

Does Humor Benefit Health In Retirement? Exploring Humor as a Moderator

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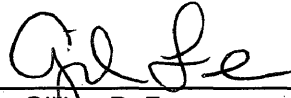
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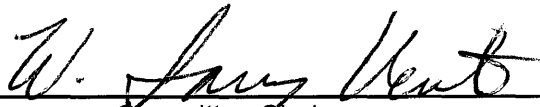
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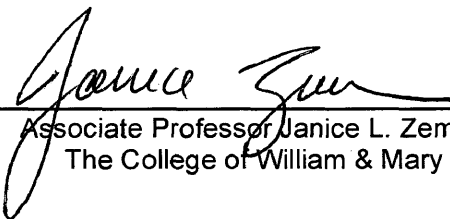


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ABSTRACT PAGE

This research assessed the extent to which humor moderates the relationship between retirement stress, including hassles, and health. Two hundred sixty-five retirees over the age of 55 years responded to an on-line survey, completing the RAND 36-Item Health Survey and the Humor Styles Questionnaire. Stress was measured using the Self Perceived Stress in Retirement Scale and The Hassles Scale. The stress moderating effect of humor was examined via regression analyses. Contrary to expectation, and the assumed nature of humor styles, results suggest that the adaptiveness of humor styles depends on the level of stress or hassles one perceives as well as gender. This is a first indication that whether specific humor styles are adaptive or maladaptive may depend on specific circumstances or person variables.

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Acknowledgements

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Does Humor Benefit Health In Retirement?

Exploring Humor as a Moderator

Individuals' adaptation to retirement has been of increasing interest to researchers and the popular media (Beehr & Adams, as cited in Wang, 2007). Successful adaptation to retirement involves coping with changes in income, social supports, and the loss of work identity and alterations in general identity (Hayslip, Beyerlein, & Nichols, 1997; Sharpley, 1997). While many are able to transition into retirement with little problem, for a large number of people, the retirement transition is disruptive and a period of instability (Marshall, Clarke, & Ballantyne, 2001). My aim is to better understand how the four humor styles, identified by the Humor Styles Questionnaire (HSQ; Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003), are associated with perceived retirement stress and daily life hassles. These four styles include two positive or adaptive humor styles (Affiliative humor and Self-enhancing humor) and two negative humor or maladaptive humor styles (Aggressive humor and Self-defeating humor). To my knowledge I am the first to investigate coping humor and the humor styles among retirees.

Studies have found that humor, as a coping strategy, is available to older adults in good health (Celso, Ebener, & Burkhead, 2003). Recent inquiry into this relationship suggests that Self-enhancing humor (coping humor measure) may be a more effective coping strategy with daily hassles than with more global stress (Freeman & Ventis, in submission). Although Self-enhancing humor on its own had a correlation with both stress measures, once control variables were factored in, humor remained uniquely

predictive with daily life hassles, but not retirement stress (Freeman & Ventis, in submission).

Our previous investigation examined the relationship between humor styles and stress directly but did not examine their relationship to physiological health. In the current investigation, I have assessed physical and mental health outcomes to explore how humor moderates the relationship between health and stress during retirement.

Stress and Health

There exists substantial research that life stress is detrimental to physical and psychological wellbeing (Cohen, Janicki-Deverts, & Miller, 2007; Gunnar & Quevedo, 2007; Miller, Chen, & Zhou, 2007). Together this body of research underscores the relationship between stress and poor health among various age-groups.

A recent study examining the stress and health relationship among an aging sample found individual differences in self-perceived stress and health outcomes in older adults (Sapolsky, 2004). Sapolsky (2004) reported that although some individuals with significant chronic stress appear to be coping well, many are not and experience negative changes in lifestyle and health impairments due to chronic stress.

Humor, Health, and Stress

In the present study, I am examining to what extent one particular coping mechanism, humor, may be adaptive in buffering the stress and health relationship. Humor is a multi-dimensional construct (Kuiper, Grimshaw, Leite, & Kirsh, 2004; Thorson & Powell, 1993) involving cognitive, emotional, behavioral, physiological, and social aspects (Martin, 2007). In observation of the multidimensionality of humor, a more

recent inclination in humor research is to investigate both its beneficial and deleterious impact on health and well-being (Kirsh & Kuiper, 2003; Kuiper et al., 2004; Tümkaya, 2007). The development of the Humor Styles Questionnaire (HSQ) has been a boon to humor research, as it assesses individual differences in the four styles of humor along what are believed to be both beneficial and deleterious dimensions of humor (Martin et al., 2003). The HSQ assesses four distinct and independent dimensions of humor—two dimensions of humor are typically positively related to health and well-being and two dimensions are typically negatively related to health and well-being.

