

Humor, stress, and coping strategies

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Abstract

This study explored relationships between sense of humor, stress, and coping strategies. Undergraduate students (N=258) from introductory psychology courses completed a perceived stress scale, an everyday problems scale, a state anxiety inventory, a sense of humor scale, and a scale assessing their preferred coping strategies. High and low sense of humor groups were determined by selecting participants with self-reported sense of humor at one standard deviation above and below the overall mean on the sense of humor scale. The high sense of humor group appraised less stress and reported less current anxiety than a low sense of humor group despite experiencing a similar number of everyday problems in the previous two months. The high humor group was more likely to use positive reappraisal and problem-solving coping strategies than the low humor group. A weaker relationship existed between appraisal of stress and number of problems in the low humor group because this group perceived greater stress at low and average number of everyday problems than the high humor group. The results were discussed as supporting the role of humor in restructuring a situation so it is less stressful, and the relationship of humor to both emotion-focused and problem-focused coping strategies.

Numerous studies have supported the anecdotal view that humor and laughter are therapeutic for relieving tension and anxiety (Kuiper and Martin 1998; Lefcourt et al. 1995; Moran 1996; Moran and Massan 1999; Yovetich et al. 1990). Whereas stress is linked to psychological distress (Gillis 1992; Spielberger 1979), humor appears to buffer an individual against the negative effects of stress (Abel 1998; Lobbott et al. 1990;

Martin and Dobbin 1988; Martin and Lefcourt 1983). Furthermore, research reveals that a good sense of humor is related to muscle relaxation, control of pain and discomfort, positive mood states, and overall psychological health including a healthy self-concept (Deaner and McConatha 1993; Hudak et al. 1991; Kuiper and Martin 1993; Kuiper et al. 1992; Kuiper et al. 1995; Labbott et al. 1990; Martin et al. 1993; Overholser 1991; Prerost and Ruma 1987; Ruch and Kohler 1998; Thorson et al. 1997). The positive effects of humor may be explained by the role of humor in the cognitive appraisal of threatening, hence stressful, situations and its function as a coping strategy in general. Kuiper and Martin (1998: 162) propose, "the stress-moderating effects of sense of humor appear to operate, at least in part, through more positive appraisals and more realistic cognitive processing of environmental information." According to Kuiper et al. (1995) and Lefcourt and Thomas (1998), further studies are needed to address the lack of research on humor and cognitive appraisal. Therefore, this study was designed to address this need by examining relationships between humor, stress and its related constructs, and coping strategies.

Humor has been described as producing a cognitive-affective shift or a restructuring of the situation so that it is less threatening, with a concomitant release of emotion associated with the perceived threat (Dixon 1980; Martin et al. 1993) and reduction in physiological arousal (Shurcliff 1968). Humor may thus afford the opportunity for exploring cognitive alternatives in response to stressful situations and reducing the negative affective consequences of a real or perceived threat. The cognitive-affective shift is related to the transactional model of stress proposed by Lazarus and his colleagues. According to this model, stress depends upon a person's cognitive appraisal of events and circumstances and the ability to cope, the end result of the person's transaction with the environment (Lazarus and Folkman 1984). Personality variables such as hardiness, have been offered for explaining individual differences in the cognitive appraisal of novel and threatening situations and consequent reactions (Lazarus 1993). McCrae (1990) also highlighted the influence of neuroticism, a personality trait predisposing an individual toward experiencing negative affect, another characteristic potentially influencing an individual's appraisal of stress. Kuiper et al. (1995) proposed that a sense of humor is an additional individual difference variable worthy of consideration primarily because of its relationship to positive appraisals of challenge in lieu of threat.

Several studies have examined the influence of humor on cognitive appraisal (Kuiper et al. 1993; Kuiper et al. 1995). The results of Kuiper's et al. study (1993) suggest that a better sense of humor does facilitate more positive cognitive appraisals. They found a positive relationship between use of humor as a coping mechanism and appraisal of exams as challenging in a sample of college students and concluded that humor is associated with healthier coping by reappraising stressful events as less threatening and more challenging (Kuiper et al. 1993). Kuiper's et al. (1993) conclusions were further supported when Kuiper et al. (1995) found that individuals with a high sense of humor changed their perspective when coping with negative life events by viewing these events more positively than those with a low sense of humor. Kuiper et al. (1995: 370) thus proposed that "an increased sense of humor does help the individual deal in a more positive and growth-oriented fashion with a variety of life circumstances and situations." Furthermore, Kuiper et al. (1995) concluded that in addition to humor promoting more positive perceptions, humor can increase the likelihood of conscious efforts at seeking alternative perspectives to problems, emotionally distance the individual from the stress, and hence, reduce the experience of negative affect.

