

A Pilot Study of Motive Control to Reduce Vengeance Cravings

Michael Rowe, PhD, James Kimmel, Jr., JD, Anthony J. Pavlo, PhD, Kimberly D. Antunes, BSW, Chyrell D. Bellamy, MSW, PhD, Maria J. O'Connell, PhD, Luz Ocasio, Miraj Desai, PhD, Japjot Bal, BA, and Elizabeth H. Flanagan, PhD

Violence is a serious public health problem in the United States, and a common risk factor for many forms of violence is the perpetrator's motivation to achieve personal justice for past wrongs and injustices. Using a fictional transgression scenario to stimulate revenge feelings, we studied the preliminary efficacy of an intervention designed to mitigate revenge desires among victims of perceived injustice. The intervention consisted of a guided role-play of key figures in the justice system (e.g., victim, prosecutor, defendant, judge, etc.) in an imaginary mock trial of the offender. Study participants' revenge desires toward the perpetrator decreased significantly immediately after the intervention and at a 2-week follow-up interview. Benevolence toward the offender increased immediately postintervention and at a 2-week follow-up interview. These results suggest that the intervention has promise to decrease revenge desires in people who have been victimized, and it potentially opens the door to behavioral health motive control approaches to violence prevention. Findings on the roles of vengeance and the desire for retaliation in relation to violent acts, as well as neuroscience research that suggests a connection between retaliatory aggression and the neural circuitry of anticipated reward and cravings, are discussed. Limitations of this pilot study are also discussed, and recommendations for future research are provided.

J Am Acad Psychiatry Law 46(4) online, 2018. DOI:10.29158/JAAPL.003792-18

Violence is a serious public health problem in the United States. In 2015, 17,793 persons were victims of homicide, 44,193 were victims of suicide, and many thousands more were injured physically and emotionally by violence.¹ The Centers for Disease Control and Prevention (CDC) has adopted a five-year strategic vision for achieving measurable reductions in violence. Rather than focus resources on understanding and preventing individual forms of violence (e.g., youth, gang, intimate partner, elder, etc.), the CDC's strategic vision addresses violence at its roots by identifying and targeting shared risk and

protective factors common to multiple forms of violent acts.²

A common risk factor for many forms of violence is the perpetrator's motivation to achieve personal justice to avenge past wrongs and injustices.³ Retaliation against a partner for emotional harm has been identified as the most common reason for intimate partner violence.⁴ Retaliatory attitudes among assault-injured youth have been shown to fuel cycles of violence,⁵ and a systematic, multi-country review found that perpetrator desire for revenge was a primary motivation behind almost 40 percent of school shootings.⁶ Revenge has also been observed to be a primary motivation behind acts of terrorism.⁷

The role of retaliation in violent crime is also revealed in public health and criminological databases such as the CDC's National Violent Death Reporting System and the FBI's Uniform Crime Reports, which identify arguments in which one or more persons feel aggrieved as the single most common cir-

Dr. Rowe is a Professor, Mr. Kimmel is a Lecturer, Drs. Bellamy and O'Connell are Associate Professors, Dr. Flanagan is a Research Scientist, Dr. Pavlo is an Associate Research Scientist, Dr. Desai is an instructor, Ms. Antunes is Program Coordinator, Ms. Ocasio is a Research Assistant, and Mr. Bal is a Student Intern at the Yale Program for Recovery and Community Health, New Haven, CT. Address correspondence to: Michael Rowe, PhD, Yale Program for Recovery and Community Health, 319 Peck St., Building 1, New Haven, CT 06513. E-mail: michael.rowe@yale.edu.

Disclosures of financial or other potential conflicts of interest: None.

cumstance involved in violent death.^{8,9} Survivor-victims of violence have been shown to be at higher risk for engaging in violent behavior themselves.¹⁰ Within the military, veterans and service members who have experienced trauma (a form of victimization) have been shown to be at greater risk for aggression and violent offending than members not affected by trauma.¹¹

Recent neuroscience research suggests a possible link between the neural circuitry of retaliation and strong cravings, especially in males. Researchers have found that the same reward-processing centers of the brain that activate for and are implicated in narcotics addiction (i.e., striatum, nucleus accumbens) also activate when people are meting out altruistic punishments, that is, willingly incurring a cost to punish others who commit perceived injustices or norm violations.¹²⁻¹⁴ A recent large-scale study by Chester and DeWall replicated and expanded upon this work, establishing a connection between nucleus accumbens activation and retaliatory aggression. The authors write that these findings have strong implications for treatment aimed at reducing aggression. If anticipated reward is a motivation for aggression, they argue, then addiction-treatment techniques might be adapted for treatment of aggression and risk of violence.¹³

Background

Over the past twenty years, various process- and decision-based forgiveness interventions have been developed and investigated. Meta-analysis has produced moderately strong evidence suggesting that these interventions are effective in reducing depression, anger and hostility, and stress and distress.¹⁴ However, a hallmark of forgiveness interventions is that they require the victim to develop empathy and compassion for the offender. For a variety of individual and cultural reasons, many people are unable or unwilling to do this.¹⁵ Another limitation is that by focusing on developing benevolence toward the transgressor, forgiveness interventions do not help victims recognize and control their own feelings and urges toward revenge.¹¹⁻¹³ Thus, there is a need for interventions to help victims control their revenge urges without requiring them to forgive their transgressors.

James Kimmel, Jr., JD, the second author of this article, developed a theory of “nonjustice” to respond to past transgressions.¹⁶ Similar to the Gandhian

concept of nonviolence, nonjustice means to abstain from seeking justice through revenge for past wrongs, in contrast to social justice constructs, such as those employed in the Civil Rights Movement in the United States, which rightly demand relief from present or ongoing injustice based on discrimination. Importantly, forgiveness of the offender is not required by nonjustice theory, rather only the victim’s determination to abstain from seeking revenge is needed.