Martin and his colleagues (2003) identified two uses of humor they endorse as being potentially adaptive. These uses of humor include Affiliative humor, which involves the use of humor to enhance one's relationships with others, and Self-enhancing humor, which involves the use of humor to enhance the self and find humor in stressful situations (Martin et al., 2003). In addition, Martin and colleagues have identified two humor styles they propose to be detrimental or maladaptive uses of humor. These maladaptive styles have been identified as Aggressive humor and Self-defeating humor (Martin et al., 2003). Aggressive humor is the use of humor to enhance the self at the expense of others, while Self-defeating humor is the use of humor to enhance relationships at the expense of self (Martin et al., 2003). Self-defeating humor relates to tendencies to use humor in an excessively self-disparaging and ingratiating way, and the use of humor as a form of defensive denial to hide underlying negative feelings (Martin et al., 2003).

Although it is popularly assumed that humor benefits both physical and psychological health, research thus far has yielded equivocal results (see Kuiper et al., 2004; Martin, 2004; Nezu, Nezu, & Blissett, 1988). It has been suggested that the diverse conceptualizations of both humor and well-being account for much of the confusion in comparing results across studies (Martin, 2004). Nonetheless, humor does appear to have physiological benefits, which are especially important to the well-being of older, more sedentary adults who can benefit from the increases in circulation and immune function brought about by laughter (Berk, 2001).

Humor and Stress During Retirement

A possible explanation for contradicting results in coping humor research is that coping, like humor, is a multidimensional construct (Carver, Scheier, & Weintraub, 1989; Folkman & Lazarus, 1988). Previous research may have assessed coping humor over a range, not only of humor measures but also of coping situations as well, making comparisons across studies inappropriate.

For this reason I will be examining the effects of humor styles, especially coping humor, during a specific period of stress—retirement stress. Increases in health problems and many other types of stress related to aging, such as losses of friends, family, health, and mobility, are characteristic of retirement (Aldwin, Yancura, & Boeninger, 2007).

Coping responses are among the many predictors of adaptation to retirement including personal characteristics, and financial, social, and physical resources before and after retirement (Pinquart & Schindler, 2007; Wang, 2007). It has been suggested that humor may be a positive means of coping with age-related loss (Simon, 1988, as cited in

Celso et al., 2003). Folkman, Lazarus, Pimley, and Novacek (1987) found that emotion-focused forms of coping (including humor) are useful strategies for older adults who perceive stressful events as out of their control. Given that retirement and aging mean giving up control and autonomy in some cases (Kelly & Barratt, 2007), humor may be one of the more useful coping strategies during this time period.

Humor as a Moderator

It has been proposed that there are three possible mechanisms by which humor and laughter impact physical health. First, it has been suggested that the laughter that accompanies humor conveys beneficial physiological changes in neural, musculoskeletal, cardiovascular, endocrine, and/or immunological systems (see Berk, 2001). Second, laughter and humor may directly affect health via their accompanying positive emotional states (Argyle, 1997; Edwards & Cooper, 1988). Third, it has been posited that humor may moderate the relationship between stress and health. It has been proposed that changes in cognitive appraisals and attributions, as a result of a humorous outlook on life, may lead to more positive coping strategies, reduce stress, and improve health (Martin, Kuiper, Olinger, & Dance, 1993). In this perspective humor has an indirect, rather than direct, effect on physiological health variables—interacting with stress levels in reducing the degree to which stress would normally negatively affect health.

It is the stress-moderating theory that will be examined further in this study. A humorous perspective in an otherwise stressful situation may serve as an adaptive coping strategy similar to positive reinterpretation or perspective-taking (Kuiper, Martin, & Olinger, 1993; Lefcourt, Davidson, Shepherd, Phillips, Prkachin, & Mills, 1995). In this

view it is the cognitive component of humor, rather than the physiological products of laughter, that is associated with the use of humor as a coping strategy (Kuiper et al., 1993).

The examination of humor as a moderator also introduces the possibility that certain styles and uses of humor may be more adaptive and health enhancing, whereas others are maladaptive (Martin, 2001). Examining the four humor styles proposed by Martin et al. (2003), in terms of a stress-moderating perspective, one can imagine Aggressive humor could serve as an avoidance or defense mechanism that may be less conducive to effective coping with stress than a Self-enhancing approach. Affiliative humor could be used to enhance social support that is more beneficial to coping than utilizing a defensive denial strategy with Self-defeating humor.

Thus far, studies specifically investigating the stress moderating effect of humor have produced weak and inconsistent results. Research has found that depressive reactions to stress were mitigated in those who employed humor as a coping strategy (Nezu et al., 1988). However, other studies examining the relationship between humor and well-being have not found any effect (Boyle & Joss-Reid, 2004; Porterfield, 1987) or have found significant results suggesting that humor has a detrimental effect on coping (Anderson & Arnoult, 1989). It has been suggested that previous use of unidimensional instruments to measure humor accounts for the weak results (Boyle & Joss-Reid, 2004), and diverse conceptualizations of both humor and well-being account for some of these inconsistencies between studies (Martin, 2004).

