

THE EFFECT OF SEXUAL AROUSAL ON EXPECTATIONS OF SEXUAL FORCEFULNESS

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Decisions to commit crimes are often made under the influence of visceral feelings such as anger or sexual arousal. Rational choice models of offender decision-making assume that individuals can anticipate, in an unaroused state, their responses to such visceral feelings. This assumption is tested in an experiment in which sexually aroused and nonaroused males predict their own behavior in a date rape scenario. Aroused and nonaroused participants were asked a battery of questions designed to measure their perceptions of the costs and benefits of acting in a sexually aggressive manner, their level of arousal, and a probabilistic prediction as to how aggressively they would act in the conditions described in the scenario. The authors find that sexual arousal does increase subjects' expectations of their own sexual aggressiveness and that this impact is not mediated by perceptions of the costs or benefits of such aggression.

Criminological research in the rational choice tradition has attempted to calibrate the impact of perceptions of the costs and benefits of offending on either persons' self-reported involvement in criminal activities or their intentions to do so. These studies have generally found that actual behavior or intentions to commit illegal acts are affected by such instrumental considerations as the perceived formal and informal costs of the act, expectations of loss of self-respect or esteem, perceived moral costs, and the expected rewards and benefits of offending (Bachman, Paternoster, and Ward 1992; Carroll 1978; Cornish and Clarke 1986; Grasmick and Bursik 1990; Klepper and Nagin 1989a, 1989b; Nagin and Paternoster 1993; Paternoster 1989). Although recent rational choice research has been more cognizant of the full array of costs and benefits that may affect offending decisions, it has continued to ignore one major element—the role of emotions or emotional arousal.

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The omission of any regard for the impact of emotions on criminal decision-making is significant. Many criminal acts, particularly if they are violent, involve the arousal of powerful emotions such as fear, excitement, lust, and anger among others. In addition to a purely instrumental element, then, it is reasonable to presume that the commission of a criminal act also involves a heavy dose of emotion. Katz's (1988) description of crime as a sensual phenomenon vividly illustrates this point:

What ever the relevance of antecedent events and contemporaneous social conditions, something causally essential happens in the very moments in which a crime is committed. The assailant must sense, then and there, a distinctive constraint or seductive appeal that he did not sense a little while before in a substantially similar place. Although his economic status, peer group relations, Oedipal conflicts, genetic makeup, internalized machismo, history of child abuse, and the like remain the same, he must suddenly become propelled to commit the crime. Thus, the central problem is to understand the emergence of distinctive sensual dynamics. (P. 4)

In Katz's view, the situation in which crime occurs is one bathed in emotional meaning and cues. Criminals are, of course, not the only people to experience and to have to contend with violent emotions. For most people, daily life is a struggle to avoid overreacting to various emotional influences and stimulations. We attempt to suppress an angry response to an annoying colleague, to remain cool in the face of a child's misbehavior, and to avoid showing fear when walking in a dangerous neighborhood.

To impose self-control in the face of powerful emotional stimulation requires, in part, an ability to predict when emotions will become aroused and how they will influence our behavior (Baumeister, Heatherton, and Tice 1994). If we recognize that an annoying colleague commonly provokes embarrassing outbursts, we can avoid one-on-one encounters or, if in the midst of an irritating interaction, we can avoid the impulse to react impolitely by remembering that the irritation will soon pass. In the same vein, there are numerous recipes for self-control available to parents once they become aware that they are prone to losing control with their children. Both avoidance of the irritation and control over emotions can be similarly practiced by those who confront ex-lovers, bullies, drug partners, or other dangerous provocateurs. Confrontation with, and subjugation of, emotional arousal appears to be a common staple of life events and a necessary object of inquiry for those studying offenders' decision-making.

The neglect of would-be offenders' emotional states in most rational choice-based research clearly can be seen in the data collection strategies that have been used. Previous research in this tradition has been based on one of

two strategies: (1) Respondents are asked survey questions about their perceptions of the utility and disutility of crime and their self-reported involvement in criminal acts, or (2) after reading a hypothetical scenario, respondents are asked questions about their perceptions of the utility and disutility of crime and their self-reported intention to commit a crime. In both strategies the emotional states likely to be aroused by the commission of a crime are not activated in the research respondents. Rational calculative processes are thus given full rein, whereas emotional ones are silenced. Such an emotion-deadening research strategy may interfere with individuals' abilities to introspect about their own likely behavior.

In a recent article on the role of emotions in decision-making, Loewenstein (1996) presented evidence suggesting that an individual who is in a "cool," unemotional state will have difficulty predicting his or her own behavior at a point in the future when he or she is in a "hot," emotional state.¹ In effect, there seems to be an "empathy gap" within us between our cool and hot "selves." When not hungry, afraid, angry, or sexually aroused, people seem to have trouble imagining how they would feel, or how they might act, when they experience these states. Because all of these are commonly and frequently felt sensations, this inability is not attributable to a lack of experience, but to something more fundamental. Applied to violent crime, such an underappreciation of future emotions will cause people to be caught by surprise by the power of their own emotions and to not take sufficient precautions to avoid situations in which they are likely to become overwhelmed by violence-producing emotions. The failure to anticipate these emotions may also render people less able to control them, or to avoid reacting impulsively, when they become aroused. Applied to the rational choice study of crime, the predictions people make about their response to a hypothetical scenario or set of research questions while "cool" may not accurately reflect their actual response in a comparable, real situation while "hot."²

Given its importance and its neglect in previous research, it appears that a rational choice model of crime must begin to incorporate human emotion into its explanation of offender decision-making. This article reports on a preliminary examination of the effect of emotional arousal on decisions to employ tactical force in a sexual situation.³ We conducted an experiment examining persons' prediction of the use of sexual coercion in a dating context made under varying conditions of sexual arousal. Although relatively rare in criminological research, a controlled experiment in which participants are randomly assigned to different treatment conditions provides virtually the only opportunity to study in a rigorous manner the effect of emotional arousal on a would-be offender's decision-making process. We chose dating behav-

ior, in part because of the prominence of this topic, in part because of its relevance to our college student subject population, and in part because sexual arousal plays an important role in some forms of sexual aggression (Palmer 1988; Tedeschi and Felson 1994). Before we proceed with this task, however, two important caveats must be set down.

First, although our interest in this article is in incorporating emotion into a rational choice model of crime, as the passage above from Katz testifies, emotions are relevant for other criminological theories. For example, in his substantial revision of strain theory, Agnew (1992) argues that diverse types of criminal offending may be a response to negative emotional states such as anger, anxiety, and resentment. In an empirical study of Agnew's model, Brezina (1996) found that strain did produce negative emotional states, such as anger, and that delinquency had an adaptive consequence, lowering the negative emotional effects of strain. Emotional arousal is also a central component of Ellis's (1987, 1991) arousal theory, according to which variations in criminal behavior are due to variations in levels of arousal. According to arousal theory, some persons are neurologically predisposed to crime because they are generally in a state of suboptimal arousal. Such persons are more inclined to crime because the arousal produced by contemplating and committing crime is pleasurable.⁴ It appears, then, that emotional states may be of greater relevance to criminology than just in rational choice models. Because we are interested in the possibility that arousal effects may be mediated by subjective assessments of cost and benefit, our concern in this article is restricted to rational choice theory.