Kimmel then developed an intervention framework for nonjustice theory that combines cognitive strategies, psychodrama, criminal justice theory, and wisdom traditions. Called the Nonjustice System, the intervention is a nine-step role-play in which an aggrieved individual explores his or her desire for revenge against a perpetrator, including alternatives to seeking revenge, through a mock trial of the perpetrator. Led by a trained facilitator in a one-on-one session, the individual imaginatively plays the roles and acts out the functions of complainant, prosecutor, defendant, witness, defense lawyer, judge, jury, and witness to the administration of punishments. At the ninth step the individual role-plays a judge at a “Final Judgment,” which can be conceptualized as a universal gaze and authority. A series of prompts guides the individual through each of the roles and, after each step, asks the individual to reflect, as the victim, on how he or she is feeling as the offender is being prosecuted.

To begin to evaluate the potential efficacy of the Nonjustice System intervention in reducing revenge cravings, we conducted a pilot study to evaluate whether or not participating in the Nonjustice System intervention decreased participants’ desire for revenge and increased benevolence immediately and at two weeks after participation. As secondary outcomes, we also predicted that a participant’s subjective happiness and citizenship (i.e., an applied framework to enhance an individual’s sense of belonging and participation in society) would improve as a result of participation in the intervention. Other variables (i.e., homelessness, debt, money management) were collected for assessment because our previous research experience has shown that these variables are relevant when evaluating the efficacy of psychosocial interventions. We did not, however, have specific hypotheses about the intervention’s impact on these other variables.

Methods

Sample

Participants were community members in a mid-sized northeastern city who self-disclosed as both having been harmed, neglected, or mistreated in a way they perceived as unfair or unjust, and having experienced significant, repeated, and intrusive feelings or fantasies of wanting or craving justice, revenge, or punishment against a transgressor within the past six months. The study was approved by the authors' institutional review board.

Recruitment

Flyers describing the study and including research staff contact information were posted at a large community mental health center and at local social-service agencies. Flyers were also distributed via e-mail to clinicians at these agencies. Participants were recruited through research staff-initiated word-of-mouth in the local community and announcements at meetings of other social-service agencies. Interested persons called study staff, who explained the study and screened them for initial eligibility (i.e., having experienced within the past six months what they would describe as significant, repeated, and intrusive feelings or fantasies of wanting or craving justice, revenge, or punishment against a transgressor). Potentially eligible individuals were scheduled for an in-person meeting with a research staff member. At this meeting, the study was explained again and informed written consent to participate was obtained from 36 persons.

Research staff who had no prior experience were trained in administering the intervention and assessment protocol by the developer of the nonjustice method prior to the study in a two-hour, in-person training. Research staff also received ongoing consultation during data collection regarding the intervention's implementation. Each research session lasted about two hours, including administering the research assessments, reading the fictional scenario, and leading each participant through the nonjustice method. Participants received \$30 for each interview.

Baseline Assessments

After participants provided consent, they completed a series of measures. The Transgression-Related Interpersonal Motivations Inventory (TRIM-

18) is an 18-item measure of an individual's motivations to avoid, to seek revenge, and to show benevolence toward a transgressor, with subscales in each of these areas. Participants rate on a scale from 1 (strongly disagree) to 5 (strongly agree) how they feel toward their transgressor. The TRIM-18 has high internal consistency and evidence of construct validity.¹⁷

The Impact of Events Scale (Revised) is a 22-item measure of subjective stress caused by traumatic events. Subscales measure hyperarousal, intrusion, and avoidance in response to traumatic events. Participants are asked to rate from 0 (not at all) to 4 (extremely) how much a series of stressful life events affects them. The scale has been found to have high reliability and validity.¹⁸

The Subjective Happiness Scale is a 4-item measure of global, subjective happiness. Participants are asked to rate on a scale from 1 to 7 their experience of happiness. The scale has been found to have high internal consistency and good construct validity.¹⁹

The Citizenship Measure is a 45-item measure of social participation and sense of belonging.²⁰ Subscales include Personal Responsibility, Government and Infrastructure, Caring for Others, Civil Rights, Legal Rights, World Stewardship, and Choice. Participants are asked to rate on a scale from 1 to 5 the extent to which these items apply to them. The measure has been found to have good reliability and validity.²¹

Participants also completed a demographic questionnaire on mental health, substance use, criminal justice experience, homelessness, employment and income, money management, savings and debt, and religious and social affiliations.

Transgression Scenario

Following the baseline assessment, a fictional transgression scenario, including photos and aimed at safely stimulating heightened revenge feelings in the participant, was read by a research staff member, as summarized here:

You [the study participant] own a beloved dog named Harley and a cat named Lucy. Your neighbor, Billy, seems friendly but owns a pit bull, King, who has tried to attack Harley and Lucy in the past. Billy has to go out of town, and asks you to take care of King at his house, offering to return the favor by watching Harley and Lucy one day. You are reluctant to do so, but Billy assures you that King is sweet and gentle and you want to be nice, so you agree. Once you get to know King, you decide he's not such a threatening dog after all.

A month later, you need to go out of town unexpectedly and you ask Billy to watch Harley and Lucy at your house. When you return, Harley is missing. Billy says Harley escaped during a walk at the park and hasn't been found despite searching. The two of you look for Harley over the next two weeks, to no avail.

You receive a call from a man who says he's a friend of Billy's. He sounds drunk or high. He asks you if you can get him another "bait dog" like the one you gave Billy. When you ask what he means, he tells you that Billy and he participate in dog fighting, and that Billy turned King into a great fighter by provoking him to kill weak, scrawny dogs. You panic. Could Billy have used Harley as the bait dog?