This study will attempt to reconcile these inconsistencies in two ways. First, by utilizing the HSQ (Martin et al., 2003), I will examine two positive and two negative styles of humor. By examining two seemingly adaptive humor styles and two seemingly maladaptive humor styles, I hope to better understand both the positive and negative implications of humor styles in relation to stress during retirement.

Second, I will examine the stress-moderating theory during a specific period of stress—retirement. In particular, I will be examining humor styles in relation to stress measures both proximal (hassle intensity) and distal (global retirement-specific stress) to the occurrence of humor among retirees.

Distinguishing Between Proximal and Distal Stress

By examining two humor styles identified as positive, and two humor styles identified as negative (Martin et al., 2003), I hope to better understand both the positive and negative implications of humor styles in relation to stress during retirement. To better understand this conceptualization of proximal and distal, consider the following: it is possible that someone might make light of a hassle, like paying overdraft fees at the bank. In this way the stress is temporally proximal to the occurrence of humor. However, this humor is more distal from a more pervasive stress like persistent financial troubles or a “tanking” national economy.

It has been suggested that humor as a coping strategy may be more salient with proximal stress than distal (Celso et al., 2003; Freeman & Ventis, in submission). Celso and colleagues (2003) point out that while humor appears to mitigate the stress of negative life events, in all probability it cannot change the nature of a pervasive stress.

Gender Differences

Many studies have examined the relationship between stress and health reporting numerous individual differences, however, gender has typically been a neglected variable in investigations of this relationship (Baruch, Biener, & Barnett, 1987). Nonetheless, gender differences have been found examining stress and health independently.

Gender has been reported to affect both stress perception and resulting coping behaviors. Numerous reports suggest that women report being in more stressful situations and have more chronic stress than men (Matud, 2004; McDonough & Walters, 2001). It has been suggested that traditional gender-roles may play a role in stress and coping differences as women typically serve as caregivers (Lee, 2001), may be more emotionally involved than men in social and family interactions (Kessler & McLeod, 1984), and experience more daily demands and frustrations (Matud, 2004).

Gender differences in health have also been consistently reported among older adults. There is a significant difference in mortality rates as women live about 6-8 years longer than men (WHO, 2000). Although women live longer, they also have higher morbidity rates compared to men their own age. This paradox of a lower mortality rate and higher impairments in mobility and functioning has been frequently reported (see Arber & Cooper, 1999). It has been suggested that gender differences in self-reported health may be the cause of reported disparities. However, a recent study gathered self-reported health data via interview of a sample of 544 community-dwelling participants over the age of 65. They found that gender differences were due to a worse health status

of women, rather than to differences in self-reports (Orfila, Ferrer, Lamarca, Tebe, Domingo-Salvany, & Alonso, 2006).

Research examining humor as a moderator between stress and health have either not found or not reported gender differences (Anderson & Arnoult, 1989; Boyle & Joss-Reid, 2004; Nezu et al., 1988; Porterfield, 1987). However, some gender differences have been found in the use of humor. Studies utilizing the HSQ have found that males report using both Aggressive and Self-defeating humor styles more often than females (Freeman & Ventis, in submission; Kazarian & Martin, 2004; Martin et al., 2003) or have found no gender differences at all (Erickson & Feldstein). In addition, studies have not reported any gender differences in coping humor scores (Anderson & Arnoult, 1989; Nezu et al., 1988).

Because gender appears to affect stress, health, and humor measures it may be worthwhile to explore if humor moderates the relationship between stress and health differently for males and females.

Controls for Humor and Stress

The need for stronger controls in correlational studies examining the relationship between humor and stress has been previously recognized in the literature (Martin, 2001, 2007). Therefore, in order to get a better understanding of the unique impact of humor on the perception of stress, I have incorporated several relevant control variables into this investigation.

Among the Big Five personality factors, Openness, Extraversion, and Neuroticism will be examined. Openness has been found to be related specifically to coping humor

styles (Martin et al., 2003). It has also been suggested that Extraversion should be controlled for in correlational research (Martin, 2001), as it has been found that Extraversion may be related to sense of humor (Kohler & Ruch, 1996) and more specifically, Self-enhancing and Affiliative humor styles (Martin et al., 2003). In addition, statistical control of Neuroticism has been advised because of its negative relationship with both adaptive humor styles (Martin et al., 2003) and coping measures in general, as well as a relationship to measures of stress (Smith, Pope, Rhodewalt, & Poulton, 1989). The purpose is to determine whether humor has an effect on stress, above and beyond the influences of these three personality variables.

It has also been suggested that Self-enhancing and Affiliative humor are positively correlated with satisfaction with social support (Martin et al., 2003). Likewise, satisfaction with social support has been found to buffer against the adverse effects of stress (Koenig, Westlund, George, Hughes, Blazer, & Hybels, 1993) and is a strong predictor of happiness and life satisfaction (see Diener & Seligman, 2004). Because social support is correlated with both positive humor styles and coping, it is essential to control for social support to partial out its effects on both variables.

