoon et al. (1977) would have a facilitating effect on male sexual arousal and to examine the effect of another type of emotional arousal on sexual arousal in men.

Method

Subjects

Fourteen male volunteers between the ages of 18 and 34 years (M = 24) were each paid $ 10 to participate. Twelve were college graduates and the other two were undergraduates at a liberal arts university. All subjects were sexually experienced, and reported coital frequency ranged from 0 to 5.5 per week (M = 1.93).

Experimental Design

The experimental design was similar to that employed by Hoon et al. (1977). Subjects were shown a preexposure videotape followed immediately by an erotic videotape. The experimental design used repeated measures so that each subject viewed every preexposure-erotic videotape sequence. The order of presentation of the videotape sequences was randomly assigned.

Stimulus Materials

Preexposure stimuli consisted of three 3-minute videotapes: a travelogue describing life in Finland, a videotape of fatal and nearly fatal car accidents, and a videotape of threatened amputation. In a pilot project (Beggs et al., Note 1), emotional responses of male volunteers were assessed with the Profile of Mood States (Mc-Nair, Lorr, & Droppleman, 1971). The results showed that the threatened-amputation tape produced significantly more anxiety than either of the other tapes. The tapes of the threatened amputation and car accidents produced significantly more anger than the travelogue but did not differ from each other. The car-accident tape produced significantly more depression than the other two tapes, and there were no differences in the amount of depression produced by the tape of threatened amputation and the travelogue. Scores for confusion, vigor, and fatigue did not differ across the three tapes.

The erotic stimuli consisted of three 3-minute videotapes of a couple engaged in foreplay leading up to but not including sexual intercourse. The content of the scenes was similar across conditions but the scenes differed to avoid repetition. These scenes involved the same couple as the sexual scenes used by Hoon et al. (1977).

Physiological Measures

Changes in penile tumescence were measured with a penile strain gauge (Barlow, Becker, Leitenberg, & Agras, 1970). The direct signal from the gauge was processed by a Grass 7 PIE preamplifier and then further amplified by a Grass 7 DAF driver amplifier. The signal provided pen deflection analogues of penile erection on one channel of a Grass 7D polygraph. Chart speed was 5 mm/sec.

The strain gauge was calibrated before and after each session on a cone ranging in diameter from 20 mm to 45 mm to insure that the gauge was producing a constant linear signal. The gauge was calibrated so that 1 mm change of pen deflection was equivalent to 3.14 mm circumference change of the penis.

Procedure

Subjects, who participated singly, were told that the purpose of the experiment was to learn more about emotional and physiological reactions to a variety of videotapes including sexually explicit tapes. A male experimenter conducted the session. If the penile circumference reading did not return to baseline level 1 minute after each erotic tape ended, subjects were asked to count backwards by 3s from 100. Onset of the preexposure stimulus occurred when the circumference reading had returned to baseline level.

Data Sampling

The level of pen deflection at the instant of changeover from preexposure to erotic stimulus was used as the reference point for all measurements. Millimeters of deviation from this reference point were measured every second, and these scores were averaged across 4-sec blocks during the last 80 sec of preexposure and the entire 180 sec of the experimental videotapes.

Results

Analysis of Order Effects

An analysis of variance for ranked data was computed to assess whether accidental sequence effects occurred. The analysis revealed no significant differences in mean rank across the preexposure conditions.

Analysis of Sexual Arousal During the Preexposure and Erotic Videotapes

For each subject, 4-sec block means were averaged across the 80-sec preexposure period. An analysis of variance with repeated measures on tape condition showed no significant differences, $F(2, 26) = 1.07$, $p = .3582$.

For each subject, 4-second block means were also averaged across each minute of the erotic tape. A 3 × 3 analysis of variance with repeated measures on tape condition and time period revealed several differences. Significant differences occurred across preexposure conditions, $F(2, 26) = 3.84$, $p = .0345$; across time periods, $F(2, 26) = 33.42$, $p = .0001$; and in the Preexposure Condition × Time Period interaction, $F(4, 52) = 8.38$, $p = .0001$.

Newman-Keuls tests were computed to assess differences in the average level of sexual arousal across the videotape conditions at each time period. No significant differences occurred during the first minute. In the second minute, sexual arousal following the tape producing anxiety and anger was significantly greater ($M = 6.2$ mm) than that following the tape producing depression and anger ($M = 4.5$ mm; $p < .01$). Sexual arousal after the tape producing anxiety and anger was significantly greater ($M = 8.1$ mm) than that after the tape producing depression and anger ($M = 5.4$ mm; $p < .01$) and than that after the travelogue (M

= 6.6 mm) during the last minute. Also, sexual arousal after the tape producing depression and anger was significantly less than that after the travelogue ($p < .05$). The trends observed in Figure 1 are consistent with the results of the statistical analysis.

Discussion

Preexposure to videotapes producing different emotional responses differentially affected subsequent sexual arousal. Whereas the tape producing anxiety and anger facilitated sexual arousal, the tape producing depression and anger led to a decrement in sexual response. Maximum level of arousal rather than rate of arousal seems to have been affected by the preexposure conditions.