You confront Billy, who acts offended and outraged at your accusation. You press him further, and finally he confesses: He did use Harley as a bait dog, King killed him, and he, Billy, threw Harley's body in a dumpster. He does not apologize and threatens to harm you if you report him for illegal dog fighting.

A fictional transgression scenario was used for two reasons. The first was to reduce the risk of participant harm for this novel, untested intervention that might result from provoking overly heightened revenge feelings if the participants' own personal victimization experiences/incidents were stimulated for study. The second was that a single, shared stimulus of revenge feelings among all participants would assist us in interpreting results and outcomes. In similar studies, Kober *et al.*²² and Volkow *et al.*²³ demonstrated that evaluating the effectiveness of interventions designed to reduce cravings (e.g., among persons with substance-use disorders) can be accomplished by using proxy cues such as photographs of cigarettes or videos of narcotics to heighten cravings among study participants.

Measuring Postscenario Revenge Feelings

Following completion of the transgression scenario, the TRIM-18 was re-administered to determine the presence or absence among participants of heightened revenge feelings over baseline resulting from the scenario. If a participant's TRIM-18 revenge score (desire for revenge) did not increase by at least one point over baseline, the participant was paid for participation up to this point and excused from the remainder of the study. Participants whose TRIM-18 revenge score increased by at least one point went on to the next step, participation in the Nonjustice System intervention.

Nonjustice System Intervention

The Nonjustice System intervention is a nine-step mock trial of a transgressor (Billy) following a prepared script of questions presented by a trained facili-

tor (research staff) to the victim of a transgression (study participant). The full intervention is available at <https://medicine.yale.edu/psychiatry/prch/research/motivecontrol.aspx>.

The intervention follows the eight traditional steps of a criminal case: The Indictment, the Plea, the Prosecution's Case, the Defense's Case, the Verdict, the Sentence, the Appeal, and the Punishment. The ninth step, Final Judgment, involves a radical change in perspective and is described below. As the case proceeds, the victim (study participant) is asked by the facilitator to play different key roles in the criminal justice system.

Step One—The Indictment

The victim (study participant) is asked to imagine playing the role of the prosecutor in charging the transgressor (Billy) with the wrongs and offenses committed, and to reflect upon this experience.

Step Two—The Plea

The victim is asked to imagine playing the role of the defendant (transgressor) in pleading guilty or not guilty to the charges, and to reflect upon this experience.

Step Three—The Prosecution's Case

The victim in this step retains the role of victim and is asked to imagine testifying to what happened and the injuries experience. The victim is then asked to reflect on this experience.

Step Four—The Defense's Case

The victim is asked to imagine playing the role of the defendant testifying to what happened from the defendant's perspective and to reflect on this experience.

Step Five—The Verdict

The victim is asked to imagine playing the role of a juror deciding the guilt or innocence of the transgressor and to reflect on this experience.

Step Six—The Sentence

The victim is asked to imagine playing the role of judge in deciding how the transgressor should be punished and to reflect on this experience.

Step Seven—The Appeal

The victim is asked to imagine playing the role of an appellate court judge in determining whether to uphold or reverse the verdict or the sentence and to reflect upon this experience.

Step Eight—The Punishment

The victim is asked to imagine playing the role of administrator of punishments in carrying out the judge's sentence upon the transgressor and to reflect upon this experience.

Step Nine—The Final Judgement

The ninth step, called "The Final Judgment" or a universal gaze and authority as noted previously, involves a radical change in perspective. The victim is asked to imagine being in a courtroom where their own life is being judged, and then to imagine being the judge sitting in judgment of their life, while reflecting on the injustices they have experienced, their feelings of revenge, the costs of and alternatives to seeking revenge, and strategies for moving on after injustice.

Measuring Postintervention Revenge Feelings

After completing the Nonjustice System intervention and a break, the TRIM-18 was re-administered.

Follow-up Assessment

Approximately two weeks after receiving the intervention, participants returned for a final interview, at which time they completed all of the measures again (TRIM-18, Impact of Events Scale, Subjective Happiness Scale, Citizens Measure). After administering the quantitative measures, open-ended qualitative interviews were conducted. Participants were asked about their experience with the fictional transgression scenario and how they would have reacted if it had actually happened to them, their experience of participating in the Nonjustice System, how they felt now about their own personal victimization experience and their desire for revenge arising from it, and their overall sense of well-being and happiness.

Data Analysis

Quantitative data generated by the measures were analyzed using SPSS 23.0.²⁴ Independent sample *t* tests or chi-square analyses were used to analyze baseline differences on all demographic, social service use, and financial characteristics between those who participated in the study and those who were screened out. Linear mixed model analyses were conducted to examine changes in participant scores over time from baseline, controlling for baseline scores.

Qualitative data were analyzed with procedures derived from an empirical phenomenological framework in which narrative analysis was used to identify

and delineate the common structural elements, or themes, that were found across the individual narratives. This analysis involved two levels of review: first by each investigator, then among all investigators. Each investigator reviewed and analyzed the transcripts and identified themes he or she thought were present in the interviews and quotes he or she thought illustrated the themes. The investigators then met, comparing and contrasting the themes and quotes they each identified, and came to a consensus on common themes.²⁵

Results**Quantitative Findings**

Table 1 lists the demographic and social-service utilization of participants who received the intervention and those who were screened out. Most participants who completed the intervention self-identified as being male, mid-thirties, African American, and non-Hispanic. They had on average a 12th-grade education and were heterosexual, unmarried, and employed. They were also, on average, currently housed, but over half had been homeless at some point. Fewer than half of those who received the intervention self-disclosed as having ever received mental health services (33%) or having been on probation/parole (14%). In addition, fewer than half of intervention participants had a bank account (48%) or received Social Security benefits (48%), whereas more than half had received support from the Supplemental Nutrition Assistance Program (SNAP, or food stamps) (52%). Nearly half self-disclosed as having a history of alcohol- or substance-abuse problems (48%) or having been incarcerated (48%). A third or less attended any religious or spiritual meetings or activities (33%) or were members of any clubs or social groups (29%).

