

Effect of Self-generated Peaceful and Aggressive
Cognitive Responses on Anger

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Abstract

The effect of self-generated cognitive responses on anger was investigated. Forty-two Introductory Psychology student volunteers were randomly assigned to three types of cognitive response induction to assess the effect of aggressive and peaceful thoughts on anger. Subjects were presented with an anger-inducing scene and given two minutes to concentrate on it. Then, subjects read an aggressive response, a peaceful message, or an irrelevant message. Subjects rated their anger on a Likert-type scale and recorded their thoughts, identifying each as positive, negative, or neutral. Subjects who focused on the aggressive response reported more anger and had more thoughts about the anger-inducing scene; subjects given peaceful cues reported less anger. Correlational analyses suggested that cognitive responses mediated anger. These results indicate that self-generated cognitive responses can increase or decrease anger, and perhaps can increase or decrease aggressive behavior.

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Humor, empathizing with the victim, mild sexual interest and relaxation have been investigated as responses incompatible with anger which may inhibit aggression (Baron, 1977). The thoughts we have after we are angered also influence the anger we experience. Although many studies on aggression have been carried out over the years, a search of the Psychological Abstracts from 1965 through 1985, and a sampling of ten social psychology textbooks published between 1981 and 1985, failed to locate any study of this potential aggressive cue: self-generated cognitive responses. Pavlov wrote in Conditioned Reflexes (1927) that speech "can call forth all those reactions of the organism which are normally determined by the actual stimuli themselves." Following this line of thought, Berkowitz concluded: "Thoughts can generate emotional reactions" (1975, p. 281). Self-generated thoughts have received examination in the healing process (Shiekh, 1984) with evidence supporting the claim that mental images bring about beneficial changes. Use of imaging is advocated for enhancing academic achievement by Shiekh (1985). Although imagery has been used with limited clinical populations (Novaco, 1975; Garrison & Stolberg, 1983), no research, it appears, has examined aggression or anger resulting from mental images in "normal populations."

Thought as a Dependent Measure of Aggression

Aggressive fantasy has been investigated in a number of studies in which it has served as a dependent measure. For example, Bandura and Walters (1959) studied fantasy aggression on a projective test. An aggressive group of boys directed more aggressive fantasy against their fathers than a control group. As another example, Husman (1955) found that boxers had less fantasy aggression on the TAT than other students. Further, Feshbach (1955) allowed subjects to freely express fantasy aggression after they

had been angered. Those subjects allowed to express fantasy aggression (to projective test cards) were somewhat less aggressive than subjects not allowed to express fantasy aggression. However, the role played by aggressive or non-aggressive fantasies or cognitive responses in influencing subsequent behavior has not been investigated. Our self-generated thoughts play a large role in influencing our aggressiveness. A study of Presidential assassins (Weisz & Taylor, 1970) showed that, with one exception, assassination attempts were partly under the control of delusional thoughts.

Thoughts as Independent Variables Influencing Aggression

Bandura discussed the role of "provocative thoughts": "People can frighten themselves by fear-provoking thoughts; people can become sexually aroused by generating erotic fantasies; the cognitive capacities of humans enable them to invest things with positive or negative valence by pairing them repeatedly with thought-produced emotions" (1973, p.45). Feshbach (1964) hypothesized that internal "mediating responses" incompatible with anger reduce anger and aggressive behavior, although no supporting data was provided. Novaco (1975), in an extensive therapy assessment, examined the influence of thoughts on anger in therapy patients who had "chronic anger control problems." By focusing on such "self-statements" as "Stay calm" the subjects developed greater self-control over their anger (cf. Garrison & Stolberg, 1983). Wolpe's systematic desensitization was based on similar concepts, involving the pairing of anxiety-eliciting thoughts with incompatible relaxation responses (Wolpe, 1969).

The influence of objects associated with aggressive behavior has been studied by several experimenters, including Berkowitz and LePage (1967), Page and Scheidt (1971), and Buss, Booker, and Buss (1972). The Berkowitz and LePage "weapons effect" demonstrated that angered subjects gave the greatest number of shocks to confederate when subjects had just seen a shotgun and pistol. The guns evidently elicited aggressive

responses. However, two replication attempts failed before a third succeeded. Further, the results may not generalize to non laboratory situations, although a number of studies have shown that aggressive cues produce aggression outside the laboratory. For example, Harris (1976) conducted naturalistic studies in supermarkets. Shoppers expressed more aggression when a confederate wearing a "Drop Dead" shirt cut in front of them than when the same confederate cut in wearing another shirt.

Berkowitz (1974) stated that the effect of a weapon depends on the meaning it has for the individual; if he or she thinks of a gun primarily as a dangerous object, the gun is likely to evoke more anxiety than aggression. Gun owners are apparently not more aggressive than those who do not own guns (Jones, Epstein & O'Neal, 1981) and weapons have been found to inhibit aggressive behavior under certain circumstances (Ellis, Weinir & Miller, 1971).

