

Earnhardt, J., Martz, D., Ballard, M., & Curtin, L. (2002). A Writing Intervention for Negative Body Image: Pennebaker Fails to Surpass the Placebo. *Journal of College Student Psychotherapy*, 17(1), 19-35. Published by Hawthorn Press (ISSN: 8756-8225).

A Writing Intervention for Negative Body Image: Pennebaker Fails to Surpass the Placebo

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ABSTRACT

Pennebaker's therapeutic writing paradigm was assessed as a brief intervention for negative body image. Females were randomly assigned to write about their body image (experimental; $n = 23$) or their bedroom (controls; $n = 25$) for four days. Body image, eating-disordered behavior, and mood were assessed at baseline, after the 4th day of writing, and at 1-month follow-up. Despite hypotheses that experimental participants would show more improvement over time, participation in the study, regardless of condition, was related to significant improvements in body image and mood, and decreased eating-disordered behavior over time. Placebo, sensitization effects, and regression to the mean are discussed as potential explanations for this unexpected finding. Suggestions for future research are made.

Body image disturbance is viewed as critical in the formation of anorexia, bulimia, and binge eating disorder (Anderson, 1979; Casper, 1982; Garfinkel & Garner, 1982; Lucas, Duncan & Piens, 1976; Rodin, Silberstein & Striegel-Moore, 1984; Strober, 1980, 1983). In fact, the degree of body image disturbance can predict what course the disorder will take, as greater body image disturbance is related to a poorer prognosis (Garfinkel, Moldofsky, & Garner, 1976). Because body image disturbance is a risk factor in the etiology of eating disorders, it is an appropriate target for primary and secondary prevention of eating disorders.

James W. Pennebaker and colleagues have found journal writing to be an effective tool in improving physical health (Greenberg & Stone, 1992; Greenberg, Wortman & Stone, 1996; Krantz & Pennebaker, 1995; Pennebaker & Beall, 1986; Pennebaker, Kiecolt-Glaser & Glaser, 1988; Pennebaker, Colder&Sharpe, 1990; Pennebaker&Francis, 1996; Richards, Pennebaker & Beall, 1995). For example, Pennebaker and Beall (1986) randomly assigned undergraduate volunteers to four groups. Participants in the control group wrote about trivial matters, such as the objects in their room. Participants in the experimental groups wrote about a traumatic event that they had experienced, with conditions differing in terms of the requested content. Participants in one group wrote only about the emotions associated with the event, another wrote only about the facts associated with the event, and a third wrote about both the facts and emotions associated with the event (death, conflict, failure, accidents, and health problems were common themes). Participants returned for four consecutive days to write about the same event. Participant health was operationalized as the number of visits to the health center before and after the study.

Immediately following the fourth writing session, experimental participants were more preoccupied and depressed than controls. However, after four months, experimental participants showed a decrease in visits to the health center compared to control groups. Furthermore, the decrease was more pronounced for the group that wrote the facts and emotions surrounding the event. Variables other than visits to the health center have been explored by Pennebaker and colleagues, all of which have produced positive results. Some of these include faster reemployment for those who have been laid-off, higher grades among college students, and higher antibody responses to hepatitis B vaccinations; all seeming to result from writing one's thoughts and emotions surrounding a traumatic event (Spera, Buhrfeind, & Pennebaker, 1994; Pennebaker et al., 1990; Petrie et al., 1995).

Pennebaker has proposed a pathway by which writing facilitates health. Disclosure of negative emotions surrounding a traumatic event decreases physiological activity (i.e., heart rate, skin conductance) and in turn decreases stress over time (Pennebaker, Barger & Tiebout, 1989). Further, continuously expressing the thoughts and feelings surrounding the trauma serves to desensitize the individual to the memory of the event and reduces arousal (Pennebaker & Beall, 1986). Suppression of thoughts-the antithesis of writing about them-is associated with increased preoccupation with the traumatic event (Wegner, Shortt,

Blake, & Page, 1990) and individuals who inhibit these thoughts and feelings may have higher baseline rates of arousal (Pennebaker, 1989). Pennebaker (1989, 1993) proposes that actively inhibiting thoughts, feelings and behaviors associated with a traumatic event takes physiological and psychological work or stress that depletes the body of resources. This can create subsequent health problems, including chronic illnesses such as heart disease (Pennebaker, 1985; Shedler, Mayman & Manis, 1993; Weinberger, 1990). Another way by which writing may be helpful is that it is a way of confronting and cognitively restructuring the memory of a traumatic event, allowing the person to organize, incorporate, and apply meaning to the trauma (Meichenbaum, 1977; Horowitz, 1976; Sliver & Wortman, 1980).