Table 1 also lists the demographic and social-service utilization of potential participants who were screened out of the study. People who completed the study were not significantly different from those who were screened out on demographic, financial, and social variables, with two exceptions. Among those who were screened out of the study, 67 percent had ever received mental health services, whereas 33 percent of those who participated in the intervention had ever received mental health services: $\chi^2(1) = 3.9, p = .048$. Among those who were screened out, 73 percent had an incarceration history

Motive Control to Reduce Vengeance Cravings

Table 1 Demographic Characteristics of Participants, Social Service Use, and Financial Information

Variables	Intervention Group (n = 21)	Screened Out (n = 15)
Gender		
Male	18 (86%)	9 (60%)
Female	3 (14%)	6 (40%)
Age, years (mean, SD)	32.2 (14.2)	40.5 (11.8)
Race		
American Indian/Alaskan native		
Black/African-American	15 (72%)	11 (73%)
White	3 (14%)	3 (20%)
More than one race		
Unknown/not reported		
Other	3 (14%)	1 (7%)
Hispanic, yes	3 (14%)	3 (20%)
Level of education, years (mean, SD)	12.1 (1.0)	11.9 (1.9)
Sexual orientation		
Straight/heterosexual	20 (95%)	12 (80%)
Bisexual	1 (5%)	3 (20%)
Marital/relationship status		
Never married/single	11 (52%)	11 (73%)
Divorced/separated/widowed	7 (33%)	4 (26%)
Married/domestic partner	3 (14%)	0 (0%)
Attend any religious or spiritual meetings/activities	7 (33%)	8 (53%)
Member of any clubs or social groups	6 (29%)	7 (47%)
Currently receive mental health services	8 (38%)	8 (53%)
Ever received mental health services	7 (33%)	10 (67%)
Currently on probation or parole	3 (14%)	4 (27%)
Ever been incarcerated	10 (48%)	11 (73%)
Ever experienced homelessness	12 (57%)	10 (67%)
History of alcohol or substance misuse	10 (48%)	12 (80%)
Currently working	11 (52%)	5 (33%)
Receive Social Security benefits (SSI or SSDI)	10 (48%)	9 (60%)
Receive SNAP benefits (food stamps)	11 (52%)	9 (60%)
Someone else helps manage your money	5 (24%)	3 (20%)
Currently have a bank account (checking or savings)	10 (48%)	6 (40%)
Used non-banking financial services in the last 6 months	11 (52%)	11 (73%)
Able to save money every month	14 (67%)	5 (33%)
Currently in debt or been in debt at all in the past year	8 (38%)	5 (33%)

Data are expressed as *n* (%) unless otherwise noted.

SNAP, Supplemental Nutrition Assistance Program (food stamps); SSI, Social Security income; SSDI, Social Security disability income.

and 80 percent had a history of alcohol or substance misuse, as opposed to 48 percent for each of these two questions of those who participated in the intervention: $\chi^2(1) = 3.9, p = .049$. In addition, among those who were screened out, 33 percent saved money each month, as opposed to 67 percent of those who participated in the intervention: $\chi^2(1) = 3.9, p = .048$.

Changes in participant responses over time were analyzed using linear mixed models controlling for baseline levels of the variables. The TRIM was administered on four occasions: at baseline, after the scenario was read, after the intervention was completed, and at follow-up. Figure 1 shows the means for the TRIM scores across the four time periods. Linear mixed model analysis showed that participants' desire for revenge changed significantly over

time ($F(3,73) = 12.1, p < .001$). Least significant difference pairwise comparisons showed that revenge feelings increased significantly from baseline in response to the scenario (mean difference = 2.1, SEM = 2.0, $p < .001, d = 1.77$), decreased significantly after the intervention compared with the postscenario mean (mean difference = -0.8, SEM = 0.2, $p < .001, d = 1.19$), and decreased significantly at two-week follow-up compared with the postscenario mean (mean difference = -0.9, SEM = 0.2, $p < .001, d = 1.37$). Participants' feelings of benevolence toward their transgressor also changed significantly over time ($F(3,73) = 4.1, p = .01$). Least significant difference pairwise comparisons showed that benevolence decreased significantly from baseline in response to the scenario (mean difference = -0.6, SEM = 0.2, $p = .003$,