Second, although we assume that sexual arousal is an important component in a would-be offender's decisions to employ sexual coercion, we do not endorse a simple "uncontrollable impulse" explanation of sexual assault, nor do we assume that sexual emotions are the only important component in this decision. We view situations of sexual coercion as involving both sexual and aggressive cues and motives, and sexual offenders as occupying a range of positions on the mix of these two sources of motivation. Whereas sexual coercion involves both sexual arousal and aggression, some types of sexually coercive situations involve a heavier dose of one or the other motives (Barbee and Marshall 1991; Craig 1990; Hall and Hirschman 1991; Prentky and Knight 1991). Sexual coercion among acquaintances in a dating situation, for example, may involve a different mix of sexuality and hostility than sexual aggression between strangers (Hall and Hirschman 1991; Koss 1985). An implication of the view that sexual arousal may be one source of the motivation for use of sexual coercion is that sexual satisfaction may be one (among possibly many) anticipated goal (Tedeschi and Felson 1994). This is not, of course, to imply that sexual coercion in a dating context is not coercion

or that it does not involve aggression, hostility, and power. Rather, it is simply to suggest that in addition to a state of aggression, many such events also involve feelings of sexual arousal on the part of the offender. Furthermore, because we think that at least some forms of sexual coercion can be understood with reference to a rational choice model, we obviously believe that a prominent cognitive component is involved (Bachman et al. 1992; Nagin and Paternoster 1993). Would-be sexual offenders rationally process information by assessing risks and benefits. A male sexual aggressor is not presumed to be optimally rational, however, in that he may often be guilty of selectively weighing and misperceiving information, attuned to cues from the woman that encourage his sexual advances while ignoring or minimizing those that would signal her opposition (Craig 1990; Hall and Hirschman 1991).⁵

On the basis of our conceptualization of sexual coercion in a dating context described above, we hypothesize that persons who are sexually aroused will be more likely to report that they would act in a sexually coercive manner than those who are unaroused. There are a number of different causal mechanisms that can account for this effect. For example, it is possible that sexual arousal may increase the perceived pleasure likely to be derived from sexually forceful behavior (Tedeschi and Felson 1994). It is also possible that those who are aroused may underestimate the negative consequences of their behavior or may even be insensitive to such possible costs (Tedeschi and Felson 1994). In addition to these various indirect effects, it is also possible that sexual arousal has a direct effect on self-reported intentions to be sexually forceful, unmediated by rational choice considerations. Below we detail the method we followed in our experiment, outline the experimental procedure, discuss in some detail the hypotheses driving our research, and report our results.

METHOD

Sample

Participants in the experiment were male undergraduate students from the University of Maryland, recruited from introductory criminal justice/criminology classes and with announcements posted around campus.⁶ Participants' ages ranged from 17 to 35 with a median of 21. Sixty percent of the students were White; 25 percent African American; and the remaining were Asian, Hispanic, or Other. Twenty-five percent of the students were sophomores, 60 percent seniors, and the remaining 15 percent were either freshmen or juniors.

We restricted the sample to male students because our primary interest was in the effect of emotional arousal on sexual assault. Male college students constitute a particularly high-risk group for committing sexual assault. Numerous studies have reported high prevalence rates of sexual assault on female college students committed by male students (Koss, Gidycz, and Wisniewski 1987; Sanday, 1990). College students are a socially active group, with frequent opportunities for sexual assault.

Procedure

In our experiment, after random assignment to one of three treatment conditions, a sample of undergraduate male students read, then responded to, two scenarios. Each scenario was written in the first person, with the respondent as the referent character. One scenario described a dating situation involving the male respondent and a female student. The date has progressed to the point where the male student faces the decision of how sexually forceful to act. The second scenario placed the respondent in a situation where he had been drinking and had to decide whether to drive home while probably legally drunk.⁷ Participants read the sexual assault and drunk driving scenarios and then responded to a battery of questions that asked them to estimate the likelihood that they would commit the act described in the particular scenario (sexual assault, drunk driving), their perceptions of the certainty and severity of formal and informal punishment, possible loss of self-respect, their moral evaluation of the described act, and their estimate of the possible gain or benefit of committing the crime. Respondents also reported their own level of sexual arousal, completed a self-control scale designed to measure their ability to control their own behavior, and were asked about their own history of sexual and criminal behavior.

There were three randomly assigned experimental treatment groups: an "immediate-arousal" group, which was exposed to sexually arousing materials before reading the scenarios; a "no-arousal" group, which was exposed to sexually neutral materials before reading the scenarios; and a "prior-arousal" group, which was exposed to the sexually arousing materials but read and reacted to the scenarios a day later. The participants were randomly assigned to one of the three treatment conditions. We included the prior-arousal condition to verify that any effect of the arousal manipulation on respondents' predictions of their own behavior was immediate and transient, and could not be attributed to an enduring increase in their actual propensity for sexual aggression.

Thirty students were run in the no-arousal and in the immediate-arousal conditions, and 20 in the prior-arousal condition. We ran a disproportionate

number in the former two conditions because these were most central to the hypotheses under examination. The experiment was run in privacy with each respondent alone in an office. They were told that the purpose of the study was to examine persons' attitudes, decisions, and intended behaviors under possibly familiar circumstances. They were then given an informed consent form to sign, which stated that they were being asked to participate in a study of decision-making, that they might be asked to look at sexual material, that they could at any time decline to participate in the experiment and that they would still be paid, and that if they had any questions or feelings of discomfort to notify the experimenter immediately.

Participants in the no-arousal and immediate-arousal conditions were given instructions to examine a set of photographs provided to them and then answer the questions in the questionnaire, making sure not to put any identifiers on the questionnaire. They were then told to put their completed questionnaire in a provided unmarked envelope, place it in a large box in the office that contained other questionnaires, then to come to the experimenter for payment. In the prior-arousal condition, participants answered the first page of the questionnaire, left, returned within 24 hours, and completed the questionnaire and received payment.

After completing the consent form, the written instructions begin: "Before we begin the main study, we'd like you to evaluate some pictures that we may use for a future study." Participants were then directed to a packet of five photographs of women. In the immediate- and prior-arousal conditions, the photographs were full-page nudes from Playboy magazine. In the no-arousal condition, they consisted of advertising pictures from various fashion magazines and simply showed a picture of a woman in a business suit, a dress, slacks, or a blouse. Participants were instructed to place the photographs on stands arrayed on the table in front of them that were marked "most attractive," "second most attractive," and so on, then to rate the overall attractiveness of the women. To justify why the photographs remained on the stand during the experiment, the instructions informed respondents that "later, we will ask you some further questions about the women in the photographs."⁸

The written instructions then informed respondents in the immediate- and no-arousal conditions that they would be exposed to two hypothetical situations and asked them to respond to the questions that followed by answering "what you think would happen to you or what you would do in the situation, not what you think should happen or what you think you should do" (bold in original). Participants then read the date scenario, responded to a series of questions that followed it, then read and responded to the drunk-driving scenario. Participants in the prior-arousal condition were instructed to return

on the following day to complete the experiment, which involved completing the questionnaire. The date scenario was as follows:

You and Susan have just returned to her apartment after spending the night drinking at a local bar. It is 2 o'clock in the morning. You picked Susan up at this bar because, through some friends, you know that she has slept with a number of men, and has a reputation for being "loose." Both of you have been drinking throughout the night, and are pretty drunk when you get to Susan's apartment. After you get to Susan's apartment, where she lives alone, you have a few beers, sit down on her couch, and begin to listen to some music. After listening to music for a few minutes, Susan turns down the lights and begins to kiss you and rub your penis through your pants. In response, you begin to kiss and fondle Susan's breasts. You then reach under her skirt and begin to touch her. She allows you to do this, and after several minutes you attempt to remove Susan's clothes. Susan tells you that she thinks she is not interested in having sex but does not try to physically stop you.

