Effects of Disclosure of Traumatic Events on Illness Behavior Among Psychiatric Prison Inmates

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To assess the health effects of writing about traumatic events in a clinical population, 98 psychiatric prison inmates were randomly assigned to 1 of 3 conditions in which they were asked to write about their deepest thoughts and feelings surrounding upsetting experiences (trauma writing condition), write about trivial topics (trivial writing control), or go about their daily routine without writing (no-writing control). Both writing groups wrote for 20 min per day for 3 consecutive days. Participants in the trauma condition reported experiencing more physical symptoms subsequent to the intervention relative to those in the other conditions. Despite this, controlling for prewriting infirmity visits, sex offenders in the trauma writing condition decreased their postwriting infirmity visits. These results are congruent with predictions based on stigmatization and inhibition.

Traumatic events can have a negative impact on health. Translating these experiences into language, however, can help mitigate the adverse physical consequences of such stressors. For example, writing about one's thoughts and feelings surrounding traumas, compared with writing about superficial topics, has been linked to decreases in physician and health center visits among college students (Smyth, 1998). Moreover, trauma writing has been associated with biological markers of enhanced immune functioning (Pennebaker, Kiecolt-Glaser, & Glaser, 1988).

Some individuals benefit from writing more than others. Expressive writing has been shown to improve health for persons who tend to be more inhibited, such as men (Smyth, 1998), and persons high in hostility (Christensen & Smith, 1993). Recent evidence also suggests that members of stigmatized groups may be more inhibited and therefore may benefit more from the disclosure writing paradigm. Such persons are often motivated to keep their stigma secret, which may put their health at risk. For example, gay men who were more open about their sexual orientation were physically healthier than those who were secretive about this aspect of themselves (Cole, Kemeny, Taylor, & Visscher, 1996).

Although it is unclear how writing influences health, writing does affect health in nonclinical samples of college students and college-educated adults (Smyth, 1998). No studies, however, have examined how writing would benefit a clinical or less mainstream population. In our study, we sought to compare the benefits of writing among psychiatric prison inmates who vary in the degree to which they are stigmatized in their environment.

In the prison population, sexual offenders are viewed more negatively than other prisoners and thus are stigmatized both by other prisoners and by correction officers (Akerstrom, 1986; Weekes, Pelletier, & Beaudette, 1995). Previous research on criminal offenders has distinguished between those who do and those who do not commit sex-related crimes (for a review, see Davis & Leitenberg, 1987). Because of their marginalized status in prison as well as possible personality factors, these individuals may be unable or unwilling to talk about personally upsetting experiences with others. In line with previous research indicating that writing about traumatic experiences is most effective among individuals least likely to disclose, we hypothesized that sex offenders who wrote about traumatic events would be even more likely than non-sex offenders to exhibit improved health, although we expected both to benefit. Importantly, up to this point, no empirical study using a writing disclosure paradigm has been undertaken with this population.

In this study, we examined the effects of trauma writing on maximum-security, psychiatric prison inmates. This group has been noted for their high use of health care services. One study compared use of prison health services and found that the mean annual physician visit rate is 2.4 times greater than that for non-
incarcerated men. This higher rate of health care use was greatest in maximum-security prisons (Sheps, Schecter, & Prefontaine, 1987).

We hypothesized that psychiatric prison inmates who wrote about traumatic events for 3 consecutive days would show a decrease in infirmity visits from 6 weeks pre- to 6 weeks post-writing. We also anticipated that participants who either wrote about trivial topics or did not write at all would not evince such health improvement. We also analyzed the fundamental aspects of participants’ trauma writings, such as time orientation and type of abuse disclosed to get insight into how the nature of their traumas might distinguish between sex offenders and non-sex offenders.

Method

Participants

One of the authors (Wanda E. Beal) was given access to a population of approximately 400 Midwestern, maximum-security, psychiatric male prison inmates. The facility is designed to diagnose and stabilize inmates before returning them to a larger general population facility. The State Correctional Facility granted permission to allow selection of 105 willing inmates to participate in the study. Invitations to participate were posted, and word-of-mouth information was given to groups meeting for therapy, recreation, and work details. To equalize potential demand characteristics across all conditions, prospective participants were told they would be participating in “research that could contribute to scientific knowledge and benefit incarcerated men.” They were informed that they might be asked to write for 3 consecutive days for 20 min each day. Because of the study’s writing requirements, only volunteers whose informational charts indicated a sixth-grade education or higher, as measured by Basic Adult Educational Level scores, were allowed to participate. Volunteers who were segregated, psychotic, or who required crisis intervention during the participant recruitment phase were also excluded.