Additional studies supported Kuiper's et al. (1995) suggestions. Newman and Stone (1996) found that men with a good sense of humor appraised a serious video of an industrial accident as less stressful than those with a poor sense of humor. In addition, high trait humor men viewed the serious film as more humorous and they were more comfortable with composing a humorous narrative to the serious film than men with low trait humor. In a review of studies examining humor and appraisal, Martin (1996: 266) suggested that a good sense of humor is related to more effective coping strategies of individuals via "their use of more realistic cognitive appraisals ..."

Other studies have linked humor to various strategies for coping with stress. Borrowing from Freud (1959) and May (1953), Lefcourt et al. (1995) offered perspective-taking humor as a form of emotion-focused coping technique designed to "distance" oneself from negative experiences by taking one's self or one's experiences less seriously, thus reducing emotional reactions to threatening circumstances. Lefcourt et al. (1995) found a positive relationship between humor appreciation, one aspect of perspective-taking humor, and the coping technique of "distancing" as measured by Folkman and Lazarus (1985) Ways of Coping Scale

(Lefcourt et al. 1995). Kuiper et al. (1993) also found the use of humor as a coping mechanism was positively correlated with the distancing and confrontive coping subscales of the Ways of Coping Scale indicating both emotion-focused and problem-focused aspects for dealing with stress. Lefcourt et al. (1997) subsequently proposed two forms of coping strategies linked to humor, an emotion-focused coping strategy as a defensive measure by finding humor in a stressful situation and reducing negative emotional reactions, and a problem-focused coping strategy by using humor to alter the stressful situation itself. In support of humor as an emotion-focused defensive mechanism, Rim (1988) found significant relationships between measures of humor and defensive mechanisms such as “minimization”, e.g., looking on the bright side of things, and “reversal”, e.g., trying to find something funny in a distressing situation.

Fry (1995) examined the influence of sense of humor on cognitive appraisal of stress and coping styles in a pilot study of female executives. The results suggested that women with a high sense of humor may be more capable at cognitive restructuring and reappraising stressful life events in more positive ways; women with a good sense of humor also attempted to find meaning in the stressful events and perceived stressful events as challenging to their personal growth by anticipating some gain from the experiences. Finally, McCrae and Costa's (1986) sample of community adults ranging from 21 to 90 years of age ranked the ability to find humor in stressful situations as a highly effective coping mechanism for solving problems and reducing distress associated with stressful life events.

Purpose of the study

The following study was designed to address the cognitive-affective shift via cognitive appraisal associated with humor and related coping strategies. These issues were explored using multiple procedures in an effort to strengthen conclusions based on the correlational techniques. Sex of respondent was included in all analyses to explore differences between men and women. First, the effects of low and high sense of humor, assessed by a multidimensional humor measure, and sex of the participants were examined on perceived stress (cognitive appraisal), number of everyday problems experienced in the previous two months, and state anxiety. Based on the assumption that a good sense of humor

facilitates more positive cognitive appraisals and reduces emotional reactions to stress, it was hypothesized that participants with a high sense of humor would report less perceived stress and state anxiety than participants with a low sense of humor whereas, no difference for sense of humor was predicted on the actual number of everyday problems. Women were expected to report greater perceived stress, number of everyday problems, and state anxiety than men based on previous research suggesting women self-report more psychological distress (Mirowsky and Ross 1995).

Second, coping strategies used by men and women with a low or high sense of humor were examined. It was hypothesized that participants with a high sense of humor would use distancing, problem-solving, and reappraisal as coping strategies, assessed by the revised Ways of Coping Scale (Folkman et al. 1986), more often than those with a low sense of humor. Finally, the relationship between number of everyday problems potentially stressful and perceived stress (cognitive appraisal of stress) was explored for low and high sense of humor and sex of respondent using hierarchical multiple regression techniques. If, as Kuiper and Martin (1998) suggest, individuals with a good sense of humor use more realistic processing of stressful events, a stronger relationship between perceived stress and number of everyday problems should exist for the high humor group than for the low humor group.

