

Physiological Desensitization and Judgments About Female Victims of Violence

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Earlier published studies have indicated that exposure to filmed violence against women leads to decreased perceptions of violence, systematic reductions in emotional reactions, reduction in self-reported physiological arousal to the violence in the films, and a tendency for subjects exposed to the violence to judge a victim of a sexual assault presented in a more realistic context more harshly. The present study was designed to measure physiological desensitization (heart rate) and to investigate the relationships between this measure and other cognitive, affective, and attitudinal components of the desensitization process. Subjects were either exposed to a two-hour videotape portraying violence against women or to exciting, nonviolent material (i.e., auto races, nonviolent sex). Following this, all subjects were exposed to two brief clips of violence perpetrated by a man against a women. During these clips, all subjects' heart rates were monitored. Afterwards mood reactions and perceptions of the perpetrators and victims depicted in the dependent measure clips were measured. The results indicated that heart rates for subjects exposed to the violent videotape were lower during the final 90 seconds of each violent dependent measure film clip than controls. Although the violence-viewing subjects experienced no change in moods, control subjects experienced significant increases in hostility, anxiety, and depression during the dependent measure clips. Subjects in the violence-viewing condition attributed less injury to the victims but greater responsibility to the perpetrators in the dependent measure clips, compared to control subjects. There was no apparent relationship between physiological desensitization and later victim/perpetrator judgments.

In recent years, citizens, social scientists, feminists, the U.S. Congress, and various national commissions have expressed concern that commercially available films are more violent now than in the past and that much of this violence is directed against

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women. Concern about this problem has become particularly pressing because of increased availability of violent film material due to technological advances in cable, videocassette, and satellite communications systems. Recently, concern has focused on the increased availability of sexually violent productions known as "slasher films." These films contain an unprecedented amount of violence, and frequently include the mutilation of women in scenes that juxtapose the violence with sexual content. Past research suggests that prolonged exposure to these materials may cause viewers to become callous or "desensitized" to female victims of violence in other contexts (e.g., Linz, Donnerstein, & Penrod, 1988; Donnerstein, Linz, & Penrod, 1987).

The first purpose of the present study is to determine if men exposed to filmed sexual violence will be less physiologically aroused and less emotionally responsive to subsequent depictions of violence against women and judge the victims in these depictions more harshly. The second purpose of the study is to examine the magnitude of the relationship between physiological reactions, emotional reactions and subsequent judgments.

Desensitization to Sexual and Nonsexual Violence

Linz and his associates (Linz, Donnerstein, & Penrod, 1984; 1988) have investigated the multiple effects of prolonged exposure to "slasher films" that depict brutal violence against women in a sexual context. In one study (Linz et al., 1988), males were exposed to five full-length sexually violent films over a period of two weeks. After each film subjects' emotional reactions, perceptions of violence in the films and attitudes toward women portrayed in the films were measured. Following film exposure the men evaluated a female victim of sexual assault portrayed in a videotaped trial along with control subjects not exposed to the films as part of an ostensibly unrelated study.

The results indicated that subjects experienced significant decreases in anxiety and depression between first- and last-day viewing. Subjects

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also perceived less violence on the last day of viewing compared to the first, and evaluated the films as less degrading to women by the final day of viewing. Most important, subjects exposed to the filmed violence against women expressed less sympathy for the victim portrayed in the rape trial and indicated less empathy for rape victims in general. These findings are consistent with an earlier study by Linz et al., (1984) in which similar changes in emotional reactions and additional changes in perceptions of violence and attitudes toward the female victim in the film were observed. In this study, continued exposure to the sexually violent films resulted in subjects judging the victim portrayed in a (different) trial to be less injured than did no-exposure control subjects.

Viewer self-reports of physiological reactivity (i.e., "To what extent did the violent scenes make you feel restless or so you couldn't sit still?" "To what extent could you feel yourself 'tense up' during the violent scenes?") to the films were also obtained in the Linz et al. (1988) study. These self-reports of arousal appeared to diminish with continued exposure to violence. In addition, self-reported arousal was correlated with perceptions of violence in the films, which in turn predicted subjects' sympathy for the trial victim.

