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# Rumination: A Laughing Matter? The Effects of Humor on Depressive Moods

## **Cover Page Footnote**

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# Rumination: A Laughing Matter? The Effects of Humor on Depressive Moods

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*ABSTRACT - Rumination is defined as negative, anxious repetitive thought and is highly correlated with depression. We hypothesized that humor would reduce the amount of rumination as measured by the Ruminative Response Scale (RRS). Distraction from ruminative thoughts could help prevent depressive episodes. Adding humor as a distracter after inducing rumination could produce lower scores on the RRS. Sixty Brigham Young University (BYU) students were subjected to a ruminative exercise. Thirty of those participants were subjected to a humorous clip after the ruminative exercise. All participants were then required to fill out an RRS questionnaire. Scores for the experimental and control groups were not significantly different ( $t(58) = -1.62, p = .11$ ). Systematic improvements could increase the effectiveness of the manipulation, resulting in a more significant difference in means. Further research is needed to test the various measures, the length of exposure to humor and test a more representative sample than BYU students.*

Rumination is defined as negative and anxious repetitive thought. Oftentimes, it leads to depressive symptoms, and involves focusing on one's distressing symptoms and their possible sources and effects (Roemer & Borkovec, 1993). It is also highly correlated with stress, worry, and anxiety and is a valuable issue to understand because of its effect on depressed and non-depressed people. Knowing the influence and effects of rumination can aid in understanding how to reduce its negative impact.

Rumination can lead to common effects of depressive factors, such as self-criticism, neediness, and negative cognitive styles in continued occurrences of major depression (Spasojevic & Alloy, 2001). Those who show highly ruminative and negative responses are more likely to experience the onset of a depressive mood (Ito & Tekenaka 2006). Although most rumination studies focus on depressed populations, rumination also applies to non-depressed populations. As rumination increases in the non-depressed,

the future outlook becomes increasingly negative (Lavender & Watkins, 2004). A decrease in rumination could stop the onset of depressive episodes or lessen the frequency of depressive episodes.

Persistence in rumination often shows persistence in depression as well. Responding to depressed moods will many times develop and maintain persistent depressive episodes (Nolen-Hoeksema, 1991). Thus, the less one ruminates the less one will have depressive symptoms. As one ruminates, the focus is not on making things better, but on self, low quality of life and the potential consequences of a low quality of life. The combination of negative thinking and poor problem solving provides a heightened risk for depression and can cause prolonged depressive episodes (Ciesla & Roberts, 2007; Lara et al., 2000). If ruminative symptoms cannot be resolved effectively, the depressed individual will most likely need help to stop the negative pattern of thought. Those who dwell on negative feelings and events often cannot break their depressive cycle because of their maladaptive cognitive style (Lara, Klein & Kasch, 2000).

The ruminative process often involves negative past memories. In long-term memory, negative information is remembered better than neutral information (Kensinger & Corkin, 2003). Emotional stimuli are also given more attention in the working memory than non-emotional stimuli (Vuilleumier & Schwartz, 2001). With autobiographical memory, a lack of specificity has been a reliable predictor of depression with rumination as a mediator (Reas & Hermans 2006). When there is a negative and emotional connection to an event or experience, it is likely that the event or experience will be remembered better in the end. This may lead individuals to be more vulnerable to rumination. Thus, memory

is associated with rumination, and rumination in turn, influences the role of memory—leading to depression.

Distraction tends to break negative thought patterns better than ruminative responses (Broderick, 2005). Distracting responses are reactions that take the mind off the immediate symptoms. Response Style theory proposes that there are a variety of distracting responses to sad moods that will affect the duration and severity of depressive symptoms. Sadness can promote or inhibit distractions (either triggering them or overwhelming a person's ability to distract; Young & Azam, 2003). If the effects are successfully reduced using distraction, then distraction could be a preventative measure for rumination and depression.

