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AN INVESTIGATION INTO THE EFFECTS OF HUMOR AND LAUGHTER
ON DEPRESSIVE SYMPTOMOLOGY

by

Jason Talley Goodson

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Psychology

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

2001

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ABSTRACT

An Investigation into the Effects of Humor and Laughter
on Depressive Symptomology

by

Jason Talley Goodson, Master of Science

Utah State University, 2001

Major Professor: Dr. David Stein
Department: Psychology

The current study was designed to test the theory that daily exposure to humorous material would reduce depressive symptoms. Thirty-eight undergraduate students endorsing depressive symptoms were randomly assigned to either a humor or comparison group. Dependent variables were scores on the Beck Depression Inventory, the Social Activities Scale from the Interpersonal Events Schedule, and the Positive and Negative Daily Affect Schedule. The humor group intervention consisted of take-home videotaped recordings of humorous materials. The comparison group intervention consisted of take-home video taped recordings of educational materials with motivational themes. Results indicated that subjects in both groups exhibited significant reductions in depressive symptoms. However, subjects in the humor group showed significant increases in social

activities and daily affectual gains, while the comparison group subjects showed no such changes. Plausible reasons for the current findings as well as implications are discussed.

(103 pages)

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Jason Talley Goodson

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PROBLEM STATEMENT

Over the past 20 years considerable empirical research has been conducted investigating the relationship between humor and depression. A review of the literature reveals that two approaches have been employed in studying this relationship. The first approach has been correlational analyses, which have attempted to demonstrate an inverse relationship between scores on sense of humor inventories and depression measures. The second approach has been controlled experimental studies, which have actively manipulated humor and assessed the effects on depressive moods and symptoms.

Correlational research studies have accumulated findings fairly consistent with the hypothesis that higher scores on sense of humor inventories are inversely correlated with depression ratings. With regard to the controlled experimental studies, the results have been equivocal. For example, Gelkopf, Kreitler, and Sigal (1993) found that exposing participants to humor interventions resulted in a decrease in depressive symptoms as rated by clinicians. However, those same participants' self-reported symptoms of depression did not change. Another study conducted by Houston, McKee, Corroll, and Marsh (1998) found that exposure to humorous interventions did not have an effect on depressive symptoms. These studies illustrate the lack of clarity in the present literature and underscore the need for further research to provide more definitive conclusions regarding the effects of humor on depression.

One reason for the lack of conclusive findings may be weaknesses with the humor interventions in past research studies. That is to say, the "strength" (i.e., amount of laughter-eliciting material) of the humor interventions employed in past studies has been

questionable. Researchers in past studies have typically shown participants “comical” movies without conducting pilot testing to assess participants’ humor preferences. This type of humor manipulation results in at least two potential weaknesses. First, in showing a comical movie in its entirety it is unclear how many laughter-eliciting scenes participants are exposed to. Further, as humor is subjective in nature, lack of pilot testing of the humor may result in a weak intervention, as materials may not be experienced as funny by the participants. As such, one noteworthy limitation in past research on humor and depression may be the use of less than optimal humor interventions.

It may be speculated that controlling for this limitation and providing a more effective humor intervention would result in more definitive findings with regard to humor and depression. Thus, the purpose of the current study was to assess the effects of humor on depressive symptomology, while maximizing the strength of the humor intervention. This was accomplished by using brief humor vignettes and compiling them into intervention segments dense with laughter-eliciting materials. Further, pilot testing was carried out to assure that interventions would be experienced as humorous to our sample. The current study hypothesized that exposing participants to this humor intervention would result in a significant reduction in depressive symptomology.

LITERATURE REVIEW

Historical Overview of Humor and Laughter

The curative physical and psychological effects of laughter have been speculated for centuries. For example, the book of Proverbs (Proverbs, 17:22) states, “a merry heart doth good like medicine....” Accordingly, 13th century medical history revealed humor being used as an anesthetic for surgical procedures. Five hundred years ago laughter was known as a treatment for colds and depression (Erdman, 1993; Lee, 1990). Mulcaster, a 16th century physician, believed laughter to be a health-giving physical exercise (Dean, 1997; Goldstein, 1978). Kant stated that laughter was useful in the restoration of equilibrium as well as having a positive influence on health (Dean, 1977; Goldstein, 1978). Barry, a 19th century philosopher, believed that humor and laughter facilitated a cognitive shift to a pleasant-toned perspective (Summo, 1958). Kallen believed laughter was able to restore harmony and Spencer stated that laughter serves to release tension (Haig, 1998; Spencer, 1860; Summo, 1958).

Freud’s extensive writings included discussions of the benefits of laughter. For example, he wrote, “Our philosophical inquires have not awarded to laughter with the important role it plays in our mental life. It has the capacity to overcome inhibitions of shame and decorum by the pleasure it offers” (Freud, 1938, p. 711). Freud postulated that humor and laughter serve to release repressed sexual and aggressive tension into prosocial outlets, thus furthering the pleasure principle. In discussing some of the potential beneficial effects of humor, Freud wrote, “The grandeur in it clearly lies in the triumph of narcissism, the victorious assertion of the ego’s invulnerability. The ego refuses to be distressed by the provocation of reality” (Freud, p. 725). Freud’s extensive works on

humor resulted in a better understanding and acceptance of laughter, and stimulated humor research throughout the century.

Many modern day psychotherapists tout the benefits of humor. Milton Erickson reported the frequent use of humor in “paradoxical interventions” (Saper, 1987). Farrelly and Matthews developed provocative therapy, in which clients’ symptoms and reactions are verbalized in humorous ways in order to provoke therapeutic change (Saper). Ellis uses humor to challenge irrational beliefs and induce perceptual shifts, while Oconnels considers humor the “royal road to actualization” (Saper). Thus, history is rich with philosophical and theoretical assertions about laughter’s ability to promote health.

Introduction to the Review of Current Literature

The present review of the humor literature will cover the following topics: (a) physical health benefits of humor, (b) humor and psychological well-being, (c) review of correlational studies exploring humor and depression, and (d) review of controlled studies exploring humor and depression. The review of the physical health benefits of humor will serve to familiarize the reader with the versatility of humor and provide evidence that laughter may provide positive effects on physical bodily processes. The review of the effects of humor on psychological well-being will serve to expose the reader to evidence implicating humor in promoting psychological health, thereby offering a justification for exploring humor’s effect on depression. Next, the correlational evidence linking humor and depression will be summarized. These studies illustrate how past researchers have attempted to delineate the humor-depression correlation, providing tentative support that such a relationship may exist. Lastly, the controlled studies exploring humor and depression will be reviewed. This will serve to portray the current state of the literature, show methodological limitations, and provide rationale for conducting a study with added

methodological rigor. In summary, the foregoing review will argue that humor may be effective in mitigating depression, but the current humor-depression research is inconclusive. As such, a study designed to assess the effects of humor on depression would be highly beneficial.

Before continuing with the review, it is important to clarify the terms humor and laughter. Humor is defined as something that is designed to be comical or amusing. Laughter is the physiological response to a humorous stimulus. Individual persons differ in their reactions to humorous stimuli. The range of responses span from internal appreciation to boisterous belly laughs. Thus, the absence of laughter does not equate with the absence of humor. Further, the author is unfamiliar with any research that has delineated differential psychological effects for internal appreciation of humor and overt laughter. As such, in attempting to ascertain the effects of humorous stimuli, both humor appreciation and laughter should be considered. Therefore, for the purposes of this review, the term humor will encompass both internal appreciation and laughter, while the term laughter will be used to express one of several responses to humor. Further, both terms will be measured in the proposed study.

Physiological Benefits of Humor

As noted above, humor and laughter have long been speculated to be beneficial to physical health. Anecdotal as well as empirical evidence accumulated over the past 30 years links the curative powers of humor to various physical and medical problems. Although the evidence is far from conclusive, *a review of the findings indicates that humor positively correlates with a number of physical conditions.* The present section will review the following specific physical conditions: (a) humor correlations with actual or perceived general health, (b) the correlation between humor and pain relief, (c) the relationship

between humor and immune system enhancement, and (d) laughter and its association with various physiological benefits.

Humor and General Health

The majority of the studies exploring the relation between humor and health have largely been based on various self-report, correlational analyses. For example, Carrol and Shmidt (1992) found that people who reported using humor to cope with stressful life events also showed fewer health problems than those who reported using low levels of coping humor. Carroll explored types of humor appreciation and perceived physical health. His study found positive correlations between certain types of humor appreciation and perceived health. Specifically, in males, perceived health increases were associated with humor preferences for sophisticated dry wit. In females, increases in perceived health were associated with preferences for flirtatious and playful humor and scorn of male foolishness or inefficacy (Carroll, 1990). These findings imply potential relationships between types of humor preferences and physical health. Similarly, Simon (1990) found a positive relationship between two humor inventories and perceived physical health among noninstitutionalized elderly subjects. Also, Anderson and Arnoult (1989) found that in subjects facing stressful life events, physical health was positively correlated with increased scores on the Coping Humor Scale.

Humor and Pain Relief

The possible mitigating effects of humor on pain have been suggested by both case study reports and empirical research. The findings are consistent with the speculation that laughter may attenuate pain by enhancing the levels of certain neurotransmitters, which in turn stimulate the brain to release endorphins. Kelley, Jarvie, Middlebrook, McNeer, and Drabman (1984) observed that laughter evoked from cartoon exposure in two children

burn victims appeared to be related to reduced pain reports. Hudak, Dale, Hudak, and Degood (1991) showed humorous and nonhumorous videotapes to students exposed to uncomfortable situational crowding. The humor group displayed significantly less discomfort and fatigue. Undergraduate students watching humorous videotapes sustained or increased their pain thresholds, as tested through transcutaneous nerve-end stimulation, while those who watched a nonhumorous video experienced a decrease in pain threshold. Adams and McGuire (1986) demonstrated that humorous interventions showed a consistent reduction in *pro re na'ta* (PRN), that is, given as needed, requests for pain medications in elderly residential care subjects.

Humor and Immune System Enhancing Effects

Considerable evidence has implicated humor and laughter with increases in immune system functioning, through increasing secretory immunoglobulin A (S-IgA) levels. Higher S-IgA levels are associated with fewer respiratory infections, colds, and other sicknesses. Three studies illustrate this link. Martin and Dobbin (1988) showed that S-IgA levels were significantly more elevated in subjects scoring high on humor inventories than those with low scores. Lefcourt, Davidson-Katz, and Kueneman (1990) observed that exposure to humorous stimuli increased S-IgA levels. McClelland and Cheriff (1997) demonstrated that subjects who watched humorous films had significantly higher gains in IgA secretions than those who watched nonhumorous films. Additional findings of this study suggested that higher baseline S-IgA levels were correlated with higher scores on humor inventories. Moreover, humor appreciation scores were found to be negatively correlated with number of colds. Additionally, exposure to humor has been associated with increases in antiinflammatory agents in blood levels and increases in infection-fighting proteins in the

saliva of medical students (Gelkopf & Kreitler, 1996; McGuire, Boyd, & James, 1992; Schachter & Wheeler, 1962).

Additional Physiological Benefits of Laughter

Fry (1986) found a direct relationship between laughter and activation of the musculoskeletal system. The activation varied from mild, moderate, to extreme according to the intensity of the laughter. McGuire et al. (1996) described the musculoskeletal activation during laughter. They stated, "Face, scalp, neck, shoulders and even thoracic and abdominal muscles are among those often stimulated. If the response is extreme, muscles of the entire body--like those in the arms and legs--may also become involved" (p. 16). The contraction of muscles during laughter is followed by a relaxation phase. This contraction-relaxation cycle has been shown to be beneficial to the musculoskeletal system.

Cardiac and circulatory stimulation also accompanies laughter. During laughter it has been observed that cardiac output increases, along with the temporary expiation of large amounts of oxygen. It may be speculated that the activation could be potentially hazardous to those suffering from heart problems. However, Fry and Stoft (1971) documented that intensive laughter and mirth pose no hazard to such persons. Actually, the activation of the heart followed by relaxation (which occurs throughout the laughter process) has been speculated to decrease the vulnerability of coronary heart disease and reduce rehabilitation time following heart attacks.

Additionally, the massive expiatory process that occurs during laughter may serve as a protective factor against pulmonary infection. Fry noted, "With laughter cyclic breathing is interrupted and pulmonary ventilation is expanded. Further, secretions in the lungs are expectorated, which may serve to remove residual air which builds up carbon dioxide and metabolic waste products" (McGuire et al. 1996, p. 17).

Lastly, Fry (1986) found that exposure to humorous and laughter-evoking stimuli also resulted in catechecolamine stimulation, which in turn stimulated the release of endorphins. McGuire et al. (1996) noted that these neurotransmitters are associated with alertness, enhanced memory, and other mental functions.

Physiological Benefits of Humor: Concluding Remarks

In summary, the available evidence seems to indicate that humor may have numerous beneficial health effects. Patients with higher humor scores appear to show fewer physical symptoms in response to stressful life events. However, it seems that the beneficial effects of humor may be limited to certain types of humor preferences. Also, it has been speculated that laughter may attenuate discomfort and pain, and enhance immune system functioning. These effects include the release of endorphins, elevated levels of S-IgA, increases in infection-fighting proteins, and increases in antiinflammatory agents in the blood. Lastly, laughter may benefit the musculoskeletal, cardiac, circulatory, respiratory, and hormonal systems.

Gelkopf and Kreitler (1996) conducted an extensive review on the effects of humor on physical health. Despite the research positively correlating humor to numerous physical conditions, they concluded, "The empirical findings show that the effects of humor on health are generally weak, so humor may be used as a background factor promoting recovery or the maintenance of health..." Additionally, they stated:

Studies do not allow clear conclusions about the causal role of humor in regard to health. First, most of the data are correlational, and second, the studies do not include an adequate emotion-evoking control stimulus for distinguishing between the effects attributable uniquely to humor and those characteristics for emotions or positive emotions in general. (pp. 238-239)

It appears more rigorous methodological studies are needed before conclusions may be drawn about the role of humor in promoting physical health.

Humor and Psychological Well-Being

In addition to physical benefits, humor and laughter have been speculated to ameliorate and prevent a host of psychological maladaptions. Case studies as well as controlled experiments have reported successful outcomes using humor as the primary intervention with a variety of psychological maladies. The present review of the literature revealed studies applying humor to the following areas: (a) stress and negative life events, (b) anger, (c) anxiety, (d) palliative care and nursing, (e) social support; and (f) depression (depression will not be covered in this section).

Humor, Stress, and Negative Life Events

Conventional wisdom has long held that humor helps people cope with stress and negative life events. Numerous studies have attempted to validate this belief by correlating humor measures with self-report indicators of negative life events and perceived stress. However, the findings have been mixed. For example, Schill and O'Laughlin (1984) conducted a correlational analysis exploring humor preference and coping efficacy. The findings suggested that effective male copers may show a significantly higher preference for sexual humor than do the noneffective male copers. No specific humor preference was related to effective coping in women. Martin, Kuipier, Olinger, and Dance (1993) showed that in subjects experiencing stressful life events, those who scored higher on humor inventories manifested less negative affect. This result was consistent with Martin and Lefcourt's series of three studies, in which increasing sense of humor correlated with moderation of stressful life events (Martin & Lefcourt, 1983). Contrarily, Porterfield (1987) found no relationship between measures on humor inventories and life-event coping

efficacy. Further, Safranek and Schill (1982) found humor to have no significant correlation with stress and negative life events. Lastly, White and Winzelberg (1992) conducted a study comparing the effects of humor and relaxation on stress reduction. Subjects were assigned to one of three groups: (a) humorous intervention, (b) relaxation intervention, and (c) control. Results indicated that the humorous intervention was no more successful than relaxation or control group in reducing stress. In the section that follows, the relationship between humor and a variety of health and behavioral outcomes is summarized.