The eating-disordered behaviors of anorexics and bulimics are thought to be due to perceptions, attitudes, and beliefs about their body image, and more specifically their weight. Negative body image is not a traumatic event per se, but it is an ongoing negative experience and a risk factor for the development of eating disorders. To this point, therapeutic efforts to improve body image, such as psychoeducational groups and one-time sessions with women at risk, have been unsuccessful (Mann et al., 1997; Martz & Bazzini, 1999). Given Pennebaker's success with the writing paradigm described above, we assessed its efficacy in improving negative body image.

We thought writing about thoughts and emotions related to one's body would foster a more positive body image by aiding in reorganizing and restructuring these thoughts. Writing repeatedly about body image may serve as a way of desensitizing individuals to the thoughts and feelings attached to negative body image and may provide them with a way of restructuring the way they feel about their bodies. Due to the link between body image and etiology of eating disorders, one might not only expect more positive body image, but also less eating disordered behavior, dieting behavior and more positive mood.

We used a two-group, repeated measures (baseline, after 4th writing session, and at 1-month follow-up) experimental design to examine the effects of writing about body image (experimental participants) versus writing about trivial material (control participants) on measures of dieting, body esteem, eating disordered behavior, and mood states in college females with negative body image. We hypothesized that there would be a group by time interaction. Specifically, based on Pennebaker's (1986) findings, we expected (a) an initial increase in distress in the experimental group compared to the control group between baseline and after the 4th writing session and (b) a "long-term" decrease in overall distress at the 1-month follow-up, for experimental participants as opposed to control participants.

METHOD

Participants

Participants were recruited via a campus e-mail advertisement sent to all female students at a mid-sized southeastern public university to recruit women with negative body image. Women who responded to the initial advertisement (~ 300) were e-mailed detailed information about the study. Of these, 63 signed up to participate and completed the initial session. Of these 63, 15 dropped out before the 1-month follow-up and 48 women completed the study (experimental participants, $n = 23$; control participants, $n = 25$). There were no baseline differences on any measures for those who completed the study versus the 15 who dropped out ($p > .05$). Those who completed the study received either \$10 or extra credit for a psychology class. They were predominantly Caucasian and the mean age was 20 ($sd = 2.4$).

Materials

Cognitive Behavioral Dieting Scale (CBDS). The CBDS (Martz, Sturgis & Gustafson, 1996) is a 14-item Likert-type scale (range = 1-5) that assesses dieting behaviors and cognition over the "past two weeks." Internal consistency ($r = 0.95$) and two-day test-retest reliability ($r = 0.92$) are high. The CBDS also has good predictive validity, predicting caloric intake and caloric balance above and beyond relevant physical variables such as BMI and exercise (Martz et al., 1996). The CBDS is summed for a total score (range = 14-70; higher scores mean more dieting).

Body Esteem Scale. The Body Esteem Scale (Franzoi & Shields, 1984) contains 35 items describing different physical dimensions for males (physical attractiveness, upper body strength, and physical condition) and females (sexual attractiveness, weight concerns, and physical condition). A Likert scale is used to rate these items from 1 "have strong negative feelings for" to 5 "have strong positive feelings for." Internal reliability is good across factors (r 's = .81 to .86). Convergent validity with the Rosenberg (1965) Self-Esteem Scale ($r = .32$) and the BES total scale ($r = .51$) is moderate. The weight concerns subscale significantly discriminates ($p < .001$) between anorexic women and women without eating disorders. The BES total score, which ranges between 35-175, was used as the measure of body esteem in this study.