Two indicators of the dependent variable followed this scenario.⁹ Participants were asked in succession: "Suppose you were in this situation. What do you think is the chance that you would: (1) "verbally coax her to let you remove her clothes"; and (2) "have sex with her even if she protested?" Participants responded by circling a point on a 0 percent to 100 percent scale, where the zero point was always marked *no chance* and the 100 percent point was marked (1) *definitely would try to coax her* or (2) *definitely would have sex with her*, respectively. We included two different measures of sexual forcefulness because in an earlier study by Nagin and Paternoster (1993) only 15 percent of respondents presented with a date-rape scenario stated that there was a nonzero probability that they would have sex with the woman in the scenario if she protested. The first item provided a measure of sexual forcefulness that was less likely to be subject to such floor effects and allowed us to include a range of tactical actions by male students to get female students to comply with their sexual requests.¹⁰

Next, participants were asked for the percentage of University of Maryland male students who would "verbally coax her to remove her clothes" and "have sex with her even if she protested." We asked these identical questions about Maryland students in general because research has shown that respondents tend to "project" their own behaviors onto others—to think that others would behave in a situation as they themselves would (Kassin 1979). Asking about what other people would do is a common tactic used by survey researchers to inquire indirectly whether respondents are engaging in behaviors that they might feel uncomfortable acknowledging in direct questioning.

These measures of the dependent variable were followed by a series of items designed to measure respondents' level of sexual arousal and various potential benefits and costs of sexual aggression, with many items taken from the earlier study by Nagin and Paternoster (1993). Measures of sexual arousal included (1) how sexually aroused they thought they would be in the situation, (2) how aroused they were at the current moment, and (3) how vividly they could imagine the situation. The main benefit measure was "How much fun would it be to have sex with Susan in this situation?" Cost items included both potential externally imposed sanctions and internally imposed punishments. Grasmick and Bursik (1990) argue that negative emotions, such as guilt and shame, are for some people an important disincentive to criminal activity. Measures of external sanctions included 10 items measuring the likelihood and perceived severity to the respondent of various potential negative consequences, such as being arrested or suspended from school (see Appendix A). Internally imposed punishments were measured by "How much guilt or shame would you later experience if you had sex with Susan in this situation?" and "How morally wrong do you think it would be if you had sex with Susan in this situation?"

Next, participants read the drunk-driving scenario (see Appendix B) followed by two questions: "Do you think you would drive home under these circumstances?" and "What percent of University of Maryland male students do you think would drive home under these circumstances?" There then followed a series of measures paralleling those asked in connection with the date scenario (leaving out, of course, the arousal questions).

We also included a self-control scale consisting of 12 items from Grasmick et al.'s (1993) 24-item scale. Using data from a pilot study, we selected items from the original scale based either on face validity or on their high correlation with the scale sum. The scale was followed by 25 items asking participants about whether they had engaged in various socially proscribed behaviors—from smoking and skipping class to violent behavior and arrests. Among these were items dealing with sexual aggression and drunken driving. Next, to measure the persistence of arousal, we asked students again to report their current level of sexual arousal. Finally, respondents gave their age, race, and year in school.

Hypotheses

The central hypothesis guiding our experiment is that people in a sexually aroused state will predict a greater likelihood of their behaving in a sexually forceful manner than individuals in an unaroused state:

Hypothesis 1: Sexually aroused individuals will be more able to imagine themselves behaving in a sexually forceful manner than those who are unaroused.

This hypothesis predicts that individuals exposed to the arousing stimuli will predict a higher probability of being sexually aggressive in the scenario situation than those who were exposed to neutral stimuli. Furthermore, because arousal states are transitory, we expect to observe no difference in the prediction between participants in the no-arousal and previous-day-arousal conditions. We included the drunk-driving scenario in the experiment because we did not anticipate that sexual arousal would spill over and influence predictions of behavior in domains of nonsexual behavior. Thus, the drunk-driving scenario acted as a control—we expect no difference in predictions of the likelihood of driving drunk across arousal conditions.

In addition to simply examining the relationship between sexual arousal and predictions of sexual forcefulness, our study was designed to examine several possible causal mechanisms that could explain such a relationship, if it is observed. Specifically, we examined four hypotheses that were only applicable if hypothesis 1 was confirmed—if we did, in fact, observe a relationship between arousal and predicted behavior:

Hypothesis 2a: The effect of arousal is *indirect* and due to the influence of sexual arousal on the predicted pleasure to be obtained from committing an assault.

Several mechanisms could contribute to predictions of increased benefits. First, researchers have demonstrated a “wishful-thinking effect” such that events that are deemed desirable are also judged more likely to occur (McGregor 1938; Pyszczynski 1982). If sexual arousal intensifies desire, as seems likely, then, by the wishful-thinking effect, it could also produce an exaggeration of various positive outcomes—for example, that the woman in the scenario will herself become aroused, or that she really wants to have sex (i.e., that “no” means “yes”). Craig (1990:914) has noted that such misperception may be particularly likely when combined with what she calls “consensual sex-play.” In his study of date rape, Kanin (1984) also reported a tendency for male aggressors to misread their dates’ desires: “[Males] dwelled upon their perception of their companions’ extreme sexual arousal which, in turn, intensified their own sexual arousal to the extent that they experienced a rather exaggerated selective perception of the females’ receptivity” (p. 100).

Research on recall has also revealed an effect of mood and emotion on recall that is potentially important to our study. Bower (1992), for example, presents evidence that temporarily induced moods of happiness, sadness, or anger give rise to mood-congruent biases in people’s fear associations, their

imaginative fantasies, snap judgments of their acquaintances, their momentary self-concept, and their attributional style. Happy individuals tend to give very charitable, benevolent opinions about themselves and their acquaintances, and they view the future with optimism. Sad persons tend to be just the opposite. Applied to sexual arousal, such research at least hints at the possibility that people who are sexually aroused will be more likely to recall positive past experiences involving sex and sexual arousal, and are more likely to expect positive current and future consequences.

If hypothesis 2a is correct, we would expect to find that the judged pleasure from committing sexual assault is greater in the arousal than nonarousal condition and furthermore, that the relationship between self-predicted tendency to commit sexual assault and arousal condition becomes nonsignificant after controlling for perceived pleasure.

Hypothesis 2b: The effect is *indirect* and due to the tendency for sexual arousal to cloud judgment by producing an underestimation of the likelihood or severity of possible consequences.

Research on smoking behavior has shown that strong desires (in this case, for a cigarette) can cloud judgments of the negative consequences of indulgence. Sjöberg and Johnson (1978) repeatedly interviewed smokers who were attempting to quit. They found that persons who resumed smoking often denigrated the risks just prior to relapsing. In their words, "Volitional breakdowns occur under the influence of strong moods or desires, . . . leaving the door open for a corrupt, twisted, and shortsighted reasoning which generates excuses for changing the initial decision" (p. 151). In addition, in a recent study it has been shown that when under the influence of alcohol, people minimize the moral implications of their behavior. Denton and Krebs (1990) asked persons in an academic setting and a social setting while drinking whether they would and should drive while impaired. They found that when sober, people acknowledged the wrongfulness of drunk driving, but that after consuming alcohol, they came to view drunk driving as more morally acceptable. In a vivid illustration of our hypothesis that people perceive consequences differently when emotionally "cold" than when "hot," Denton and Krebs (1990) concluded that

when sober, people believe it is wrong to drive impaired. They acknowledge that others succumb to the temptation but believe they would not. But all this changes when they are out drinking. In social drinking contexts, under the influence of alcohol, people moderate both their moral convictions against driving while impaired and their judgments about engaging in this

behavior. . . . For those who seek to lower the incidence of impaired driving, the results of this study suggest that high-level moral appeals made to people when they are sober will not constrain their behavior when they are drunk. This study suggests that, to be effective, moral appeals directed toward sober people should encourage them to take precautions ahead of time, before they become intoxicated. (P. 248)

Hypothesis 2b would be supported if we find that the perceived costs and risks of crime are judged less severe in the arousal condition than in the no-arousal condition, and that the relationship between arousal condition and self-reported intentions to commit sexual assault will be nonsignificant after controlling for the perceived cost and risks of offending.