Method

Participants

The participants were 258 undergraduate students (113 men, 145 women) enrolled in introductory psychology courses. The majority (60 percent) were first-year students with a mean age of 19.76 years ($SD = 3.57$). The participants received research credit in their psychology classes.

Measures

The Perceived Stress Scale (PSS; Cohen et al. 1983; Cohen and Williamson 1988) is a self-report global measure of perceptions of stress. The scale includes 14 items designed to measure the degree individuals

cognitively appraise their lives as unpredictable, uncontrollable, and overloading. Respondents rate how often they experienced a particular feeling or thought during the past month on a 5-point scale ranging from never (0) to very often (4). The items are summed for a total perceived stress score; the higher the score, the higher the perceived stress. The internal reliability of the scale in this sample was .86 (Cronbach alpha).

The Everyday Problems Scale (EPS; Burks and Martin 1985) lists 34 everyday problems particularly germane to college students. Respondents check any problem they experienced during the past 2 months. The endorsed problems are summed, with higher scores indicating a greater number of everyday problems. The internal reliability of the scale in this sample was .81 (Cronbach alpha).

The State Anxiety subscale of the State-Trait Anxiety Inventory (STAI; Spielberger et al. 1970) consists of 20 different feelings and mood states. Respondents mark the degree to which the descriptors apply to them at that particular moment. The items are rated on a 4-point scale ranging from 1 (not at all) to 4 (very much so) with higher scores indicating greater state anxiety. The internal reliability of the subscale was .96 in this sample (Cronbach alpha).

The Multidimensional Sense of Humor Scale (MSHS; Thorson and Powell 1993) is a self-report measure of overall sense of humor composed of 24 statements assessing different aspects of humor including the use of humor as a coping mechanism, using humor, and recognizing and appreciating humor. Respondents indicate the degree to which each statement applies to them using a scale ranging from 1 (strongly disagree) to 5 (strongly agree). The scores are summed with higher scores indicating a better sense of humor. The internal reliability of the scale in this sample was .97 (Cronbach alpha).

A revised Ways of Coping Scale (Folkman et al. 1986) contains 50 statements describing 8 different cognitive and behavioral strategies used to cope with stressful encounters. Respondents are first asked to consider the most stressful situation they had experienced in the previous week. They subsequently respond to each statement in the scale by expressing the extent to which they used the strategy in coping with that stressful situation on a 4-point scale from 0 (not used/does not apply) to 3 (used a great deal). Confrontive coping (6 items) describes hostile and aggressive efforts and risk-taking. Distancing (6 items) is composed of items describing efforts to distance oneself from the stressful situation. Self-control (7 items) includes efforts to regulate personal feelings and actions.

Seeking social support (6 items) describes attempts to seek emotional and informational support. Accepting responsibility (4 items) includes accepting one's own role in the stressful situation and trying to correct or better the situation. Escape-avoidance (8 items) describes efforts used to escape the situation and wishful thinking. Planful problem-solving (6 items) is composed of problem-focused attempts at coping with or changing the situation. Positive reappraisal (7 items) includes items that have a religious tone and create positive meaning while focusing on personal growth. The items are summed with higher scores representing greater use of the coping strategy in dealing with the stressful situation. The internal reliabilities in this sample (Cronbach alphas) for each of the aforementioned coping strategies were .65, .55, .58, .71, .55, .79, .66, and .73 respectively.

Procedure

In small groups (10–15), participants received a description of the study, signed consent forms, and completed each scale in the order presented in a packet. The scales were randomly ordered in each packet to control for order effects.

A subsample was selected based on high and low self-reported sense of humor. Groups with high and low sense of humor were formed by selecting participants with self-reported sense of humor at 1 *SD* (12.54) or greater above and below the overall mean (93.83) on the multidimensional sense of humor scale. Forty participants were selected for the low sense of humor group (14 men, 26 women) and 42 participants were selected for the high sense of humor group (21 men, 21 women). The low humor group had a mean of 73.50 (*SD* = 8.05) on the sense of humor scale and the high humor group had a mean of 111.93 (*SD* = 4.34) on the humor scale. The average age for the subsample was 20.28 (*SD* = 4.24) and the majority were first-year students (55 percent).