Eating Disorder Inventory-II. The EDI-II is a 64-item inventory measuring the cognitive and behavioral characteristics of anorexia and bulimia nervosa (Garner, 1991). Participants rate their behavior and beliefs on a six-item Likert scale, ranging from 0-3, with multiple responses possibly resulting in zero. The EDI-II has eight subscales including: drive for thinness, bulimia and binge eating, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness (i.e., confusion for recognizing and responding to emotional and bodily states), and maturity fears. Using a sample of normal participants

and those with anorexia nervosa, internal consistency for each of the subscales has been found to be above .80 and strong support has been found for the convergent and discriminant validity of each subscale. The EDI-II (Garner, 1991) was adapted to meet *DSM-IV* criteria (APA, 1994). The EDI-II subscales were summed for a total score, with possible ranges between 0 and 192, and used as a clinical measure of eating disordered symptoms in this study.

Profile of Mood States. The POMS (McNair, Lorr & Droppleman, 1992) consists of 64 items scaled on a 5-point Likert scale. It has six mood scales: tension-anxiety, anger-hostility, vigor, fatigue, confusion and depression. Internal consistency for all scales are near .90 or above. Test-retest reliability shows estimates ranging from .65 for the Vigor scale to .74 for the Depression scale (McNair, Lorr & Droppleman, 1992). Possible scores range from 0 to 120 with higher scores indicating worse mood.

Manipulation Check Scale. The MCS scale was adapted from Pennebaker and Beall (1986) and used to assess participants' perceptions of the writing assignments. Participants used a Likert-type scale, ranging from "not at all" (1) to "to a great deal" (7), to assess the following aspects of their writing: (a) How personal was your essay today? (b) To what degree did you reveal your emotions in your essay? (c) Overall, how much have you told others about this subject in which you wrote today? (d) Do you believe that writing about this topic today or any previous days, has affected how you think about this topic? and (e) Do you believe facing this topic in your writing has improved the way you feel about it?

Design and Procedures

We employed a two-group, repeated-measures experimental design. Participants were assigned, via counterbalancing, to write about either body image (experimental) or their rooms (control). The dependent variables (BES, CBDS, EDI-II, & POMS) were administered at baseline, after the 4th day of writing (posttest), and at 1-month follow-up. The MCS was administered after each writing session.

Trained research assistants conducted all writing sessions. During the first session, participants first signed an informed consent form, then completed baseline measures presented in a consistent order. Next, each participant was led through a prerecorded audiotaped guided imagery exercise. The experimental group was led through imagery based on Hutchinson (1994). This imagery targeted how participants' critical life events impacted their body image and encouraged discrimination between negative and ideal body image by having them "hold" the negative body image in one hand and their ideal in the other hand. This imagery exercise was included to help participants clarify the content of their writing. The audiotope for the control group evoked imagery about objects in their ideal versus real dorm/apartment room to help them clarify factual content for their writing.

RESULTS

To ensure that counterbalancing produced equivalent groups, a MANOVA was used to compare the experimental and control groups on the four baseline measures for the four dependent variables. There were no significant baseline differences between experimental and control groups on the BES, $F(1,61) = .04, p > .05$, the CBDS, $F(1,61) = .85, p > .05$, EDI-II, $F(1,61) = 2.23, p > .05$, or POMS, $F(1,61) = .06, p > .05$.

TABLE 1. Observed Means and Standard Deviations for Four Dependent Measures

	Pretest	Posttest	Follow-up
BES			
Experimentals	98.0 (19.5)*	102.3 (19.7)	102.8 (20.5)
Controls	101.4 (19.8)	105.9 (20.7)	108.8 (22.1)
Effect Size <i>d</i> for time	.112	.023	
CBDS			
Experimentals	45.9 (10.6)	43.4 (12.6)	41.2 (13.0)
Controls	42.5 (12.8)	40.4 (14.0)	39.6 (13.3)
Effect Size <i>d</i> for time	.179	.040	
EDI-2			
Experimentals	77.4 (37.0)	68.0 (38.7)	73.0 (43.6)
Controls	72.1 (39.6)	57.6 (31.8)	59.0 (36.6)
Effect Size <i>d</i> for time	.249	.031	
POMS			
Experimentals	69.4 (31.6)	51.5 (25.6)	52.6 (41.8)
Controls	62.9 (31.9)	45.4 (31.9)	50.6 (38.3)
Effect Size <i>d</i> for time	.250	.009	

* This symbol indicates the standard deviations in parentheses.