Humor and Anger

Reasonably controlled experiments and case reports have offered findings supporting the hypothesis that anger may be moderated by humor. Smith (1973) reported successfully using humor in treating a client with anger problems and violent outbursts. Additionally, Singer reported that exposing anger-aroused subjects to humorous stimuli reduced tension and aggression (Gelkopf & Kreitler, 1996). Ziv (1987) showed that frustration in an examination situation was diminished when laughter was evoked. Gelkopf et al. (1993) exposed schizophrenic patients to humorous stimuli and noted significant reductions in verbal hostility, although behavioral hostility was not affected.

Humor and Anxiety

The studies exploring humor and anxiety have yielded somewhat confounded results. Vents (1973) reported the successful treatment of an acute case of social anxiety using humorous imagery. Smith, Ascough, Ettinger, and Nelson (1971) observed that humorous exams improved the performance of high anxiety students. Nemeth (1979) conducted a three-group study comparing the anxiety levels of pretreatment medical patients. The subjects were assigned to either a humor group (who watched a humorous

video), a nonhumorous group (who watched a nonhumorous video), or a control group. The findings indicated that the humor group showed significantly lower levels of anxiety than the other two groups. Fay conducted a correlational analysis of the relationship between subjects' appreciation of humor, and their stress and anxiety. The results were consistent with the theory that subjects who scored lower on humor scales were less effective copers and experienced higher levels of stress and anxiety (Fay, 1983).

On the other hand, Deffenbacher, Deitz, and Hazaleus (1981) found humorous examinations did not lower state anxiety or increase performance of high anxiety subjects. Miles (1988) found no relationship in 60 noninstitutionalized adults between humor appreciation scores and death anxiety scores. Lastly, White and Winzelberg (1992) found that humorous intervention was no more effective in reducing anxiety than were control and relaxation treatments. Thus, it appears the relationship between humor and anxiety has not yet been delineated. The equivocal results suggest the need for more replication with methodologically sound studies, including experimental designs controlling for confounding variables through active manipulation of humor and use of control groups.

Humor in Palliative Care and Nursing

Although there is a paucity of empirical research in the area, there is considerable anecdotal evidence suggesting that humor and laughter might play a role in relieving pain and suffering among the dying. Additionally, the appropriate use of humor with the terminally ill may help patients and family members cope with the upcoming death. Humor may provide momentary relief from pain and sadness, facilitate the grieving processes, and provide more meaningful and enjoyable experiences. Dean (1997) reviewed the benefits of using humor in palliative care. He concluded humor and laughter are valuable therapeutic interventions and may enhance the well-being of patients, family

members, and caregivers. Further, patients who allow and use higher amounts of humor scored lower on death anxiety measures.

Similarly, the nursing field has paid considerable attention to the potential therapeutic benefits of humor on the job. Beck (1997) discussed four ways in which humor might help nurses deal effectively with occupational demands. First, humor may help nurses deal effectively with difficult situations and difficult clients. Second, humor may help create a sense of cohesiveness between nurses and patients. Third, humor may help facilitate effective therapeutic communication between nurses and patients. Fourth, sharing humorous experiences may create lasting effects beyond the immediate moment for nurses and patients. However, none of these speculations have been formally investigated among nurses.

Humor and Social Support

Laughter seems to act as a social lubricant and helps promote social bonding. Dixon (1980), Goodchilds (1959), and Ziv (1984) all found that persons considered to be humorous received more social support (Gelkopf & Kreitler, 1996). However, Overholser (1992) showed that subjects who infrequently used humor to cope had strong negative correlations between humor appreciation, humor creativity, and loneliness. In contrast, subjects who often used humor to cope showed nonsignificant correlations between humor and psychological adjustment. These findings seem to indicate that to be effective, humor must be used judiciously. If used excessively, humor loses its coping power and the person loses his/her social attractiveness. Lastly, Gelkopf et al. (1993) in their study of humor on a schizophrenic ward found that the staff support for the patients increased during a humor intervention (in which both staff and patients participated).

Humor and Psychological Well Being: Concluding Remarks

In summary, humor has been used in the treatment of a variety of psychological problems. Tentative, supportive evidence has been found for humor's use in treating anger and anxiety, facilitating social support, and mitigating negative life events. However, the results are far from conclusive. Further studies with more rigorous methodological designs are needed. The author now turns to the major premise of the proposal; namely, the effects of humor and laughter on depression. First, the author will review some of the general models that have been put forth in attempts to conceptualize and/or operationalize the functions of humor. This review will serve to provide the reader with some insights into the author's speculations regarding potential mechanisms of action through which humor impacts depression.

Review of the Humor and Depression Studies

Over the past 20 years considerable research has been conducted attempting to substantiate a link between humor and depression. However, there remains ambiguity in the research regarding humor and depression. Specifically, there is a lack of conclusive evidence empirically validating the antidepressant effects of humor, and the saliency between the covariates remains to be appropriately delineated.

The present section will review the primary studies investigating humor and depression. Two methodological approaches have dominated the research. One approach has focused on correlating self-report measures on humor inventories with scores on depression inventories. The second approach has been to actively manipulate humor and laughter while comparing pre- and postmeasures of depression or affect. Correlational studies investigating humor inventories and depression will first be reviewed. Following the review of the articles, methodological issues pertaining to these articles will be

discussed. Next, the studies that experimentally manipulated humor will be reviewed. Lastly, conclusions will be drawn regarding the current state of the research literature.

Ten articles were located that attempted to correlate measures of humor and depression. However, such studies are of limited value in explaining the impact of humor on depression. First, the humor inventories used in these studies measured three aspects of humor. These were subjects' ability to create humor, subjects' appreciation of humor, and subjects' use of humor for coping. In essence, these measures purportedly assess one's self-perceived propensity to laugh or make humorous comments. Thus, these humor inventory studies do not capture the direct effects of laughter. Despite these limitations, it is appropriate to briefly review these studies to illustrate some of the methodological approaches used to date in studying the humor-depression relationship.

Primary Correlational Analysis Articles

Martin and Lefcourt (1983) conducted three correlational analyses that indirectly examined the relationship between humor and depression. The results of the studies were consistent with the theory that sense of humor may be inversely related to mood disturbances associated with stressful life events. For example, one analysis revealed that subjects with low sense of humor scores and greater levels of stressful events showed significantly increased rates of mood disturbance. Contrarily, subjects with higher sense of humor scores did not show as great an increase in mood disturbance, even under high levels of stress. These findings are consistent with the buffering hypothesis, that is, that humor acts as a buffer against the adverse impact of negative life events.

Martin et al. (1993) also found that, compared to subjects with low humor scores, those with higher humor scores evidenced significantly less negative affect in response to increasing negative life events. Further, the findings suggested that individuals with high

humor scores may show substantial increases in positive affect as positive life events increase. In contrast, individuals with lower humor scores exhibited stable affect regardless of recent positive life events. Additionally, low humor subjects showed decreases in positive affect as negative life events increased; surprisingly, high humor individuals showed an increase in positive mood as negative life events increased. Further, Nezu, Nezu, and Blissett (1988) conducted a prospective study that indicated humor might serve as a moderator of stress for depression.

Contrarily, Porterfield (1987) conducted a study to assess the humor buffering hypotheses by correlating depression, negative life events, and humor inventories. His findings conformed with the main effect theory of humor, that is, that humor may mitigate depression directly, not indirectly, through attenuating stressful life events.

Thorson and Powell (1994) correlated a "sense of humor" inventory with a depression inventory. They found that as sense of humor scores increased, depression scores decreased. Additionally, Thorson, Powell, Sarmany-Schuller, and Hampes (1997), in a replication of Thorson and Powell's 1994 study, found a negative relationship between depression and humor measures.

Frenheit, Overholser, and Lehnert (1998) conducted an interesting study comparing humor rating of hospitalized adolescents and control adolescents. It was found that humor appreciation, humor creativity, and humor coping scores were all negatively related to depression and hopelessness in both groups. Upon further analysis, between group differences were found in depression ratings but not in humor responses. It was theorized that humor may be a relatively stable personality trait that exhibits a similar relation to depressive symptoms in both groups. Additionally, the authors speculated that excessive humor use was associated with denial of problems, while low use of humor was associated

with rumination. Both denial of problems and rumination were associated with depression (Freinheit et al.).

Mannell and McMahon (1982) asked subjects to keep a daily journal of humorous events occurring during the day, and had them fill out a mood adjective checklist three times per day. Increases in positive mood and decreases in negative mood were significantly correlated with greater numbers of incidents of humor and overt laughter.

Other studies have yielded somewhat weaker or inconclusive correlations. Overholser (1992) conducted a correlational analysis of subjects' humor and depression inventories. Humor scores were related to depression in females, but no correlation was found between humor and depression in males. Moreover, among the female subjects it was found that humor scores were negatively related to depression, but only among subjects scoring low on coping humor inventories. In contrast, subjects scoring high on use of coping humor exhibited depression scores that correlated with life stresses. The authors suggested that if humor is to be effective, it must be used judiciously (i.e., if used excessively, humor loses its coping power). Additionally, retest scores after 7 weeks led the author to postulate that the effects of humor on coping might be transitory (Overholser). Safranek and Schill (1982) carried out a correlational analysis using life-events ratings, depression ratings, and humor ratings as covariates. They were unable to find evidence that humor serves to mitigate stressful life events. Further, humor ratings were correlated with depression in females. However, no significant correlation was found between humor and depression in males. Lastly, Deaner and McContha (1993), using three humor inventories along with depression scales, found that none of the humor scales correlated significantly with depression.

Conclusions and Implications of Correlational Studies

It can be concluded that a moderate inverse relationship exists between sense-of-humor scores and depression measures. Indeed, seven of the studies conducted to date showed such a relationship. However, two studies yielded mixed results, and one study yielded negative results.

Such correlational research has significant limitations. First, no causal effects for humor can be delineated. Also, as has been noted, studies that use humor inventories that rate one's propensity to laugh, enjoy, or create humor are of limited value; the propensity for humor is quite different from actual laughter and/or a humor experience. The only correlational study that may have assessed actual laughter was conducted by Mannell and McMahon where the subjects kept logs on the amounts of laughter and humor exposure (Mannell & McMahon, 1982). In addition to studies that merely correlate humor and depression ratings, other studies correlated humor ratings with affect and/or psychological well-being ratings. As such, these prove to be only indirectly related questions about the humor-depression hypothesis.

Further, correlational research does not provide clear evidence regarding the nature of relationships among variables. For example, correlational data are consistent with the speculation that humor may affect depression. The data may also be taken to be consistent with the theory that depression may elicit changes in humor. Indeed, Scogin and Merbaum (1983) postulated that depressed persons are less likely to laugh at humorous stimuli than are nondepressed persons. Additionally, a third variable, such as extroversion, might increase the probability of one's humor experiences and resistance to depression.

In addition to the aforementioned shortcomings, the use of self-reports of humor propensities are highly suspect, as they may be affected by a social desirability bias.

Allport (1961) noted that up to 94% of persons will say that their own sense of humor is average or above average. This of course is statistically impossible.

Another important methodological problem in these studies is that none noted whether subjects were blind to the purpose of the study. Awareness of the hypothesis among subjects could promote a tendency to confirm researchers' expectations.

To obtain a more accurate picture of the known effects of humor and laughter on depression, studies implementing controlled experiments are of significant value. The following section reviews studies which actively manipulated humor and examined the effects on depression (or at least positive and negative affect). Each study, along with implications of the findings and methodological issues, will be discussed separately. It should be noted that, to date, few studies of this type have been carried out; those that have seem to have methodological limitations.

Studies Actively Manipulating Humor as the Independent Variable

Adams and McGuire (1986) carried out a study examining the effects of humor on elderly subjects in a long-term care facility. The study consisted of a humor group, which viewed one humorous movie (divided into half-hour segments and shown over the span of three consecutive days) each week; and a nonhumor group, which viewed one nonhumorous movie (divided into half-hour segments shown over the span of three consecutive days) each week. The study was conducted over a 6-week period. The results indicated significant improvement in affect scores in both the humor and the nonhumor groups. However, affect scores for the humor group were more pronounced than those for the nonhumor group.

Some methodological flaws were noted in this study. First, the use of a lengthy movie as a humor stimulation may be of questionable validity. The possibility exists that

the lengthy story line of a movie might overshadow or confound the humor content.

Another shortcoming was the failure to assess subjects' appraisal of the humor content of the movies. It is unclear whether humor per se, or other attributes of the humor group (e.g., increased social interactions during the interventions) caused the changes in affect.

Another study dealt with the effects of exposure to humorous stimuli on induced depressive symptoms. Danzer, Dale, and Klions (1990) conducted a study using all female subjects. The subjects were randomly assigned to one of three groups: waiting group, nonhumorous audiotape group, and humorous audiotape group. The subjects were asked to complete the Multiple Affect Adjective Check List (MAACL). Following completion of the MAACL, all subjects went through a depression induction phase using Velton mood statements. After the depression induction, subjects once again filled out the MAACL, which indicated (along with physiological measures) that the depressive induction was successful. Following, each subject according to group assignment either waited in silence (control group), listened to a lecture on geography (nonhumor group), or listened to a humorous audiotape (Bill Cosby and Robin Williams). After the treatment phase, subjects once again filled out the MAACL. The results indicated that both waiting groups and humor groups experienced significant reduction in depression. Although the humor group was the only group in which depression rates dropped to the baseline level, as significant reductions were experienced in both groups, the effects cannot be attributed to the humor intervention. Further, the use of an all-female population limits generalizability to males. The fact that no posttesting was conducted to assess amounts of laughter and humor during the intervention leaves it difficult to retrospectively assess the findings to humor. Moreover, the validity of the depression induction and the fact that the humor and nonhumor interventions lasted only 11.5 minutes detracts from the likely external validity of the study.

The third study was the Clemson Humor Project. McGuire et al. (1996) carried out an extensive study using humor with an elderly population in long-term care settings. The Clemson Humor Project was perhaps the most methodologically sound study conducted to date. The project consisted of 86 subjects from various long-term facilities. Subjects were randomly assigned to one of three groups: a humor group (in which they were shown humorous movies), a nonhumorous group (in which they were shown dramas, mysteries, and westerns), and the control group (in which no changes from their daily activities occurred). One movie was shown each week usually over a 3-day period. The interventions lasted approximately 40 minutes. The study was conducted over a 12-week period. A pilot project was carried out in order to delineate which movies were considered most humorous by the population. Prior to the initiation of the project, all subjects filled out the Affective Balance Scale. Further, after viewing each film, participants were asked to rate the movie on perceived funniness and identify the frequency of laughter, which verified that the humorous intervention group laughed significantly more than the nonhumorous intervention group. Upon completion of the intervention, subjects were once again asked to complete the Affective Balance Scale.