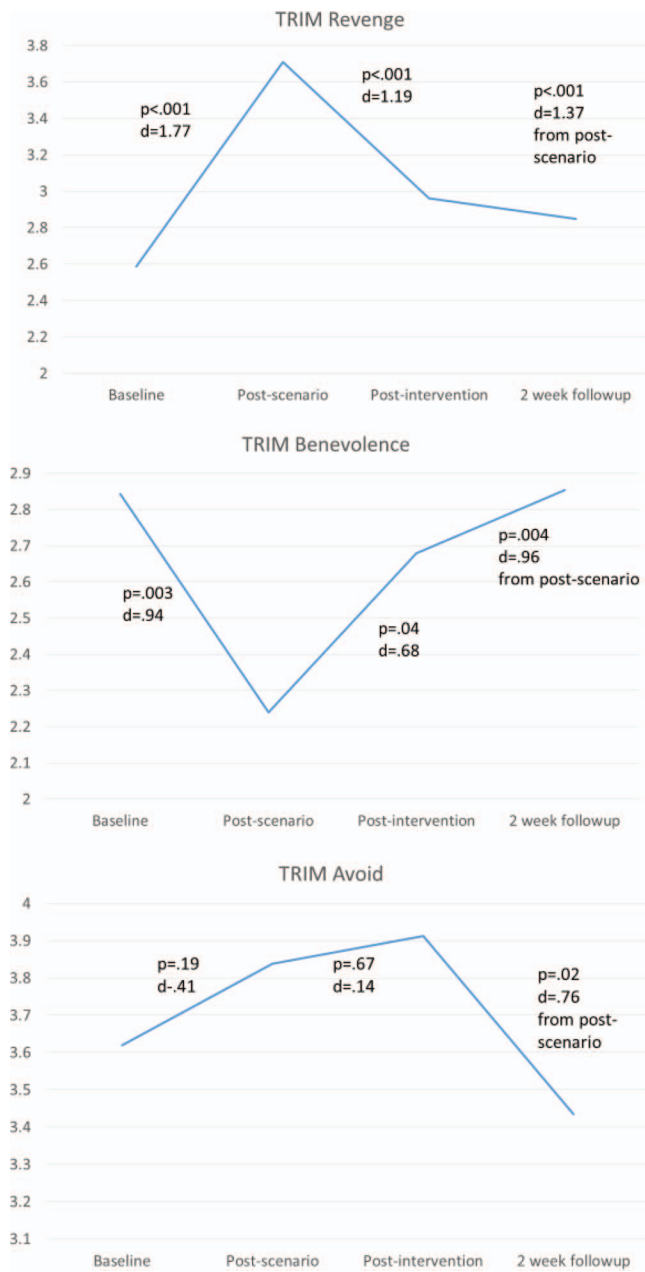


Figure 1. Change in TRIM scores from baseline to 2-week follow-up for those who participated in the intervention.

$d = 0.94$). Benevolence increased significantly from postscenario to postintervention (mean difference = 0.4, $SEM = 0.2$, $p = .68$). Benevolence also increased significantly at two-week follow-up compared with postscenario (mean difference = 0.6, $SEM = 0.2$, $p = .004$, $d = 0.96$). Participants' feelings of avoidance also changed significantly over time ($F(3,73) = 3.0$, $p = .03$). Least significant difference pairwise comparisons showed that avoidance did not increase significantly postscenario compared

with baseline (mean difference = 0.2, $SEM = 0.2$, $p = .19$, $d = 0.41$). Avoidance also did not change significantly postintervention compared with postscenario (mean difference = 0.1, $SEM = 0.2$, $p = .67$, $d = 0.14$). Avoidance did decrease significantly at two-week follow-up compared with postscenario (mean difference = 0.4, $SEM = 0.2$, $p = .02$, $d = 0.76$).

All measures other than the TRIM were administered only at baseline and at two-week follow-up. Linear mixed model analysis of the Impact of Events scale showed that the intrusion subscale decreased significantly from baseline to two-week postintervention follow-up (see Table 2). The average score across all items approached significance, as did the hyperarousal subscale. The avoidance subscale of the Impact of Events Scale did not change significantly from baseline. The Subjective Happiness Scale did not change significantly from baseline to two-week follow-up. The Citizenship Measure average score, as well as most of the subscale scores, did not change significantly from baseline to two-week follow-up. Exceptions were the personal responsibility subscale, which decreased significantly from baseline ($F(1,36) = 6.9$, $p = .01$), and the legal rights subscale, which decreased significantly from baseline ($F(1,36) = 4.6$, $p = .04$).

Relationships between the subscales that changed significantly over time and the demographic and social-service variables were also analyzed using Pearson correlations. Greater increases in benevolence after the intervention were associated with not receiving mental health services ($r = -.52$, $p < .05$), no history of substance abuse ($r = -.50$, $p < .05$), fewer times incarcerated ($r = -.46$, $p < .05$), being married ($r = .52$, $p < .05$), lower age ($r = -.52$, $p < .05$), and not using non-banking services (i.e., check-cashing, pawn broker services) ($r = -.55$, $p < .05$). Greater decreases in revenge were associated with receiving financial help ($r = .55$, $p < .05$). Greater decreases in avoidance were associated with currently working ($r = .53$, $p < .05$). Greater decreases in personal responsibility were associated with not being religious ($r = -.50$, $p < .05$). Greater decreases in concern with legal rights were associated with being Hispanic ($r = .51$, $p < .05$).

Qualitative Findings

Three interdependent themes were identified in open-ended interviews: greater awareness of self and other, "thinking things through," and empowerment. In general, participants found the experience

Motive Control to Reduce Vengeance Cravings

Table 2 Intervention Results

	Baseline Mean (SEM)	2-Week Follow-up Mean (SEM)	Statistics
Impact of Events Scale			
Average	1.8 (0.10)	1.5 (0.10)	F (1,36) = 3.7 p = .06
Intrusion	2.0 (0.14)	1.5 (0.15)	F (1,36) = 5.3 p = .03
Hyper-arousal	1.6 (0.11)	1.3 (0.12)	F (1,36) = 3.4 p = .07
Avoidance	1.8 (0.13)	1.7 (0.14)	F (1,36) = 0.2 p = .67
Subjective Happiness Scale	4.7 (0.15)	4.8 (0.17)	F (1,36) = 0.2 p = .63
Citizenship Measure			
Overall average	4.0 (0.6)	3.9 (0.6)	F (1,36) = 1.7 p = .20
Personal Responsibility	4.1 (0.06)	3.9 (0.06)	F (1,36) = 6.9 p = .01
Government and Infrastructure	3.5 (0.10)	3.7 (0.11)	F (1,36) = 0.7 p = .42
Caring for Others	3.9 (0.09)	3.9 (0.10)	F (1,36) = 0.1 p = .82
Civil Rights	3.9 (0.06)	3.8 (0.06)	F (1,36) = 0.6 p = .46
Legal Rights	4.3 (0.15)	3.8 (0.16)	F (1,36) = 4.6 p = .04
World Stewardship	3.8 (0.12)	3.7 (0.13)	F (1,36) = 0.4 p = .54
Choice	4.3 (0.07)	4.2 (0.08)	F (1,36) = 0.5 p = .48