Hypothesis 2c: The effect is *indirect* and due to the tendency for sexual arousal to produce not an underestimation of consequences but an insensitivity to consequences.

There is a commonly held view that persons may be less capable of rationally weighing the costs and benefits of an intended action when they are "hot under the collar" or "in the heat of the moment" (Janis and Mann 1977; Tedeschi and Felson 1994). If this position is true, we would expect to find an interaction between sexual arousal and instrumental factors, that is, the perceived costs and benefits of crime should have a less pronounced effect on intentions to offend in the arousal condition than in the no-arousal condition.

Hypothesis 2d: The effect of sexual arousal on reported intention to commit sexual assault is a *direct* effect independent of perceived costs and benefits of committing a sexual assault and of the weights that are placed on these factors in the decision calculus.

Hypothesis 2d suggests that sexual arousal does not influence predictions of behavior by altering the individual's processing of costs or benefits but operates more directly, perhaps by alerting the individual to the types of emotions he might experience in the situation or by triggering primal affective processes that, some researchers have argued, operate in parallel with cognitive processing (Zajonc 1984a, 1984b). The idea we are suggesting is that small doses of an emotion might "prime" people's imagination in a fashion that breaks the empathy barrier that usually exists between unaroused and aroused states. Prior research has shown that priming interventions can have an enormous impact on behavior. For example, ex-drug addicts who are given a minuscule dose of the drug to which they were addicted experience

immediate and intense cravings for the drug that can lead to relapse (Gardner and Lowinson 1993:362). Dieters given a small "preloading" of food are likewise likely to break their diet immediately (Ruderman 1986). More generally, the powerful effect that a craving can have in undermining rational decision-making and directly affecting one's actions can be observed in many addictive or compulsive behaviors such as drinking, gambling, shopping, promiscuous sex, or excessive eating. Although these other "addicts" may know that their conduct is harmful, costly, and risky, they are frequently unable to translate their rational thoughts into corrective actions (Loewenstein 1996).

If hypothesis 2d is correct, we would not expect the measured effect of the experimental treatment on predictions of forcefulness to be reduced by controlling for cost or benefit variables. On the other hand, it would be consistent with hypothesis 2d to find that the impact of the treatment was reduced after controlling for the person's self-reported level of arousal.

RESULTS

Table 1 presents the means of the two dependent variables, by experimental condition, including a composite dependent variable composed of the sum of the "coax" item and the "have sex after protest" item. Several patterns are evident from the data in the table. First, for all of the sex-related dependent variables, participants in the prior arousal condition predicted the lowest levels of sexual forcefulness ($\bar{X} = 38$ for composite dependent variable). As we anticipated, viewing the arousing photographs did not produce an increase in sexual aggressiveness that persisted to the following day; indeed, if anything, participants in the prior-arousal condition predicted the lowest levels of sexual forcefulness of all three groups. A possible explanation for this pattern is that the fashion photographs produced a low level of arousal. The women in these photographs were not posing in a provocative fashion, but they were all very attractive professional fashion models.

Second, and consistent with hypothesis 1, there was a large difference between the arousal condition and the nonarousal condition in respondents' belief that they would behave in a sexually aggressive manner. Persons who were aroused judged it as more likely that they would coax Susan, the scenario woman, to remove her clothes, a statistically significant difference, $t(57) = 2.4, p < .02$. Comparing the arousal condition with the two conditions of nonimmediate arousal, the difference is also large and significant, $t(77) = 3.4, p < .001$. Median values present an even more dramatic picture: For the coax variable, the median values were 80 in the immediate-

TABLE 1: Means of Selected Dependent Variables by Condition

| <i>Variable Description</i> | <i>No Arousal</i> | <i>Immediate Arousal</i> | <i>Prior Arousal</i> | <i>All</i> |
|----------------------------------------------------|-----------------------|------------------------------|--------------------------|------------|
| Probability that subject would | | | | |
| (1) Coax to remove clothes | 49 (40) | 70 (31) | 36 (31) | 53 (36) |
| (2) Have sex after protests | 7 (20) | 7 (22) | 2 (7) | 6 (19) |
| Composite dependent variable (1) + (2) | 56 (49) | 78 (44) | 38 (32) | 60 (46) |
| Percentage of UMD ^a male students: coax | 71 (21) | 81 (15) | 67 (19) | 73 (19) |
| Percentage of UMD males: sex after protest | 42 (26) | 40 (23) | 32 (20) | 39 (23) |
| Would you drive home drunk? | 26 (30) | 31 (32) | 24 (27) | 27 (30) |

NOTE: Standard deviations are in parentheses.

a. UMD = University of Maryland.

arousal condition, 50 in the no-arousal condition, and 30 in the prior-arousal condition. Figure 1 is a frequency plot of the coax variable across the three conditions. It shows that the main distinction between the arousal condition and the other two conditions is the distribution of respondents at the 0 percent and 100 percent points. Very few participants in the arousal condition reported only a 0 percent to 20 percent chance of coaxing, whereas sizable numbers of respondents in the other conditions reported probabilities in this range. In contrast, close to a majority of respondents in the arousal state reported a 81 percent to 100 percent chance of coaxing.

Third, although the same directional pattern is evident for drunk driving, none of the comparisons between conditions approach significance. Thus, as expected, sexual arousal has no impact on predicted behavior in a circumstance with no sexual content.

Table 2 presents means for different variables measuring potential benefits of sexual aggression, again broken down by condition. The directional relationships are generally consistent with hypothesis 2a. For example, the sexual-arousal condition produced the peak values of attractiveness of women, predicted arousal in the situation, self-reported arousal, perceived fun of having sex in the situation, and ability to vividly imagine the situation. Although in the expected direction, none of the differences between conditions were significant.¹¹ The only significant difference between the arousal

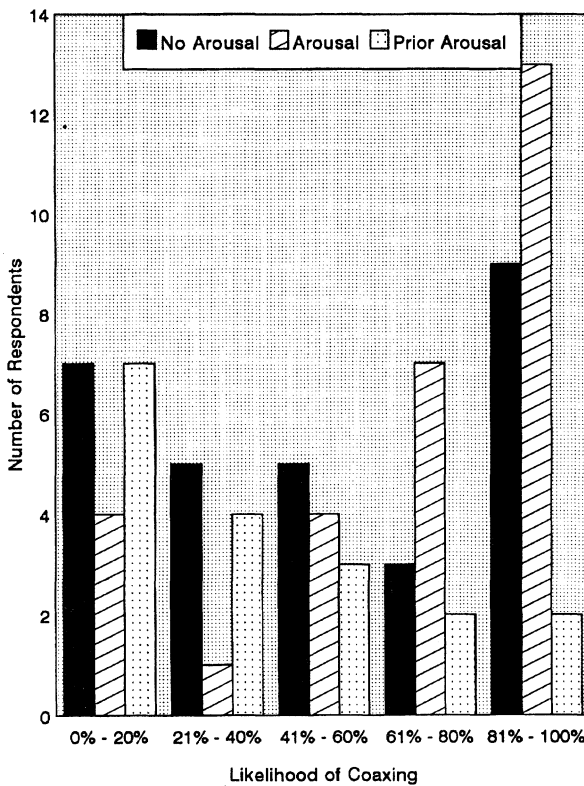


Figure 1: Frequency Plot of "Coaxing" Variable

and nonarousal conditions was in self-reported arousal when looking at the photographs (higher for the arousal condition than the no-arousal condition, $t(51) = 2.2, p < .05$) and in perceived fun of having sex in the situation (higher in arousal condition than the two other conditions, $t(78) = 2.1, p < .05$). Thus, there is at best only weak evidence supporting hypothesis 2a—that sexual arousal increases the perceived pleasure associated with sexual aggression.