Additionally, I will be controlling for optimism and positive affect. Previous studies have found strong correlations between optimism and humor (Kohler & Ruch, 1996; Martin et al., 2003). Positive affect has been shown to be correlated with coping humor and the Self-enhancing humor style in particular (Kuiper et al., 2004). Once again, I would like to examine to what extent positive humor styles are related to stress apart from the influences of optimism and positive affect.

Finally, negative life events and positive life events will be included as control measures. Negative life events are usually indicative of higher stress. Negative stress has been found to have a negative correlation with overall wellness (Anderson & Arnoult, 1989), while positive life events have been found to buffer against high levels of stress (Cohen & Hoberman, 1983)

In order to better understand the distinct role of humor in relation to both distal and proximal stress measures, this study will include all eight of these previously described control measures targeting these constructs.

Aims of Current Study

In summary, this study seeks to broaden the depth of knowledge of both humor and retirement stress by clarifying the stress-moderating theory of humor on health. First, I hypothesize that the two adaptive humor styles, especially Self-enhancing humor, will be negatively correlated with stress and poor health. Second, I expect that the two maladaptive humor styles will be positively correlated with stress and poor health. Finally, it is expected that humor styles will act as a moderator of stress that is both proximal to humor (daily hassles) and stress that is more distal (retirement stress) on overall health. Specifically, adaptive humor styles are expected to boost health scores, especially during periods of high stress or high hassles (as opposed to low stress or low hassles). On the other hand, maladaptive humor styles are expected to have the opposite effect. Reports of high use of negative humor styles are expected to diminish positive health outcomes, especially during periods of high stress.

Exploratory analysis will be conducted on gender differences. It is expected that humor will moderate the relationship between stress and health such that high scores on both adaptive humor styles will be associated with higher health scores, especially during periods of high stress or high hassles (as opposed to low stress or low hassles). On the other hand, high scores of both maladaptive humor styles are expected to be associated with poorer health outcomes, especially during periods of high stress. However, given that females experience more daily hassles and have a higher rate of morbidity than males, it is expected that the specific stress and health relationship that is moderated by humor may differ depending on gender.

Method

Participants

With the help of the College of William & Mary's Alumni Association, approximately 5900 William & Mary alumni who graduated prior to 1976 were invited to complete the online survey if they were both over the age of 55 and retired. The survey site was visited 674 times following the email invitation. Of the 674 site visits, 323 individuals consented (351 site visits did not result in participation). Of the 323 consenting participants, 10 surveys were incomplete and 48 individuals were not retired, leaving a final sample size of 265 retired adults ranging from 55 – 91 years of age.

The mean age of the sample is 67.48 years ($SD = 7.293$). One hundred and twenty-one (45.7%) participants were female and 143 (54.0%) were male and one respondent (.4%) did not specify a gender. The mean age of males was 68.99 years ($SD = 7.074$) and the mean age of females was 65.58 ($SD = 6.989$).

This sample is predominantly Caucasian ($n = 260, 98.1\%$). One participant represented Multiple Ethnicity (0.4%), and four respondents did not provide ethnicity information (1.5%).

Due to the manner of recruitment, this sample was highly educated. Nearly half of the respondents had completed masters-level degrees ($n = 113, 42.6\%$). The second highest degree attained was 4-year college degree ($n = 103, 38.9\%$), followed by doctorate ($n = 47, 17.7\%$) and 2-year college degree ($n = 2, 0.8\%$).

Measures

Humor Measure

Humor Styles Questionnaire (HSQ; Martin, Phulik-Doris, Larsen, Gray & Weir, 2003).

The HSQ is a 32-item questionnaire that assesses four different styles of humor.

Respondents indicate on a seven-point Likert scale the degree to which they agree or disagree with each item. Self-enhancing and Affiliative humor styles were identified as two facilitative humor styles and Aggressive and Self-defeating humor styles were identified as the two deleterious styles. The Self-enhancing dimension involves the use of humor as a coping mechanism. Items assessing each of the humor styles follow: “If I’m by myself and I’m feeling unhappy, I make an effort to think of something funny to cheer myself up” (Self-enhancing); “I laugh and joke a lot with my friends” (Affiliative); “I let people laugh at me or make fun at my expense more than I should” (Self-defeating); “If I don’t like someone, I often use humor or teasing to put them down” (Aggressive). The test-retest correlations are: 0.81 for Self-enhancing humor; 0.85 for Affiliative humor; 0.82 for Self-defeating humor; and 0.80 for Aggressive humor (Martin et al., 2003). In

the present sample, internal consistencies (Cronbach's α) for the Self-enhancing, Affiliative, Self-defeating, and Aggressive humor scales were 0.80, 0.86, 0.80, and 0.75, respectively.