The results of the study showed that none of the three groups experienced significant increases in positive affect. Additionally, all three groups experienced significant decreases in negative affect. In regards to total affect, both the humor and control groups experienced statistically significant changes. Interestingly, the inventories measuring affect directly after intervention revealed that in 8 out of the 25 movies shown, the group left the intervention "feeling" significantly better. All 8 of these were following humorous movies.

This study offers moderate support for the use of film media to impact affect. However, effects were not limited to the humor media group. The finding that only the

humor group left the interventions feeling better supports the premise that humor temporarily enhances affect. However, this temporary increase in affect only occurred 8 out of 25 times. This indicates that relatively few of the humor media interventions were of adequate strength. Perhaps significant between-group differences would have been found if more interventions had provided increases in affect. However, as shown by this study, simply showing movies in their entirety does not consistently elicit increases in affect.

Gelkopf et al. (1993) studied the effects of a humor exposure condition on chronic schizophrenic patients. The patients were assigned to either a humor, or nonhumor group. Before the interventions, patients filled out the MAACL, were rated on perceived verbal and behavioral hostility, and the Brief Psychiatric Rating Scale (BPRS). The humor group was exposed to movies commonly labeled as comedies, while the control group was exposed to neutral films (however, 15% of the neutral films shown to the control groups were also comedies). The groups were shown their respective films twice daily, four times a week, for a total of 3 months. In all, 70 movies were shown. After the intervention, patients once again filled out the MAACL and were rated on verbal and behavioral hostility as well as the BPRS. The results of the MAACL indicated no changes in depression ratings were found in either group. However, ratings of the BPRS revealed reductions in depression in the humor group. The authors postulated that emotional changes were manifest at the clinical but not the experimental level. The only other significant change was a reduction of verbal hostility in the humor group.

This study offers mixed support for the positive effects of humorous stimuli on depression. MACCL scores indicated no changes in depression ratings; however, clinician ratings using the BPRS revealed reductions in depression in the humor group. Once again, for reasons stated above, the use of entire movies is less than ideal for the intervention as relatively few scenes may be humorous. Of note, this study implemented significantly

more “humorous” interventions than did the other studies. Despite this, limited effects were found. However, schizophrenics might not be the ideal population on which to test the humor-depression relationship. The flattening of affect that occurs in persons with schizophrenia might leave schizophrenics with reduced interest in, or appreciation for, humor. Moreover, no pretesting was conducted to delineate humor preferences; nor was there posttesting of laughter or perceived humor of the intervention.

Houston et al. (1998) conducted a study using sing-a-longs as the supposed humorous intervention. An initial pilot study determined that the most effective humorous intervention would be old-time sing-a-longs that would be implemented once a week, for 20 minutes, spanning 4 weeks. Research assistants also sang and danced on stage in a “comical” fashion and encouraged subjects to join in with the singing. The study utilized a control group that received no changes in care schedules. Before the intervention, subjects filled out the General Health Questionnaire (GHQ-28) and the Hospital Anxiety and Depression Scale (HADS). These inventories were also filled out after the intervention.

The results of the study indicated that the HADS depression scores for the experimental group failed to reach a statistically significant level ($p < .10$). Further, GHQ severe depression and GHQ social dysfunction showed no significant differences between groups. This study seems to offer little support for the hypothesis that humor mitigates depression. However, numerous methodological shortcomings could provide the reason. First, despite the pilot testing, the choice of a sing-a-long seems less than ideal as a humorous intervention. Some patients might feel uncomfortable singing. Further, if researchers “prodded” them to join in, the intervention may actually be quite aversive. Further, the sing-a-long may have limited the opportunity for actual laughter as subjects are engaged in singing. On the other hand, a group sing-a-long might provide social bonding

and stimulation that would not be inherent in humor itself. Additionally, researchers failed to obtain postintervention ratings of laughter or perceived humor, making attribution of any benefit to humor difficult. Lastly, an intervention of 20-minute duration, one time per week could be inadequate to produce effects.

Nelson and Stern (1988) conducted a study exploring mood induction in a clinically depressed population. Clinically depressed subjects were either taken through a Velton mood elation exercise or watched a humorous film. The subjects also completed the MAACL and the Dysfunctional Attitude Scale (DAS). The Velton mood elation group read 60 self-referent statements designed to be mood elating. The humorous group watched outtake "bloopers" that lasted 12 minutes. Following the intervention, the MAACL and DAS were again administered. The results showed that depressed subjects who were taken through the Velton elation condition showed significantly less depression and less attitudinal and cognitive dysfunctions. The depressed subjects in the humor group underwent significant reductions in depressed mood, but dysfunctional cognitions remained in tact. Upon discussion, the author noted that this finding differed from those of Isen and Gorgoglione who reported that humorous films, similar to the one used in the current experiment, altered both moods and cognitions (Isen & Gorgoglione, 1983).

This study offers further evidence for the temporary mood-enhancing qualities of humor. No pretesting for humor preference or posttesting for assessing the strength of the intervention occurred, which allows speculation regarding why cognitions were not affected by the humor group. It could be that the intervention lacked in strength for the particular subjects, or that the intervention was too short to affect cognitions. However, the fact that mood was enhanced in a clinically depressed population by exposure to a humorous stimulus strongly supports the humor-depression hypothesis.

Finally, Napora (1985) investigated the effects of humorous program activities on

the subjective well-being of senior adults. Napora implemented a program of humorous activities for a period of 6 weeks. The results indicated that those subjects in the experimental group showed higher levels of mood. However, in Napora's study, humor was not the only independent variable; hence little can be inferred about the humor-depression hypothesis from this study.

Conclusions and Implications of Studies That Actively Manipulated Humor

The results from the above studies are far from conclusive. The present review revealed that two types of studies dominate the experimental literature: (a) short-term single manipulation, and (b) long-term multiple manipulations. The short-term studies appear to offer more conclusive evidence that humor directly attenuates depressed mood. Although several methodological shortcomings were noted, the findings are more consistent. However, despite the consistent findings it may prove difficult to generalize short-term elations in mood to significant reductions in depression.

The long-term studies showed a minimal trend supporting the theory that systematic exposure to humorous stimuli may attenuate depression. Unfortunately, not one study yielded results that were unique only to the humor manipulation. The humor group often showed greater affectual gains. However, these findings are confounded when the control and nonhumor groups also experience statistically significant gains. Moreover, one study failed to show any significant gains in affect.

Given the present state of the research, it is not possible to confirm that humor and laughter significantly mitigate depression. Potential methodological shortcomings are the validity and strength of the intervention. Showing a movie in its duration does not appropriately maximize exposure to humor. If the humor intervention was more salient,

perhaps more significant differences, unique to the humor groups, would have been found. Another problem has been the lack of extensive pretesting of the humor preferences of subjects. Humor is a subjective experience and different people laugh at different types of humor. It does not seem effective to put a group of subjects together and expose them to the same manipulation. Subjects should be matched for humor preference, or at least pilot testing of the humor stimuli should be conducted to assess its appropriateness (and effectiveness) for a particular audience. The length and duration of many of the humor interventions could have been inadequate. If the interest lies in delineating how systematic exposure to humor affects depression, then more frequent and extensive exposure may be needed (e.g., 45 minutes three times per week). Intuitively, increasing the number of humor sessions should enhance the intervention power. Another problem was the lack of posttesting. There is no way to validate that humor was causal in mitigating depression, if perceived funniness and quantified reports of laughter are not attained. On a similar note, in keeping with the physiological benefits of laughter, it also would seem appropriate to obtain reports on the intensity of the laughter. Did the subject chuckle, have a hearty laugh, or was it a full belly laugh? Another issue, pertaining only to this proposal, was the reliance on scores of "affect," rather than depression. Affect is assuredly related to depression; however, depression encompasses more than affect. In conclusion, numerous methodological factors need to be taken into consideration to clarify the relationship between humor and laughter and depression.

The next section will discuss the functional models of humor as well as speculate on how the properties associated with humor may ameliorate the symptoms of depression. Although the following discussions are highly speculative, they serve to provide further rationale for investigating the relationship between humor and depression.

FUNCTIONAL MODELS OF HUMOR AND LAUGHTER

Several models have been put forth in attempts to explain the positive psychological effects of humor. The first functional model of humor to be discussed is the superiority model, which associates humor with hostility and aggression. The superiority model postulates that humor and laughter are derived from exposing weaknesses and deformities in others as well as denigrating individuals and groups. As a result of disparaging others, personal feelings of worth and power are enhanced and self-esteem is bolstered.

The second model, which is known as the relief model, is derived from the theory that humor and laughter relieve tension. This model proposes that humor and laughter facilitate a cathartic release, allowing for the relief of built-up frustrations, aggressive and sexual drives, and nervous energies. As a result, feelings of well-being are engendered and mood is lightened.

The third model represents an aggregate of several similar humor theories, and may be referred to as cognitive-affective model. The most comprehensive view of the cognitive-affective model was advanced by Gepklof and Kreitler (1996). Their model incorporates the essential aspects from other cognitive-affective theories, as well as those from the superiority and relief theories.

Gepkolf and Kreitler's model postulates that humor and laughter facilitate a small affective shift and a large cognitive shift. The small affective shift engenders positive mood states by producing feelings of superiority and releasing built-up tensions and frustrations. The large shift frees one from the shackles of negative habitual thought processes by facilitating cognitive distancing and shifting towards new ways of thinking about familiar situations. That is, humor is speculated to promote a momentary distancing from stressors, which allows for a shift in the perception of the stressor towards a more favorable or light-hearted interpretation. Hence, the affective shift facilitates abreaction

and catharsis that allows for emotional gratification and mood enhancement, while the larger shift allows one to take on a new view of things (Gelkopf & Kreitler, 1996).

These affective and cognitive properties of humor are exemplified in a case study reported by Vents. Vents (1973) described the successful reduction of situational anxiety through the use of humor in a female client, who was apprehensive about attending a banquet where her ex-boyfriend would be present. Vents guided the client through anxiety-provoking scenes that culminated in the boyfriend entering in ludicrous and comical fashion (i.e., wearing leotards). In this case, imagining the boyfriend entering in a humiliating and comical fashion facilitated the affective shift. It provided momentary feelings of superiority, engendered feelings of devaluation in the boyfriend, and temporarily lightened the client's mood. The humor imagery also allowed for a cognitive shift. That is, the client was able to distance herself from the situation and view it in a new, less threatening frame. In essence, the dreaded event was decatastrophized.

HUMOR, DEPRESSION, AND SPECULATED MECHANISMS OF ACTION

Anecdotal health researchers have been especially interested in exploring the link between humor and depression. Many have conceptualized laughter and depression to be on opposing ends of a mood continuum. Depression is a mood disorder, characterized by low levels of affect, whereas laughter is a mood enhancer, characterized by positive affect. Hence, it seems logically intuitive that a relationship may exist between the two.

Viktor Frankl seemed to conceptualize laughter and depression from such a vantage point. He reported the common practice of making depressed patients laugh by telling them jokes. Upon laughing, Frankl would inform the patients they could not possibly be laughing, because laughter is incompatible with depression (Rutherford, 1994). Likewise, Levine (1977) speculated that humor and depression were opposing emotional phenomena. Hence, superficial conceptualizations of laughter and depression suggest that they may oppose each other.

However, a more in-depth analysis of the phenomenology of humor and depression calls for speculation about the mechanisms through which humor may serve to mitigate depression. Therefore, the following section will speculate on how the diagnostic symptoms of depression may be ameliorated by the properties of humor and laughter. The purpose of the discussion is not to exhaust every possible benefit of humor, but to provide an overview of the mechanisms that may serve to alleviate depression. One criterion of depression that does not seem directly related to the phenomenology of humor or laughter is that of significant weight loss or gain. Although weight disturbances may be indirectly affected as other depressive symptoms are abated, it remains difficult to conceptualize, within the existing frameworks of humor theories, how weight disturbances would be

directly affected by humor or laughter. As such, it will not be included in the following discussion.

The first criterion of depression is a pervasively depressed mood, most of the day, nearly every day. Several theorists have speculated on how the low mood state characteristic of depression may be affected by laughter. Ellis, in discussing the effects of humor on depressed moods, related that humor has the potential to lift depressed moods increase energy (Saper, 1987). Fry (1992) noted that humor is opposed to negative emotions and positively correlated with positive emotions such as joy and hope. Gelkopf and Kreitler (1996) postulated on how laughter might enhance depressed moods. They stated:

Humor and laughter increase positive mood, and a humor response in itself is a kind of positive mood. Moods are shorter lived than emotions and are involved in the instigation of self-regulatory processes and are capable of changing a broad range of our affective, cognitive and behavioral responses. (p. 247)

Thus, humor and laughter may directly increase positive moods while simultaneously activating other mood enhancing emotions, cognitions, and behaviors.

The second criterion for depression is marked diminished interest or pleasure in all (or almost all) activities, most of the day, nearly every day (anhedonia). Anhedonia may also prove to be particularly susceptible to humor, as laughter in itself is a pleasurable experience. Many theorists have speculated on the pleasurable effects of laughter. Gelkopf and Kreitler (1996) stated that “positive moods induced from laughter strengthen the evaluation of the enjoyment and pleasantness of objects, activities, and events...” (p. 246). Ellis believed that humor brings enjoyment to life and makes life seem more rewarding (Saper, 1987). Martin et al. (1993) showed that humor allowed subjects to derive greater pleasure out of life’s circumstances. Therefore, humor may alleviate anhedonia through directly generating pleasure and enhancing the enjoyment derived out of life circumstances.

The symptoms of fatigue (anergia) and psychomotor disturbance will be discussed concurrently. Depression is often characterized by reductions in energy, which may also include psychomotor retardation. For example, a depressed patient may struggle to muster the energy to get out of bed and manifest slow motoric behaviors. The physiological arousal induced by laughter appears to directly oppose the fatigue associated with depression. Recently, researchers have hinted how laughter may accomplish this. Fry (1986) documented that laughter stimulates autonomic nervous system activity and the release of catecholamines in the blood. McGuire et al. (1996) gave a summary of the physiological effects of laughter. They stated:

Laughter activates skeletal muscles from the face down through the abdomen and in extreme laughter even the extremities. Laughter stimulates the cardiac muscle and increases heart rate and blood pressure. Circulation is enhanced during laughter and the expiatory nature of laughter serve to purge the lungs of metabolic waste products. (pp. 16-17)

Fry noted that physiological benefits of sustained laughter are equivalent to those of short bouts of exercise (Goldstein, 1978). Hence, the physiological arousal that occurs during laughter may effectively mitigate fatigue and psychomotor retardation.

Regarding psychomotor activation, the physiological properties of laughter may also be helpful. The above-mentioned activation responses occur in the first phase of laughter. The second phase of laughter is known as the relaxation phase, in which the parasympathetic nervous system rebounds, physiological arousal levels reduce, and organismic relaxation occurs. It seems likely that increases in organismic relaxation may help to lessen psychomotor activation. This speculation would be consistent with the findings that reductions in stress and anxiety follow exposure to humorous stimuli.

Sleep disturbances (i.e., insomnia and hypersomnia) may also be ameliorated by the physiological properties of laughter. Specifically, laughter's activation phase and associated autonomic arousal may help to alleviate hypersomnia by increasing general arousal levels. Conversely, insomnia may be affected by the relaxation phase of laughter, as organismic relaxation would seemingly help induce sleep. Indeed, Norman Cousins reported that during his recovery from ankylosing spondylitis he was only able to sleep following intensive bouts of laughter (McGuire et al., 1996).