A repeated measures ANOVA was conducted for each dependent variable (BES, CBDS, EDI-II & POMS) to examine the effect of writing group (body image vs. room) across time (baseline, posttest, & 1-month follow-up). Results did not support the primary hypothesis. There were no significant group by time interactions; there were no significant differences between experimental and control groups over the 3 points in time for the BES, $F(1, 46) = .44, p > .05$; CBDS, $F(1, 46) = .45, p > .05$; EDI-II, $F(1, 46) = .91, p > .05$; or POMS, $F(1, 46) = .42, p > .05$. However, there was a main effect for time. Participants in both groups displayed significant improvement over time on the BES, $F(2, 92) = 6.64, p < .05$, CBDS, $F(2, 92) = 7.26, p < .05$, EDI-II, $F(2, 92) = 6.35, p < .05$, and POMS, $F(2, 92) = 6.91, p < .05$ (see Table 1 and Figures 1-4). The time effect for the BES occurred between baseline and

posttest. The decrease in dieting as indicated by the CBDS and improvement in mood as indicated by the POMS also occurred between baseline and posttest. However, the EDI-II decreased significantly between baseline and posttest, but then increased significantly between posttest and follow-up.

TABLE 2. Means Across Four Days for Manipulation Check Questions

	Experimentals	Controls	Effect Size <i>d</i>
MC#1 (i.e., personal)	5.8 (.55)*	5.1 (.88)	.19
MC#2 (i.e., emotional)	5.4 (.89)	4.4 (.86)	.25
MC#3 (i.e., revealed)	4.2 (1.2)	3.6 (1.5)	.04
MC#4 (i.e., changed thinking)	3.9 (1.5)	4.0 (1.2)	.00
MC#5 (i.e., changed feelings)	4.0 (1.4)	3.7 (1.5)	.01

* This symbol indicates the standard deviations in parentheses.

To examine if the experimental manipulation was effective, manipulation check items were averaged across the four sessions and One-Way ANOVAs were used to compare experimental with control participants with regard to (a) the personal nature of the writing, (b) to what degree emotions were revealed, (c) if the subject had been discussed with others, (d) if writing about the topic affected thinking about the topic, and (e) if writing had affected feelings about the topic. As Table 2 shows, the manipulation was partially successful. Consistent with the intervention instructions, experimental participants indicated their writing content was more personal, $F(1, 43) = 8.35, p < .05$ and they revealed more emotion than control participants in their writing; $F(1, 43) = 13.14, p < .05$. However, experimental and control participants did not differ significantly in terms of discussing the subject with others, whether writing had changed their thinking on the topic, or whether writing had changed their feelings about their assigned topic.

DISCUSSION

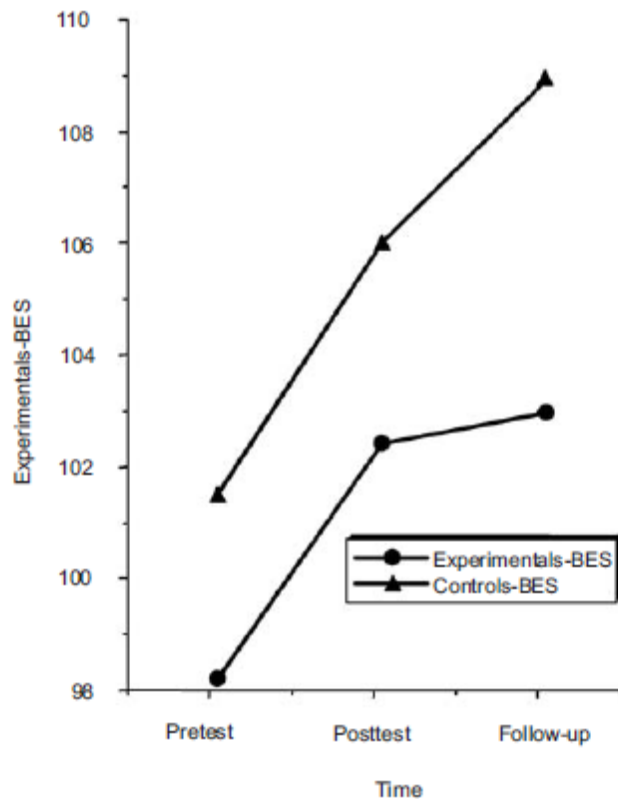
As body image disturbance seems critical in the development of anorexia, bulimia, and binge eating disorder (Anderson, 1979; Casper, 1982; Garfinkel & Garner, 1982; Lucas, Duncan & Piens, 1976; Strober, 1980, 1983), it is an appropriate, albeit resistant, target for intervention. Pennebaker and colleagues have demonstrated writing about stressful or traumatic events can produce health benefits over time. We used a similar writing paradigm to examine if women with negative body image, which can be conceptualized as a chronic stressor, would show an improvement in body image, dieting and eating behavior, and mood over time. Despite our hypotheses, no significant differences between experimental and control groups were found for any of the dependent variables over time. However, counter to hypotheses, participants in both conditions reported improvements in dieting