Retirement Well-being Measures

Daily Hassles Scale (Kanner, Coyne, Schaefer & Lazarus, 1981). The Hassles scale measures the occurrence and intensity of 117 hassles that characterize everyday dealings with the environment. Daily hassles include: "inconsiderate smokers," "filling out forms," and "troublesome neighbors". Circling the hassle indicates occurrence of hassles. Intensity is measured on a three-point scale ranging from 1 (*somewhat severe*) to 3 (*extremely severe*). This scale provides an easy way to demonstrate an individual's need to cope. The test-retest correlation is 0.48 for hassles intensity (Kanner et al., 1981). The internal consistency coefficient (Cronbach's α) was .95 for the present study.

Self-Perceived Stress in Retirement Scale (Sharpley, 1997). The Self-perceived Stress in Retirement Scale measures the amount of stress a retiree experiences on a day-to-day basis. The scale presents 14 items including "Your physical health," "Loss of purpose," and "Boredom," which are rated on a five-point scale ranging from 1 (*little to no stress*) to 5 (*extreme stress*). Scale validity has been reported as 0.54 (Sharpley, 1997). For the present study, the internal consistency coefficient (Cronbach's α) was 0.80.

RAND 36-Item Short Form Health Survey (SF-36); Hays, Sherbourne, & Mazel, 1993). The SF-36 is a 36-item survey that assesses both physical and mental health. Each item is scored on a 0 to 100 range so that the higher number represents a more favorable health state. Items intended to measure physical health include: physical functioning, pain,

general health, and role limitations due to physical problems. Items designed to measure mental health include: energy/vitality, social functioning, emotional wellbeing, and role limitations due to emotional problems. Many psychometric analyses have been published on the SF-36 reporting good reliability and validity. Analysis of the present study indicates high internal consistencies (Cronbach's α) ranging from 0.70 to 0.89.

Control Measures

Big Five Inventory (BFI; Martinez & John, 1998). BFI is a 44-item inventory that measures five broad personality dimensions on a 1-5 scale (1 = *disagree strongly*, 5 = *agree strongly*). The five dimensions measured are: Neuroticism, Extraversion, Agreeableness, Conscientiousness and Openness. This measure is included to control for Extraversion, Openness, and Neuroticism. Good reliability and validity have been reported for the BFI scales. Internal consistencies (Cronbach's α) ranging from 0.79 to 0.84 were found in the present study.

Duke Social Support Index (DSSI; Landerman, George & Campbell, 1989; Koenig, Westlund, George, Hughes, Blazer & Hybels, 1993). The DSSI is an 11-item scale answered on a 4-point Likert-type scale. The DSSI assesses the amount of family and friend support available to the respondents. The amount of social support is just one of the factors that impacts retirement adjustment. Good validity has been reported for this measure (Koenig et al., 1993). In the present study, the internal consistency coefficient (Cronbach's α) was 0.71.

Life Experiences Survey (LES; Sarason, Johnson & Siegel, 1978). The LES score is significantly related to a number of stress-related dependent measures. It provides a list of

50 events that bring about change in life and require social adjustment (e.g., “Retirement from work”). The 7-point Likert scale assesses the impact or lack of impact each event has had (-3 = *extremely negative*, +3 = *extremely positive*). The LES has moderate test-retest reliability. The test-retest reliability coefficients for the positive change, negative change, and total change scores have been reported to be 0.51, 0.88, and .64, respectively (Sarason et al., 1978).

Life Orientation Test (LOT-R; Scheier, Carver & Bridges, 1994). LOT is a 10-item test, of which 6 items are scored. Four items are fillers. Respondents are asked to indicate the extent to which they agree with the items on a 5-point scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). It is designed to distinguish optimism from neuroticism. It will be used to control for optimism. The LOT has been reported to have good predictive reliability. The internal consistency coefficient (Cronbach’s α) was 0.81 in the present study.

Positive and Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 1988). The PANAS consists of two 10-item scales (20 items total) designed to assess levels of positive affect (PA) and negative affect (NA). Respondents indicate the extent to which they have felt each item during the past few weeks on a 5-point scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). It is included to control for positive affect. Test-retest reliability ranges from 0.47 to 0.68 for PA and from 0.39 to 0.71 for NA (Watson et al., 1988). The scales also have good convergent reliability with a range of 0.76 to 0.92. In the present study, the internal consistency coefficient (Cronbach’s α) for PA was 0.88.

Additional Measure

Demographics (DEMO). Items in the DEMO concerned general background information (e.g., gender and ethnicity) as well as the respondent's pre-retirement income.

Procedure

In this correlational study, all self-report surveys were compiled into a questionnaire packet or uploaded onto Opinio's online survey software. The survey took approximately 45 minutes to answer. Participants were encouraged to complete the survey independently, in a quiet location.

Results

Initial Analysis

Means and standard deviations of the humor, stress, and health measures for the entire sample, as well as for females and males separately, are presented on Table 1. Initial independent-measures *t*-tests revealed significant gender differences between means along humor, stress, and health variables. First, I will discuss analysis of the combined sample, followed by the outcomes of the individual gender differences.