The next criterion to be discussed in terms of humor and laughter is feelings of worthlessness or excessive and/or inappropriate guilt. This symptom may be amenable to the cognitive aspects assigned to humor that were previously discussed with the cognitive-affective model. Humor may serve to reduce feelings of worthlessness and guilt by facilitating a distancing from habitual and faulty self-attributions. Distance between the self and negative appraisals may then allow for a shifting towards more favorable and/or lighthearted appraisals of the self. As a result, feelings of worthlessness or guilt would be attenuated. Indeed, Monroe reported using humor in "universe changing," which facilitates clients obtaining a new perspective about their environment and themselves (Richman, 1996). Further, humor and laughter have been speculated to be associated with increases in self-esteem, self-efficacy, and optimism (Gelkop & Kreidler, 1996; Martin et al. 1993). Such increases are likely to positively affect feelings of guilt and worthlessness.

Lastly, the diminished ability to think or concentrate observed in depression may also be amenable to laughter. Browning (1979), Goodman (1982), and McGee (1986) all found that humor stimulated memory and alertness. Likewise, McGuire et al. (1996) noted that humor may effectively enhance the mental functionings in areas such as learning, creative thinking, and memory. Thus, humor may also help improve depressed persons' ability to effectively concentrate.

In conclusion, it appears as if many of the symptoms of depression may be positively affected by the properties of humor and laughter. In summary, laughter may directly enhance depressed mood, generate pleasure, renew interest in life events, stimulate the body, provide relaxation, enhance self-esteem, and stimulate mental activities.

RATIONALE FOR FURTHER STUDY OF THE HUMOR-DEPRESSION HYPOTHESIS AND RESEARCH QUESTIONS

Certainly, it is unlikely that humor is a panacea treatment for depression, in which the prescribed treatment consists of a series of comedy sessions. Nor is there any implication made concerning the actual use of humor in therapy. Kubie (1971), for example, warns against using humor in therapy. Nevertheless, humor may offer clinicians a powerful tool with which to combat depression. The extent of the "power" or effect of humor remains unclear. However, if humor indeed can be shown to directly alleviate depression, exciting implications exist. First, offering humor interventions may be cost-effective. Second, humor interventions are readily available. The sheer volume, diversity, and density of humorous material in our society leaves obtaining the intervention a nonissue. Third, humor is a pleasurable experience. Clients may be more willing and motivated to comply with homework assignments of a pleasurable nature, such as engaging in at least one humorous experience everyday. Other implications could be speculated. If humor effectively enhances mood, exposing clients to humorous stimuli directly before therapy sessions might enhance productivity of sessions (D. Stein, personal communication, November 1999). In short, it seems that the potential benefits of humor could outweigh the costs of acquiring it.

In addition to aiding clinicians in treating depression, a study which maximizes humor's potential and addresses the above-mentioned methodological shortcomings would provide further clarity to the existing research literature. That is, the potential "power" or effect of humor on depression, if delineated, would serve to clarify the ambiguous findings in the available research. If a methodologically sound study shows that humor is effective in relieving depression, further research may be stimulated. On the other hand, if humor is

shown to have minimal effects, misconceptions would be clarified and clinicians' energies redirected.

Three hypotheses were formulated and tested with the current study. First, it was hypothesized that the group of depressed subjects exposed regularly to humorous interventions would show significantly greater reductions in depressive symptomology than subjects in the nonhumor group. The second hypothesis was that subjects in the humor group would exhibit significantly greater increases in social activities than would the nonhumor subjects. This hypothesis was interpolated from the findings that humor has been shown to act as a social lubricant, facilitating social interactions (Dixon, 1980; Ziv, 1984). Moreover, many researchers have maintained that a key component to the remission of depression is enhanced interpersonal activity (Leader & Klein, 1996; Paykel, Weissman, & Pursoff, 1978; Weissman, Dlearman, Paykel, Prusoff, & Hanson, 1974). There may be two possible explanations for this finding. First, improved social interactions may be a mediating factor in the alleviation of depression. That is, through enhanced social contact and reinforcement, depression symptoms might be abated. Second, increased social activity may be a serendipitous marker of depression remission. Although the current study did not investigate these speculations regarding the specific role of interpersonal activity in depression, it was postulated that exposure to humor would result in increases in interpersonal activities, which would be correlated with reductions in depressive symptomology. The third hypothesis was that on pre-/postintervention affect measures, subjects exposed to the humor manipulations would exhibit significantly greater increases in positive affect and significantly greater decreases in negative affect than would subjects exposed the nonhumorous interventions.

METHODS

Introduction

The present literature reveals that the effects of humor on depression, if any, have not been well established. As such, the current study attempted to offer further clarity to the humor-depression hypothesis.

To assess the effects of humorous stimuli on depression in the present study, persons exhibiting depressive symptomology were randomly assigned to either a humor or comparison group. That is, subjects in the humor group were exposed to humorous materials, while participants in the comparison group were exposed to educational materials with motivational themes. Pre- and postmeasures of depression and interpersonal functioning were completed by participants. Participants in both groups were asked to fill out the Positive and Negative Affects Schedule (PANAS) immediately before and after each daily intervention. Further, participants in both groups were asked to complete a questionnaire evaluating subjects' amount of laughter, as well as the humor, educational, and motivational value of the daily intervention.

The study attempted to maximize the strength of the humor intervention by exposing participants to high amounts of laughter-evoking stimuli. This was accomplished by gathering a wide range of humorous materials and condensing them into numerous, short vignettes. By using numerous, short vignettes participants were exposed to significantly more laughter-eliciting materials than if they had been shown a media production (e.g., movie) in its entirety. Further, pilot testing was carried out on undergraduate and graduate students to ascertain which materials were perceived as most humorous.

Collection and Pilot Testing of Humor

The materials for the humor intervention were collected by a team of five persons (the student researcher and four research assistants). Each person recorded materials he/she subjectively experienced as humorous and produced brief vignettes. The research team met weekly to review the perspective intervention materials. To enhance the reliability of the interventions, all vignettes were rated by each member of the research team on a scale of 1 to 5 (1 = not funny; 2 = somewhat funny; 3 = funny; 4 = very funny; 5 = extremely funny). Only those vignettes that received an average rating of "3" were used in further pilot testing.

Two phases of pilot testing were carried out to test the humor vignettes. The first pilot test was conducted with 12 graduate students. The subjects watched an hour-long videotaped presentation containing vignettes with differing types of humor (i.e., movie clips, stand-up comedy, sketch comedy, talk shows, etc.). Participants rated the perceived funniness of each vignette, as well as the overall presentation, on a scale of 1 to 5 (1 = not funny; 2 = somewhat funny; 3 = funny; 4 = very funny; 5 = extremely funny). Simple descriptive statistics revealed that the mean overall humor rating was 2.87 ($SD = .6767$). This indicates the overall presentation approached being rated as "funny" by the participants. Also, more subjective feedback was elicited from the participants after their presentations. Several subjects indicated that using movie clips may be less than ideal, as the context may not be understood. This feedback was incorporated into the second pilot testing and only stand-up comedian routines or sketch comedy (i.e., Saturday Night Live) clips were used. The second pilot testing was conducted with 13 undergraduate students. Again, subjects were shown an hour-long videotaped presentation consisting of numerous humorous vignettes. Each subject was asked to rate the perceived funniness of each

vignette and give an overall rating for the presentation on the same 5-point rating scale noted above. The goal of the second testing phase was to elicit higher ratings of perceived funniness. Simple descriptive statistics revealed that the mean overall humor rating was 3.00 ($SD = .6030$). This indicates that, on average, the overall presentation was experienced as “funny” by the participants; also, the second pilot test successfully increased the perceived humor ratings. Given these findings, it was decided to only use vignettes of stand-up comedians and sketch comedy for the humor intervention.

Humor Intervention

In the humor intervention, subjects watched 30-minute humorous videotapes, containing a variety of vignettes lasting approximately 5-10 minutes each. The intervention vignettes comprised stand-up comedian routines and sketch comedy (i.e., Saturday Night Live). In total, 24 of these half-hour humor interventions were recorded onto videotapes, with clear breaks between each intervention. Two tapes were made (i.e., one for each 2-week period of the study). Each contained 12 separate humor interventions. Over the course of a week, participants watched 6 half-hour, daily segments or 24 interventions over the 4 weeks of the study.

Comparison Group Intervention

The comparison group video interventions were composed of nonhumorous educational documentaries with motivational themes. The rationale for using educational materials with motivational themes was to control for experimenter’s attention paid to subjects, test demands, and so forth. Comparison group participants were told that the educational materials with motivational themes were being studied to assess their effects on depression. The comparison videos included: (a) “Liberty: The American Revolution;” and

(b) "Civil Rights: The 50's and 60's." The duration of the three series is approximately 12 hours, which is consistent with the total duration of the humor intervention. Half hour segments of each production were recorded onto videotapes. Two separate tapes were produced each containing 12 half-hour segments. Subjects viewed these half-hour segments 6 days, each week, throughout the 4 week study.

Instruments of Measurement

Four measures were used throughout the study: (a) the Positive and Negative Affect Scales (PANAS); (b) the video evaluation form; (c) the Beck Depression Inventory (BDI); and (d) the Social Activities Scale of the Interpersonal Events Schedule (IEA-SA).

The PANAS was used to measure affectual ratings before and after each daily intervention. The video evaluation form was used to assess the perceived humor of, and amount of laughter elicited by each humor intervention. Additionally, it contains items suitable for evaluating the educational and motivational value of the video intervention for the comparison group. The BDI was used to assess both participant eligibility for the study and before and after changes in depressive symptomology. Finally, the IEA-SA was used to measure changes in interpersonal reactivity throughout the course of the study.

Positive and Negative Affect Scales

The (PANAS) is a 20-item, self-administered questionnaire that assesses levels of positive and negative affect (see Appendix A). The inventory consists of 20 adjectives, 10 forming the positive affect scale and 10 forming the negative affect scale. Respondents are asked to read each adjective and rate it on a scale ranging from 1 - 5 (1 = very slightly or not at all; 2 = a little; 3 = moderately; 4 = quite a bit; 5 = extremely) the extent each adjective describes how they currently feel. Each scale yields scores ranging from 10 - 50. The psychometric properties of the PANAS were assessed in a study conducted by Watson,

Clark, and Tellegen (1988). Findings of the study indicated internal consistency reliabilities (coefficient alphas) of .89 and .85, for the positive affect scale and negative affect scale, respectively. The test-retest reliabilities (at 8-week intervals) were .54 for the positive affect scale, and .45 for the negative affect scale. Convergent correlations assessing the factorial validity were .95 for the positive affect scale, and .91 for the negative affect scale. Lastly, all items had strong loadings (.50 or above) on respective factors (Watson et al.).

Video Evaluation Form

The evaluation form consists of seven questions. It was developed by the present author specifically for this study. The primary aims of the evaluation form were to ascertain amounts of humor and laughter experienced by subjects during the humor interventions, as well as the perceived educational and motivational value of the control interventions. The evaluation forms consist of questions that ask subjects to rate the humor level of the video vignettes and appreciation of the humor, give quantitative estimates of their laughter, and assess the overall humor of the presentation. Also they are asked to rate the educational and motivational value of each segment (see Appendix B).

Beck Depression Inventory

The BDI is a 21-item self-administered questionnaire assessing depressive symptomology (see Appendix C, which is a manually typed version of the inventory). Respondents are asked to respond to items “which most accurately describe how they have been feeling over the past week, including today” (Beck & Steer, 1978). Each item contains four statements with corresponding numerical equivalents of 0 - 3, yielding total scores ranging from 0 - 63. For the assessment of single episode, major depression, Cronbach’s coefficient alpha was cited at .86 (Steer, Beck, Brown, & Berchick, 1987).

According to Beck, Steer, and Garbin (1987), the test-retest reliability ranges from .48 to .86 in psychiatric patients. A Pearson product-moment correlation between the BDI and several depression inventories was reported as .72 for psychiatric ratings and .60 for non-psychiatric ratings (Beck et al. 1987). Kruskal-Wallis item-total correlations ranged from .31 - .68, and the Spearman-Brown corrected split half reliability of .93 (Beck & Steer, 1978).

Social Activities Scale of the Interpersonal Events Schedule

The IES-SA is a 46-item self-report scale that measures the occurrence of social activities (Youngren & Lewinsohn, 1980: see Appendix D). Participants are asked to read 46 statements descriptive of interpersonal activities and rate each one on a scale of 1 - 3 (1 = This has not happened in the past 30 days; 2 = This has happened a few times [1 to 6] in the past 30 days; 3 = This has happened often [7 or more times] in the past 30 days). The test-retest reliabilities for the IES-SA range from .58 - .82 and .66 - .85, for frequency and impact, respectively. Furthermore, validity assessments yielded repeated significant differences between depressed, normal, and psychiatric controls (Youngren & Lewinsohn, 1980).

Subjects

Subjects were recruited from undergraduate psychology classes at Utah State University. During class time, students were asked to first read and sign an informed consent document (see Appendix E) and then complete the BDI. Those students who scored above a 13 on the BDI were contacted via telephone and told they may be eligible to participate in an experimental study designed to reduce depressive symptoms. Potential subjects were asked to come to the office of the student researcher after a 1-week

waiting period. This was done to increase the likelihood that subjects were experiencing stable depressive symptoms as opposed to stress-induced, transient symptoms. During the second screening phase, potential subjects again filled out the BDI. Those who scored above a 13 were eligible to participate in the study. However, subjects who scored above 30 on the BDI (severe depression) or endorsed suicidal ideation were only eligible for study participation if they were currently in treatment (e.g., psychotherapy or pharmacotherapy). If they did not meet this criterion, they were referred to treatment. Subjects who met inclusionary criteria and agreed to participate in the study were told they would be compensated for study participation by receiving one academic credit toward their undergraduate degree (independent psychology research), and would be eligible to win a \$100 lottery. In total, 48 subjects participated in the study (23 humor and 25 nonhumor). However, 10 subjects dropped out of the study. Two subjects dropped out for personal reasons, 6 subjects simply stopped participating, and 2 were excluded because of failure to follow study procedures. The final analysis included 20 subjects in the humor group and 18 subjects in the nonhumor group ($N = 38$).

Procedures

Thirty-eight undergraduate students exhibiting depressive symptomology and meeting study inclusionary criteria were randomly assigned to either a humor or control/educational group. Participants in the humor group were informed that the purpose of the study was to assess the effects of humorous material on depressed mood. Participants in the comparison group were told that the purpose of the study was to assess the effects of motivating educational material on depressed mood.

All participants read and signed an informed consent document, which differed for humor and comparison group subjects (see Appendix F). Participants then completed the

BDI and the IEA-SA. Subjects in the humor group were given tapes containing humorous vignettes, while those in the nonhumor group were given tapes containing educational materials. Additionally, participants were given multiple sets of two forms: (a) the PANAS, and (b) a video evaluation form. Participants were then instructed to carry out the following steps on a daily basis: (a) complete the PANAS immediately before watching the daily video-taped segment, (b) watch one 30-minute segment of video-tape, (c) complete the PANAS immediately following the video-taped intervention, and (d) complete the video evaluation form. In addition, subjects were instructed to watch the videotaped segments and complete the forms in private.