behavior, eating disordered symptoms, body image, and mood over time.

Several factors may account for this unexpected finding. First, this effect may be the result of a pretest sensitization effect, whereby mere completion of baseline measures influenced subsequent behavior. For example, completion the EDI-II and the CBDS may have suggested to participants that their eating behaviors were abnormal. Given this knowledge, participants may have then purposefully altered their eating patterns in a healthier direction over the course of the study. Unfortunately, because the present study did not use a Solomon-four-group-design (Campbell & Stanley, 1963), it was not possible to assess for pretest sensitization effects.

Secondly, another potential explanation is that participants could have expected to feel better and develop more positive eating habits just by volunteering for the study, regardless of what their participation involved. Harrington (1997), in the scholarly review *The Placebo Effect: An Interdisciplinary Exploration*, presents ample empirical evidence that self-healing often begins with an expectation of improvement and the confidence that the treatment will help. While participants' motivation for joining the study was not assessed directly, one might assume that they were motivated to improve their body image and eating habits by responding to the e-mail advertisement and completing the 5-session study. This, coupled with an expectation that the study could benefit them personally could have been sufficient to elicit a placebo.

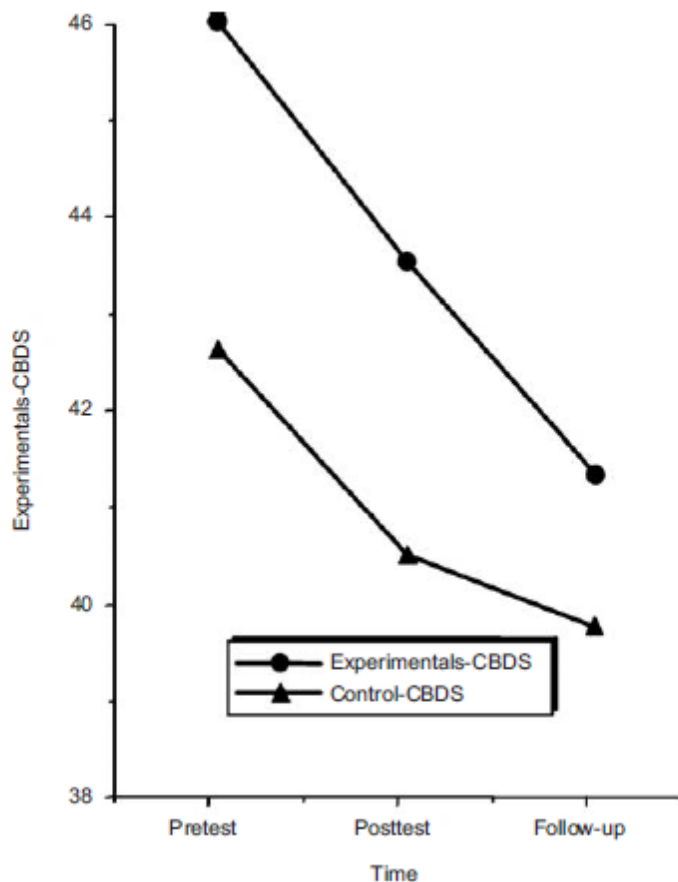
FIGURE 1. Group Differences in the Body Esteem Scale over Time



Third, demand characteristics may have influenced the outcome of the study in that participants may have responded to the follow-up questionnaires in such a way to either “help” the investigator, due to the personal nature of the recruiting process, or to make it appear as though they (i.e., participants) had been “successful” in improving across the dependent measures. In retrospect, it would have been helpful to include a measure of social desirability in order to further examine this possibility.