Because of transfers, acting-out behaviors, releases, and court dates, the final sample used in this study consisted of 98 inmates, with a mean age of 34.5 years (SD = 8.9) and 11.9 years (SD = 2.2) of education completed. Ethnic categories represented in the sample included 75 (79%) Caucasian, 17 (18%) African American, 2 (2%), Hispanic, and 1 (1%) Native American. Whereas 47% of the sample were classified as sex offenders (i.e., rape, child molestation, and sexual assault convictions), 53% were classified as non-sex offenders (i.e., murder, burglary, drug-related offenses, and assault convictions). Participants who were convicted for committing both sexual and other types of crimes were categorized as sexual offenders. All participants were diagnosed with at least one disorder indicated in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R: American Psychiatric Association [APA], 1987). The men who were eligible for the study did not differ in any other systematic way from those not invited to participate.

Simple one-way analyses of variance (ANOVA's) revealed that there were no between-conditions differences before the inception of the experiment with respect to age, education, prison sentence length, preintervention infirmity visits (all ps > .11). Chi-square analyses indicated no difference for sex offender status based on marital status, race, and Axis I and II disorders (ps > .20). Of the total sample, 35% had only an Axis I disorder, 36% had only an Axis II disorder, and 29% had both. Education, race, Axis I and II status, prison sentence length, and preintervention infirmity visits did not differ by sex offender status, with the exception that sex offenders (M = 38.2 years) were older than non-sex offenders (M = 31.0 years), F(1, 95) = 18.04, p < .01, and less likely to be married than non-sex offenders, χ²(4, N = 95) = 4.79, p < .05.

Procedure

Participants were randomly assigned to one of three conditions: a no-writing control group (n = 30) or one of two writing groups that required them to write about either personal traumatic events (n = 39) or trivial topics (n = 29) for 20 min on each of 3 consecutive days. We assured all participants that the Department of Corrections would not have access to their writings and completed questionnaires; however, it was made clear that the prison psychiatric staff and researchers connected with the project would handle and review these materials. At all phases of the study, we assured participants of the confidentiality of all of the material they submitted.

On the first day of the study and again 6 weeks after the writing phase of the experiment, participants completed the Cognitive-Somatic Anxiety Questionnaire (CSAQ), a trait anxiety inventory (Cronbach alpha = .81; somatic = .76; DeGood & Tait, 1987; Schwartz, Davidson, & Goelman, 1978), and the Pennnekink Inventory of Limbic Languidness (PILL), which assesses the frequency of experiencing each of 54 common physical symptoms (Cronbach alpha = .88; Pennnekink, 1982). Both the CSAQ and the PILL have high construct validity when compared with other measures of anxiety and physical symptom self-reports, respectively. At baseline, there were no between-conditions differences on the CSAQ or PILL. For sex offender status, there were no baseline differences on the CSAQ. However, there was a main effect for the PILL: Sex offenders reported fewer symptoms than non-sex offenders, F(1, 94) = 7.43, p < .01.

Whereas participants in the no-writing control group were asked to go about their usual routine after completing the questionnaires, those in the trauma writing condition were informed as follows:

During each of the 3 writing days, I want you to write about the most traumatic and upsetting experiences of your entire life. You may write on different topics each day or about the same topic for all 3 days. The important thing is that you write about your deepest thoughts and feelings. Ideally, whatever you write about should deal with an event or experience that you have not talked with others about at all or in very little detail.

Those in the trivial writing control group were asked to write about an assigned topic during each of the 3 writing days, such as how they manage their time. The experimenter emphasized that they were to describe specific objects or events of their day without discussing their feelings or thoughts on the subject. After completing each day of writing, participants completed a self-report survey that asked them to rate the degree to which they were currently experiencing physical symptoms and emotions. All items were answered along 5-point scales (1 = not at all, and 5 = a great deal). The survey also included questions about how the participant felt about his essay that day. After completion of the writing phase of the study, participants in all three conditions were given a “goody bag” containing a plastic drinking cup, a pen, a pencil, candy bars, and a deck of playing cards.

At the conclusion of the study, the correctional facility infirmir provided data on the number of visits each participant had made for illness for the 6 weeks before the study and for the 6 weeks following the study. Furthermore, 5 upper division psychology students rated the extent to which trauma condition writings reflected each of seven dimensions on a Likert-type scale: specificity of the event, past and future time orientation, the presence of sexual trauma, general abuse (e.g., childhood physical abuse), rejection, and portrayals of victim status. Raters were trained using detailed descriptions of each category. The inter-rater reliability coefficient (Cronbach alpha) for the seven dimensions had a mean value of .88. These categories were chosen on the basis of previous research that has suggested that they are important dimensions to consider in analyzing personal writings (Pennebaker & Francis, 1996).