of the intervention to be positive and described an enhanced sense of self and other; an ability to think through the consequences of their feelings; and feeling empowered, more knowledgeable, and in control. They were also able to consider new emotional, attitudinal, and practical possibilities in response to revenge-inducing situations. They often questioned habitual reactions to such situations, especially how such reactions had hindered their achievement of life goals.

Greater Awareness of Self and Others

Participants described a revised outlook, greater openness, and an enhanced understanding of their own habits and inclinations. For instance, one participant said, "It gave me an outlook on things It's getting to know yourself also." Another said, "I felt like it's kind of like opening me up and getting me to realize things about myself . . . what I would do in this predicament. Like, finding stuff out about myself like before it even occurred." One participant found he was able to refocus his perspective beyond a limited viewpoint toward a more expansive one: "I look at things like from a broader view, like a wider

view. Just not be focused on a thing or a couple of things."

This new outlook and openness accompanied a parallel shift in participants' consideration of new ways of responding to conflictual situations. For example, they anticipated approaching these situations with a wider range of possibilities, including equanimity. One participant said he felt "neutral rather than vengeful," and another said he would not be "as extreme" and would "compromise more." This enhanced self-awareness appeared to be related to greater awareness of the thoughts, feelings, and beliefs of others. One participant said, "Everyone has their own opinions." Another described how the experience could be applied to everyday life: "Having to convict your neighbor is like just being put on the spot. I could say I connect to that because . . . we all go through something where even with friends and family something may happen and now we got to . . . question each other, 'What's wrong?' and all that." In response to a question about the fictional scenario, another participant extended the theme of enhanced sense of empathy toward others to social-systemic

issues, saying, “It helped me relate to certain situations that I experienced in life, and it makes me think more about the consequences people deserve and what they don’t deserve and how the system works and how it can be messed up in a way.”

Thinking Things Through

Participants also described “thinking things through” after the intervention. Their comments revealed a sense of being more future-oriented and of weighing the consequences of acting on vengeful feelings, including possible interference with their valued goals in life. They continued to experience feelings of revenge but said acting on them “wasn’t worth it.” One participant summarized these issues:

They say nothing is sweeter than revenge. However, I was taught that success is the best revenge, and that’s the route I’m trying to take in the physical. In the mental, it’s like, it’s so pleasurable to actually reenact in my head what I would want to do instead of what is right based on my own ethics of what I should do It’s not beneficial to where you’re trying to go, the direction you’re trying to take in life But it doesn’t hide the fact that I still have those feelings And it made me think, “Is it something that I really want or is it a selfish feeling that I have that will only get me nowhere if I was to act on it?” So just thinking that and then looking at my goals, it’s like, well, I feel like dwelling on getting revenge will consume too much energy within myself.

Empowerment

Participants appeared to feel more empowered following participation in the Nonjustice System intervention. This sense of empowerment also appeared to be experienced in light of their greater understanding of the legal system and having the chance to occupy roles with more perceived power. One participant described the seriousness of being a judge: “You . . . actually feel like you have power over someone’s fate and destination. It’s serious. It’s nothing, you know, to play around with” Others described the use of the legal system in the Nonjustice System intervention as satisfying: “[Billy] was forced to undergo trial . . . and it was empowering [for me], even though I was furious [at, and in role-playing, him].”

Participants appeared to feel a greater sense of power and control from having role-played persons in authority who exercised power. One said, “It felt like I had power . . . which they [justice officials] do. They have power.” Another spoke of “stepping outside my own realm . . . of being a victim.” Still another described a different experience of the inter-

vention, one that appears to both qualify and endorse its empowering aspect:

Just being a judge, a prosecutor . . . and . . . you got to come out with a different answer or a different reply, a different question, you know, it’s a different angle. You know, a judge is not going to say the same thing as a prosecutor. It’s all different, you know, so it felt, kind of, crazy. And I had to use my mind. I had to use my brain.

Discussion

The significant role of retaliation for past wrongs in the commission of violent acts has been documented in intimate partner violence, among assault-injured youth, and in school shootings, acts of terrorism, violent death generally, and among military veterans and service members who have been victims of trauma.^{3–11} Thus, the need to develop interventions to address the desire for revenge and the risk of violence this entails is clear. In our study of a Nonjustice System intervention, we found that participants experienced decreased revenge feelings that had been provoked by a fictional transgression scenario. This decrease was observed both immediately after participation in the Nonjustice System intervention, which itself followed immediately after TRIM administration following the fictional scenario and at the two-week follow-up. Participants also had decreased avoidance of their transgressors at the two-week follow-up and had increased feelings of benevolence toward their transgressor after the intervention and at the two-week follow-up. Significantly, these changes occurred without requiring participants to forgive their transgressor. Also significant is that these changes occurred with individuals who self-disclosed as having struggled recently with significant, intrusive revenge feelings based on their own personal victimization experiences.