Fourth, apparent “improvements” over time for both groups could have resulted from regression to the mean. Since these participants were specifically recruited for their negative body image, their initial scores were more extreme than the typical population-mean. For instance, Martz, Graves, and Sturgis (1997) report a mean of 34 among “normal” college women on the CBDS. Women in this sample evidenced higher means (experimentals = 45.9; controls = 42.5) at baseline and moved toward the norm at follow-up (experimentals = 41.2; controls 39.6). The BES shows the same trend of improvement. The reported means from the scale’s developers (Franzoi&Shields, 1984) revealed higher pretest body esteem means compared to the current sample at baseline. These BES measures increased (improved) over time for both groups, again suggesting regression to the mean.

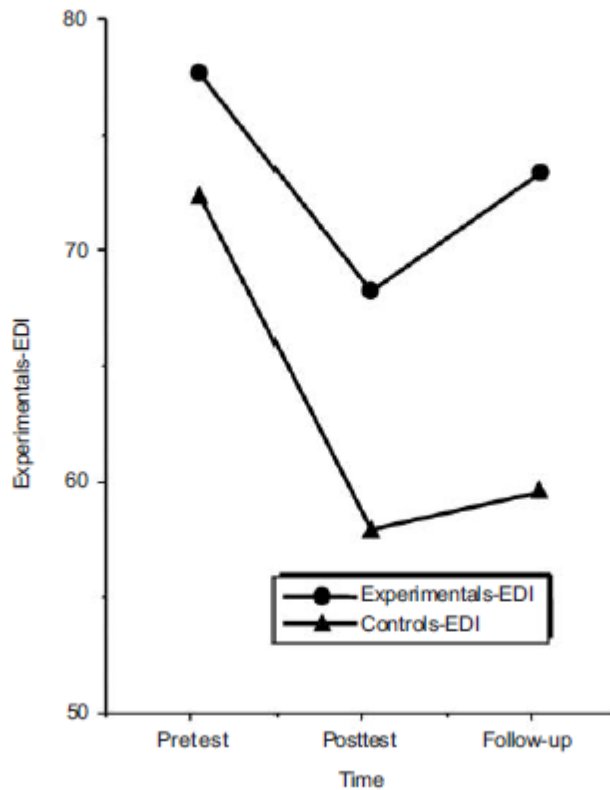
FIGURE 2. Group Differences in the Cognitive Behavioral Dieting Scale over Time



Additionally, it is possible that both the experimental and control interventions “worked,” but for different reasons. The writing about body image may have been therapeutic due to the sensitization and cognitive reorganization effects described earlier. Whereas the control intervention may have served as a distraction by focusing their attention on the aesthetics of their rooms that simply lessened their rumination about their bodies. Nolen-Hoeksema, Larson, and Grayson (1999) describe the common relationship between rumination and depression, both of which are seen more frequently in women (Kessler et al., 1994; Nolen-Hoeksema, 1990; 1995; Weissman & Klerman, 1977). Likewise, there is a clearly established relationship between body image disturbance and depression (Stice et al., 2000). Hence, redirecting the women in the control group to focus on the aspects of their room may have lessened their chronic rumination about their bodies or helped them to learn to evaluate objects more objectively. The second author of this study has used a similar exercise in her clinical work treating negative cognition about body image. Clients are first asked to write a description of a tree, then write a description of their bodies. The therapy then focuses on how the tree depiction is objective and neutral, whereas the body depictions are typically subjective, emotional, and negative. The client is then encouraged to generate and rehearse more objective

and neutral statements about her body (e.g., my stomach is “round,” rather than “fat”).