A body of research has used physical objects as aggressive cues; implicit in these studies is the assumption that idiosyncratic cognitive responses mediate reaction to aggressive cues. Our study may be the first to instruct subjects to generate their own aggressive or peaceful cues via self-generated cognitive responses and thus examine the role of self-generated thoughts in determining anger.

Hypotheses

Anger is operationally defined in two ways: Self report on a single-item self rating scale and number of aggressive or angry cognitive responses. We hypothesized that subjects who focused on aggressive thoughts would show an increase in aggressive cognitive responses and anger, based on the work of Berkowitz (1974) and Berkowitz and LePage (1967). On the other hand, aggressive cognitive responses could decrease self-reported anger and number of aggressive thoughts via some cathartic effect, though other studies have shown this to be unlikely. Finally, a peaceful thoughts condition was

included. We predicted that a focus on peaceful thoughts would decrease self-reported anger and reduce the number of aggressive thoughts, following the arguments of Feshbach (1964) and the clinical technique of Wolpe (1969).

Further, a positive correlation is predicted between anger and aggressive or angry cognitive responses. A negative relationship is expected between measures of anger and number of peaceful cognitive responses. These predictions follow from basic findings in attitude-change research, in which number of favorable cognitive responses correlated positively with attitude-change (e.g., Petty, Ostrom & Brock, 1981).

Method

Subjects and Design

Forty-two Introductory Psychology students at Marshall University were randomly assigned to one of three groups: A control group, a Peaceful-thoughts condition, and an Aggressive-thoughts condition. All three experimental manipulations were performed simultaneously.

Apparatus and Materials

An experimental booklet included a single-item self-rating scale (100 millimeters in length) on which subjects reported their level of anger. The scale was bounded by "not at all angry" (0 mm) and "very angry" (100 mm). Cognitive-response dependent measures were also included (Petty, Ostrom & Brock, 1981, ch. 2).

Procedure

Students were not allowed to open booklets until the experimenter read them this account (cf. Novaco, 1975, P. 93):

A couple weeks ago, I was on my way to take a test, with barely enough time left to get there. As I was coming up Fifth Avenue, an old car pulled out in front of me along about Thirteenth Street forcing me to brake hard. I hadn't expected it to pull out since I was the only one in that lane and in a hurry. There were two middle-aged women in the car talking. The driver looked up in her rear view mirror, so I thought she'd see me coming up fast and speed up. Instead, she started messing with her hair. We got a red light because of her and I was late for the test. The grad assistant didn't know what to do, but I talked him into giving me the test and it all worked out fine.

Students were then instructed to open their booklets. They read: "Please imagine the scene you just heard as vividly as you can until told to stop. Involve yourself emotionally as much as you can." After two minutes, they were instructed to turn the page and consider one of three sets of instructions. One group (Control) read a message irrelevant to aggression or anger:

In a recent Gallup poll it was found that the ethical views of church members are only slightly higher than those of non-members. It did, however show significant differences in attitude and behavior between the "highly spiritually committed" and members only.

A second group read these instructions (Peaceful Thoughts):

Imagine as vividly as you can that you are seated on the bank of a babbling brook meandering through a peaceful, quiet meadow. Birds are chirping in the background. The sun is bright and the sky is clear. You are very, very relaxed. Imagine this scene as vividly as you can until told to stop.

The third group read the following instructions (Aggressive Thoughts):

Imagine as vividly as you can that you are seated in the rear seat of the car in front of you behind the driver. You are screaming at the top of your voice, "MOVE IT!!" Imagine this scene as vividly as you can until told to stop.

After two minutes, subjects were asked to rate how angry they were at that moment on the self-rating scale. Next, subjects were given two and a half minutes to list their thoughts. Following that, they rated their cognitive responses as positive, negative, or neutral (see Petty, Ostrom & Brock, 1981, Ch. 2). Finally, subjects were thanked and debriefed. Cognitive responses were coded as Aggressive or Angry, Peaceful, or "Other" by two raters. Raters agreed in over 80 percent of the cases; disagreements were resolved through discussion.

Results

Attitude Scale

Students ranked their current anger at 25.9 (on a 0 to 100 mm scale) across all three groups. A main effect for groups occurred, $F(2,39) = 5.74$, $p = .006$. In the Aggressive Thought group, students rated their anger at 39.3 ($sd = 21.5$), higher than students in the Peaceful Thought group, $M = 9.4$ ($sd = 17.5$), $t(39) = 3.34$, $p < .001$. (All tests are one-tailed, consistent with directional hypotheses.) Although the Aggressive

Thought condition produced only a marginally higher rating in anger than the Control group, $M = 28.9$, ($sd = 30.2$), $t(39) = 1.17$, $p < .15$, students in the Peaceful Thought condition rated themselves as less angry than those in the Control group, $t(39) = 2.17$, $p < .025$.

Cognitive Response Measures

Total thoughts. Total thought production varied across groups, $F(21,39) = 5.69$, $p = .007$, with an average 5.38 total thoughts per student. More thoughts were produced in the Peaceful Thoughts group, $M = 7.29$, $sd = 2.89$, than in either the Aggressive Thoughts group, $M = 4.57$, $sd = 1.70$, $t(39) = 2.77$, $p < .005$, or the control group, $M = 4.29$, $sd = 3.00$, $t(39) = 3.06$, $p < .005$.