The mechanisms by which the Nonjustice System intervention operates remain unclear. Our findings suggest some themes that might be useful to consider in future research on the mechanisms at work in the intervention. By requiring participants to engage in a virtual trial of Billy, the fictional-scenario transgressor, and to consider and imagine the immediate and long-term effects of exacting revenge, the intervention may have caused participants to reappraise their desire for revenge, and in so doing, to experience reductions in that desire. Du and Chang’s research, which identifies cost–benefit calculation and “social reference frame impact” upon self and others as significant cognitive processes in altruistic punish-

ment,²⁶ may lend support to a reappraisal hypothesis. In addition, the finding of decreased avoidance of the transgressor suggests possible behavior change, while the finding of increased benevolence suggests that empathy may have increased through participation in the intervention.²⁶

Qualitative findings suggest that the intervention may target mechanisms similar to those observed in psychotherapy, especially those mechanisms that target constructions of self and other. Participants described a greater awareness of self and other that enhanced their capacities for reflection. There is preliminary evidence that participants could both experience and explore their emotions before reacting to them (as is often the case with violent behavior) and make decisions based on their values and experience optimism, hope, and empowerment, all of which occur in psychotherapy.²⁸⁻³²

Finally, psychodrama effects produced by the Nonjustice System intervention may have contributed to the observed reduction in revenge desires. Psychodrama techniques such as role-playing and role reversal, present in modified form in the intervention, have been shown to facilitate behavioral change and produce empathy.²⁷ Our results showing increases in benevolence toward the offender among participants suggest such an impact. This is particularly noteworthy because the intervention did not require forgiveness of the transgressor, as in forgiveness therapies.

There are several limitations to this research. Two are inherent in pilot studies: the small sample size has limited geographic and demographic diversity, and our study lacked a control group. Given the pilot nature of this research and the possibility that findings could occur by chance alone given the large number of measures, the conclusions drawn from this research should be tentative, and these limitations should be addressed in future research with a larger sample and a control group. Another limitation of this study is that some people were screened out of the intervention because their desire for revenge did not increase from their baseline after administration of the fictional scenario. A retrospective concern with this strategy is that people who had a maximum score on revenge feelings at baseline were automatically excluded because their revenge feelings could not increase further in response to the scenario. Therefore, it is likely that some people with strong revenge feelings who might have experienced relief from the intervention were excluded from the study.

Similarly, some significant differences were found between participants who were excluded from the intervention and people who participated (e.g., the percentage who had ever received mental health services, the percentage with a history of alcohol or substance abuse, and the percentage who saved money each month). Future research should investigate the effect of the intervention on people with a variety of revenge feelings.

Another limitation of this research was the use of a fictional scenario. With a fictional scenario, it is possible that the "correct" answer (reduced revenge cravings) was more obvious to participants than it would have been with a personal victimization experience/scenario, and thus, that participants might have answered questions, in part, out of demand characteristics rather than their true feelings.

Much further study, in addition to that noted above, is required to evaluate the potential of the Nonjustice System intervention to reduce vengeance cravings, give relief to victims, and lower their risk of seeking justice through revenge. Future research should investigate the effectiveness of the Nonjustice System compared with other revenge-reducing interventions, such as forgiveness interventions, with a large sample size and a randomized controlled design. The effectiveness of the intervention in reducing people's revenge feelings in response to their own personal victimization experiences should also be investigated, along with the question of whether or not using a person's personal victimization experience for the intervention produces a stronger reduction in revenge than a fictional scenario. Target groups for future research may include, as one example, families with members who have been killed by drug violence or by the police, events that are all too common in contemporary American life.

Future research could include longer follow-up assessment (e.g., 3 months) to determine the duration of the intervention's impact, including the intervention's impact on other or future victimization experiences, and to varying levels of severity, producing a lasting inoculation effect. This question has special relevance because perceived injustices are common and real-world revenge behaviors can occur within minutes or even seconds. Future research could also use measures that are likely related to these issues. These include, for example, additional measures of anger, aggression, and risk of future acts of violence. Intensive qualitative research to investigate participants'

individual victimization experiences and the impact of the intervention on their revenge feelings might also be considered, particularly to provide more experimental and contextualized knowledge of processes of change. Future research could also investigate the use of technology (e.g., diary apps) to record revenge feelings as they change throughout the day and in response to different people and events.

Neuroscience research might explore the effect of the intervention on neural processing, given the research referenced earlier on possible relationships between altruistic punishment, retaliatory aggression, and the reward-processing centers of the brain associated with cravings (dorsal striatum, nucleus accumbens).^{11–13,33} It is possible that the Nonjustice System intervention produces neural correlates, potentially deactivating those areas. If so, neuroscience research might deepen our understanding not only of the brain-biological origins of revenge-seeking but also of violence itself, along with continued study of socioeconomic and other impacts on aggrieved persons' behaviors in response to injustice.

Despite these limitations and the need for future research, the finding that the Nonjustice System intervention decreased revenge feelings gives promise in support of the CDC's strategic vision of achieving measurable reductions in violence by targeting shared risk and protective factors common to multiple forms of violent acts.² The pervasive role of personal justice-seeking as a primary motive underlying acts of aggression suggests that the intervention might offer a new behavioral health approach to violence prevention, based on the idea of motive control—that is, strategies for controlling the desire to commit acts of violence. Such an approach might occur through intervention, as appropriate, in public health and educational programs, or as an acute intervention to support individuals at risk for committing acts of violence, particularly those who have been victims of injustice.