Adaptive humor helps one cope with stress and sadness, while maladaptive humor is self-destructive (Olson, Hugelshofer, Kwon & Reff, 2005). Adaptive humor is divided into affiliative humor and self-enhancing humor. The affiliative kind entails laughter with others to enhance interpersonal relationships and express emotion without feeling discomfort from being a burden to others. The self-enhancing kind maintains a humorous outlook on life or uses humor to deal with stress and cheer oneself up (Olson, Hugelshofer, Kwon & Reff, 2005). Adaptive humor correlates negatively with dysphoria and thus could provide an effective distracter to rumination and depressive symptoms. Research has found that among individuals with high rumination, those with high amounts of adaptive humor had significantly lower levels of dysphoria than individuals with high rumination and low amounts of adaptive humor (Olson, Hugelshofer, Kwon & Reff, 2005).

From these results, it appears that humor could mitigate the negative effects of rumination, not just act as a mere distraction. The research team aimed to find results that provide more direct evidence of the direction of the effect than the correlational study on humor and dysphoria cited above. Because humor is available to many (even without professional help), we hypothesized that the addition of humor as a distracter would result in fewer depressive thoughts, as measured by a modified Ruminative Response Scale (RRS).

## Methods

### Participants

Research participants were 60 undergraduate students from Brigham Young University (BYU). Students were recruited from psychology classes and ranged in age from 18 to 31. The average age was approximately 21 ( $M=20.62$ ). Because of the demographics of BYU, most participants were Caucasian. IRB approval was obtained before starting the study. Every participant signed an informed consent form in order to participate, and had the option to remove themselves from the experiment at any time.

### Design

The independent variable in our experiment was humor. Both our experimental and control groups were subjected to a self-descriptive negative word exercise to induce rumination. This included 24 negative words and word pairs that were self-descriptive. Participants thought about the negative items for six minutes before choosing the five that they felt best described them.

Immediately following the word exercise, a modified form of the RRS (modified to measure a ruminative state rather than ruminative traits) was administered to the control group. The experimental group, however, watched a scene from the TV show, "The Office", entitled "Future Dwight" after the negative word exercise and then took the modified RRS. At the end of the RRS we asked to see if the participants found the clip or the study to be funny as our manipulation check. Our dependent variable was the modified RRS scores.

### Measures

To measure rumination, we obtained a copy of the Ruminative Response Scale (RRS) questionnaire that has been psychometrically tested in previous studies (Trenor, Gonzalez, Nolen-Hoeksema, 2003; Roelofs, Muris, Huibers, 2006). Scores from this test were used for our dependent variable. The RRS questionnaire used a 1 to 4 Likert scale, 1 being almost never, 2 being sometimes, 3 being often, and 4 being almost always. Test items include "think about how alone you feel" and "think about how hard it is to concentrate" (Trenor, Gonzalez, Nolen-Hoeksema, 2003).

We modified the RRS to measure state rather than traits. Still using a 1 to 4 Likert scale, the modified items include, "Right now I am thinking about how lonely I sometimes feel" and "Right now I am thinking about

how hard it is to concentrate.” In the modified version, 1 was strongly disagree, 2 was disagree, 3 was agree, 4 was strongly agree. The total score was calculated by adding all the numbers marked in the RRS. We statistically checked for gender differences ( $p = .75$ ). The alpha coefficient for the original test at time 1 is .90, and the test retest correlation of the original is .67. The modified version of the test yields a .91 alpha coefficient.

Both the experimental and control groups took a self-descriptive negative word exercise to begin meant to induce rumination. Joorman (2006) found that the tendency to ruminate is closely related to the inability to inhibit irrelevant emotional information processed in a self-referential way. Part of the negative priming task used to find these results involved participants identifying negative traits in themselves. Using this information, the research team created the negative word exercise. Although the created exercise and the exercise used in Joorman’s (2006) negative priming task were not identical, both required participants to identify negative traits in themselves (see Appendix B).

The exercise contained 24 negative words and word pairs, such as “judgmental” or “without potential.” Participants were required to look at the negative items and think about them for six minutes, choose the five items that best described them, and ponder upon times when they exhibited the five items they selected. This particular exercise was created for this study and reliability and validity were not obtained before its use. In order to see if humor was an effective distracter for rumination, the control group took the RRS after the self-descriptive, negative word exercise and the experimental group watched a short video clip from a popular sit-com “The Office” after the word exercise and then took the RRS.