One of the limitations of the investigations of desensitization by Linz and his colleagues is the lack of objective measures of decrements in physiological reactivity as a function of exposure to filmed sexual violence. There is good reason to assume that reductions in actual physiological arousal might accompany prolonged exposure to sexual violence. Research on desensitization to nonsexual violence has shown that although observers initially react with relatively intense physiological responses to scenes of violence, habituation can occur with prolonged or repeated exposure and this habituation can carry over to other, more realistic, settings (e.g., Thomas, Horton, Lippincott, & Drabman, 1977).

Given the findings of other investigations and the results of our own studies we hypothesize that men exposed to many scenes of sexual violence will be less physiologically responsive to subsequent depictions of violence against women and will judge the victims of violence in these depictions as less injured and feel less sympathy for them.

Of additional interest, and as yet unexplored in previous work, is the relationship between reductions in physiological responsivity and judgments about victims. We might expect that only subjects who become physiologically desensitized will judge the victim in a subsequent scenario as less injured and report feeling less sympathy for her. As we

noted, self-reports of feelings of tenseness and anxiety in the study by Linz et al., (1988) were relatively good predictors of perceptions of film violence and this, in turn, was positively correlated with judgments of sympathy for a victim of sexual assault presented to subjects in another situation. Reductions in actual physiological responsivity might also be associated with perceptions of violence and other judgments about victims of assault. This will be explored in the present study.

Finally, in order to assess adequately the effects of exposure to violence on subsequent judgments, it seems important to consider certain beliefs that the subject may hold before entering the experimental situation. The degree to which subjects hold certain stereotypes about sexual violence is likely to be a moderator of reactions to victims of sexual violence. Individuals with a tendency toward the acceptance of stereotypical beliefs might be more likely to judge victims more harshly regardless of exposure to violence. Consequently, responses to a scale measuring these beliefs are used as a covariate in the present study in order to measure more efficiently the effects of exposure to film violence on victim and perpetrator judgments.

METHOD

Subjects

A total of 63 male undergraduate students were recruited from an introductory course in the Department of Psychology of the University of Wisconsin-Madison. Subjects were randomly assigned to a control (nonviolent) or experimental (sexually violent) condition before arriving for participation in the study. In all, 29 subjects viewed the control film stimuli and 34 subjects viewed the experimental film stimuli.

Pretesting, Prescreening, and Subject Recruitment

In the first phase, 200 subjects completed personality inventories as part of a mass testing session several months prior to the film viewing portion of the experiment. Subjects were eliminated from the sample on the basis of their scores on either the psychoticism or hostility subscales of the SCL-90 (a 90-item self-report symptom inventory, which has been validated with psychiatric outpatients). This prescreening was conducted in order to reduce the possibility that individuals who would be especially influenced by the material and perhaps pose a

risk to the community would not be included in the studies. Only subjects whose hostility or psychoticism scores were at or below 1.00 (approximately one and one-half standard deviation above the mean for male nonpatients; Derogatis, 1977) were retained in the sample.

Subjects also completed the Rape Myth Acceptance scale (RMA) as part of the mass testing procedure. This scale is an inventory of cultural beliefs that reflect hostility toward victims of sexual assault and the endorsement of negative stereotypes about rape and rape victims (Burt, 1980). The alpha coefficient obtained for this scale was .83.

Subject recruitment. Eligible males were contacted by phone and told that a film evaluation study was being conducted in the Communication Arts Department. They were informed that the viewing session would last approximately two hours and that they would receive a payment of \$10 in compensation for their participation. Overwhelmingly, those who declined cited scheduling conflicts as their reason for not participating. Those who agreed to participate were scheduled to experimental sessions in groups of three. Upon arrival at the sessions, the subjects were shown an introductory videotape explaining that they may be required to view films containing portrayals of "nudity and/or violence." This was followed by a 20-second sample clip from one of the films containing nudity and graphic violence. Subjects were then offered the opportunity to decline participation in the study. None chose to do so. They were then asked to sign consent forms and once again told that they could leave the study at any time. One subject withdrew at this time.