Results

A 2×2 Multivariate Analysis of Variance (MANOVA) was conducted to examine the effects of sex and sense of humor (low, high) on perceived stress, number of everyday problems, and state anxiety. Significant overall main effects for sex, $F(3,75) = 4.38$, $p < .01$, and humor, $F(3,75) = 4.14$,

Table 1. *Perceived stress, everyday problems, and state anxiety: Descriptive statistics*

	Low Humor		High Humor		
	Men	Women	Men	Women	
PSS	26.29 (4.37)	29.73 (7.58)	31.58 (8.33)	21.95 (7.26)	24.07 (8.38)
EPS	7.93 (6.27)	10.20 (5.83)	11.42 (5.31)	7.67 (2.67)	9.44 (4.33)
SAI	41.07 (11.38)	44.35 (12.89)	46.12 (13.51)	30.81 (9.72)	37.57 (15.43)

Note: PSS=Perceived stress, EPS=Everyday problems, SAI=State anxiety. Standard deviations in parentheses.

$p < .01$, were found. The sex by humor interaction was not significant. Women reported significantly greater perceived stress, $F(1,77) = 9.17$, $p < .01$, number of everyday problems, $F(1,77) = 10.29$, $p < .01$, and state anxiety, $F(1,77) = 4.60$, $p < .05$, than men. The low sense of humor group reported significantly greater perceived stress, $F(1,77) = 6.67$, $p < .05$, and state anxiety, $F(1,77) = 9.56$, $p < .01$, than the high sense of humor group. No difference was found between low and high sense of humor on number of everyday problems. (See Table 1 for descriptive statistics.)

A 2×2 MANOVA was conducted to examine the effects of sex and sense of humor (low, high) on the 8 coping strategies. A significant overall main effect for sense of humor was found, $F(8,71) = 2.51$, $p < .05$. The sex main effect and the sex by humor interaction were not significant. The high sense of humor group reported greater use of planful problem-solving, $F(1,78) = 6.61$, $p < .05$, and positive reappraisal, $F(1,78) = 12.93$, $p < .01$, than the low sense of humor group in coping with stress. Differences between low versus high sense of humor approached significance for distancing oneself, $F(1,78) = 3.35$, $p = .07$, and self-control, $F(1,78) = 3.59$, $p = .06$, with the high sense of humor group reporting greater use of these strategies than the low sense of humor group. No significant differences were found on confrontive coping using aggressive

Table 2. Coping strategies: Descriptive statistics

	Low Humor	High Humor
CON	7.78 (3.97)	8.59 (3.98)
DIS	7.05 (3.59)	8.71 (3.54)
SELF	9.35 (3.90)	11.07 (3.81)
SEEK	8.05 (4.51)	9.12 (3.70)
RESP	6.33 (2.83)	5.83 (3.10)
ESC	11.33 (5.98)	9.74 (5.68)
PROB	9.90 (3.66)	12.10 (3.75)
POS	8.28 (4.22)	12.02 (4.51)

Note: CON = Confrontive coping; DIS = Distancing oneself; SELF = Self-control; SEEK = Seeking social support; RESP = Accepting responsibility; ESC = Escape/Avoidance; PROB = Planful problem-solving; POS = Positive reappraisal. Standard deviations in parentheses.

efforts to handle stress, seeking social support, accepting responsibility for the problem, and escape-avoidance of the situation. (See Table 2 for descriptive statistics.)

Moderated multiple regression analysis (Aiken and West 1991) was conducted to examine the interaction between sex, sense of humor (low, high) and number of everyday problems in relation to perceived stress. Scores on everyday problems were centered, i.e., deviation scores were used such that the mean of everyday problems was zero, each main effect and interaction were entered hierarchically into the regression equation, and unstandardized regression coefficients (B) were examined in the regression equations. No significant three-way interaction existed between sex, sense of humor, and everyday problems; step down procedures were employed and each two-way interaction was tested for its significant contribution to the regression equation. Sex did not significantly interact with the other two variables. The only significant interaction existed between sense of humor and everyday problems. Therefore, sense of humor (0 = low sense of humor, 1 = high sense of humor), number of everyday problems, and the interaction were reentered

Table 3. *Hierarchical multiple regression analyses predicting perceived stress*

	Subsample		Total sample	
	R^2 Change	F	R^2 Change	F
Sex	.13	11.58**	.11	32.24**
Everyday problems	.17	18.87**	.18	65.98**
Sense of humor	.07	8.16**	.01	5.27*
Everyday problems \times humor	.06	8.44**	.02	5.86*