In contrast to the Hoon et al. (1977) findings with women, the tape of car accidents decreased sexual arousal. Since nearly identical procedures were employed in the two studies, the discrepant findings cannot be attributed to methodological differences. Sex differences in emotional reactions appear responsible for the different findings. Pilot research indicated that women experienced anxiety and depression, whereas men reacted with depression and anger (Beggs et al., Note 1). It is also possible that what differed across the sexes was the labeling process. Social conditioning may result in different labels for similar emotional states, and these labels may interact with cognitive mediation of the erotic stimuli to affect sexual arousal. Assessment of the effects of tapes that produce the same emotional reactions in men and women is necessary to determine the extent and nature of sex differences. Such comparisons will be complicated by the use of physiological measures that may or may not be comparable (Wilson & Lawson, 1978).

The results of the present study suggest that emotional reactions have a significant impact on sexual arousal. Mild anxiety facilitated sexual arousal; depression decreased sexual responding. However, because of the small sample size, it is premature to draw firm conclusions about the interaction of these emotional states and sexual arousal. Whether the facilitative relationship between anxiety and sexual arousal occurs for higher levels of anxiety needs to be assessed. Clinical evidence suggests that intense anxiety impairs arousal. Perhaps a curvilinear relationship best describes the relationship between anxiety and sexual arousal. Alternatively, anxiety may need to be related to sexual concerns to impair arousal.

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Reference Note

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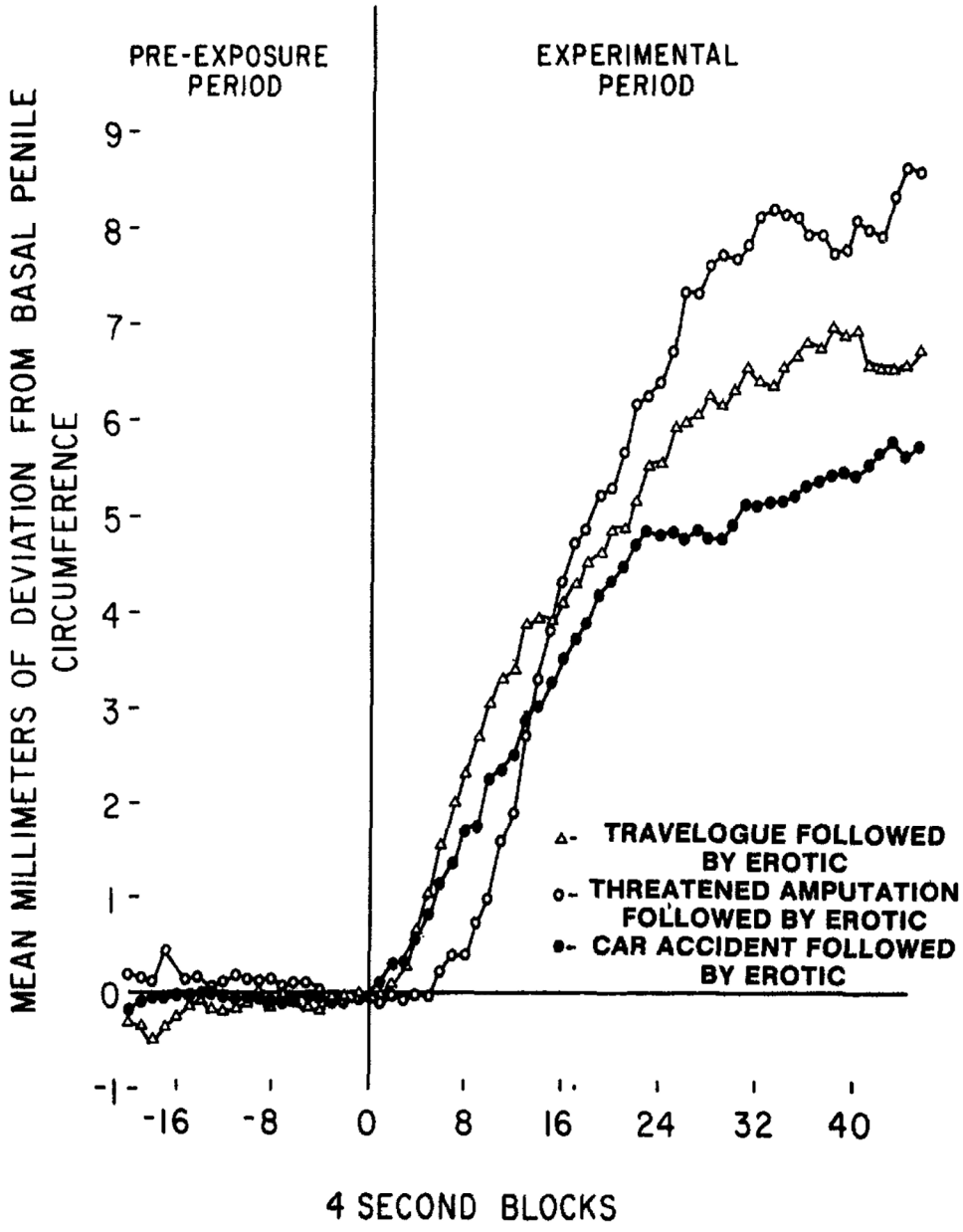

Figure 1.
Mean millimeters of deviation from basal penile circumference across 4-sec time blocks.