Film Stimuli

The subjects viewed one of two 90-minute videotaped collections of complete scenes from films (each scene was approximately 10 minutes in duration). Each of the collections was recorded on two separate videocassettes—each contained approximately half of the collection. These videocassettes were randomly varied as to order of play.

The control film stimuli were chosen on the basis of excitement and arousal value, with the stipulation that none of the scenes contain any violence. Several arousing, nonviolent R-rated sex scenes were included as well as nonviolent, nonsexual, exciting scenes. Three scenes from *Emmanuelle in Bangkok* were included. All were scenes of relaxed erotic play between nude partners. Three scenes from *Emmanuelle* were included, all were nonexplicit erotic scenes of stripping or masturbation. Two scenes from *Naughty Girls Need Love Too* were

included, both depicted sexual relations between nude partners (in one scene a man and a woman and in another scene two women) with no explicit genital shots. Two scenes from *Chariots of Fire* were included, both depicting exciting footraces. Finally, two scenes from *Never Cry Wolf* were included, one was a dramatic scene of power failure in a small airplane and the other was a depiction of the struggles for survival of a man who had fallen through ice. All of the scenes were randomly assembled in the final collection.

The experimental film stimuli were representative scenes of violence occurring in a sexual context taken from commercially released "slasher" films. Each scene contained explicit acts of violence in which the victims were female. Although the films did juxtapose violent content with erotic content, there is no indication in any of the clips that the victim enjoyed or was sexually aroused by the violence. In nearly all of the cases, the scene ends with the death of the victim. Two scenes from *Pieces* were included, one of them depicting the terrorizing and murder of a woman swimming nude alone in a pool. Three similar scenes from *ToolBox Murders* were included. One scene, for example, depicted a man breaking and entering into the apartment of a woman who was masturbating in her bathtub, and her subsequent murder. Two similar scenes from *The Prowler* were included as well as one scene each from *Snuff*, *Vice Squad*, and *Nightmare*. The scenes were randomly assembled in the final collection.

Dependent Measure Stimuli

All subjects were shown a dependent measure videotape that consisted of two clips, both approximately five minutes in duration. The first clip was taken from the made-for-television movie/documentary, *The Burning Bed*. It depicted a man verbally and physically abusing his wife. The second clip was from the commercially released film *Olivia*, depicting an encounter between a man and a female prostitute. The man was bound to a bed and asked her to untie him; when she did, he attacked and strangled her.

Mood Measures

After viewing either the violent or control 90-minute videotapes, subjects were asked to complete the "Now-Today" form of the Multiple Affect Checklist (MAACL; Zuckerman & Lubin, 1965) that yields three subscale scores: hostility, anxiety, and depression. Upon completion of

the dependent measure film clip viewing phase, subjects were again administered the MAACL.

Dependent Measure Questionnaire

Subjects then completed a questionnaire that measured the following constructs: Male Responsibility for Assault, for example, "Generally, how responsible was the husband (man) for the assault of the wife (woman) in this clip?" (seven items, coefficient alpha = .54); Victim Responsibility, for example, "The wife should have foreseen the possibility for danger before she got into that situation" or "The woman portrayed deserved what happened to her" (10 items, coefficient alpha = .74); Perception of Violence, for example, "How graphic was the violence in these film clips," (four items, coefficient alpha = .57); Self-reported Physiological Reactions, for example, "To what extent could you feel yourself 'tense-up' during the violent scenes," (eight items, coefficient alpha = .87); Victim Injury, for example, "To what degree was the wife (woman) physically injured?" (four items, coefficient alpha = .67); Victim Sympathy, for example, "I felt sorry for the wife (woman) in the film clip," (six items, coefficient alpha = .68); Victim Attractiveness (clip 1), for example, "attractive," "good," "appealing" (nine items, coefficient alpha = .89; Victim Attractiveness (clip 2; nine items, coefficient alpha = .92).