To systematically compare the content of the essays in each condition,
we used a computerized text analysis program called Linguistic Inquiry and Word Count (LIWC; Pennebaker & Francis, 1996). This program contains multiple word category dimensions, such as positive and negative emotion, and calculates the percentage of total words represented in each category.

Results

Within the 2 × 3 design (Sex Offender Status × Writing Condition), we conducted ANOVAs on the various dependent measures. The overall analyses were partitioned into five orthogonal contrasts. The contrasts compared the trauma writing condition with the average of the trivial writing and no-writing conditions (writing contrast), the trivial writing versus the no-writing conditions (control contrast), and sex offenders versus non-sex offenders. The remaining two contrasts addressed possible interactions between sex offender status and writing condition. The analyses, therefore, produced two intervention condition main effects (writing contrast and control contrast), a sex offender main effect, and two interactions (Writing Contrast × Sex Offender and Control Contrast × Sex Offender).

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Condition</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>n</th>
<th>M</th>
<th>SD</th>
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<th>M</th>
<th>SD</th>
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<td>Immediate postwriting self-report</td>
<td>Trauma</td>
<td>26</td>
<td>1.83</td>
<td>0.72</td>
<td>23</td>
<td>1.49</td>
<td>0.45</td>
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<td></td>
<td>Control</td>
<td>26</td>
<td>2.63</td>
<td>0.75</td>
<td>23</td>
<td>1.93</td>
<td>0.75</td>
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<tr>
<td></td>
<td>No writing</td>
<td>26</td>
<td>1.76</td>
<td>0.89</td>
<td>23</td>
<td>2.36</td>
<td>1.07</td>
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<td></td>
<td>Word count</td>
<td>36</td>
<td>301.87</td>
<td>207.25</td>
<td>29</td>
<td>187.45</td>
<td>116.13</td>
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<tr>
<td></td>
<td>Positive emotion</td>
<td>36</td>
<td>2.36</td>
<td>1.03</td>
<td>29</td>
<td>2.80</td>
<td>1.37</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Negative emotion</td>
<td>36</td>
<td>2.80</td>
<td>1.24</td>
<td>29</td>
<td>1.39</td>
<td>1.15</td>
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<tr>
<td>6-week follow-up</td>
<td>PILS</td>
<td>36</td>
<td>17.29</td>
<td>7.85</td>
<td>29</td>
<td>11.92</td>
<td>7.96</td>
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<td>14.77</td>
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<td>CSAQ-Total</td>
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<td>22.62</td>
<td>11.35</td>
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<td>21.45</td>
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<td>CSAQ-Cognitive</td>
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<td>CSAQ-Somatic</td>
<td>36</td>
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<td>Infirmary visits 6 weeks pre- and postexperiment</td>
<td>Sex offender</td>
<td>21</td>
<td>2.67</td>
<td>1.68</td>
<td>11</td>
<td>2.09</td>
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<td>Post</td>
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<td>Non-sex offender</td>
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<td>Post</td>
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<td>2.29</td>
<td>1.94</td>
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<td>1.86</td>
<td>2.03</td>
<td>15</td>
<td>2.44</td>
<td>2.19</td>
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Note. Symptom, positive emotion, and negative emotion scores are averages of self-report questionnaires participants completed after each day of writing. Linguistic Inquiry and Word Count = a computerized text analysis program; PILS = Pennebaker Inventory of Limbic Languidness, a symptom self-report questionnaire; CSAQ = Cognitive–Somatic Anxiety Questionnaire. The PILS and CSAQ are adjusted for premeasures. The no-writing control group was not given the postwriting emotion and symptom survey.

Immediate Effects of Writing

To evaluate the degree to which trauma writers expressed more emotion than control writers, we had the essays transcribed and subjected to the LIWC software. A contrast comparing the percentage of emotion words revealed that participants in the trauma writing condition used significantly more negative emotion words than those in the control writing condition, F(1, 64) = 23.81, p ≤ .01. In addition, participants in the trauma writing condition wrote more words on average than those in the control writing condition, F(1, 64) = 7.34, p ≤ .01. There were no main effects or interactions for sex offender status.

Recall that participants in the writing conditions completed a Symptom and Emotion Self-Report Survey after each day's writing. The symptom items were averaged to yield a symptom score, and emotion items were averaged to form positive and negative emotion scores. One-way ANOVA contrasts compared the composite scores across writing condition and sex offender status. As seen in Table 1, there was a main effect for writing condition: symptoms, F(1, 49) = 3.95, p ≤ .05; positive emotion, F(1, 52) = 4.79, p ≤ .05; and negative emotion, F(1, 48) = 10.42, p ≤ .01. Consistent with previ-
ous studies, the emotional writing intervention elicited more emotions and feelings than the control writing.