### Procedure

Specific scripts were used for each trial of the experiment in order to standardize our procedures. Researchers greeted participants and thanked them for their participation before beginning. A brief explanation of the purpose of the experiment was given as well. Participants were told that the experiment was meant to study how students are affected by negative, descriptive words. The consent form was then distributed to all participants.

After signing the consent form, participants completed the self-descriptive, negative word exercise. The control group took the RRS immediately following the

word exercise. The experimental group watched a humorous clip from “The Office” called, “Future Dwight” and then took the RRS. Included in the questionnaire was an item inquiring about the humor of the clip to ensure that the clip was humorous for each participant. Each session ended with a briefing on the actual purpose of the study, followed by time for participant questions.

## Results

Raw scores from the RRS were calculated by summing each score on a 4-point Likert scale. Using the statistical package SPSS, the raw scores were entered and analyzed by using a t-test to find significant differences in means between the experimental and control groups on the dependent variable of RRS scores. A chi squared test determined any differences in our demographics, and Pearson bivariate tests found correlations in rumination scores according to demographics. Data was also analyzed for the experimental groups by using a one-way ANOVA, with humor as the independent variable.

The manipulation check revealed that experimental group participants found “The Office” clip humorous, while the control group participants did not find the study humorous (Table 1). Chi squared analysis demonstrated randomization was effective for age and ethnicity but not in gender. In the experimental group 21 of the 30 participants were male, while in the control group 12 of the 30 participants were male, which probably influenced our results.

We found that the addition of humor, while controlling for gender, did not result in significantly lower RRS scores, although it did approach significance ( $F(57) = 2.46$ ,  $p = .12$ ). This is further illustrated in figures 1 and 2. Figure

Table 1 Manipulation check: Did you find this study humorous?

	Experimental Group	Control Group	Total
Yes	30	2	32
No	0	28	28

Table 2 T-test for Equality of Means

	t	df	Sig.	Mean Difference	Std. Error Difference
Rumination	-1.616	58	.111	-4.46667	2.76378

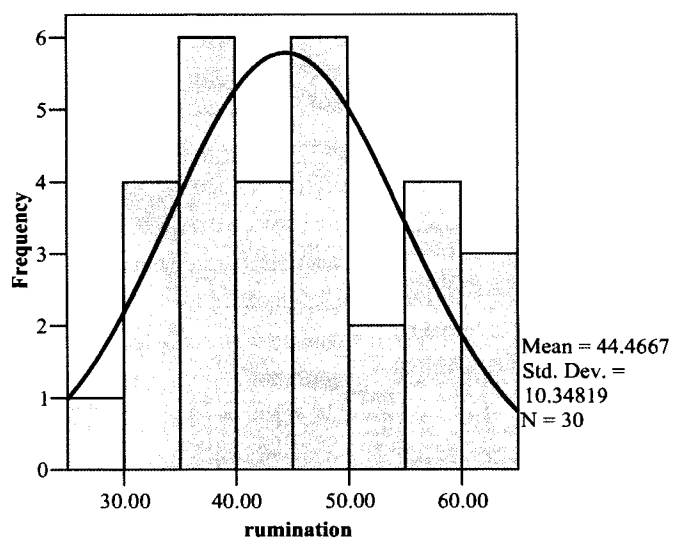
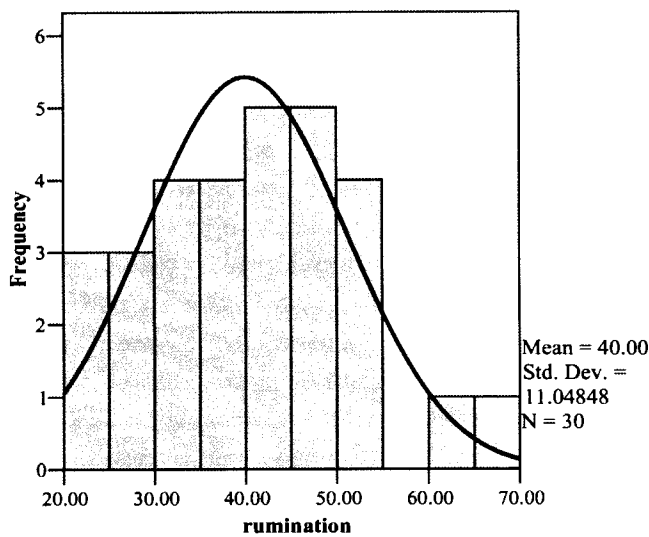


Figure 1 The distribution of scores in the experimental group on the RRS is illustrated. The curve is shown upon the graph to demonstrate that the scores are normally distributed. The mean and standard deviation are also shown.