Participants met with the student researcher after the first 2-week period of the study to pick up a new tape, hand in the hardcopies of the daily assessment forms, and answer any questions they might have. The duration of the study was 4 weeks and upon termination, subjects were again administered the BDI and the IEA-SA. Participants were then thanked for their time, and those in the control group were debriefed about the true nature of the subject. Additionally, each subject was given one academic credit and a lottery was carried out; one subject won \$100.

Data Collection

Data collection was carried out in one of two ways. Subjects who had access to e-mail were e-mailed the mood inventories and evaluation forms every morning before 9:00. After carrying out the daily procedures, these subjects then returned the completed e-mail to the student researcher. Subjects who did not have access to e-mail were provided with sufficient hardcopies of the mood inventory and evaluation forms for each 2-week increment of the study. These subjects turned in the hardcopies at scheduled meetings with the researcher. Additionally, these subjects were contacted on a regular basis (i.e., twice a

week) to ensure compliance with daily study procedures. Subjects who failed to watch the tapes and fill out the forms for more than four consecutive days were dropped from the study.

RESULTS

Descriptive statistics for the humor group revealed that the humor interventions were largely successful in providing subjects with humorous and laughter-eliciting experiences. As illustrated in Figure 1, the daily interventions received a mean humor rating of 3.00 ($SD = .46$), indicating that on average, the interventions were experienced as “funny” by the humor subjects. Further, as shown in Figure 2, the mean number of laughs per intervention was 10.81 ($SD = 7.11$).

With regard to the comparison group, analysis of mean daily motivational ratings revealed that the educational interventions were somewhat less successful in providing subjects with motivational experiences. As illustrated in Figure 3, the comparison group interventions received a mean motivational rating of 2.24 ($SD = .56$). This indicates that on average, the educational interventions were experienced as “somewhat motivational” by the comparison subjects.

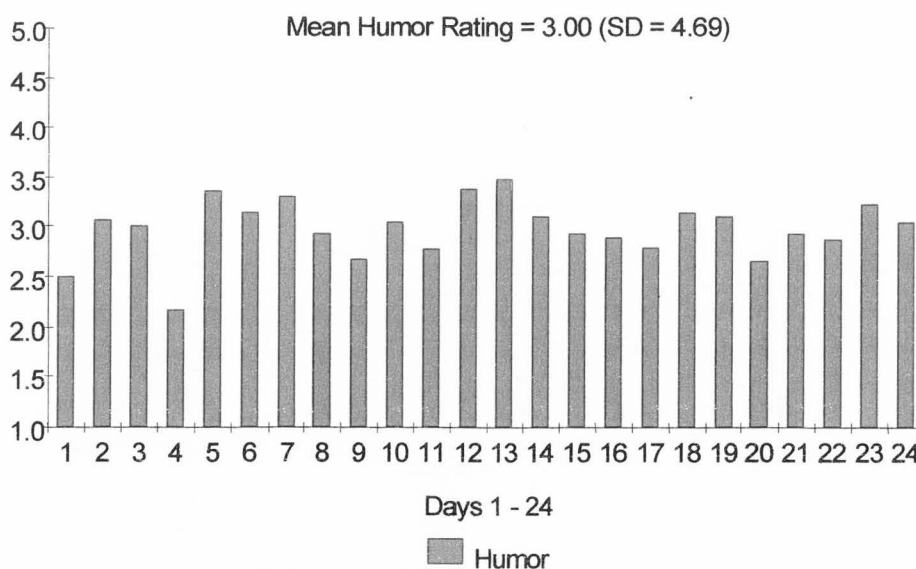


Figure 1. Mean humor ratings.

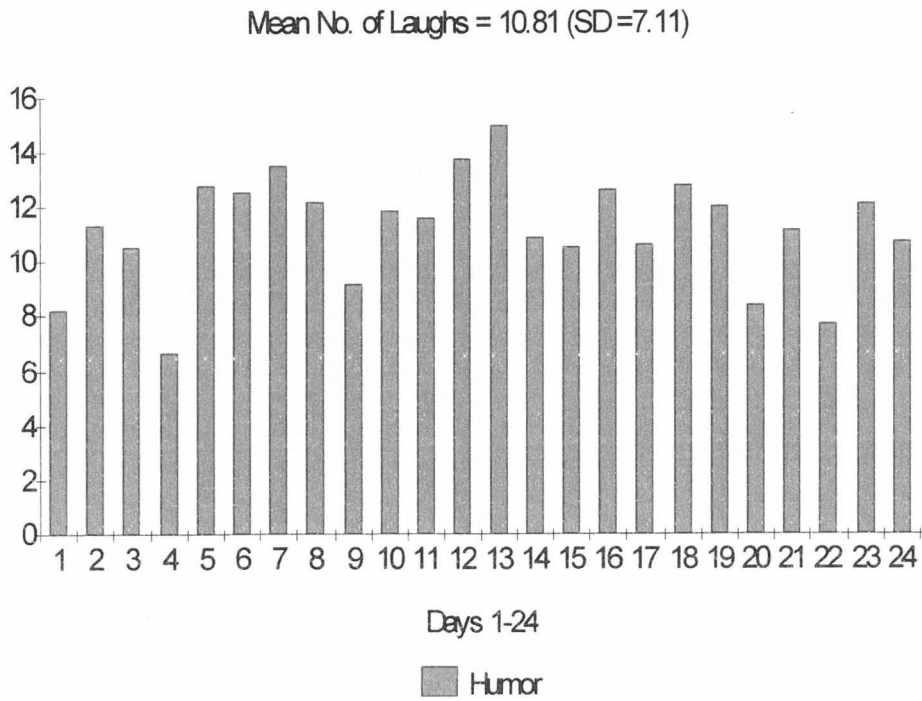


Figure 2. Mean laughter ratings.

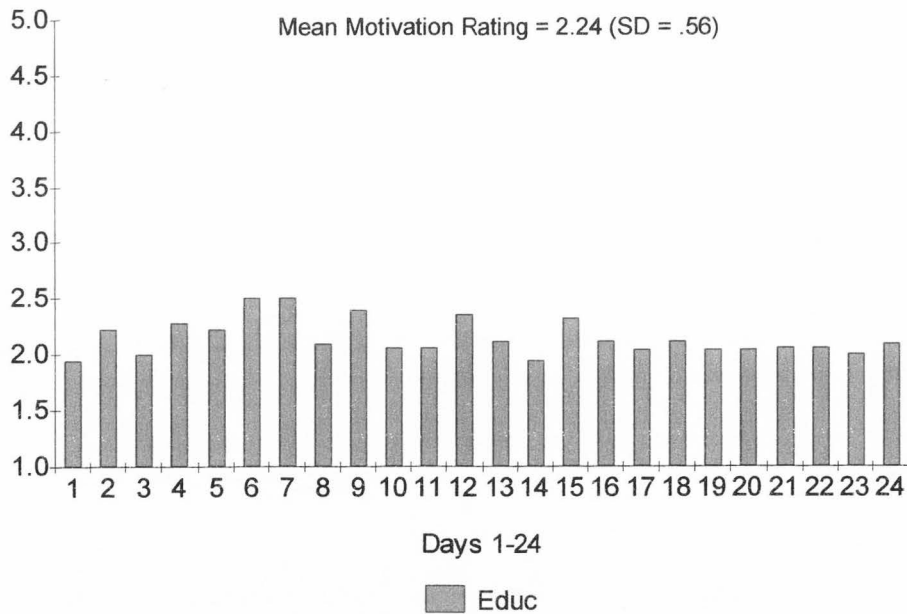


Figure 3. Mean motivational ratings for the comparison group.

Hypothesis #1 stated that subjects in the humor group would show a greater reduction in depressive symptoms than those in the comparison group. The means and standard deviations for both groups are shown in Table 1. This hypothesis was tested by analyzing subjects' pre-post difference scores from the BDI. A paired samples t test revealed a statistically significant reduction in depression scores in both groups, $t(37) = 7.805$, $p < .000$. To assess for differential effects between groups, an independent samples t test was carried out. Results of the test revealed a nonsignificant difference between groups, $t(37) = -.624$, $p = .537$ (results illustrated in Figure 4). In addition, a standardized mean difference effect size was calculated on pre-post BDI difference scores. The calculation produced an effect size of $-.18$, indicating the mean difference score for the humor group was minimally smaller than the mean difference for the comparison group. Thus, hypothesis #1 was not confirmed.

The second hypothesis stated that subjects in the humor group would manifest significantly greater increases in social activities than would those in the comparison group. Means and standard deviations for both groups are shown in Table 2. To test this hypothesis, mean pre-post difference scores on the social activities scale (SAS) were

Table 1

Depression Results

Group	Pre-BDI scores mean and (SD)	Post-BDI scores mean and (SD)	Pre-post diff. mean and (SD)	n
Humor	18.1 (5.69)	10.2 (6.32)	7.84 (5.98)	20
Comparison	21.3 (9.12)	12.1 (6.58)	9.22 (7.55)	18

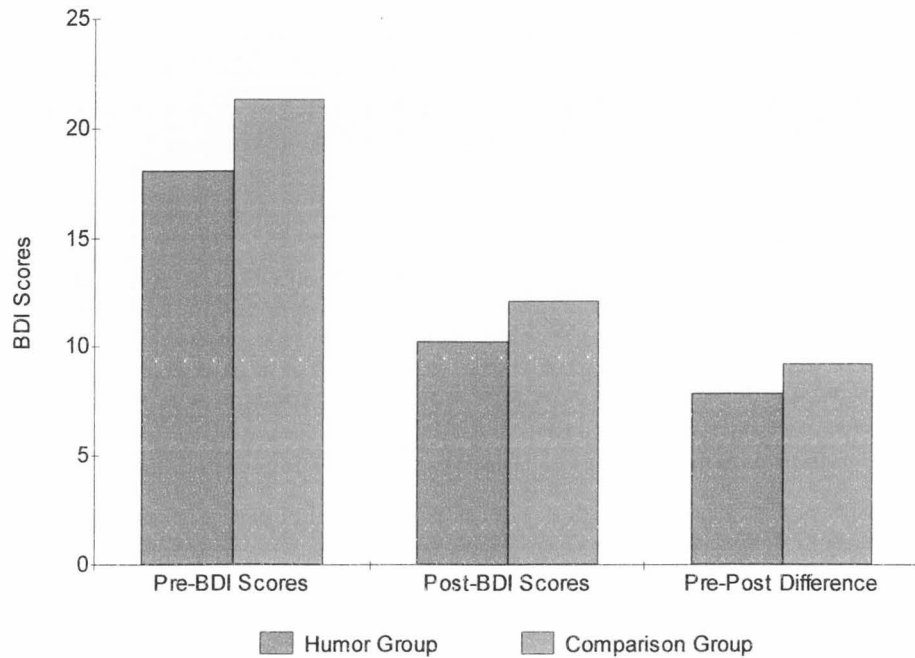


Figure 4. Depression scores for the humor and comparison groups.

analyzed via dependent samples t tests for each group. Results of the analyses revealed a significant increase in social activities for the humor group, $t(19) = 3.845$, $p < .001$, but no significant change for the comparison group, $t(17) = .154$, $p = .880$ (results illustrated in Figure 5). In addition, a standardized mean difference effect size was calculated on pre-post SAS difference scores. The calculation produced an effect size of .70, indicating the magnitude of difference between groups was large. Thus, the second hypothesis was confirmed.

The third hypothesis stated that on daily pre-post intervention mood ratings, subjects in the humor group would manifest significantly greater increases in positive affect and significantly greater decreases in negative affect, than those in the comparison group.

Table 2

Social Activities Ratings

Group	Pre-SAS scores mean and (SD)	Post SAS scores mean and (SD)	Pre-post diff. mean and (SD)	<u>n</u>
Humor	83.05 (11.31)	90.95 (8.32)	7.99 (9.18)	20
Comparison	84.33 (12.0)	84.72 (14.68)	.388 (10.74)	19

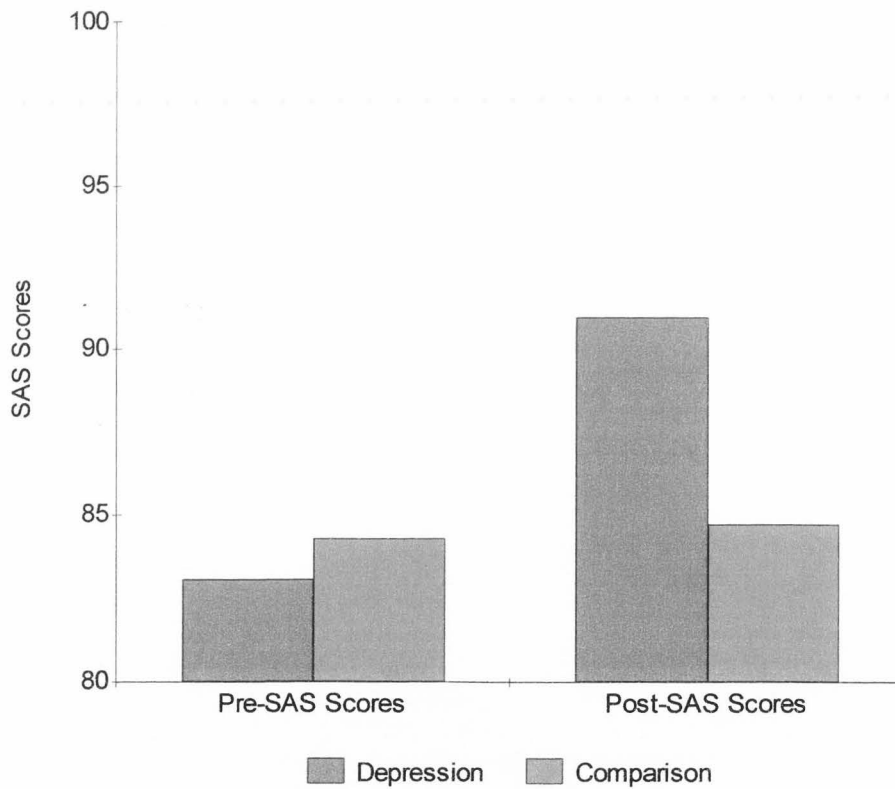


Figure 5. Pre- and postscores on the SAS.

With regard to positive affect, daily mean pre-post intervention change scores on the PANAS were analyzed via an independent samples t test. Results of the analysis revealed no statistically significant differences in positive affect scores between groups, $t(35) = 1.402$, $p = .170$ (although the humor group showed larger positive daily gains [results illustrated in Figure 6]). Additionally, a standardized mean difference effect size was calculated on the mean daily change scores. The calculation produced an effect size of .58, indicating the magnitude of difference between groups was modest. The means and standard deviation are listed in Table 3.