Procedure

Subjects were exposed to the videotaped materials in groups of three. After being seated, subjects were shown videotaped instructions in which they were told they would be participating in a "film evaluation study" and were asked to pay close attention to the films. They then watched the 90-minute tape of control or violent film clips described earlier. Following exposure to the 90-minute film, subjects were shown a set of videotaped instructions with directions on how to place their finger into the heart rate monitoring device. This portion of the videotape consisted of a series of still images demonstrating proper usage accompanied by a voice-over. Subjects were told that their heart rates were being measured and that it was important for them to keep their hands as still as possible.

Subjects then attached themselves to a Coulbourn Optical Pulse (heart rate) Monitor S71-40. After the instruction tape, subjects completed the MAACL, and the two dependent measure clips described

here were shown. After viewing these film clips, subjects completed the second MAACL and the dependent measure questionnaire. Subjects were then shown a debriefing videotape that emphasized the possibility that they might become desensitized to the violence in the films.

RESULTS

Manipulation Checks

In order to ensure that the control clips were as exciting to subjects as the experimental clips, self-report measures were taken. Subjects in the nonviolent condition rated the excerpts they saw as more exciting than did subjects in the violence condition ($t = 4.12, p < .001$). There was no significant difference in the degree of nudity observed by subjects in either condition ($t = 1.15, p = .26$). However, subjects in the control condition rated their clips as portraying more sexual activity than did subjects in the violence condition ($t = 3.96, p < .001$).

Physiological Desensitization

In order to test the hypothesis that experimentally exposed subjects would have a lower heart rate in response to subsequent violent clips, heart rate data were collected from all subjects and arranged into 19 consecutive 30-second blocks. The experimental and control groups were compared on the final three blocks (90 seconds) of each of the two dependent measure clips (the portion of the clips that contained the most explicit violence). A repeated measures analysis of variance on three 30-second blocks with the immediately preceding block as a covariate was undertaken for each clip. In the final 90 seconds of the first clip (*The Burning Bed*), subjects who had been exposed to the nonviolent control clips ($M = 77.51$) displayed a significantly higher heart rate than did subjects who had been exposed to the sexually violent clips, ($M = 71.66, F(1,41) = 4.56, p = .039$). Also, in the final 90 seconds of the second clip (from *Olivia*), control subjects ($M = 81.38$) displayed a significantly higher heart rate than did experimental subjects, ($M = 74.96, F(1,41) = 3.94, p = .054$). There were no statistically significant differences between the 30-second intervals within either clip.

Mood Changes

A repeated measures analysis of variance was also undertaken for the pre- and postexposure scores on each of the MAACL subscales:

hostility, anxiety, and depression. As we have noted, mood measures were administered after the 90-minute stimulus film clips, but before the dependent measure clips, and again following the dependent measure clips. The pre- and postdependent measure clip MAACL subscale means are listed in Table 1. For hostility, there was a main effect for film exposure with subjects who had been exposed to the violent film stimuli scoring higher, overall, than control subjects, $F(1, 58) = 9.28, p = .004$. There was also a significant interaction between film exposure and time $F(1, 58) = 12.85, p = .0007$ on the hostility variable. Follow-up comparisons revealed a significant difference between control and experimental groups on hostility scores before viewing the dependent clips, $t(58) = 4.36, p < .001$, as well as a significant increase occurring for control subjects during the dependent measure clips, $t(24) = 12.72, p < .01$. The violence exposure group did not experience an increase in hostility during the dependent measure clip. There was also a main effect for film exposure on the anxiety subscale, with experimental subjects having higher overall scores than control subjects, $F(1, 58) = 5.10, p = .028$, and a significant film exposure by time interaction effect, $F(1, 58) = 11.36, p = .0013$. Follow-up comparisons showed a significant difference between the control and experimental predependent clip anxiety scores, $t(58) = -3.26, p < .01$, as well as, a significant increase in anxiety during the dependent measure clips for control subjects, $t(24) = 9.49, p < .01$. The violence-viewing group did not experience a significant increase in anxiety during the dependent measure clip. The same pattern of results was found for the depression subscale, with experimental subjects having significantly higher overall scores than control subjects, $F(1, 58) = 7.82, p = .007$. Here again, a significant interaction was found between film exposure and time, $F(1, 58) = 7.57, p = .0058$. Follow-up comparisons revealed a significant difference between the control and experimental subjects for the predependent clip depression scores, $t(58) = -3.44, p = .001$, as well as a significant increase for the control group in depression after viewing the dependent measure clip, $t(24) = 8.67, p < .01$.