Generally, the expected significant correlations between humor styles, stress, and health were found. The intercorrelations are presented in Table 2. For clarifying purposes correlations have been broken down into smaller tables as well. Looking at the correlations between humor styles and stress (see Table 3), as expected, both adaptive humor styles had negative correlations with the stress measures. Specifically, the Self-enhancing and Affiliative humor styles of the HSQ were significantly correlated with both stress measures. Self-enhancing humor had a moderate negative correlation with the

proximal measure of stress, Hassles Intensity ($r(256) = -.22, p < .001$) and a negative correlation with the more distal stress measure, Retirement Stress ($r(261) = -.25, p < .001$). Affiliative humor had a significant correlation with Hassles Intensity ($r(256) = -.13, p = .045$). Aggressive humor was not significantly correlated with the stress measures, but Self-defeating humor had a significant positive correlation with two of the hassles measures, as hypothesized (see Table 3).

Examining the correlations between humor styles and health (see Table 4), both adaptive humor styles had positive correlations with optimal health outcomes. Table 4 shows that Self-defeating humor was negatively correlated with Emotional Wellbeing, as hypothesized. However, Aggressive humor had a significant correlation with Pain, but not in the expected direction. Instead, it was positively correlated with optimal health outcomes on the Pain measure. This incongruity between expectations and outcomes for the two maladaptive humor styles will be elaborated upon in the Discussion.

All of the correlations between health outcomes and stress were significant, such that positive health outcomes were negatively correlated with stress and hassles intensity (see Table 5). These significant correlations demonstrate that there is indeed a strong relationship between health and stress and serve as a sturdy foundation on which to examine the moderating effects of humor.

Self-enhancing Humor as a Predictor Above and Beyond Controls

In order to replicate our previous findings, which indicated that Self-enhancing humor was a unique predictor of lower hassles intensity but not retirement stress (Freeman & Ventis, in submission), two separate hierarchical regressions were performed

using Self-enhancing humor and the eight control variables as predictors, and Hassles Intensity and Retirement Stress as two dependent variables. A list of all control variables is presented in Table 6, along with correlations with Self-enhancing humor and both stress measures.

Hierarchical regression with Hassles Intensity as dependent variable

In computing the first regression, the independent variables were entered in two stages. Eight control variables were entered into the regression in the first stage. In the second stage Self-enhancing humor, the variable we wanted to examine after the controls were entered, was entered into the regression. It was found that these eight independent variables alone were predictive of Hassles Intensity, $F(8, 252) = 9.85, p < .001$, with the controls accounting for 23.8% of the variance. When Self-enhancing humor was added to the regression, total variance only increased by .001% and the regression remained strongly predictive of Hassles Intensity at $F(8, 251) = 8.78, p < .001$. Self-enhancing humor was not a significant predictor of Hassles Intensity, $\beta = -.04, p = .533$ over and above the predictive power of the control variables (see Table 7).

Hierarchical regression with Retirement Stress as dependent variable

The second regression was performed using Retirement Stress as the dependent variable. Again, the eight control variables were entered first and Self-enhancing humor was entered into the regression at the second stage. The first stage demonstrated that the eight control variables were predictive of Retirement Stress, $F(8, 249) = 27.09, p < .001$, and accounted for 46.5% of the total variance. After adding Self-enhancing humor to the regression, the total variance only increased by .001% but the regression remained

strongly predictive of Retirement Stress at $F(9, 248) = 24.13, p < .001$. However, Self-enhancing humor alone was not a predictor of Retirement Stress in addition to the influence of the control variables, $\beta = -.04, p = .403$ (see Table 8).

Stress moderating effect of humor

Regression analyses were used to examine the stress moderating effect of humor. Moderator effects were examined as interactions between either stress or life hassles and the moderating variables—the four humor styles. For each of the eight health outcomes and for each of the four moderators, I assessed the main effects of stress (retirement stress or life hassles), the moderator, and their interaction. Only regressions for which significant interactions were found are described below, as these are the only instances in which a Humor Style was acting as a moderator between stress and health. For all regressions increasing scores on the y-axis represent optimal health outcomes.

Self-enhancing Humor as a Moderator

Hassles Intensity and Self-enhancing humor did not result in significant interactions across any health outcomes. Self-enhancing humor and Retirement Stress resulted in significant interactions for two health outcomes: Emotional Well-Being and Limitations due to Emotional Problems.

The regression of Emotional Well-Being on Retirement Stress at varying levels of Self-enhancing humor was significant ($F(3, 257) = 56.48, p < .001$). A significant interaction of Retirement Stress and Self-enhancing humor was found, indicating a moderating effect ($\beta = .15, p = .004$; see Table 9). The Retirement Stress \times Self-enhancing humor interaction is depicted in Figure 1. Under low stress, reports of

Emotional Well-Being were high and unaffected by humor style. However, when stress was high, retirees who reported high levels of Self-enhancing humor reported higher Emotional Well-Being than participants who reported low levels of Self-enhancing humor. This result supports the hypothesis that Self-enhancing humor would boost health scores, especially during periods of high stress.