Figure 2 The distribution of scores in the control group on the RRS is illustrated. The curve is shown upon the graph to demonstrate that the scores are normally distributed. The mean and standard deviation are also shown.

1 illustrates the distribution of scores for the experimental group, whereas figure 2 illustrates the same for the control group. As seen from these figures, the distribution and the central tendency of scores in each group are similar. Participants in the experimental group averaged a score of 40.0, while control group participants averaged a score of 44.5 on the RRS (see figures 1 and 2). Humor did not act as an effective distracter from rumination. Although humor did not distract as hoped, demographic information was analyzed to look for differences in scores.

rumination. Also, participants' ages were in the typical range of college students in the United States. Results were consistent with this hypothesis showing a low correlation between age and rumination ( $r = -.11, p = .42$ ) (see table 3).

Gender was expected to have high correlation with rumination. Females were expected to score higher on the RRS. Results, however, showed that gender is insignificantly correlated with rumination ( $p = .75$ ). Since the correlation between rumination and gender was low, no further statistical analysis was done to look at specific differences between male and female scores on the RRS ( $r = .04$ ) (see table 3).

Ethnicity was not expected to have significant correlation with rumination. Results support this with a low correlation and low significance of correlation ( $r = .11, p = .40$ ) (see table 3). However, with 88.1 percent of all participants being Caucasian, this would need further research to be conclusive.

Age was not expected to be significantly correlated with rumination. The research team did not find any studies that would suggest that age affects the amount of

### Discussion

In this study we hypothesized that introducing humor would lower rumination as measured by the RRS. It appears that humor was partially effective, but there was not sufficient statistical evidence to show that humor was the primary factor in lowering RRS scores. Increased time of exposure to the manipulation and psychometric tests on the negative word exercise and the modified RRS could substantially improve the power of the manipulation. Having an uneven gender distribution may have affected results because of the difference in male and female depression rates (Nolen-Hoeksema, 1987). The RRS is usually meant to evaluate negative thoughts in those with disorders, not a normal population as we studied in

Table 3

	Rumination
Age	-.111
Gender	.035
Ethnicity	.113

Pearson correlations between demographics and rumination

our experiment. Religiosity in participants may have also played a role in the results of the study. Statistics almost approached significance suggesting that if this study was replicated with these improvements and changes, the expected results could be obtained.

There are still indications that humor is an effective distracter for rumination. The difference in means shows that participants were affected somehow by the humor. With adjustments to the word exercise and the design, humor may perform as a reliable distracter to rumination. If so, humor may be used as effective treatment for patients that suffer from major depression and have ruminative response styles when dealing with depressive thoughts.

Previous research has indicated that negative self-statements do more harm than positive self-statements do good (Kaplan & Saccuzzo, 2005). Negative self-descriptive items on the word exercise may have caused too much negativity in participants' thinking. As a result, the negative word exercise may have been too harmful for such a short humorous clip to overcome the depressive feelings that the exercise may have induced. This phenomenon may be the reason why the results did not show significance.

An additional factor that contributed to the lack of significance in our study may have been a result of the duration of our manipulation. The participants in the experimental group were subjected to a ruminative exercise that lasted six minutes, whereas they were only subjected to a humorous clip for 54 seconds. Previous research shows that most distracters used for those expressing ruminative thoughts were eight minutes in duration (Lyubomirsky, 1998). The limited duration of the manipulation may not have been long enough to effectively distract the participants from their ruminative thoughts. If the clip was modified by increasing its length, it may have more effectively reduced ruminative, depressive thoughts.