Long-Term Effects of Writing

The CSAQ and PILL were administered before and 6 weeks after the writing portion of the study. One-way ANOVA contrasts were performed using each of the CSAQ and PILL scores. All scores were adjusted for Time 1 means (see Table 1). There was a control versus no-writing effect for the total CSAQ score. $F(1, 88) = 4.61, p = .05$, with those participants in the trivial writing condition feeling more anxious than those in the no-writing control group. There was also a trauma versus trivial and no-writing effect for the PILL, $F(1, 88) = 4.22, p = .05$; participants in the trauma writing condition reported experiencing more symptoms. Given the emotional nature of their writing experience, it is understandable that this group would report having more symptoms. All other PILL and CSAQ effects were nonsignificant.

Infirmary visit data were collected 6 weeks before and 6 weeks after writing. The writing contrast main effect using prewriting infirmary visits as a covariate revealed a trend suggesting that trauma writing participants visited the infirmary less often after writing compared with those in the two control conditions. $F(1, 86) = 3.35, p = .07$. The second contrast, comparing the trivial writing group with the no-writing group, was not significant. The sex offender main effect did not approach significance. Most importantly, type of offense interacted with writing condition such that those incarcerated for sex crimes were significantly more likely to evidence health improvement after trauma writing than were non-sex offenders, $F(1, 84) = 4.49, p = .05$ (see Figure 1). The contrast between the control writing and no-writing conditions failed to approach significance. (The same results were obtained when the number of words written was entered as a covariate.)

To explore how sample characteristics other than criminal offense might exert an effect on health outcome, we conducted internal analyses involving the entire sample. Simple correlations indicated that age, $r(88) = -.22$, and a 40-year to life sentence, $r(88) = -.21$, were significantly correlated with a decrease in infirmary visits from pre- to postwriting (all ps < .05).

Finally, ratings of trauma condition writings were analyzed to determine how various characteristics of participants' writings might explain why sex offenders were more likely to exhibit improved health as a function of trauma writing. The dimensions explored were specificity of the event, past and future time orientation, the presence of sexual trauma, general abuse, rejection, and portrayals of victim status. Simple correlations were computed among the rating dimensions, criminal offense (sex offender vs. non-sex offender), and health outcome. However, no significant relationships emerged.

Discussion

This study extends previous research on the health benefits associated with writing about traumatic events to a psychiatric population of maximum-security prison inmates. In general, these results provide qualified support for the efficacy of the writing paradigm beyond the traditional college student samples.

The underlying psychological mechanism responsible for the fact that writing reduced infirmary visits is not known. Clearly, the stress of prison life can predispose inmates to both focus on and seek treatment for ambiguous physical symptoms they would otherwise ignore. Whereas visiting a physician is often inconve-
nient and costly for people “on the outside,” prison inmates’ illnesses—real or feigned—can result in such rewards as being excused from work, obtaining prescriptions, interacting with female nursing staff, avoiding fellow inmates, and getting a break from prison routine. Our study suggests, however, that at least in the case of sex offenders, writing about traumatic events is effective despite the motives for seeking health care. One limitation of this study is that participation in psychotherapy was not measured nor was medication intake. These may have had an impact on the efficacy of the writing intervention as well as on infirmary visits.

It may be that trauma writing reduces health visits through a reduction in malingering. Although we have no data to explore this hypothesis, should this be the case, the benefits of the writing intervention are still clear. Reducing unnecessary health visits is certainly desirable. An interesting caveat is that the trauma writing group as a whole reported experiencing more symptoms than those in the control and no-writing conditions.

The results also qualify what was previously known about writing about traumatic events. More specifically, they suggest the importance of examining how individual differences may attenuate or enhance its effectiveness. Contrary to our predictions, non-sex offenders in the trauma writing condition did not visit the infirmary less often. We are not sure why this may be the case, given that a wealth of past research has found that diverse individuals benefit from trauma writing (Pennebaker, 1997; Smyth, 1998). In an attempt to understand this finding, we examined fundamental aspects of what sex offenders and non–sex offenders wrote about; however, we found no differences.

As noted earlier, sex offenders typically have less access to others in whom to confide. Sex offenders must also contend with the social stigma of their crime. Being secretive about an aspect of oneself that carries a stigma has been linked to poor health, as in the case of gay men who keep their sexual orientation secret from others (Cole et al., 1996). Although there are dramatic differences between these identities, negative stereotypes coupled with not being open with others apparently lead to poor health.

Finally, trauma writing may not work equally for all types of people. It is hoped that future research will clarify the individual differences that may affect the extent to which writing promotes health.

References

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