As change scores are subject to regression effects and posttest scores tend to be negatively correlated with pretest scores (Glass and Hopkins, 1996), daily residual gain scores were calculated, with post-positive affect scores as the dependent variable. The residual gain scores were computed through the following steps: (a) daily pre- and postpositive affect scores were transformed into standardized (z) scores; (b) daily correlations between subjects pre- and postscores were calculated; (c) postpositive affect z -scores were subtracted from prepositive affect z -scores and multiplied by the daily pre-post

Table 3
Daily Changes in Positive Affect

Group	Pre-PA scores mean and (SD)	Post-PA sores mean and (SD)	PA Diff. score mean and (SD)	<u>n</u>
Humor	21.86 (3.62)	22.99 (4.80)	1.34 (3.96)	19
Comparison	19.22 (5.24)	18.79 (5.33)	-.234 (2.71)	18

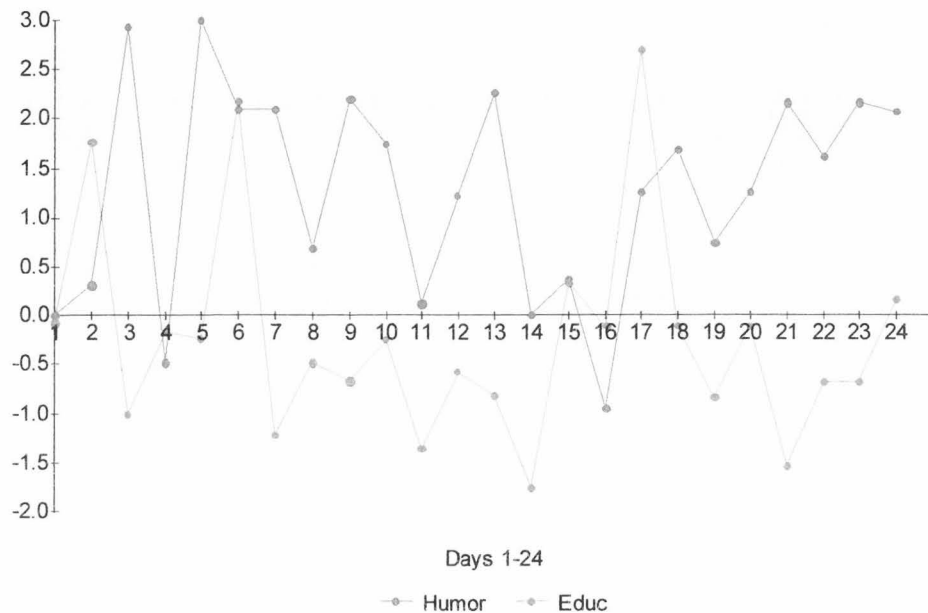


Figure 6. Daily pre-post positive affect changes on the PANAS.

correlation across subjects ($Z_{\text{postPA}} - \{Z_{\text{prePA}} * r\}$). Means and standard deviations are listed in Table 4. An independent samples t test was carried out on the mean daily positive affect residual gain scores to assess for differences between groups. Results of the analysis revealed significantly greater increases in positive affect for the humor group, $t(35) = 2.205$, $p = .034$ (results illustrated in Figure 7).

It should be noted that the plots of the experimental and comparison groups in Figures 7 and 10 are “mirror images.” This is due to the data transformation to (residual gain) z scores, which requires that for each daily measurement, the grand mean is “0.” Thus, the sum of the means for the two groups equals “0.”

In addition, mean postpositive affect scores were plotted for each day of the study to assess for any differential trends between groups. Inspection of Figure 8 reveals stable positive affect scores across the course of the study for both groups. This suggests that although the humor group exhibited significant increases in positive affect, the gains were temporary in nature (e.g., not lasting beyond that day) and did not have a cumulative effect.

Table 4

Positive Affect Residual Gain Scores

Group	PA residual gain mean and (SD)	n
Humor	1.590 (.532)	19
Comparison	-1.706 (.354)	18

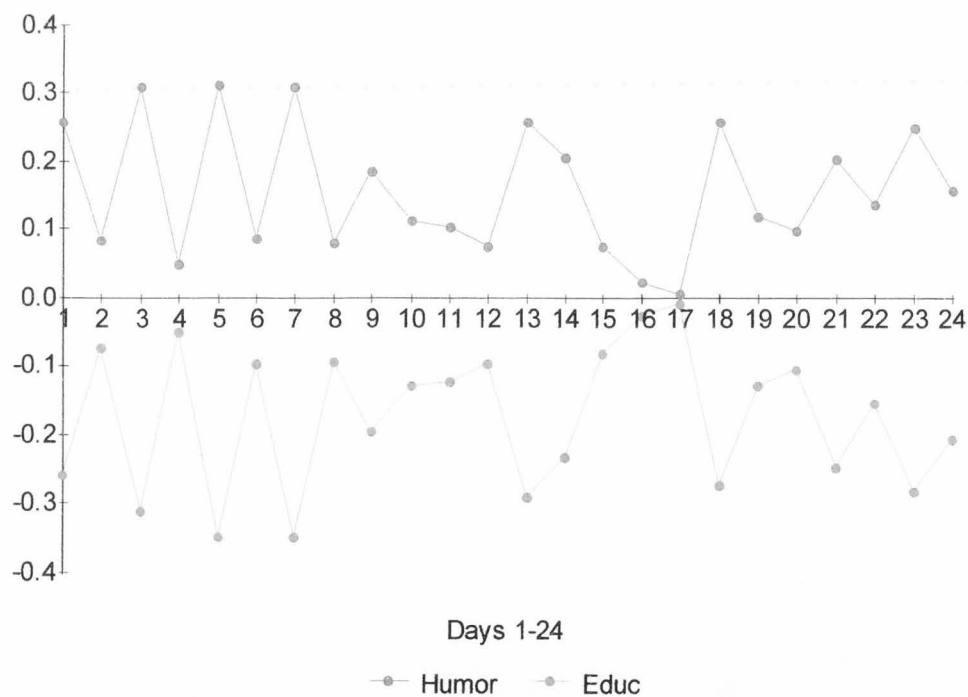


Figure 7. Positive affect residual gain scores.

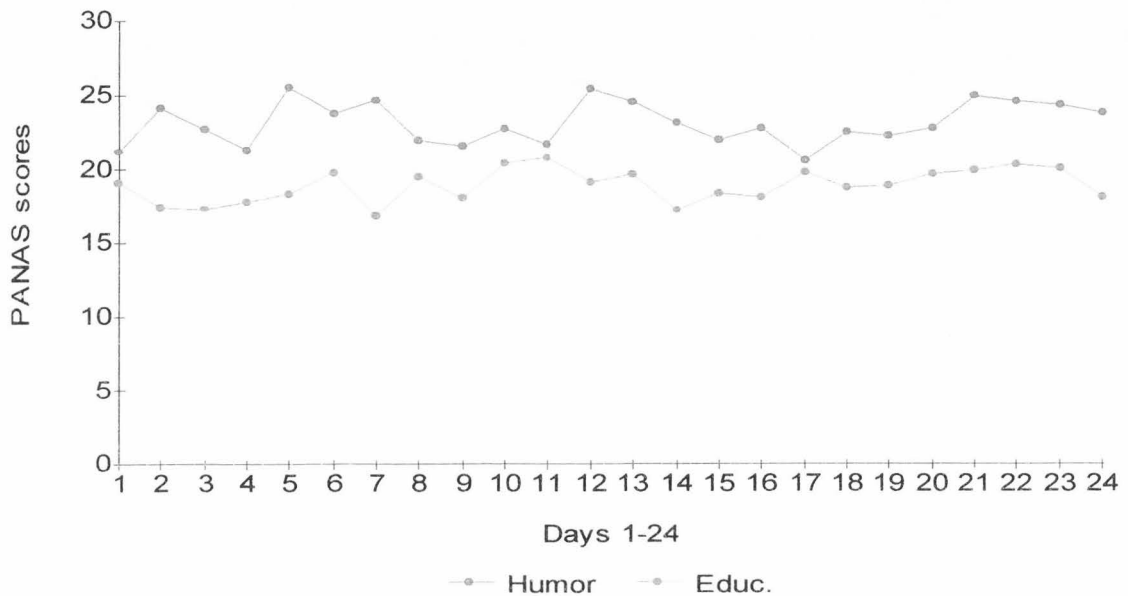


Figure 8. Daily postpositive affect ratings.

Similar statistical procedures were used to analyze the negative affect data. First, daily negative affect difference scores for both groups were compared via an independent samples t test. Means and standard deviations are presented in Table 5. Results revealed that the humor group experienced statistically significant greater decreases in daily negative affect, $t(35) = -2.320$, $p = .026$, from pre- to postintervention (results illustrated in Figure 9). Additionally, a standardized mean difference effect size was calculated on the daily change scores. The calculation produced an effect size of .84, indicating the magnitude of difference between groups was large.

Again, residual gain scores were calculated, with postintervention negative affect scores as the dependent variable. The same procedures and formula listed for the positive affect residual gain computations were used to calculate the negative affect residual gain

Table 5

Daily Changes in Negative Affect

Group	Pre-NA scores mean and (SD)	Post-NA scores mean and (SD)	Pre-Post diff. score mean and (SD)	n
Humor	16.88 (5.02)	13.55 (2.58)	-3.34 (3.51)	19
Comparison	15.43 (3.09)	14.53 (2.55)	-.865 (2.94)	18

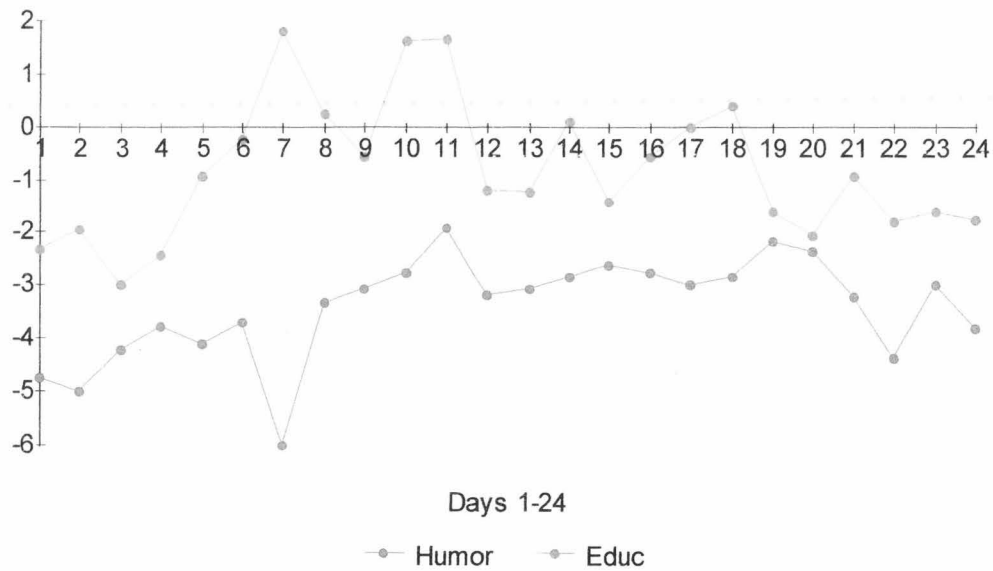


Figure 9. Pre-post negative affect change on the PANAS.

scores. Means and standard deviations are presented in Table 6. An independent samples t test revealed significantly greater decreases in negative affect in the humor group, $t(35) = -2.441, p = .020$ (results illustrated in Figure 10).

To assess for any differential trends between the humor and comparison groups in overall negative affect across the study, daily mean postnegative affect scores were plotted for each day. Investigation of Figure 11 shows stable negative affect scores across the course of the study for both groups. This again suggests that the decreases in negative affect were temporary in nature (e.g., not lasting beyond that day) and did not have a cumulative effect.

Overall, results of the mood analyses indicate that subjects in the humor group experienced significantly greater increases in daily positive affect from pre- to postintervention. Subjects in the humor group also experienced significantly greater decreases in daily negative affect from pre- to postintervention. As such, hypothesis #3 was confirmed.

Table 6

Negative Affect Residual Gain Scores

Group	NA residual gain scores means and (SD)	n
Humor	-.175 (.393)	19
Comparison	.189 (.510)	18

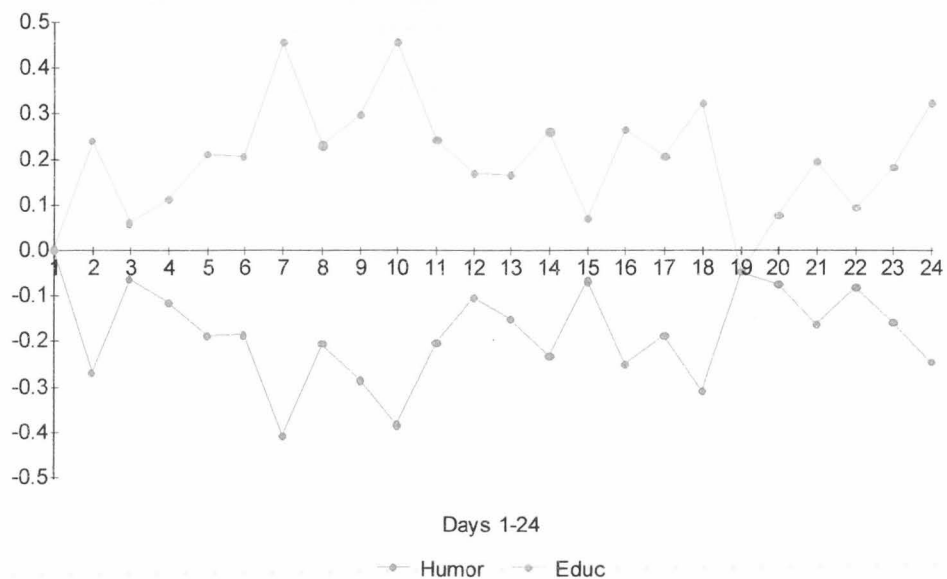


Figure 10. Negative affect residual gain scores.

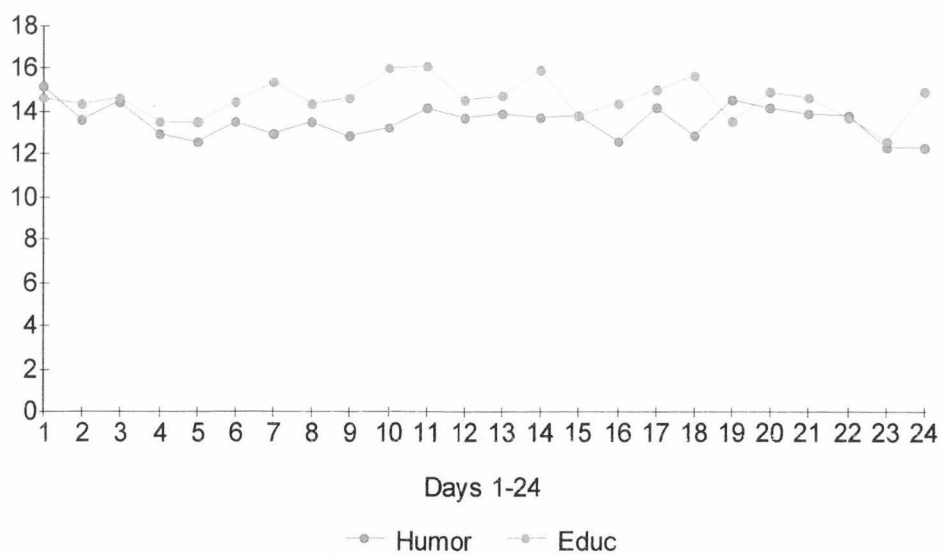


Figure 11. Daily negative affect scores.

DISCUSSION

Humor and Depression

Results of the current study showed that irrespective of their exposure to humorous or educational interventions with motivational themes, subjects showed significant reductions in overall depressive symptomology.