* $p < .05$, ** $p < .01$.

hierarchically as predictors of perceived stress with sex remaining in the regression equation to control for the significant differences between men and women in perceived stress. A significant interaction between sense of humor and everyday problems accounted for 6 percent of the variance in perceived stress, $F(4,76) = 8.44$, $p < .01$, (see Table 3). The relationship between number of everyday problems and perceived stress was subsequently examined through simple linear regression equations for each sense of humor group (low, high). Significant positive relationships existed between everyday problems and perceived stress for both the low sense of humor group, $B = .41$, $t(76) = 2.30$, $p < .05$, and the high sense of humor group, $B = 1.27$, $t(76) = 5.16$, $p < .01$. Simple regression equations computed at the mean and 1 SD above and below the mean of everyday problems revealed significantly greater perceived stress in the low sense of humor group than in the high sense of humor group for low number of everyday problems, $B = -8.67$, $t(76) = -4.17$, $p < .01$, and average number of everyday problems, $B = -4.31$, $t(76) = -2.99$, $p < .01$. No significant difference in perceived stress existed between the sense of humor groups at high number of everyday problems. (See Figure 1.)

Results of the regression analyses in the subsample were checked against the results in the total sample maintaining the continuity of the sense of humor measure. The results were virtually identical. No significant three-way interaction between sex, sense of humor, and everyday problems existed. Stepdown procedures were the same as the previous analyses. The only significant interaction was between sense of humor and everyday problems accounting for 2 percent of the variance in perceived stress, $F(1, 253) = 5.86$, $p < .05$, (see Table 3). The relationship between everyday problems and perceived stress were subsequently examined through simple linear regression at low sense of humor (computed at 1 standard deviation below the mean) and high sense of

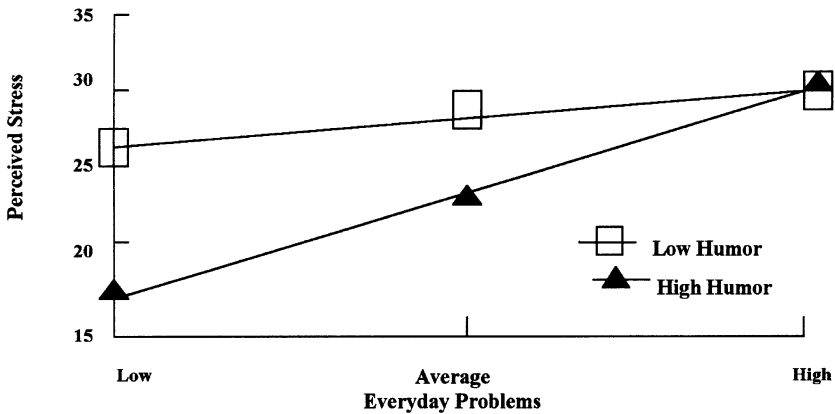


Figure 1. Simple regression lines showing relationship between number of everyday problems for low and high sense of humor in the subsample

humor (computed at 1 standard deviation above the mean). Significant positive relationships between everyday problems and perceived stress existed for both low, $B = .60$, $t(253) = 4.93$, $p < .01$, and high sense of humor, $B = 1.02$, $t(253) = 7.31$, $p < .01$. Simple regression equations computed at the mean and 1 *SD* above and below the mean of everyday problems revealed significant negative relationships between sense of humor and perceived stress at low number of everyday problems, $B = -.16$, $t(253) = -3.35$, $p < .01$, and average number of problems, $B = -.08$, $t(253) = -2.30$, $p < .05$. No significant relationship existed between humor and perceived stress at high number of everyday problems (see Figure 2).

Discussion

This study was designed to examine sense of humor as producing a cognitive-affective shift or restructuring of the situation so that it is less stressful, with a concomitant release of emotion associated with the threat and reduction in physiological arousal (Dixon 1980; Martin et al. 1993; Shurcliff 1968). In addition, the study explored the coping strategies used by individuals with a high vs. low sense of humor. The results of this study clearly support the hypothesized role of humor in the appraisal of stress and certain coping strategies.