Perceptions of Victim and Perpetrator

A multivariate analysis of covariance (MANCOVA) was undertaken for the eight scales assessing beliefs and feelings about the women and men in the dependent measure clips measured separately for the first and second clips. The RMA scale was used as a covariate.

Table 2 displays the adjusted means for control and experimental subjects on all scales. The results of the multivariate test for the RMA

covariate were statistically significant, $F(8, 47) = 2.96, p = .009$. Examination of the univariate F tests for each dependent variable revealed that the covariate was significantly related to three of the dependent variables with greater rape myth acceptance resulting in less victim sympathy variable, $b = -.265, t = -3.77, p < .001$; less perpetrator responsibility, $b = -.248, t = -3.29, p = .002$; and greater victim responsibility, $b = -.358, t = -3.72, p < .001$.

The results of the multivariate test for the experimental variable was also statistically significant, $F(8,47) = 2.30, p = .036$. Examination of the univariate F tests to determine which specific differences accounted for the overall effect revealed two statistically significant differences between the control and experimental groups. These effects were for the injury and the perpetrator responsibility variables (see Table 2). Subjects in the violence-viewing condition judged the female victims in the clips as less injured than did control subjects, but attributed more responsibility to the perpetrators for the assaults.

Correlation of Mood Change with Victim-Perpetrator Judgments

Correlations between each of the victim/perpetrator scales and change in moods as measured by the MAACL (created by subtracting the preclip score from the postclip score) were computed. Mood change variables were calculated separately for the hostility, anxiety, and depression, and an "overall" mood change variable was also computed by summing the mood subscale scores and subtracting this total prescore from the total postscore. None of these variables was significantly correlated with any of the victim/perpetrator scales.

RMA, Physiological Desensitization and Victim-Perpetrator Judgments

A MANOVA was also undertaken to examine the relationship between physiological desensitization and judgments about the victim and perpetrator. A measure of desensitization was created by computing the residual change in heart rate between the initial baseline period and the three final 30-second portions of the first dependent measure clip. These three residuals were then averaged together and used as an indicator of physiological arousal during the dependent measure film clips. Subjects were classified as either high or low on this variable according to their scores above or below the median. The results of the

TABLE 1
MAACL Scores Before and After Depression Violent Tape

Hostility			
	Before	After	Marginals
Control	8.12	10.69	9.41
Experimental	12.79	11.94	12.37
Marginals	10.46	11.32	
Anxiety			
	Before	After	Marginals
Control	6.88	8.69	7.79
Experimental	10.12	9.29	9.71
Marginals	8.50	8.99	
Depression			
	Before	After	Marginals
Control	12.88	15.19	14.04
Experimental	18.41	17.85	18.73
Marginals	15.65	16.52	

TABLE 2
Univariate F Tests for Dependent Measure Clip Questionnaire

	<i>Adjusted Means</i>		<i>F (df = 1, 55)</i>	<i>Significance</i>
	<i>Control</i>	<i>Violence</i>		
Injury	31.92	29.61	4.24	.044
Sympathy	45.12	45.72	0.10	.750
Perception of violence	19.69	19.01	0.45	.504
Self-perception of arousal	20.02	22.56	1.09	.302
Male's responsibility	45.71	49.70	4.58	.037
Victim responsibility	74.80	72.90	0.63	.430
Victim attractiveness (Clip 1)	64.90	65.26	0.02	.886
Victim attractiveness (Clip 2)	50.04	55.07	1.63	.207

Multivariate test revealed no differences between high and low subjects overall on the dependent measures, $F(8, 29) = 1.25, p = .309$.