There are several plausible explanations for this finding. First, statistical regression may account for the reductions in depressive symptoms in both groups. Statistical regression is the tendency for research participants with extreme preexperimental scores to “regress towards the mean” or score closer to the mean at posttesting (Campbell & Stanley, 1963; Gall, Borg, & Gall, 1996). As such, the reduction in depressive symptoms across groups may be accounted for by statistical probabilities.

The second plausible explanation for the current findings is an attention-placebo effect in the control group that produced effects similar to the treatment. The attention-placebo effect occurs when participants in an experimental study are led to believe they are receiving a viable treatment, when in fact they are not. Presumably, as a result of expectancies and other nonspecific factors, treatment gains will be evidenced. Indeed, the reduction in depressive symptoms in both groups may be accounted for by subjects’ beliefs regarding the treatment and nonspecific factors provided by the experiment. The nonspecific factors that seem most plausible in the current study are attention and monitoring. Attention was provided to both groups in the form of daily e-mails and weekly phone calls. During phone calls subjects were asked how the study was going and how they had been “feeling lately.” This provided subjects with the opportunity to discuss feelings and problems, albeit briefly, which may have contributed to their reduction in depression. Further, subjects were required to monitor their mood states on a daily basis. This may have heightened their awareness of their mood as well as determinants into their

mood states, and helped alleviate depressive symptoms.

The third plausible explanation for the current findings is that, on average, subjects simply got equally better with the passage of time. That is, over the course of the 4-week study, personal or environmental problems likely contributing to subjects' depressive symptoms abated.

Lastly, it could be speculated that both the humor and educational interventions were equally effective in reducing depressive symptoms. However, if this were the case, it is appropriate to speculate on differential pathways, as the humor and comparison group showed differences on the other dependent variables in the study (e.g., daily mood, social activities). Perhaps the daily affectual gains and increases in social activities manifested by humor group subjects resulted in reductions in depressive symptoms. Conversely, it could be speculated that the motivational themes from the educational interventions used in the current study (Revolutionary War and Civil Rights Movements) resulted in the reduction of depressive symptoms. For example, comparison group subjects may have identified with the suffering, perseverance, and ultimate "triumph" of others shown in the documentaries. This may have facilitated a reframing of depressive cognitions by allowing for changes in perspective regarding subjects' current situations (i.e., a more optimistic outlook, realization of sacrifices and suffering of others, etc.). However, such speculations are tenuous at best, as no measures were taken in the current study to assess depressive cognitions. More importantly, as the study lacked a true control group, nonspecific factors (e.g., attention-placebo) that may have accounted for the reductions in depression in both groups cannot be ruled out.

Humor and Social Activities

Results of the current study showed that subjects in the humor group experienced a significant increase in social activities, while comparison group subjects did not. Additionally, the magnitude of the effect size indicated that the difference between groups was large and likely clinically significant. Past humor theorist and researchers have speculated, and shown that humor results in increased interest in social relationships (Banning & Nelson 1987; Dixon, Willingham, Chandler & McDougal, 1986; Rutherford, 1994; Worthen & O'Connell, 1969). However, the findings of the current study extend beyond interest in social activities, to show actual increases in social activities. This finding is especially interesting as subjects watched the humor intervention alone.

It may be speculated that by providing the humor intervention through a video-taped medium, subjects received a vicarious interpersonal humor interaction (i.e., reinforcing engagements with comedians). Additionally, humorous interpersonal exchanges were modeled through intervention materials, providing the subjects with observations of humorous comments, techniques, jokes, statements, and so forth. Subjects may have generalized their vicarious reinforcing interactions, along with observed humor techniques, to actual interpersonal situations. Therefore, it may be postulated that the increase in social activities was a result of increased positive reinforcement expectancies provided by the humor interventions. Theoretically, such expectancies would increase the likelihood of subjects engaging in actual interpersonal interactions. Presumably, as social interactions increased, response contingent positive reinforcement also increased, resulting in the maintenance of increased social activities. Moreover, the manifested increases in daily

positive affect and decreases in negative affect that occurred among subjects may have acted as a further impetus for social engagements, as the enhanced mood may have interacted with reinforcement expectancies to reduce social inhibitions and/or disinterest.

Another possible cause of increased interpersonal activity in the humor group comes from two theoretical perspectives on humor: (a) the superiority model, and (b) the cognitive-affective model. According to the superiority model, humor is postulated to engender feelings of superiority and temporarily bolster self-esteem. The cognitive-affective model speculates that humor facilitates cognitive shifts and emotional distancing, in which stressful events come to be viewed in a less threatening nature (e.g., more "light-hearted"). It could be speculated that the temporary feelings of superiority and enhanced self-esteem, combined with cognitive shifting and distancing, resulted in subjects perceiving interpersonal situations as less threatening and approaching them with more confidence. As a result, subjects may be more likely to initiate and/or appropriately reciprocate in interpersonal situations. Further, as was noted previously, increases in interpersonal interactions would theoretically lead to increases in response contingent positive reinforcement, which would help to maintain the enhanced levels of social activities.

Humor and Positive and Negative Affect

Results of the current study revealed that subjects in the humor group exhibited significantly greater increases in daily positive affect and significantly greater decreases in daily negative affect than did subjects in the comparison group. This finding is consistent with past research and theory regarding the mood-enhancing properties of humor (Gelkopf

& Kreitler, 1996; Mannell & McMahon, 1982; Martin et al., 1993; Martin & Lefcourt, 1983; White & Phame, 1989). Many pathways may be speculated regarding the daily mood enhancements. Hedonic pleasure, temporary enhancement of subjective well-being, and instillment of feelings of superiority (all speculated properties of humor and laughter), all could have contributed to the daily increases in positive affect. Conversely, other speculative properties of humor and laughter may have accounted for the decreases in negative affect. For example, the activation-relaxation cycle could have resulted in the release of built-up tensions and frustrations and subsequent reductions in negative affect. The cognitive distancing and shifting properties of humor may have ameliorated negative affect by reducing the distress associated with life-stressors. In summary, it is not possible to isolate which of the many hypothesized properties associated with humor and mood enhancement caused the affective gains. Further research would be needed to clarify the underlying mechanisms by which humor positively affects mood.

The current study yielded another interesting finding regarding humor and affect. That is, the affective gains were shown to be temporary in nature. As part of the mood assessments, daily positive and negative affect scores (post-PANAS scores) were plotted across all days of the study. Inspection of these data (see Figures 8 and 11) shows that the daily affect scores remained stable across the course of the study. This suggests that daily gains in mood did not last past the day the intervention was delivered. If affective gains had been longer lasting, a cumulative effect, or trend towards increasing scores would be expected.

General Discussion

The current study does not allow for conclusions to be drawn regarding the effects of humor on the broad syndrome of depression. However, the current study does provide support that humor has a positive impact on one of the key symptoms (mood), as well as one of the associated characteristics of depression (social isolation).

The first criterion for depression listed in the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV; APA, 1994) is a depressed mood, most of the day for nearly every day, as indicated by subjective report or observations of others. The current study revealed that showing subjects humorous materials has a positive, albeit temporary, effect on mood. This finding may have important clinical implications for the treatment of depression. Given the ubiquity of humorous material, humor may be an easily accessible aid in helping clients temporarily alleviate depressed mood states. Temporary boosts in mood throughout the day may be extremely helpful for persons suffering with depressive symptoms for several reasons. First, alleviation from highly aversive negative mood states would seemingly be a welcomed relief. Further, the successful incorporation of humor would provide persons suffering from depressive symptoms an additional coping mechanism, thereby enhancing feelings of control over their symptoms. Such increases in control may result in enhanced feelings of self-mastery and facilitate a cognitive shift towards a more optimistic outlook, including less feelings of helplessness.

Additionally, many sufferers of depression report worse symptoms at certain times of the day. In these cases humor may be used strategically to enhance mood during times when an exacerbation of symptoms is likely. Other applications may be speculated. For

example, after a difficult or emotionally charged therapy session, humor may be recommended to engender mood enhancement and help the client “emotionally recover.”

A common associated characteristic of depression is social isolation and/or withdrawal. Bosc (2000) noted, “An association between depression and impaired social functioning has long been recognized” (p. 63). Further, Youngren and Lewinson (1980) stated that “events uniquely associated with depression [are] low rates of [interpersonal] engagement and obtained reinforcement for social activities” (p. 340). Given this association, the finding that regular exposure to humor may serve to increase social activities seems quite meaningful. The use of humor may be a particularly effective adjunct when treating depressed clients who exhibit social withdrawal or isolation. In keeping with the above speculations, it may be important to encourage clients to watch humorous materials that provide vicarious positive interpersonal interactions, as well as specific humor techniques that may be modeled and possibly used in social situations. Consistent with the findings, this would result in increased numbers of interpersonal activities which, over the passage of time, would likely impact depressive symptoms through increases in response contingent positive reinforcement. In addition to enhanced levels of positive reinforcement, increases in social activities would likely result in increased levels of social support, which may also serve to reduce depressive symptoms. The speculated increases in positive reinforcement and social support may also serve to enhance feelings of self-efficacy, particularly in social situations, which again may hypothetically serve to reduce depressive symptoms. Lastly, increases in social activities

may facilitate cognitive shifts away from depressionergic thoughts and towards a more optimistic outlook.

In conclusion, the current study did not demonstrate that a humor intervention serves to reduce a broad range of depressive symptoms. Likewise, the current findings would suggest that the use of humor is not an appropriate stand-alone treatment for depressive symptoms. However, the study did offer support consistent with the notion that humor may be an effective adjunct treatment of depressive symptoms, as it was shown to enhance mood temporarily and increase social activities, which are both associated with depression.

LIMITATIONS OF THE CURRENT STUDY

The first limitation of the current study was failure to include a no treatment control group. This methodological shortcoming limited the inferences that could be drawn regarding the reductions in depressive symptoms. As a result, the investigator cannot rule out important nonspecific factors (e.g., attention-placebo) or account for the improvement in general depressive symptoms.

Another limitation of the study was that the researcher was not blind to the group status of subjects. This sets up the possibility of subtle bias in the way of differential treatment of the subjects from different groups. For example, perhaps when interacting with the humor group subjects, the researcher was more enthusiastic and responsive, resulting in more positive interpersonal interactions. This in turn could have affected subjects' expectancies and motivation regarding future interpersonal interactions.

Another limitation of the study was that subjects were not blind to the primary purpose of the study. That is, all subjects were aware that the study was primarily investigating outcomes in depression. This may have increased the likelihood that experimental demands affected the depression findings. Perhaps, the design could have been made more rigorous by telling subjects the study was primarily investigating daily mood changes or interpersonal activities, as opposed to placing the primary emphasis on depression. Indeed, in the current study, the variables presented to the subjects as ancillary and not central to the purpose of the study revealed the most significant results.

Another weakness of the study was the quality of the recordings of the videotapes in both the humor and comparison groups. Despite all attempts to produce quality

recordings, numerous dubbing sessions led to less than ideal recordings. Humor subjects reported that the quality of the picture was, at times, quite poor. Further, on one day the sound faded in and out on one segment, making it difficult for subjects to understand the humor. In response, humor subjects were asked if the poor quality of the recording took away from the enjoyment of the humor. They typically responded that it did only to a small extent.

SUGGESTIONS FOR FURTHER RESEARCH

The first suggestion for future research deals with the nature of the materials used for the humor intervention. To the author's knowledge, the collection and pilot testing of the humorous materials was the most systematic to date. Humor collection lasted approximately 9 months, and each individual vignette collected was rated by a research team of three to five individuals. Further, two pilot phases were undertaken in attempts to assure that the materials would be experienced as humorous by the subjects. Despite this, the mean humor rating for each intervention was a "3," on a scale of 1 – 5. Although this corresponds to "funny" on the rating scale, it leaves much room for improvement. This seems to reflect the subjective and individualized nature of humor. Future humor research may result in more conclusive findings if instead of imposing a humor intervention, subjects were able to pick the type of humor that would most suite their preference. This may be made possible by collecting a library of various types of different humor and allowing subjects to choose what would be most humorous to them. This may increase the saliency of future humor interventions and possibly enhance humor specific findings.

A question raised by the current study and one seemingly worthy of further attention is how long positive and negative affect gains engendered by humor last. This may have implications for its clinical use. For example, if affective gains are very brief (i.e., minutes), this would suggest that humor may not be the most appropriate adjunctive mood enhancement therapy. Conversely, if the affective gains are shown to last longer (i.e., hours), the use of humor would seem merited.

Another topic of future research would be the effects of humor on depressive cognitions. Much of the speculation regarding the benefits of humor revolve around humors postulated effects of facilitating cognitive shifting and distancing. This is repeatedly mentioned in the theory literature; however, little has been done to empirically investigate these speculations. As such, it seems important to validate, if indeed, humor may affect depressive cognitions.

Another area of future research may be an investigation into the effects of humor on subjects actually experiencing major depressive episodes. The current study investigated the effects of humor on depressive symptoms. There likely is a qualitative difference in subjects experiencing major depressive disorder and those experiencing symptoms of depression. However, before such studies are undertaken, it may be important to gain more conclusive evidence regarding the effect of humor on subjects experiencing depressive symptoms.

Another area of future research would be the effects of the use of humor in therapy sessions with depressed patients. Much speculation and debate has been generated over the potential benefits and adverse affects of using humor in therapy. However, to the author's knowledge, no studies have been carried out to investigate the potential effects of humor in therapy specifically with depressed patients. Some examples of empirical questions that may be investigated are: Is the use of humor in therapy effective in helping reduce subjects' depression levels? Do depressed subjects appreciate the use of humor in sessions? What are appropriate times to use humor in therapy with depressed subjects? What types of humor do depressed subjects best respond to in therapy? Studies attempting to answer

such questions would provide clinicians with empirical evidence regarding the use of humor as well as potential guidelines for its use.

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APPENDICES

Appendix A

The Positive and Negative Affect Scale

Directions: This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

<input type="checkbox"/> interested	<input type="checkbox"/> irritable
<input type="checkbox"/> distressed	<input type="checkbox"/> alert
<input type="checkbox"/> excited	<input type="checkbox"/> ashamed
<input type="checkbox"/> upset	<input type="checkbox"/> inspired
<input type="checkbox"/> strong	<input type="checkbox"/> nervous
<input type="checkbox"/> guilty	<input type="checkbox"/> determined
<input type="checkbox"/> scared	<input type="checkbox"/> attentive
<input type="checkbox"/> hostile	<input type="checkbox"/> jittery
<input type="checkbox"/> enthusiastic	<input type="checkbox"/> active
<input type="checkbox"/> proud	<input type="checkbox"/> afraid

From: Watson, Clark and Tellegen, 1988.