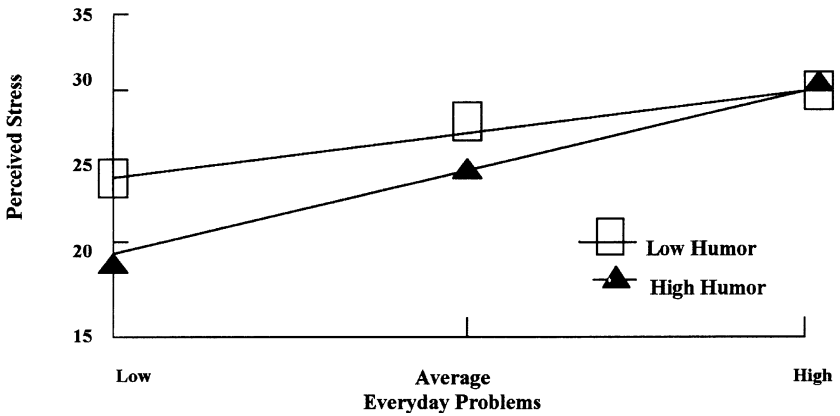


Figure 2. Simple regression lines showing relationship between number of everyday problems for low and high sense of humor in the total sample

As predicted, individuals with a high sense of humor cognitively appraised less stress in the previous month than individuals with a low sense of humor and reported less current anxiety despite experiencing a similar number of everyday problems in the previous two months as those with a low sense of humor. These results support the view that humor positively affects the appraisal of stressful events and attenuates the negative affective response, and related to humor producing a cognitive-affective shift and reduction in physiological arousal (Kuiper et al. 1993; Kuiper et al. 1995; Martin et al. 1993). As found in previous research, women also self-reported more psychological distress as measured by their perceived stress, current anxiety, and number of everyday problems than men (Mirowsky and Ross 1995).

Humor has been linked to several coping strategies such as distancing oneself from the stressor (Kuiper et al. 1993; Lefcourt et al. 1995), aggressive efforts toward confronting and dealing with the stress (Kuiper et al. 1993), and resolving the problems causing stress (McCrae and Costa 1986). Overall, the results supported the hypothesized effects of humor on coping strategies. Both men and women with a high sense of humor were significantly more likely to use positive coping strategies such as deliberate efforts at resolving the problem causing stress and reappraisal of a stressful situation by positively reinterpreting its meaning for personal growth. Furthermore, individuals with a high sense of humor exerted more efforts at “distancing” themselves from the stressful situation and regulating their personal feelings and actions than individuals with

a low sense of humor. However, while these differences for humor on the “distancing” strategy were in the expected direction, they only approached significance and should be viewed with caution. The significant results for positive reappraisal and problem-solving did fully support Lefcourt’s et al. (1997) suggestion that humor is linked to both emotion-focused and problem-focused coping strategies (see also Fry 1995).

Finally, as predicted, the regression analyses in both a subsample and the total sample of participants revealed stronger positive relationships between number of everyday problems and cognitive appraisal of stress for those with a high sense of humor regardless of sex. The weaker relationship between number of everyday problems and appraisal of stress for the group with a low sense of humor occurred because this group appraised significantly higher stress at low and average number of everyday problems than the group with a high sense of humor, whereas no difference existed at high number of problems. A positive relationship would be expected between the number of problems experienced and the cognitive appraisal of stress as revealed by both the low and high humor groups. However, the significantly greater perceived stress for the low humor group at low and average number of problems significantly attenuated this relationship. Consequently, the results support the suggestion that individuals with a good sense of humor more accurately and realistically appraise the stress in their lives than those with a poor sense of humor (Kuiper and Martin 1998; Martin 1996). It appears that individuals with a poor sense of humor may either overestimate the appraisal of stress in their lives or perhaps are more predisposed to psychologically experience greater stress regardless of the number of stressful life events, a characteristic of neuroticism. Several studies have revealed negative relationships between measures of sense of humor and neuroticism suggesting that individuals with a poor sense of humor also score higher on neuroticism (see Deaner and McConatha 1993; Ruch and Kohler 1998; Thorson et al. 1997).