Table 3 presents means of variables representing the potential costs of sexual aggression, again broken down by experimental condition. The third row of the table presents the means of an aggregate "severity of consequences" variable representing the average severity of different negative outcomes that could occur if the respondent committed sexual assault. The four consequences are discovery (with no arrest), arrest, dismissal from the

TABLE 2: Means of Selected Incentive for Assault Variables by Condition

| <i>Variable Description</i> | <i>No Arousal</i> | <i>Immediate Arousal</i> | <i>Prior Arousal</i> | <i>All</i> |
|---------------------------------------|-----------------------|------------------------------|--------------------------|--------------|
| Attractiveness of women | 7.3 (1.8) | 7.8 (1.2) | 7.3 (1.8) | 7.5 (1.6) |
| Aroused in situation? | 7.6 (1.8) | 8.2 (2.1) | 7.6 (1.8) | 7.8 (1.9) |
| Aroused when looking at photographs? | 2.0 (2.0) | 3.4 (2.9) | 3.8 (3.1) | 3.0 (1.5) |
| Aroused now? (after reading scenario) | 1.8 (2.5) | 2.1 (2.8) | 1.1 (1.6) | 1.7 (2.4) |
| Aroused now? (end of experiment) | 1.1 (1.7) | 1.7 (2.5) | 1.7 (2.7) | 1.5 (2.3) |
| Fun to have sex in situation | 4.4 (3.0) | 5.6 (3.4) | 3.4 (3.0) | 4.6 (3.3) |
| Vividly imagine situation | 6.8 (2.3) | 6.9 (2.4) | 6.6 (2.4) | 6.8 (2.3) |

NOTE: Standard deviations are in parentheses.

university, and loss of respect of friends and family. Each was measured on a scale, ranging from 0 (*no problem*) to 10 (*a major problem*). The fourth row of the table represents the mean perceived probability of each of these outcomes occurring, and the final row represents the mean probability-weighted severity of the four outcomes. Not only are the differences in perceived costs between conditions small, they also do not present a consistent pattern. Thus, there is no support for hypothesis 2b—that sexual arousal lowers estimates of the likelihood or severity of the consequences of sexual aggression.

Table 4 presents Pearson correlation coefficients between the major dependent variables and all of the variables reported in Tables 2 and 3. In addition, we report correlations between the dependent measures and the sum of items from the self-control scale as well as a “history of sexual aggression” variable consisting of the sum of two items: “number of times had sex when partner didn’t want to” and “times obtained sex with lies.”

The signs of the correlations generally accord with expectations, and the results are quite consistent across alternative measures of the dependent variable. All measures of sexual aggressiveness are significantly related to perceived fun of having sex in the situation, perceived probability and severity of negative consequences, self-control, history of sexual aggression, and the respondent’s reported ability to vividly imagine the situation. Also, two of the three measures are significantly related to both measures of immediate arousal, but none is significantly related to the two

TABLE 3: Means of Selected Disincentives for Assault Variables by Condition

| <i>Variable Description</i> | <i>No Arousal</i> | <i>Immediate Arousal</i> | <i>Prior Arousal</i> | <i>All</i> |
|------------------------------------------------------------------|-------------------|--------------------------|----------------------|----------------|
| Feel guilt or shame | 5.9 (3.0) | 7.1 (3.0) | 7.7 (2.6) | 6.8 (3.0) |
| Immoral to have sex in situation | 7.1 (2.8) | 8.0 (3.0) | 8.0 (2.1) | 7.6 (2.8) |
| Aggregate severity of consequences | 8.5 (1.6) | 8.6 (1.0) | 8.7 (1.2) | 8.6 (1.3) |
| Aggregate probability of negative consequences | 47.9 (23.3) | 51.5 (21.4) | 53.4 (22.2) | 60.6 (22.2) |
| Aggregate severity \times probability of negative consequences | 3.9 (2.0) | 4.2 (1.8) | 4.3 (1.8) | 4.1 (1.9) |

NOTE: Standard deviations are in parentheses.

TABLE 4: Correlation between Dependent Measures and Selected Cost and Benefit Variables

| <i>Variable Description</i> | <i>Coax</i> | <i>Forced Sex</i> | <i>Composite</i> |
|------------------------------------------------------------------|-------------|-------------------|------------------|
| Attractiveness of women | -.16 | -.32* | -.26* |
| Aroused in situation? | .40* | .19 | .39* |
| Aroused now? | .30* | .48* | .43* |
| Aroused when looking at photographs? | .10 | -.15 | -.01 |
| Aroused now? (end of experiment) | .00 | -.05 | -.02 |
| Fun to have sex in situation | .33* | .22* | .35* |
| Vividly imagine situation | .25* | .30* | .32* |
| Feel guilt or shame | -.34* | -.34* | -.41* |
| Immoral to have sex in situation | -.28* | -.43* | -.39* |
| Aggregate severity of consequences | -.22* | -.52* | -.39* |
| Aggregate probability of negative consequences | -.36* | -.25* | -.38* |
| Aggregate severity \times probability of negative consequences | -.35* | -.24* | -.37* |
| Self-control scale | -.26* | -.30* | -.33* |
| History of sexual aggression ^a | .21* | .67* | .41* |

a. Number of times respondent had sex when his partner did not want to + times obtained sex with lies.

*Significant at .05 or less. Threshold value for $p < .05$ is $r = .21$; for $p < .01$, $r = .28$.

arousal measures taken at the end of the experiment. The only surprising and inexplicable finding is that each of the dependent variables is negatively related to the rated attractiveness of the women in the photographs.

TABLE 5: Regression Analyses for Respondents' Self-Reported Intentions

| <i>Dependent Variable</i> | <i>Coax to Remove Clothes</i> | | <i>Composite Sexual Aggression</i> | |
|----------------------------------------------------|-----------------------------------|-----------------|----------------------------------------|-----------------|
| | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> |
| Constant | 65.0 (2.8) | -1.3 (-0.1) | 62.1 (2.4) | 46.8 (6.6) |
| Arousal condition | 17.9 (2.3) | 18.9 (2.2) | 17.0 (1.9) | 18.5 (1.9) |
| Prior-arousal condition | -12.1 (-1.4) | -14.5 (-1.5) | -13.6 (-1.4) | -17.0 (-1.6) |
| Attractiveness of women | -3.4 (-1.6) | | -4.7 (-1.9) | |
| Anticipatory vividness | 1.6 (2.4) | | 2.4 (3.1) | |
| Percentage probability of negative consequences | -.43 (-2.7) | | -.43 (-2.4) | |
| History of sexual aggression | -.05 (0.0) | .34 (0.4) | 1.9 (2.3) | 2.3 (2.5) |
| Self-control scale | -.91 (-1.3) | -1.4 (2.0) | -.89 (-1.2) | -1.6 (-1.9) |
| <i>N</i> of participants | 76 | 77 | 76 | 77 |
| Adjusted R^2 | .33 | .18 | .43 | .27 |

NOTE: *t* values are in parentheses.