Aggressive Thoughts. Overall, students listed an average 1.45 Aggressive Thoughts. No main effect by group occurred, $F(2,39) = 1.75$, $p = .19$. Students who focused on the Aggressive Thoughts listed more such thoughts, $M = 2.07$, $sd = 2.56$, than students who focused on the irrelevant Control message, $M = .71$, $sd = 1.14$, $t(39) = 1.85$, $p < .05$. Students exposed to Peaceful Thoughts produced an average 1.57 Aggressive Thoughts ($sd = 1.87$), not significantly different from the number listed by students in the Aggressive Thought group, $t(39) = -.68$, ns, or that listed by the Control group, $t(39) = 1.18$, $p < .15$.

Peaceful Thoughts. Students listed an average of 1.17 Peaceful Thoughts. A clear group effect occurred, $F(2, 39) = 16.36$, $p < .0001$. Students who focused on Peaceful Thoughts listed many more such thoughts, $M = 3.14$, $sd = 2.66$, than students who attended to either the Aggressive Thoughts, $M = .21$, $sd = .58$, $t(39) = 4.90$, $p < .0005$, or who focused on the irrelevant Control thoughts, $M = .14$, $sd = .36$, $t(39) = 5.01$, $p < .0005$. Number of Peaceful Thoughts produced in the Aggressive and Control Thought groups did not differ, $t(39) = .12$, ns.

Other Thoughts. Students produced an average of 2.71 thoughts that were coded neither "Aggressive" nor "Peaceful." Production of Other Thoughts did not differ by group, $F(2, 39) = .72$, ns. In the Control group, an average 3.36 Other Thoughts were listed (sd = 2.98), not significantly different from the numbers of Other Thoughts listed in the Aggressive Thoughts group, $M = 2.29$, sd = 1.78, $t(39) = 1.13$, ns, or in the Peaceful Thoughts group, $M = 2.50$, sd = 2.59, $t(39) = .91$, ns.

Favorable, Unfavorable and Neutral Thoughts. The number of thoughts self-rated by students did not differ across groups for Favorable Thoughts, $F(2, 39) = 1.43$, $p = .25$, or for Neutral Thoughts, $F(2, 39) = .67$, ns. A group main effect occurred for Unfavorable Thoughts, $F(2, 39) = 4.14$, $p = .023$. Students listed more Unfavorable Thoughts in the Peaceful Thoughts group, $M = 2.79$, sd = 2.46, than in the Control group, $M = 1.00$, sd = 1.04, $t(2, 39) = 2.82$, $p < .01$. More Unfavorable Thoughts were listed in the Peaceful Thoughts group than in the Aggressive Thoughts groups, $M = 1.57$, sd = 1.16, $t(39) = 1.92$, $.10 > p > .05$. Unfavorable Thought production did not differ between the Control group and the Aggressive Thought group, $t(39) = .90$, ns. (Post hoc tests on Unfavorable Thoughts were performed with two-tailed probability values; existing theory does not allow for directional hypotheses.)

Correlational Analyses

Ratings of anger on the self-rating scale increased with number of thoughts coded as angry or aggressive, $r(40) = .32$, $p = .037$. Self-rated anger and Peaceful Thoughts were inversely related, $r(40) = -.34$, $p = .029$. The relationship between Favorable and Unfavorable thoughts and self-rated anger were also examined (though no directional predictions were made). Favorable Thoughts, Unfavorable Thoughts and Anger were unrelated, $r_s < .10$. Students rated their Aggressive/Angry Thoughts as unfavorable, $r(40) = .48$, and rated Peaceful Thoughts favorably, $r(40) = .49$, $ps = .001$.

Discussion

The results support the hypotheses: Significantly more anger was reported (on the self-rating scale) in the Aggressive Thought condition as compared to the Peaceful Thought group. Further, students produced more aggressive cognitive responses when they focused on an aggressive response to an imaginary situation than when they focused on distracting (Control) material.

Peaceful cognitive response production was significantly increased among students who focused on a peaceful scene compared to students in other groups. Further, the more angry or aggressive thoughts a student listed, the more anger the student indicated on the self-rating scale. The more Peaceful thoughts listed, the less anger was indicated on the self-rating scale. These relationships suggest that cognitive responses mediate anger, and perhaps mediate aggression.

The current findings offer support for the view expressed by Feshbach (1964) which focused on the thoughts or fantasies that work in opposition to "aggressive drive or anger." Although clinical applications have apparently been limited to people with serious anger control problems (Novaco, 1975; 1979, Garrison & Stolberg, 1983), a focus on peaceful thoughts appears a method by which angry or aggressive thoughts, a likely determinant of aggressive behavior, can be reduced in all people.

This experiment provided directed aggressive or peaceful fantasies for participants. In the world outside the laboratory, people are not provided with ready-made thoughts but rather generate their own idiosyncratic cognitive responses. Future research might examine the potentially more powerful effect such idiosyncratic self-generated cognitive responses have on anger.

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