In conclusion, the results support findings from other studies that used different procedures, revealing the significance of humor in cognitive appraisal of stress, the cognitive-affective shift produced by humor, and the relationships between sense of humor and certain coping strategies. In contrast to previous research, this study specifically examined the moderating effect of humor in the relationship between cognitive appraisal of stress and actual number of stressful events, highlighting the merit of Kuiper’s et al. (1995) suggestion that sense of humor should be considered

an individual difference variable influencing relationships between stress, appraisal, and outcomes. While this study used multiple procedures in an attempt to strengthen support for the findings, certain limitations remain. No causal relationships can be implied due to the correlational nature of the study. In addition, use of college students as participants is always in question when generalizing results to the total population, and the everyday problems used to measure stressful life events were restricted to problems particularly experienced by college students. Hence, further research should assess stressful life events in an adult population to determine whether these results remain valid. Finally, sense of humor is a multidimensional construct and was assessed in this study using a multidimensional measure. A promising area of research could focus on determining the specific dimensions of sense of humor most influential in the cognitive appraisal of stress.

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Notes

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References

- Abel, Millicent H.
1998 Interaction of humor and gender in moderating relationships between stress and outcomes. *The Journal of Psychology* 132, 267–276.
- Aiken, Leona S. and Stephen G. West
1991 *Multiple Regressions: Testing and Interpreting Interactions*. Newbury Park, CA: Sage.
- Burks, Nancy and Barclay Martin
1985 Everyday problems and life change events: Ongoing versus acute sources of stress. *Journal of Human Stress* 11, 27–35.
- Cohen, Sheldon, Tom Kamarck, and Robin Mermelstein
1983 A global measure of perceived stress. *Journal of Health and Social Behavior* 24, 385–396.
- Cohen, Sheldon and Gail Williamson
1988 Perceived stress in a probability sample of the United States. In Spacapan, S. and S. Oskamp (eds.), *The Social Psychology of Health*. Newbury Park, CA: Sage, 31–67.

- Deaner, Stephanie L. and Jasmin T. McConatha
1993 The relation of humor to depression and personality. *Psychological Reports* 72, 755–763.
- Dixon, Norman F.
1980 Humor: A cognitive alternative to stress. In Spielberger, C. D. and I. G. Sarason (eds.), *Anxiety and Stress*, Vol. 7. Washington, DC: Hemisphere, 281–289.
- Folkman, Susan and Richard S. Lazarus
1985 If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology* 48, 150–170.
- Folkman, Susan, Richard S. Lazarus, Christine Dunkel-Schetter, Anita DeLongis, and Rand J. Gruen
1986 Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology* 50, 992–1003.
- Freud, Sigmund
1959 Humour. In Strachey, J. (ed.), *Collected Papers of Sigmund Freud*, Vol. 5. New York: Basic Books, 215–221.
- Fry, P.S.
1995 Perfectionism, humor, and optimism as moderators of health outcomes and determinants of coping styles of women executives. *Genetic, Social, and General Psychology Monographs* 121, 213–245.
- Gillis, John S.
1992 Stress, anxiety, and cognitive buffering. *Behavioral Medicine* 18, 79–83.
- Hudak, Deborah A., J. Alexander Dale, and Mary A. Hudak
1991 Effects of humorous stimuli and sense of humor on discomfort. *Psychological Reports* 69, 779–786.
- Kuiper, Nicholas A. and Rod A. Martin
1993 Humor and self-concept. *Humor: International Journal of Humor Research* 6(3), 251–270.
1998 Is sense of humor a positive personality characteristic? In Ruch, W. (ed.), *The Sense of Humor: Explorations of a Personality Characteristic*. Berlin/New York: Mouton de Gruyter, 159–178.
- Kuiper, Nicholas A., Rod A. Martin, and Kathryn A. Dance
1992 Sense of humor and enhanced quality of life. *Personality and Individual Differences* 13, 1273–1283.
- Kuiper, Nicholas A., Rod A. Martin, and L. Joan Olinger
1993 Coping humor, stress, and cognitive appraisals. *Canadian Journal of Behavioural Science* 25, 81–96.
- Kuiper, Nicholas A., Sandra D. McKenzie, and Kristine A. Belanger
1995 Cognitive appraisals and individual differences in sense of humor: Motivational and affective implications. *Personality and Individual Differences* 19, 359–372.
- Labbott, Susan M., Shelley W. Ahleman, Mark E. Wolever, and Randall B. Martin
1990 The physiological and psychological effects of the expression and inhibition of emotion. *Behavioral Medicine* 16, 182–189.
- Lazarus, Richard S.
1993 From psychological stress to the emotions: A history of changing outlooks. In Porter, L. W. and M. R. Rosenzweig (eds.), *Annual Review of Psychology*, Vol. 41. Palo Alto, CA: Annual Reviews, 1–21.