Table 5 reports multiple regression models involving those factors that were reported in Table 4 as having a significant bivariate relationship with predicted behavior. The first and third columns of Table 5 report regressions relating the major benefit, cost, and individual characteristic variables to the "coax" and composite dependent variables. The "anticipatory vividness" variable is equal to the sum of "Would you be aroused in this situation?" "Can you vividly imagine this situation?" and "How much fun would it be to have sex in this situation." Except for the "attractiveness of women" variable, the effects of all variables are in the expected direction, and many are statistically significant. For both dependent variables, perceived likelihood of engaging in sexual aggression is enhanced in the arousal condition, even after controlling for other variables. Likewise, self-anticipated aggression actually seems to be depressed in the prior-arousal condition relative to the no-arousal condition. The other two consistently significant explanatory variables are the expected level of arousal in the situation and the probability of negative consequences.

To examine the degree to which the effects of the arousal condition are mediated by the included explanatory variables, we ran parallel regressions to those reported in the first and third columns of Table 5 but excluded all potential mediating variables, that is, those that might be influenced by the arousal manipulation. These are presented in the second and fourth columns. Dropping the potential mediators had virtually no effect on the values or significance of the two experimental-condition dummy parameters in either equation. Thus, none of the variables included in the equation seems to mediate the relationship between expectations of sexual aggression and the sexual-arousal treatment. This finding accords with the results reported above that show no support for hypotheses 2a and 2b.

We turn now to addressing hypothesis 2c. This hypothesis predicts that arousal causes individuals to be less sensitive to consequences. Formally, this is an interaction hypothesis. It would be confirmed by significant interactions between arousal condition and perceptions of benefits and costs. Specifically, if being emotionally aroused leads persons to be insensitive to the consequences of their actions, the regression coefficients of perceived costs and benefits should be smaller in absolute magnitude in the arousal condition than in the nonarousal condition. We attempted to test this interaction hypothesis with product terms, but without success. The combination of multicollinearity induced by adding the interaction terms to the regression model and the small sample size so reduced statistical power that it was not possible to construct a credible test of hypothesis 2c.

However, bivariate correlations of predicted behavior with perceptions of consequence by arousal conditions reported in Table 6 reveal an interesting pattern. Contrary to expectation, correlations of predicted behavior with perceived consequences are *higher*, not lower, in the arousal condition. For example, in the combined no-arousal conditions the composite index has a $-.35$ correlation with perceived risk of negative consequence and a $.33$ correlation with anticipatory vividness. In the arousal condition these correlations increase in magnitude to $-.53$ and $.61$, respectively. To explore further the implications of this finding, we regressed, separately for each arousal condition, the composite index on perceived probability of negative consequences. Figure 2 graphically depicts the resulting regressions. Observe that over the observed range of perceived probability, the regression line for the arousal state is always above that for the combined no-arousal/delayed-arousal states. This is consistent with the basic contention that animates this analysis. However, the arousal-state regression has a steeper negative slope, which suggests that in an aroused state, individuals seem to be more responsive to the negative consequences of behavior in that state. In other words,

TABLE 6: Bivariate Correlations—Arousal Condition versus Nonarousal Conditions

| Composite Sexual Aggression | | |
|--------------------------------------|------------|---------|
| Experimental condition | No arousal | Arousal |
| Anticipatory vividness | .33 | .61 |
| Probability of negative consequences | -.35 | -.53 |
| Coax to Remove Clothes | | |
| Experimental condition | No arousal | Arousal |
| Anticipatory vividness | .27 | .63 |
| Probability of negative consequences | -.33 | -.54 |

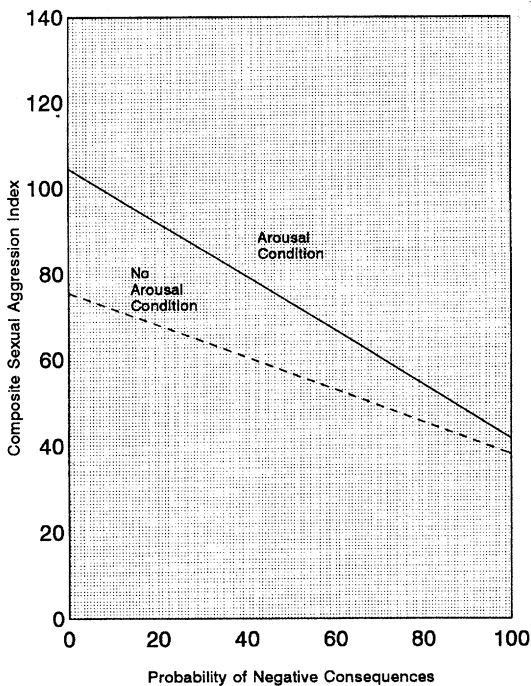


Figure 2: Slope for Negative Consequences on Projected Behavior

emotional arousal leads to a heightened sensitivity to the consequences of one's behavior.

Thus, contrary to Denton and Krebs (1990), some degree of arousal seems to result in a closer link between perceived consequences and predicted

behavior. Perhaps this is a consequence of a necessary link between emotions and rational calculations, rather than their incompatibility.¹² For example, Damasio (1994) argues that the philosopher Descartes's error was in arguing that emotion and reason are two separate and antagonistic human traits. Damasio's (1994:xiii) own claim is that one cannot begin to search for, and make, relevant instrumental considerations *until* one has experienced enough emotional arousal. Feelings provide a sort of motivation for the search for, and use of, rational information: "At their best, feelings point us in the proper direction, take us to the appropriate place in a decision making space, where we may put the instruments of logic to good use." Much like the oft cited "inverted U" relationship between anxiety and performance, rational considerations may play a muted role in guiding behavior when one is either emotionally uninvolved or overwhelmed. We caution, however, that we did not anticipate this finding of heightened sensitivity for the negative consequences of offending and that it needs to be explored in future research.

Although we could not, because of a small sample, empirically pursue the issue, there is one final observation to be made about the results in Table 6. Observe first that both the anticipated benefits and costs have greater effects on sexual behavior in the aroused condition ($r_s = .61$ and $-.53$, respectively) than in the condition of no arousal ($r_s = .33$ and $-.35$). Now, however, observe the relative effects of benefits and costs in the two conditions. Whereas in the no-arousal condition costs slightly exceed the anticipated benefits, in the arousal condition the effect for anticipated benefits exceeds the effect for anticipated costs. Although with such a small sample these differences are not statistically significant, it is interesting to speculate that although the anticipated risks of offending are more salient for those who may be more likely to commit crime (the aroused), if the expected benefits to be gained increase even more, we would predict that offending would be more rather than less likely. A decision-making calculus like this that is attuned to relative costs and benefits is consistent with the theoretical positions of Piliavin et al. (1986).

DISCUSSION

As predicted by hypothesis 1, individuals who were sexually aroused were more likely to imagine that they would behave in a sexually forceful manner on a date. The effect is evident not only in the comparison between the immediate-arousal and no-arousal conditions but also in the low anticipated levels of forcefulness in the prior-arousal condition.

Hypotheses 2a and 2b postulated that any observed effects of arousal on predictions to act forcefully are mediated by the effect of arousal on, respectively, the perceived benefits and perceived costs of sexual aggression. To test these hypotheses, we included a wide range of cost and benefit variables. Although most of these were strongly and significantly related to predictions of behavior, there was no evidence of their mediating the effect of the arousal manipulation on predicted behavior. In short, we found no support for these two hypotheses.