The regression of Role Limitations due to Emotional Problems on Retirement Stress at differing levels of Self-enhancing humor was also significant ($F(3,256) = 19.19, p < .001$). The interaction between Retirement Stress and Self-enhancing humor was also significant ($\beta = .21, p = .001$; see Table 10). As demonstrated in Figure 2, when stress was low, seemingly contrary to its label as an adaptive form of humor, retirees who reported high levels of Self-enhancing humor reported more Role Limitations due to Emotional Problems than participants who reported low levels of Self-enhancing humor. Conversely, when stress was high, participants who reported higher levels of Self-enhancing humor experienced less Role Limitations due to Emotional Problems compared to those who reported low levels of Self-enhancing humor, appearing to fit its label as an adaptive humor style.

Affiliative Humor as a Moderator

Interactions were found using Affiliative humor as a moderator between both Retirement Stress and Hassles Intensity and various health outcomes.

The regression of General Health on Retirement Stress at differing levels of Affiliative humor was significant ($F(3, 257) = 18.23, p < .001$; see Table 11). The Retirement Stress \times Affiliative humor interaction was significant, denoting a moderating

effect, with $\beta = -.11, p = .047$. As depicted in Figure 3, during low stress contexts, high Affiliative humor appeared to be adaptive and related to better General Health outcomes. However, contrary to expectations, during high stress, high Affiliative humor was not related to better General Health outcomes. Retirees reporting low Affiliative humor use had slightly higher scores on the General Health measure. However, it is worth noting that when hassles were high the retirees with high Affiliative humor did not appear to differ too much from those reporting low Affiliative humor.

Next, the regression of Emotional Wellbeing on Hassles Intensity at differing levels of Affiliative humor was significant ($F(3, 252) = 28.98, p < .001$; see Table 12). The interaction of Hassles Intensity and Affiliative humor was significant along the Emotional Wellbeing health outcome ($\beta = -.16, p = .008$; see Figure 4). As illustrated in Figure 4, high Affiliative humor only appeared to be adaptive in the context of low hassles. Again, when hassles were high, the retirees with high Affiliative humor did not appear to differ from those reporting low Affiliative humor, contrary to the hypothesis.

The regression of Social Functioning on Hassles Intensity at differing levels of Affiliative humor was significant ($F(3, 252) = 10.99, p < .001$; see Table 13) and the interaction of Hassles Intensity and Affiliative humor was significant ($\beta = -.14, p = .028$). Figure 5 depicts a pattern similar to the regressions above. High Affiliative humor use appeared to be adaptive in low hassles contexts, but when hassles increased, low Affiliative humor appeared to be more adaptive.

Finally, the regression of Role Limitations Due to Emotional Problems on Hassles Intensity at differing levels of Affiliative Humor was significant ($F(3, 251) = 10.71, p <$

.001; see Table 14). The interaction of Hassles Intensity and Affiliative humor was significant, $\beta = -.157, p = .015$. Figure 6 shows that when hassles were low, retirees with high Affiliative humor did not appear to differ from those reporting low Affiliative humor. In high hassles situations, however, retirees with low Affiliative humor appeared to have less Role Limitations due to Emotional Problems.

Self-defeating Humor as a Moderator

Turning now to the maladaptive humor styles, two significant interactions were revealed with Self-defeating humor as a moderator.

The regression of Pain on Retirement Stress at differing levels of Self-defeating humor was significant ($F(3, 256) = 15.66, p < .001$; see Table 15). The Retirement Stress \times Self-defeating humor interaction was also significant ($\beta = .13, p = .024$). Figure 7 shows that in low stress situations, retirees with high self-defeating humor did not appear to differ too much from those reporting low self-defeating humor. In high stress situations, however, high self-defeating humor appeared to be adaptive, resulting in less reported pain. Retirees who use more self-disparaging humor report more optimal health outcomes along the Pain measure.

The regression of Pain on Hassles Intensity at differing levels of Self-defeating humor was significant ($F(3, 252) = 10.70, p < .001$; see Table 16). The interaction between Hassles Intensity and Self-defeating humor too was significant ($\beta = .14, p = .020$; see Figure 8). Once more, Self-defeating humor only appeared to be maladaptive when daily hassles were low. However, when daily hassles were high a higher Self-

defeating score was related to less reported pain, and thus appeared to have an adaptive quality for retirees.

Aggressive Humor as a Moderator

Three significant interactions were discovered using Aggressive humor as a moderator. First, the regression of Energy/Vitality on Hassles Intensity at differing levels of Aggressive humor was significant ($F(3, 253) = 17.50, p < .001$; see Table 17). There was a significant interaction between Hassles Intensity and Aggressive humor, $\beta = .14, p = .020$ (see Figure 9). Similar to the pattern observed with Self-defeating humor as a moderator, high Aggressive humor appeared to be maladaptive under low hassles. However, when the intensity of hassles was high, high aggressive humor appeared to have a more adaptive quality—high Aggressive humor was related to reports of higher reports of Energy/Vitality.