References

- Centers for Disease Control and Prevention. Violence prevention at CDC. Available at: <https://www.cdc.gov/violenceprevention/overview/index.html>. Accessed April 19, 2017
- Centers for Disease Control and Prevention. Preventing multiple forms of violence: a strategic vision for connecting the dots. Available at: https://www.cdc.gov/violenceprevention/pdf/Strategic_vision.pdf. Accessed April 19, 2017
- Gilligan J: Violence: Our Deadly Epidemic and Its Causes. New York: GP Putnam, 1996
- Langhinrichsen-Rohling J, McCullars A, Misra TA: Motivations for men and women's intimate partner violence perpetration: a comprehensive review. *Partner Abuse* 3:429–68, 2012
- Copeland-Linder N, Johnson SB, Haynie DL, et al: Retaliatory attitudes and violent behaviors among assault-injured youth. *J Adolesc Health* 50:215–20, 2012
- Schmid AP: The Routledge Handbook of Terrorism Research. New York: Taylor & Francis, 2011
- Wilkins N, Tsao B, Hertz MF, et al: Connecting the Dots: An Overview of the Links Among Multiple Forms of Violence. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention Oakland, CA: Prevention Institute.
- MacManus D, Dean K, Jones M, et al: Violent offending by UK military personnel deployed to Iraq and Afghanistan: a data linkage cohort study. *Lancet* 381:907–17, 2013
- Centers for Disease Control and Prevention. National violent death reporting system: homicide/legal intervention circumstances. Available at: <https://wisqars.cdc.gov:8443/nvdrs/nvdrsDisplay.jsp>. Accessed April 19, 2017
- Federal Bureau of Investigation. Uniform crime reports: expanded homicide data 12, murder circumstances. Available at: https://ucr.fbi.gov/crime-in-the-u.s/2015/crime-in-the-u.s.2015/tables/expanded_homicide_data_table_12_murder_circumstances_2011-2015.xls. Accessed April 19, 2017
- De Quervain DJ, Fischbacher U, Treyer V, et al: The neural basis of altruistic punishment. *Science* 305:1254, 2004
- Strobel A, Zimmermann J, Schmitz A, et al: Beyond revenge: neural and genetic bases of altruistic punishment. *Neuroimage* 54:671–80, 2011
- Chester DS, DeWall CN: The pleasure of revenge: retaliatory aggression arises from a neural imbalance toward reward. *Soc Cogn Affect Neurosci* 11:1173–82, 2015
- Akhtar S, Barlow J: Forgiveness therapy for the promotion of mental well-being: a systematic review and meta-analysis. *Trauma Violence Abuse* 19:107–22, 2018
- Wade NG, Worthington EL: Overcoming interpersonal offenses: is forgiveness the only way to deal with unforgiveness? *J Couns Dev* 81:343–53, 2003
- Kimmel JP, Jr: *Suing for Peace*. Charlottesville, VA: Hampton Roads Publishing Company, 2005
- McCullough ME. Transgression-related interpersonal motivations inventory (TRIM-18). Available at: <http://www.midss.org/transgression-related-interpersonal-motivations-inventory-trim-18>. Accessed April 19, 2017
- Creamer M, Bell R, Failla S: Psychometric properties of the impact of event scale—revised. *Behav Res Ther* 41:1489–96, 2003
- Lyubomirsky S, Lepper HS: A measure of subjective happiness: preliminary reliability and construct validation. *Soc Indic Res* 46:137–55, 1999
- Rowe M, Clayton A, Benedict P, et al: Going to the source: creating a citizenship outcome measure by community-based participatory research methods. *Psychiatr Serv* 63:445–50, 2012
- O'Connell MJ, Clayton A, Rowe M: Reliability and validity of a newly developed measure of citizenship among persons with mental illnesses. *Community Ment Health J* 53:367–74, 2017
- Kober H, Mende-Siedlecki P, Kross EF, et al: Prefrontal-striatal pathway underlies cognitive regulation of craving. *Proc Natl Acad Sci U S A* 107:14811–6, 2010
- Volkow ND, Fowler JS, Wang G-J, et al: Cognitive control of drug craving inhibits brain reward regions in cocaine abusers. *Neuroimage* 49:2536–43, 2010
- IBM SPSS Statistics for Macintosh, Version 23.0. Armonk, NY: IBM Corp., 2012
- Davidson L: *Living Outside Mental Illness: Qualitative Studies of Recovery in Schizophrenia*. New York: NYU Press, 2003
- Du E, Chang SW: Neural components of altruistic punishment. *Front Neurosci* 9:26, 2015

Motive Control to Reduce Vengeance Cravings

27. Kipper DA, Ritchie TD: The effectiveness of psychodramatic techniques: a meta-analysis. *Group Dyn Theory Res Pract* 7:13, 2003
28. Young JE: *Cognitive Therapy for Personality Disorders: A Schema-Focused Approach*. Revised ed. Sarasota, FL: Professional Resource Press/Professional Resource Exchange, 1994
29. Yeomans FE, Clarkin JF, Kernberg OF: *A Primer of Transference-Focused Psychotherapy for the Borderline Patient*. Lanham, MD: Rowman & Littlefield Publishers Inc., 2002
30. Lysaker PH, Klion RE: *Recovery, Meaning-Making, and Severe Mental Illness: A Comprehensive Guide to Metacognitive Reflection and Insight Therapy*. Abingdon, UK: Routledge, 2017
31. Leitner LM, Faidley AJ, Celentana MA: Diagnosing human meaning making: an experiential constructivist approach, in *Constructions of Disorder: Meaning-Making Frameworks for Psychotherapy*. Edited by Neimeyer RA, Raskin JD. Washington, DC: American Psychological Association, 2000, pp 175–203
32. McCullough ME, Root LM, Cohen AD: Writing about the benefits of an interpersonal transgression facilitates forgiveness. *J Consult Clin Psychol* 74:887, 2006
33. Singer T, Seymour B, O’doherly JP, *et al*: Empathic neural responses are modulated by the perceived fairness of others. *Nature* 439:466–9, 2006