- Lazarus, Richard S. and Susan Folkman
 1984 *Stress, Appraisal, and Coping*. New York: Springer.
- Lefcourt, Herbert M., Karina Davidson, Robert Shepherd, Margory Phillips, Ken Prkachin, and David E. Mills
 1995 Perspective-taking humor: Accounting for stress moderation. *Journal of Social and Clinical Psychology* 14, 373–391.
- Lefcourt, Herbert M., Karina Davidson, Kenneth M. Prkachin, and David E. Mills
 1997 Humor as a stress moderator in the prediction of blood pressure obtained during five stressful tasks. *Journal of Research in Personality* 31, 523–542.
- Lefcourt, Herbert M. and Stacy Thomas
 1998 Humor and stress revisited. In Ruch, W. (ed.), *The Sense of Humor: Explorations of a Personality Characteristic*. Berlin/New York: Mouton de Gruyter, 179–202.
- Martin, Rod A.
 1996 The Situational Humor Response Questionnaire (SHRQ) and Coping Humor Scale (CHS): A decade of research findings. *Humor: International Journal of Humor Research* 9(3/4), 251–272.
- Martin, Rod A. and Herbert M. Lefcourt
 1983 Sense of humor as a moderator of the relation between stressors and moods. *Journal of Personality and Social Psychology* 45, 1313–1324.
- Martin, Rod A. and James P. Dobbin
 1988 Sense of humor, hassles, and immunoglobulin A: Evidence for a stress-moderating effect. *International Journal of Psychiatry in Medicine* 18, 93–105.
- Martin, Rod A., Nicholas A. Kuiper, L. Joan Olinger, and Kathryn A. Dance
 1993 Humor, coping with stress, self-concept, and psychological well-being. *Humor: International Journal of Humor Research* 6(1), 89–104.
- May, Rollo
 1953 *Man's Search for Himself*. New York: Random House.
- McCrae, Robert R.
 1990 Controlling neuroticism in the measurement of stress. *Stress Medicine* 6, 237–241.
- McCrae, Robert R. and Paul T. Costa
 1986 Personality, coping, and coping effectiveness in an adult sample. *Journal of Personality* 54, 385–405.
- Mirowsky, John and Catherine E. Ross
 1995 Sex differences in distress: Real or artifact? *American Sociological Review* 60, 449–468.
- Moran, Carmen C.
 1996 Short-term mood change, perceived funniness, and the effect of humor stimuli. *Behavioral Medicine* 22, 32–38.
- Moran, Carmen C. and Margaret M. Massan
 1999 Differential influences of coping humor and humor bias on mood. *Behavioral Medicine* 25, 36–42.
- Newman, Michelle G. and Arthur A. Stone
 1996 Does humor moderate the effects of experimentally-induced stress? *Annals of Behavioral Medicine* 18, 101–109.
- Overholser, James C.
 1991 Sense of humour when coping with life stress. *Personality and Individual Differences* 13, 799–804.

- Prerost, Frank J. and Christine Ruma
1987 Exposure to humorous stimuli as an adjunct to muscle relaxation training. *Psychology: A Quarterly Journal of Human Behavior* 24, 70–74.
- Rim, Y.
1988 Sense of humour and coping styles. *Personality and Individual Differences* 9, 559–564.
- Ruch, Willibald and Gabriele Kohler
1998 A temperament approach to humor. In Ruch, W. (ed.), *The Sense of Humor: Explorations of a Personality Characteristic*. Berlin/New York: Mouton de Gruyter, 203–228.
- Shurcliff, Arthur
1968 Judged humor, arousal, and the relief theory. *Journal of Personality and Social Psychology* 8, 360–363.
- Spielberger, Charles D.
1979 *Understanding Stress and Anxiety*. New York: Harper and Row.
- Spielberger, Charles D., Richard L. Gorsuch, and Robert Luschene
1970 *Test Annual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Thorson, James A. and F. C. Powell
1993 Development and validation of a multidimensional sense of humor scale. *Journal of Clinical Psychology* 49, 13–23.
- Thorson, James A., F. C. Powell, Ivan Sarmany-Schuller, and William P. Hampes
1997 Psychological health and sense of humor. *Journal of Clinical Psychology* 53, 605–619.
- Yovetich, Nancy A., J. Alexander Dale, and Mary A. Hudak
1990 Benefits of humor in reduction of threat-induced anxiety. *Psychological Reports* 66, 51–58.