Our test of hypothesis 2c, which postulated that arousal would interfere with judgment and thus attenuate the relationship between predictions of behavior and perceived costs and benefits, was inconclusive. For reasons of multicollinearity and sample size, the data do not provide the statistical power to test for the presence of the interactions predicted by this hypothesis. However, bivariate correlations of predicted behavior with perceived consequences by arousal condition pointed to arousal heightening, rather than attenuating, responsiveness to consequence. This is precisely contrary to hypothesis 2c but in some respects is consistent with our argument that emotional arousal allows one to more vividly imagine how one would behave in such an emotionally aroused state. However, what remains to be explained is why, if arousal increases individuals' awareness of the consequences of their behavior, aroused persons are more likely to act in a sexually forceful manner.

Of the different hypotheses relating to the underlying mechanism, hypothesis 2d—that the effect of sexual arousal is not mediated by cognitive mechanisms—receives the strongest support, although only because it is the residual hypothesis, and no others are supported. However, it is premature to draw strong conclusions about the underlying mechanism, because controlling for the respondent's self-rated level of arousal also did not reduce the estimated impact of the experimental manipulation. Anticipated sexual forcefulness is positively and significantly correlated with sexual arousal, but controlling for arousal does not reduce the impact of the experimental manipulation.

Another cautionary note concerns the overall interpretation of the main finding that sexual arousal increases predictions of forcefulness. It is tempting to conclude that participants in the immediate-arousal condition, in anticipating higher levels of forcefulness, were predicting their own behavior more accurately than persons in the other two conditions, but such a conclusion would be premature given that we have no data on actual behavior. An

admittedly imperfect test of this accuracy can be conducted by comparing the difference between respondents' expectations of their own behavior and their predictions of other students of the University of Maryland (UOM). If respondents are relatively representative of UOM students, as seems likely, then we would expect a general convergence between our participants' expected behavior in response to the scenario and their expectation of how other UOM students would respond. If arousal is related to accuracy, however, this convergence should be greater in the condition of arousal than nonarousal. Consistent with this prediction, the difference between predictions of self and other UOM students was smaller in the arousal condition ($M = 11.0$) than in the other two conditions ($M = 25.4$), a significant difference ($t(77) = 2.3, p < .03$).

CONCLUSION

Reflecting the ascendancy of the rational choice perspective in the social sciences, there have been an increasing number of efforts to understand criminal behavior as the outcome of a calculated choice. The results from this study suggest that such analyses may leave out an important element—the role of emotions. Assuming that sexual aggression is at least in part the product of sexual arousal, our results suggest that people are likely to be caught by surprise by their own feelings and behaviors. This does not excuse sexual aggression but rather suggests that an adequate account of the phenomenon requires an understanding of the role of emotions.

The problem of being caught by surprise is not restricted to sexual aggression. For example, in a recent "hers" column in the *Sunday New York Times Magazine* (Daum, 1996), a female writer described exactly the same dilemma with respect to practicing safe sex. When cool—that is, not caught up in a sexual encounter—she would resolve to practice safe sex but found herself repeatedly deviating from her plans. As discussed in Loewenstein (1996), similar prediction failures play an important role in addictions, eating disorders, and a wide range of other disorders involving lapses of self-control.

It is premature to suggest policy implications on the basis of this one study. Not only is our sample small and not representative of the general population but we were also not able to distinguish clearly the mechanism by which arousal affects decision-making. Although the results provide

no support for the hypothesis that arousal affects perceived consequences, we could not rule out the possibility that arousal affects the weighing of those consequences in the decision process. The bivariate correlations reported in Table 6 support such a contention. The alternative competing mechanism is that arousal has a simple main effect with no mediation by perceived consequences. We believe it is important to distinguish these two alternatives not only for purely scientific reasons but because of their differing policy implications.

If sexual violence, or any kind of violence for that matter, operates according to the simple main effect mechanism described in hypothesis 2d, it follows that simple interventions designed exclusively to alter individuals' cost-benefit calculus can be effective in altering behavior. On the other hand, if arousal interacts with the weighing consequences by making them more salient, interventions administered in a cool state may be ineffective. An example of an intervention based on this interaction hypothesis is Gold's (1994) study of the sexual behavior of gay men. Based on his view that gay men underestimate the effect of "the heat of the moment" on their decisions, Gold (1994) ran a study in which he compared the effectiveness of two information interventions. One was a conventional informational intervention (exposure to didactic posters) intended to increase the use of condoms during anal intercourse, the second was a new "self-justification" intervention. Participants in the self-justification group were sent a questionnaire that instructed them to recall as vividly as possible a sexual encounter in which they had engaged in unprotected anal intercourse, and they were asked to indicate which of a given list of possible self-justifications for having unsafe sex had been in their mind at the moment they had decided not to use a condom. They were then asked to select the self-justifications that had been in their mind most strongly at the time, to indicate how reasonable each of these seemed to them retrospectively, and to briefly justify these responses. The men were thus required to recall the thinking they had used in the heat of the encounter and to reflect on it in the cold light of day. The percentage of men in the three groups who subsequently engaged in two or more acts of unprotected anal intercourse differed dramatically between the three groups—42 percent and 41 percent for the control and poster groups, but only 17 percent for the self-justification group.

Other interventions designed to stimulate emotions, however, have been less effective. One such effort attempted to "scare-straight" at-risk youths by

exposing them to life in a maximum-security penitentiary. The effect of the intervention seems to have been opposite to what was intended (Finckenauer 1982; Lewis 1983). Attempts to scare minor offenders into conformity with jail time ("shock probation") have not proven effective (Latessa and Vito 1988; Vito 1984), nor have efforts to intimidate more seasoned offenders through tough discipline "boot camp" programs (MacKenzie et al. 1995; Morash and Rucker 1990). Also, the use of fear to create greater conformity with some code of conduct has not worked in more mundane matters. Janis and Feshbach (1953) exposed people to minimally, moderately, and strongly fear-arousing lectures about dental hygiene. Although immediately following the communication there appeared to be a monotonic relationship between fear intensity and vigilance, by one week later the effect of the lectures on behavior was inversely related to fear.

Less controversial than their policy implications, our results also have important implications for research. Many different research methods, such as hypothetical-choice surveys and the so-called scenario method of behavioral elicitation (Nagin and Paternoster 1993) require respondents to imagine how they would behave in a hypothetical situation. Such efforts have been justified, in part, by the common finding of a high relationship between behavioral intentions and actual behavior (e.g., Fishbein and Ajzen 1975). If arousal has only a simple main effect on predicted behavior, then the scenario method administered in a cold state will still provide valid tests of the impact of consequences on behavior. On the other hand, if there is an interaction, these estimated impacts will be attenuated if arousal heightens sensitivity or be exaggerated if arousal mitigates sensitivity.

Finally, although we think that the role of emotions has been neglected in previous research, we make no claims that we have made more than a very modest contribution. Our study is a very preliminary attempt to examine the role of emotional arousal in would-be offenders' decision-making. A great deal more theorizing is needed on how emotional arousal affects decisions to commit crimes, and criminologists need to devise ways to measure offenders' different emotional states. Our hope in this article was to simply put the issues of emotional arousal and offenders' rational decision-making on the criminological table.

APPENDIX A

Items Measuring the Likelihood and Perceived Severity of Potential Negative Consequences

1. What is the chance you would be arrested by the police if you had sex with Susan in this situation?

2. What is the chance that you would be dismissed from the university if you were arrested for having sex with Susan in this situation?

3. What is the chance that your friends or family would lose respect for you if you were arrested for having sex with Susan in this situation?

Suppose in fact you had sex with Susan in this situation *but were not arrested* by the police.

1. What is the chance that it would somehow become known, without your being arrested, that you had done this?

2. What is the chance that you would be dismissed from the university if it were found out, without you being arrested, that you had done this?