DISCUSSION

Overview of Findings

As we predicted, subjects exposed to the sexually violent stimulus materials displayed a lower heart rate in response to the violent portion of the dependent measure clips than did subjects exposed to nonviolent materials. Further, while men exposed to the violence showed no negative mood increase beyond that produced by the previous exposure to violence during the dependent measure clip, men in the control condition experienced significant increases in hostility, anxiety, and depression while watching the dependent measure clips. Men exposed to the sexually violent clips also judged the victims of assault depicted in the clips as less injured than did control subjects, but assigned greater responsibility to the male perpetrators in the clips.

Consistencies and Inconsistencies with Previous Findings

The finding that subjects exposed to sexual violence regard victims presented in another context as less injured than do control subjects is consistent with the findings of previous investigations. Linz et al. (1984) found that male subjects evaluated the victim portrayed in a videotaped reenacted rape trial as less injured when asked to make this evaluation immediately after viewing violent films. Linz et al. (1988) found that men exhibited less sympathy for a victim of sexual assault portrayed in a completely different sexual assault trial presented 48 hours after exposure. Since this general finding of treating female victims with less sensitivity following exposure to R-rated sexually violent films has emerged across three independently conducted studies using three separate dependent variable scenarios, we may place some confidence in the robustness of the effect—or at least in our ability to elicit the effect in the laboratory. Future work should be devoted to producing the effect outside the laboratory.

One statistically significant but puzzling result should be commented on here. Our analysis revealed that subjects preexposed to the violent stimuli attributed greater responsibility to the perpetrators in the dependent measure clips than did control subjects. Although we did not

make a specific prediction for the responsibility variable, we would not have been surprised had subjects attributed less rather than more responsibility to the perpetrators following exposure to the violence. We might have reasoned, retrospectively, that exposure to many scenes from slasher films that nearly always portray female victims willingly placing themselves in situations that inevitably lead to injury or death may cause viewers to blame the victim for her own assault (ascribing to the belief in a "just world"—the idea that ultimately we all get what we deserve; Lerner, 1965, 1971). Greater victim responsibility would imply less perpetrator responsibility. Since the finding was the reverse of what might have been anticipated we cannot rule out the possibility that exposure to the violent depictions either led to some type of unspecified sensitization process, or that exposure to the control stimuli that depicted sexually suggestive scenes as well as exciting action scenes resulted in less responsibility assigned to the male perpetrators. The latter interpretation would be congruent with the suggestion by Zillmann and Bryant (1982, 1984) that prolonged exposure to images of women depicted as sexually promiscuous results in the trivialization of rape and other forms of sexual violence. However, the fact that we have obtained this finding in the present study but have failed to find it in previous studies using very similar dependent measure scales suggests that we should be cautious in any interpretation of the finding.

Independent Processes

The fact that subject heart rate measured during the dependent variable clips was not related to evaluations of the perpetrators or victims suggests that the physiological desensitization process and the evaluation process may be relatively independent. Viewers do become physiologically desensitized to subsequent violent depictions, and they do evaluate a victim with less sensitivity following prior exposure to violence, but the results suggest that these evaluations are not the result of physiological habituation *per se*. The carryover effect from one situation to another may involve cognitive rather than a physiological processes. Perhaps subjects' definitions of violence change with prolonged exposure to media and it is the new definition that spills over into evaluations of victims in other situations.

The meaning subjects attach to violence in the films may depend on their own reactions to the violence depicted in the films. Other research reports (e.g., Linz et al., 1988) have suggested that *self-perception* of

arousal (or diminished arousal) rather than more objective indications of arousal to the violent scenes affects viewers' definitions of violence and it is this new definition that carries over to other situations. Linz et al. (1988) obtained correlational results consistent with this view, but, as noted at the time, additional experimental research is needed to substantiate this hypothesized process.

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