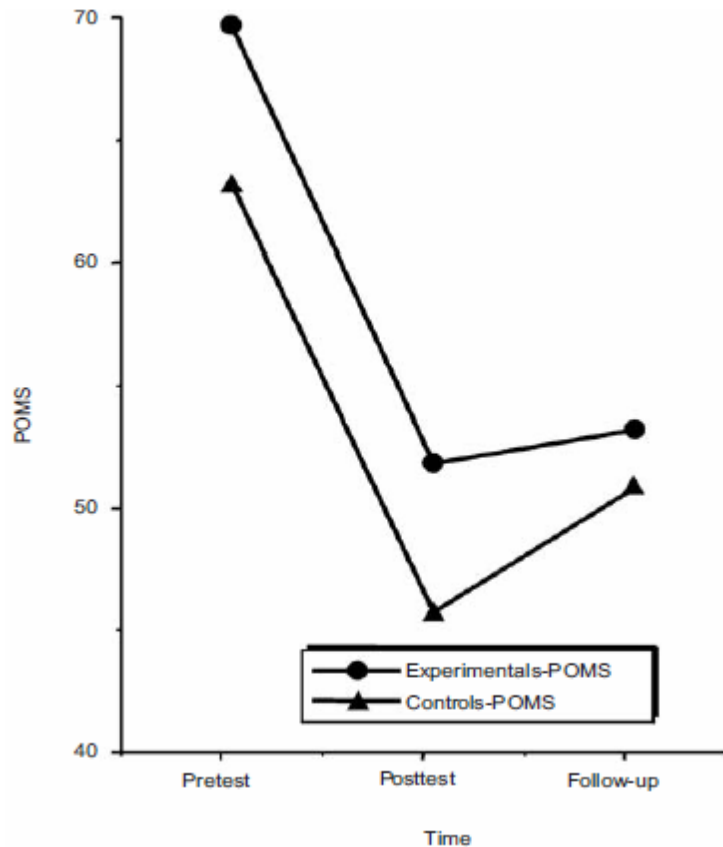
FIGURE 3. Group Differences in the Eating Disorders Inventory-2 over Time



Finally, it is possible that there were no group differences found in this study because the experimental manipulation (i.e., write about body image vs. rooms) was ineffective. We do not believe this to be the case since the two most important manipulation check items proved to distinguish the groups. Experimental participants did report that their writing was more personal and emotional than control participants and these two aspects of writing have been shown to be instrumental in producing health benefits (Pennebaker, Francis & Mayne, 1997). Keep in mind there were no significant differences between the experimental and control groups on the manipulation check questions assessing if participants had revealed the content of their writing to others or if their writing had changed the way they thought or felt about the topic. It may be equally common, or uncommon, for women to discuss their dissatisfaction with their bodies and their decorating plans for their rooms with their friends. The questions assessing changes in thoughts and feelings, may have been unclear to control participants, who may not have understood if they were being asked to respond with regard to their body image

or their bedrooms. These manipulation check items were borrowed from the Pennebaker et al. (1997) research on stress and trauma, and therefore, may not have been applicable to this body image research. Hence, it appears that the instructions given to the two groups appeared to have the expected effect and rules out this explanation for the time effect for both groups.

FIGURE 4. Group Differences in the POMS over Time



Other notable limitations of this study which we do not believe influenced the improvement in both groups over time include the narrow sample population, which excluded a control group of woman with neutral or positive image, and a relatively small sample size. Additionally, the follow-up of 1-month was briefer than the 4-month follow-up utilized in some of Pennebaker's research, and therefore, future research could involve an expansion of time from one month to four months to explore delayed effects of this intervention. Likewise, it is possible that the nature of body image is different than the nature of trauma, which has been the target of writing in the Pennebaker paradigm. Sometimes traumatic events are more discreet in nature, whereas negative body image can be more of an enduring and diffuse problem. Finally, a control group in which women think about their body image, but do not write

about it, may be helpful to include in future studies to assess if writing or the mere attention to one's body image influences improvement.

Of special note about this study is the use of the internet to recruit women. This the second such study to be conducted at this university and both recruitment waves have produced an overwhelming number of responses from campus women with negative body image and disordered eating. These women appear to be non-treatment seeking individuals who are clearly distressed and impaired by their body image concerns. They are willing to divulge private information over e-mail and participate in confidential research, but appear to be less motivated to seek the free and available counseling at this university. This phenomenon in and of itself deserves more attention and suggests the importance of considering internet-based outreach and body image treatment on college campuses. Winzelberg et al. (2000) have recently demonstrated the effectiveness of an interactive internet program to enhance body satisfaction and reduce weight/shape concerns in college women. Hence, we believe that researchers and college campus counselors should continue to consider use of the internet in serving this population. Due to a lack of studies showing brief and efficacious treatment for body image, it is important for future work to continue to explore innovative programs including journal writing and the use of the internet for body image interventions aimed at prevention and treatment of eating disorders.

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