3. What is the chance that your friends or family would lose respect for you if they found out, without you being arrested, that you had done this?

Imagine that you had sex with Susan in this situation. We would now like to ask you how much of a problem certain possible consequences would create for you.

1. How much of a problem would it create for you if it were discovered that you had done this (but were not arrested for it)? (from 0 = *no problem* to 10 = *major problem*)

2. How much of a problem would it create for you to be arrested for doing this?

3. How much of a problem would it create for you if you were dismissed from the university?

4. How much of a problem would it create for you if you lost the respect of your friends or family?

APPENDIX B

Drunk-Driving Scenario

It's about 2 o'clock Thursday morning. You have spent most of the night drinking with friends at a local bar and have had a good deal to drink. You decide to leave the bar and go home, which is about five miles away from the bar. You feel drunk, are sure that you are over the legal limit, and wonder whether you should drive yourself home. You remember that you need your car early the next morning for an appointment. You also know that your roommate is home and would be able to drive you back to the bar to get your car the next morning.

NOTES

1. For example, pregnant women tend to underestimate their own future desire for anesthesia (Christensen-Szalanski 1984), as if they failed to appreciate, at some level, the intensity of the pain associated with childbirth. Addicts tend to underestimate the power of drug craving, leaving them unprepared to deal with the force of their desires (Seeburger 1993). Osiatynski (1992) notes that with respect to alcoholism, "After hitting bottom and achieving sobriety, many alcoholics must get drunk again, often not once but a few times, in order to come to believe and never forget about their powerlessness" (p. 128). Gay men and others often resolve and expect to practice safe sex but fail to do so in the "heat of the moment" (Daum 1996; Gold 1993, 1994). Similarly, people seem to underpredict the influence that social pressures such as group conformity or the commands of a person in a position of authority could have on their own behavior (Milgram 1965; Wolosin, Sherman, and Cann 1975).

2. Similar predictions also apply to past behavior and to the behavior of other people: In looking at their own past behavior when they were acting under the influence of strong emotions, people often ask themselves, "How could I have done something like that?" Likewise, the behavior of other persons who are under the influence of emotions is also difficult to comprehend. Finally, all of these predictions apply in reverse; that is, people in emotional states have difficulty imagining themselves in a cool, unemotional state. The overwhelming sense of despair of the depressed person, for instance, arises because that person feels that he or she has always been depressed and always will be depressed (Styron 1990). The angry person likewise cannot be convinced that his or her anger is transient.

3. We define *tactical force* as an attempt by one party to overcome the resistance of another party and obtain their compliance by persuasion, guile, threats, or the use of coercion. The defining characteristics of tactical force are the following: (1) It is instrumental, specifically designed to achieve some objective and therefore not intrinsically useful; and (2) it is used to overcome the will, reluctance, or resistance of another.

4. There is a subtle distinction between Ellis's understanding of the role of arousal in criminal behavior and the one we base our study on. Whereas Ellis's arousal theory would predict that persons who are normally low in arousal (suboptimally aroused) are more likely to commit a crime, the theory that we articulate would predict that persons who are highly aroused at a given moment are more likely to commit a criminal act. We thank one of the anonymous reviewers of the manuscript for making this observation.

5. Cultural influences also play an important role. Although sexual arousal is an individually experienced emotional state, the meaning that is ascribed to that state is, undoubtedly, due in part to socially and culturally influenced "scripts" for sexual behavior (Bancroft 1995; Gagnon and Simon 1973). A consideration of such social and cultural factors is beyond the scope of our experiment.

6. At the University of Maryland, Introduction to Criminology is one of the approved courses meeting a general university social science requirement. As a result, over one-half of the students in the introductory-level classes are nonmajors; their areas of study run the full disciplinary gamut.

7. As is true for sexual assault, male college students are also at high risk of driving while drunk. They are both frequent and heavy users of alcohol, and many have cars, driver's licenses, and access to bars and social settings in which heavy drinking occurs—hence, ample opportunity to drive while drunk.

8. The reason for telling respondents that the photographs were part of a separate study was to reduce potential demand effects. The point of the stands was to keep the photographs visible during the experiment, so as to maintain a steady state of arousal. In a pilot study, we had compared the level of reported sexual arousal produced by photographs and sexually explicit films and found that although the films produced slightly higher momentary arousal, the arousal tended to drop off rapidly after the end of the film. Continuously visible photographs maintained arousal at a slightly lower, but more consistent, level.

9. Respondents were also asked a third question that came before these two: "What do you think is the chance that you would stop kissing and fondling [Susan] immediately when she expressed a lack of interest in sex?" Contrary to the other two measures, a high probability on this item reflects a motivation *not* to employ sexual force. We expected that the "stop kissing and fondling" item would have a moderate negative correlation with the "verbally coax her to remove her clothes" item. This correlation, although negative ($r = -.23$), was not substantial. A graphic examination of the data suggested that the correlation may have been attenuated by a small number of people who reported high probabilities of both stopping and of coaxing or low probabilities of both stopping and of coaxing. We suspected that these points may have arisen from respondents' misunderstanding of the negative wording of the "stop kissing" item. To test whether the negative wording of the "stop kissing" item was, in fact, the source of the lower-than-expected correlation, we conducted a second study with a group of 56 male undergraduates of the University of Maryland. All were presented with the date scenario, half ($n = 28$) responded to the two questions as originally formulated, and the other half ($n = 28$) responded to the original "coax" question but a reworded "stop kissing" question in which the word *stop* was replaced with the word *continue*. The result was an increase in the absolute correlation between the items from $r = .40$ (minus) to $.75$ (plus). This study convinced us that many students misunderstood the original "stop kissing" item, and we omitted it from subsequent analyses.

10. Both the "coax to remove her clothes" and "force sex with her even if she protested" items reflect tactical behavior because the goal is to secure the compliance of the female student to the male student's wishes. The former behavior can be termed *persuasion* and involves no use or threat of coercion. The latter behavior is clearly a coercive action, ensuring compliance with force. Because both acts on the part of the male student are intended to overcome the initial resistance of the female student, we are referring to them as instances of sexual forcefulness.

11. It may be tempting to conclude from this that our experimental manipulation of arousal "didn't take." We are, understandably, skeptical of this conclusion. First, the failure to find significant differences across conditions in arousal levels may simply reflect low statistical power because of small samples. It can be observed from Table 2 that for every comparison, the highest levels of reported arousal are in the immediate arousal condition. Second, although respondents did not report differences in experienced arousal, we found significant differences in participants' probability of using sexual force across the three arousal conditions. Thus, whether or not they reported feeling it, differences in arousal states produced different outcomes. Third, a self-report of sexual arousal is not the best indicator of actual arousal, particularly if the arousal "if acted upon would result in illegal and morally reprehensible conduct" (Harris and Rice 1996:156). Although we would have perhaps preferred more direct indicators of sexual arousal (i.e., phallometric measurements), such indicators are far more intrusive.

12. It is possible that these findings are due to the manner in which the instrument was constructed. Respondents were asked to read a hypothetical scenario involving a sexual assault. They were then asked a battery of questions about this assault from their perspective, including asking them detailed questions about the probability and severity of possible costs (how likely are . . . your friends and family to find out . . . you to get dismissed from school . . . , etc). Given

the fact that we have deliberately focused our participants' attention on such possible consequences, it may be unrealistic to expect them to be insensitive to the costs of their actions. The question remains whether our respondents would have considered the costs had we not brought these up for them. Future research might deal with this issue by having respondents first make a list of the issues they would consider when contemplating committing such acts.

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