It is also possible that the negative self-statements used to induce rumination may not have effectively done so. As the exercise was created just for the purpose of this study, there was no psychometric testing done to test reliability and validity. Thus, we would not know if the test was accurate in inducing rumination or if it was inducing a related construct such as dysphoria. If all participants did not ruminate, then all of the participants would have had lower scores on the RRS to begin with. Scores in the experimental group were lower than the control group's

scores, suggesting that the humor did have an effect, just not enough to produce statistical significance. This could mean that the humor was effective, but that the negative word exercise was not.

Another interesting finding that was present in our experiment was that there was not a significant correlation between rumination and gender. This is not consistent with previous research, as women are twice as likely as men to be diagnosed and treated for major depressive episodes and other types of depression (Lips, 2005). This likely indicates that the sample we chose was not representative of the population. The unbalanced distribution of genders between our control group and our experimental group is one illustration of how our sample was not representative of the population. As a result, it is difficult to make any conclusions about rumination and humor in terms of gender.

Most rumination studies in the past have observed populations that were afflicted with major depression or other depressive disorders. Our study measured undergraduate students at a religious university. It is possible that religiosity may have been a limitation to our study. Students who are highly religious may be less depressed and less likely to use ruminative responses to depressive thoughts and thus could be less affected by our ruminative exercise. Limitations to the exercise itself were explained earlier.

However, according to the BYU counseling center, the three most commonly treated issues they deal with in the 2000 to 2500 yearly visits are first, academic concerns, second, anxiety, and third, depression. Anxiety and depression are usually the factors that contribute to academic concerns (T. Pedersen, personal communication, Wednesday March 19, 2008). This would suggest that BYU students may not be less depressed than other populations. No participants in the study scored extremely high on the RRS. Additional research would need to be done to compare BYU depression rates with those of other populations.

The RRS was originally intended for individuals already suffering from depressive episodes. In our experiment, we used the RRS for individuals not suffering from any depressive disorders. The absence of a disorder in our subjects may have contributed to the insignificant results. A measure of rumination in the non-depressed population would be more accurate for use in this study. How-

ever, that we are aware of, there is no current measure for rumination in the non-depressed population. In our experiment, we did not require subjects to record any disorders that they may have.

A modified version of the dependent variable was needed for this study. The RRS was intended to measure ruminative traits. However, our study used the RRS to measure the ruminative states of our participants. The modified test measured how participants were feeling at one moment in time and did not measure patterns of behavior they had acquired. In order to make this adjustment, we modified the original RRS. Although reliability was found with the sample used in this study ( $r=.91$ ), the modified RRS did not undergo rigorous testing to determine its reliability and validity. Hence, it cannot be known that the modified RRS accurately measures ruminative states of anyone who takes it. After extensive testing, if the modified RRS is found to reliably and validly measure ruminative states, it could be used for those who have depressive disorders. It would be of great benefit to the psychological community to see if the modified RRS could be an effective measurement of ruminative states in individuals suffering from major depression and individuals who exhibit unhealthy ruminative responses to depressive thoughts.

In addition to increasing the length of exposure to humor, additional testing on the differences in gender should be made in future studies. The results of our study convey that there are little to no differences in gender when rumination is measured by state rather than by trait. If the experiment has proper randomization of gender, one should be able to draw more conclusive statements about gender's effect on rumination. Given that previous research concerning rumination has looked at the display of rumination in personality traits, it would be of great worth to see how gender differs in states. This would give a better picture of the role gender plays in ruminative responses. The modified RRS allows for future observation to be performed on this new area of research.

Another future direction could look at the use of humor compared to the use of other distracters in preventing rumination. It would be beneficial to those suffering from depression to know which distracters are best for eliminating ruminative thought patterns, or if the quality of various distracters depends upon the characteristics of each individual. Also, seeing how much decrease in ru-

mination there is due to the different kinds of distracters could further specify therapy techniques for individuals.

Although this study did not provide significant results concerning the use of humor as a distracter from ruminative thoughts, it has raised possible avenues for future research. Research is needed in order to identify the usefulness of the modified version of the RRS and the negative word exercise. The results illustrate that humor did not make a significant difference in scores on the modified RRS; however, with better measures and increased distracter duration, humor could provide more significant results.

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