Appendix B

The Video Evaluation Form

1. Please rate your enjoyment of the tape segment on a scale of 1 - 5 ____
(1 = did not enjoy; 2 = enjoyed somewhat; 3 = enjoyed; 4 = very much enjoyed; 5 = extremely enjoyed)
2. Did you laugh during the segment? No ____ Yes ____ . (if no skip to # 5 below)
3. If yes, how many times did you laugh during the segment?
1-5 x's ____ 6-10x's ____ 11-15x's ____ 16-20x's ____ 20-25x's ____ more than 25 ____
4. Please rate the overall funniness of the tape segment on a scale of 1 - 5 ____
(1 = not funny; 2 = somewhat funny; 3 = funny; 4 = very funny; 5 = extremely funny)
5. Please rate the educational value of the tape segment on a scale of 1 - 5 ____
(1 = not educational; 2 = somewhat educational; 3 = educational; 4 = very educational; 5 = extremely educational)
6. Please rate how motivational the material was on a scale of 1 - 5 ____
(1 = not motivational; 2 = somewhat motivational; 3 = motivational; 4 = very motivational; 5 = extremely motivational)
7. Please rate how interesting you found the tape segment to be on a scale of 1 - 5 ____
(1 = very interesting; 2 = somewhat interesting; 3 = interesting; 4 = very interesting; 5 = extremely interesting)

Appendix C

The Beck Depression Inventory

Directions: This questionnaire consists of 21 groups of statements. After reading each group of statements carefully, circle the number (0,1,2 or 3) next to the one statement in each group which best describes the way you have been feeling the past week, including today. If several statements within a group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

- | | | |
|---|---|--|
| 1 | 0 | I do not feel sad. |
| | 1 | I feel sad. |
| | 2 | I am sad all the time and I can't snap out of it. |
| | 3 | I am so sad or unhappy that I can't stand it. |
| 2 | 0 | I am not particularly discouraged about the future. |
| | 1 | I feel discouraged about the future. |
| | 2 | I feel I have nothing to look forward to. |
| | 3 | I feel that the future is hopeless and that things cannot improve. |
| 3 | 0 | I do not feel like a failure. |
| | 1 | I feel I have failed more than the average person. |
| | 2 | As I look back on my life, all I can see is a lot of failures. |
| | 3 | I feel I am a complete failure as a person. |
| 4 | 0 | I get as much satisfaction out of things as I used to. |
| | 1 | I don't enjoy things the way I used to. |
| | 2 | I don't get real satisfaction out of anything anymore. |
| | 3 | I am dissatisfied or bored with everything. |
| 5 | 0 | I don't feel particularly guilty. |
| | 1 | I feel guilty a good part of the time. |
| | 2 | I feel quite guilty most of the time, |
| | 3 | I feel guilty all the time. |
| 6 | 0 | I don't feel I am being punished. |
| | 1 | I feel I may be punished. |
| | 2 | I expect to be punished. |
| | 3 | I feel I am being punished. |
| 7 | 0 | I don't feel disappointed in myself. |
| | 1 | I am disappointed in myself. |
| | 2 | I am disgusted with myself. |

- 3 I hate myself.
- 8 0 I don't feel I any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens
- 9 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.
- 10 0 I don't cry any more than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.
- 11 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to.
2 I feel irritated all the time.
3 I don't get irritated at all by the things that used to irritate me.
- 12 0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.
- 13 0 I make decision as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions than before.
3 I can't make decisions at all anymore.
- 14 0 I don't feel I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.
- 15 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.
- 16 0 I can sleep as well as usual.

- 1 I don't sleep as well as I used to.
 2 I wake up 1-2 hours earlier than usual and I find it hard to get back to sleep.
 3 I wake up several hours earlier than I used to and cannot get back to sleep.
- 17 0 I don't get more tired than usual.
 1 I get tired more easily than I used to.
 2 I get tired from doing almost anything.
 3 I am too tired to do anything.
- 18 0 My appetite is no worse than usual.
 1 My appetite is not as good as it used to be.
 2 My appetite is much worse now.
 3 I have no appetite at all anymore.
- 19 0 I haven't lost much weight, if any, lately.
 1 I have lost more than 5 pounds.
 2 I have lost more than 10 pounds.
 3 I have lost more than 15 pounds

I am purposely trying to lose weight by eating less.

Yes _____ No _____

- 20 0 I am not more worried about my health than usual.
 1 I am worried about physical problems such as aches or pains; or upset stomach; or constipation.
 2 I am very worried about physical problems and it's hard to think of much else.
 3 I am so worried about my physical problems that I cannot think about anything else.
- 21 0 I have not noticed any recent change in my interest in sex.
 1 I am less interested in sex than I used to be.
 2 I am much less interested in sex now.
 3 I have lost interest in sex completely

From: Beck & Steer, 1978.

Appendix D

Social Activities Scale of the
Interpersonal Events Schedule

Directions: On the following page you will find a list of activities, events and experiences. HOW OFTEN HAVE THESE EVENTS HAPPENED IN YOUR LIFE IN THE PAST MONTH? Please answer this question by rating each item on the following scale:

- 1.... This has not happened in the past 30 days.
- 2.... This has happened a few times (1 to 6) in the past 30 days.
- 3.... This has happened often (7 or more times) in the past 30 days.

Since this list contains events that might happen to a wide variety of people, you may find that many of the events have not happened to you in the past 30 days. It is not expected that anyone will have done all of these things in one month.

1. Initiating a conversation with a stranger ____
2. Inviting a friend or acquaintance to join me for some social activity ____
3. Accepting a date or social invitation ____
4. Introducing myself to someone ____
5. Going on my first date with a person ____
6. Joining a friend or friends for a social activity ____
7. Talking with a stranger of the opposite sex ____
8. Talking with a stranger of the same sex ____
9. Being at a party where I hardly know anyone ____
10. Going to a party ____
11. Going on a date ____
12. Having friends come to visit ____

13. Calling a friend on the telephone ____
14. Receiving a telephone call from a friend ____
15. Giving a party or get together ____
16. Visiting friends ____
17. Talking with someone on the job or in class ____
18. Being asked for my help or advice ____
19. Having sexual relations with someone of the opposite sex ____
20. Having lunch or a coffee break with friends ____
21. Playing competitive team sports (e.g., softball, basketball, football) ____
22. Going to a sports event (e.g., football game, track meet) ____
23. Going to a bar or tavern ____
24. Going to lectures or hearing speakers ____
25. Going on a recreational outing (e.g., boating, camping, hiking) ____
26. Engaging in recreational sports with someone (e.g., tennis, bowling, skiing) ____
27. Singing or playing a musical instrument in a group ____
28. Going to a church function (e.g., a class or social function) ____
29. Going to a service, civic, special interest, or social club meeting ____
30. Playing cards or board games (e.g., checkers, Monopoly, Scrabble) ____
31. Dancing ____
32. Introducing people who I think would like each other ____
33. Talking with my parent(s) ____
34. Going to the movies ____

35. Being in a class, discussion group, or encounter group ____
36. Talking with my husband or wife ____
37. Talking with my child(ren) or grandchild(ren) ____
38. Doing volunteer work or working on a community service project ____
39. Going to an office party ____
40. Attending a concert, play, opera, or ballet ____
41. Talking with a friend ____
42. Going someplace where I know I must be sociable ____
43. Being introduced to someone ____
44. Walking up and joining a group of people ____
45. Going to a formal affair (e.g., banquet, reception) ____
46. Being the first to say "hello" when I see someone I know ____

Appendix E

Consent Form for

Depression Screening Process

Completing this inventory will take about 10 minutes. You will receive extra credit in line with the agreement you have with your instructor regarding participation in research. Completing this inventory may make you eligible for other extra credit opportunities later on in the semester. These opportunities include: 1) gaining an understanding of how psychologists complete initial assessment of persons; or 2) gaining an understanding into depressive symptoms experienced in college students.

All of the answers that you give will be held in complete confidence. This means that other administrators, parents, instructors, etc., could never have access to this information without your permission. Each participant will be assigned a special ID code so that only the director of this project (Dr. Stein, Psychology Department) and his research assistant (Jason Goodson, Psychology Department) will be able to match up responses for a given individual. All identifying information about subjects will be discarded at the end of the study. You may withdraw your consent to participate in these studies at any time, without any consequence (though extra credit requires full participation).

Please turn this consent form in to the instructor along with the questionnaire. Please do not put your name or any identifying information on the actual questionnaire.

Name: (print) _____

Date: _____

Signature: _____

Instructor: _____

Phone number: _____

Email: _____

Appendix F

Informed Consent Forms

An Investigation into the effects of Humor and

Laughter on Depressive Symptomology

Page 1 of 3
date created: 12/06/2000

Introduction/Purpose

Professor Stein in the Department of Psychology at Utah State University is conducting a research project to find out more about the effects of exposure to humorous stimuli on depressive symptoms. Subjects who are currently experiencing some depressive symptoms are being asked to participate in this study. Dr. Stein will need approximately 30 participants to carry out the current research study.

Procedures

If you agree to be in the study you will be asked to complete the following tasks. You will be requested to meet with a research assistant and undergo a brief interview. During the interview you will be asked several questions about how you have been feeling during the past two weeks. Additionally, you will be asked to complete a self-report measure of depression along with a measure that will gauge your interpersonal relations and activities. The total duration of this meeting should last approximately one hour. If these procedures indicate that you are indeed experiencing some symptoms of depression you will be eligible to participate in the study. Study participants will then be given a video-tape containing six, half-hour humor segments and will be asked to watch one half-hour segment, each day, six days a week. Additionally, you will be given copies of a mood evaluation form and a video evaluation form. You will be asked to fill out the mood evaluation form before and after each 1/2 hour segment. Further, after each segment you will be asked to fill out a form evaluating your reactions to the humor. It should take approximately 45 minutes each day to watch the videotaped segment and fill out the forms. At the beginning of the following week you will be asked to meet with a research assistant to hand in your evaluation forms, pick up new forms, pick up a new video-tape and have answered any questions you might have. This should take approximately 15 minutes. Throughout the following three weeks you will be asked to carry out the exact same procedures (i.e. watch videotapes and fill out forms, meet at the beginning of each

week). The duration of the study will last four weeks. At the end of the four-week study you will be asked to meet with a research assistant and again will be administer an interview for depression, and fill out self-report measures of depression and interpersonal functioning.

Risks

Although none can be predicted, unforeseen risks could occur to yourself as a result of participating in this research study. However, due to the design of the study and the benign nature of the tasks, there is minimal risk in participating in this study.

Benefits

There may or may not be any direct benefits to you from these procedures. The study hopes to show that depressive symptoms may be reduced through repeated exposure to humorous materials. Additionally, the study hopes to show that exposure to humorous materials may also benefit the social functionings of depressed persons. Lastly, it is hoped participation in this study will be an enjoyable experience.

Explanation and Offer to Answer Questions

Jason Goodson has explained this study to you and answered your questions. If you have other questions or research-related problems you may reach Professor Stein at 797-3274.

Payment

You will receive one academic credit towards your degree and be eligible to win a \$100 lottery at the end of the study.

Voluntary Nature of Participation and Right To Withdraw Without Consequence

Participation in this research experience is entirely voluntary. You may refuse to participate or withdraw at any time without consequence or loss of benefits.

Confidentiality

Your research records will be kept in a locked file cabinet in a locked room at all times. Further, only Dr. Stein and Jason Goodson will have access to your data. Your data will be kept for one year following the study and will then be destroyed.

IRB Approval Statement

The Institutional Review Board (IRB) for the protection of human subjects at Utah State University has reviewed and approved this research project. If you have any question concerning IRB approval of this study, the IRB office is located in Old Main Building and my be contact via phone at 797-1180.

Copy of Consent

You have been given two copies of this informed consent. Please sign both copies and retain one copy for your files

Investigator Statement

I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered.

Dr. David Stein
Professor of Psychology
Utah State University
Principal Investigator
435-797-3274

Jason Goodson
Ph.D. Candidate
Utah State University
Student Researcher
435-787-4578

I have been explained the procedures of this study and understand what procedures are expected of me through participation in this study. Further, I understand the potential risks and benefits of participating in this study. By signing below I freely agree to participate in this study and acknowledge that I know my rights as a human subject.

Signature

Date

Informed Consent Forms

An Investigation into the effects of Educational/Inspirational

Materials on Depressive Symptomology

Page 1 of 3
date created: 12/06/2000

Introduction/Purpose

Professor Stein in the Department of Psychology at Utah State University is conducting a research project to find out more about the effects of exposure to educational and inspirational materials on depressive symptoms. Subjects who are currently experiencing some depressive symptoms are being asked to participate in this study. Dr. Stein will need approximately 30 participants to carry out the current research study.

Procedures

If you agree to be in the study you will be asked to complete the following tasks. You will be requested to meet with a research assistant and undergo a brief interview. During the interview you will be asked several questions about how you have been feeling during the past two weeks. Additionally, you will be asked to complete a self-report measure of depression along with a measure that will gauge your interpersonal relations and activities. The total duration of this meeting should last approximately one hour. If these procedures indicate that you are indeed experiencing some symptoms of depression you will be eligible to participate in the study. Study participants will then be given a video-tape containing six, half-hour educational segments and will be asked to watch one half-hour segment, each day, six days a week. Additionally, you will be given copies of a mood evaluation form and a video evaluation form. You will be asked to fill out the mood evaluation form before and after each 1/2 hour segment. Further, after each segment you will be asked to fill out a form evaluating your reactions to the educational materials. It should take approximately 45 minutes each day to watch the video segment and fill out the forms. At the beginning of the following week you will be asked to meet with a research assistant to hand in your evaluation forms, pick up new forms, pick up a new tape and have answered any questions you might have. This should take approximately 15 minutes. Throughout the following three weeks you will be asked to carry out the exact same procedures (i.e. watch tapes and fill out forms, meet at the beginning of each week). The duration of the study will last four weeks. At the end of the four-week study you will be asked to meet with a research assistant and again will be administer an interview for depression and fill out self-report measures of depression and

interpersonal functioning.

Risks

Although none can be predicted, unforeseen risks could occur to yourself as a result of participating in this research study. However, due to the design of the study and the benign nature of the tasks, there is minimal risk in participating in this study.

Benefits

There may or may not be any direct benefits to you from these procedures. The study hopes to show that depressive symptoms may be reduced through repeated exposure to inspiring educational materials. Additionally, the study hopes to show that exposure to inspiring educational materials may also benefit the social functionings of depressed persons.

Explanation and Offer to Answer Questions

Jason Goodson has explained this study to you and answered your questions. If you have other questions or research-related problems you may reach Professor Stein at 797-3274.

Payment

You will receive one academic credit towards your degree and be eligible to win a \$100 lottery at the end of the study.

Voluntary Nature of Participation and Right To Withdraw Without Consequence

Participation in this research experience is entirely voluntary. You may refuse to participate or withdraw at any time without consequence or loss of benefits.

Confidentiality

Your research records will be kept in a locked file cabinet in a locked room at all times. Further, only Dr. Stein and Jason Goodson will have access to your data. Your data will be kept for one year following the study and will then be destroyed.

IRB Approval Statement

The Institutional Review Board (IRB) for the protection of human subjects at Utah State University has reviewed and approved this research project. If you have any questions regarding IRB approval of the procedures in this study, the IRB office is located in Old Main Building and may be contacted via phone at 797-1180.

Copy of Consent

You have been given two copies of this informed consent. Please sign both copies and retain one copy for your files

Investigator Statement

I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered.

Dr. David Stein
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Utah State University
Principal Investigator
435-797-3274

Jason Goodson
Ph.D. Candidate
Utah State University
Student Researcher
435-787-4578

I have been explained the procedures of this study and understand the procedures I will carry out through participating in this study. Further, I understand the potential risks and benefits of participating in this study. By signing below I freely agree to participate in this study and acknowledge that I know my rights as a human subject.

Signature

Date