Just as with Self-defeating humor and stress, two significant interactions resulted from both proximal and distal stress and Aggressive humor along the dependent variable, Pain. The regression of Pain along Retirement Stress at differing levels of Aggressive humor was significant ($F(3, 257) = 17.92, p < .001$; see Table 18). The corresponding interaction of Retirement Stress \times Aggressive humor was significant, $\beta = .14, p = .015$ (see Figure 10). When stress was low, there did not appear to be a distinction between high and low Aggressive humor use. However, in contexts of high stress, higher use of Aggressive humor was related to optimal health outcomes along the Pain measure.

The regression analysis of Pain on Hassles Intensity at differing levels of Aggressive humor was significant ($F(2, 253) = 12.72, p < .001$; see Table 19). The

interaction of Hassles Intensity and Aggressive humor was significant at $\beta = .17, p = .006$. (see Figure 11). Again, when the intensity of daily hassles was low, there did not appear to be a distinction between high and low Aggressive humor use. However, in situations of high daily hassles, higher use of aggressive humor was related to optimal health outcomes along the Pain measure.

Further Exploration of Self-defeating and Aggressive Humor as Moderators of Pain

It seemed noteworthy that both negative uses of humor, Self-defeating humor and Aggressive humor, had the same trend for both proximal and distal stress along the same dependent variable—Pain. These were the only significant interactions that overlapped over the same x- (type of stress) and y- (Pain) axis. As a result, I investigated whether or not both interactions would hold up when entered into a regression simultaneously.

I first looked at distal stress. With Pain as the dependent variable, the main effects of the three independent variables (Self-defeating humor, Aggressive humor, and Retirement Stress), their two interactions (Self-defeating x Retirement Stress and Aggressive x Retirement Stress) and the resulting three-way interaction (Self-defeating x Aggressive x Retirement Stress) were examined. This inquiry was not significant.

In a separate analysis, again with Pain as the dependent variable, I examined the proximal stress. The main effects of the three independent variables (Self-defeating humor, Aggressive humor, and Hassles Intensity), their two interactions (Self-defeating x Retirement Stress and Aggressive x Hassles Intensity) and the resulting three-way interaction (Self-defeating x Aggressive x Hassles Intensity) were examined. This inquiry

was also not significant and subsequently did not provide any additional understanding of the moderating effect.

Gender Differences

Statistical examination of the combined sample demonstrated that the extent to which a humor style was adaptive depended on the stress context in which it was examined. As other contexts might result in similar patterns, I then examined whether gender, a dispositional factor, also affected the stress moderating effect of humor

Initial Analysis of Gender Differences

An independent *t*-test found that there was a significant difference in the use of Aggressive humor between genders ($t(261) = 7.49, p < .001$), with means for males ($M = 26.16, SD = 7.93$) higher than means for females ($M = 19.29, SD = 6.72$). There was also a significant difference in Self-defeating humor ($t(260) = -2.90, p = .004$), with means for males again exceeding means for females ($M = 25.96, SD = 7.73$ and $M = 23.01, SD = 8.69$, respectively). Unexpectedly, significant gender differences were found with use of Affiliative humor as well ($t(260) = 2.44, p = .015$), with means for males ($M = 43.85, SD = 8.21$) higher than means for females ($M = 41.08, SD = 10.15$). No gender differences were found for the use of Self-enhancing humor.

Gender differences were found in the amount of SPRS reported ($t(259) = -2.60, p = .010$), with females ($M = 22.83, SD = 6.29$) reporting more distal stress than males ($M = 21.00, SD = 5.09$). There were no gender differences found with Hassles Intensity.

Comparing males and females along the health outcomes, two significant differences were found. A significant difference was found in reported health on the Pain

outcome ($t(262) = 2.46, p = .015$), with males reporting more optimal health along this measure than females ($M = 79.16, SD = 16.33$ and $M = 73.57, SD = 20.61$, respectively). A significant difference was also found for Emotional Wellbeing ($t(262) = 2.05, p = .042$), again with means for males ($M = 83.90, SD = 13.17$) exceeding means for females ($M = 80.52, SD = 13.59$).

As with the combined sample, a hierarchical regression, examining genders separately, determined that Self-enhancing humor was not a significant predictor of Hassles Intensity or Retirement Stress for either males or females.

Regression analysis was again used to examine the stress moderating effect of humor separately for both males and females. After scores were centered separately for males and females, moderator effects were examined as interactions between either stress or life hassles and the moderating variables—the four humor styles. Only regressions for which significant interactions were found are described below.

Self-enhancing Humor as a Moderator by gender

Looking at Self-enhancing humor as a moderator, two regressions and their corresponding interactions were significant for the combined sample (as described previously): (a) the regression of Role Limitations due to Emotional Problems on Retirement Stress at varying levels of Self-enhancing humor; and (b) the regression of Emotional Wellbeing on Retirement Stress at varying levels of Self-enhancing humor.

Regressions were run separately by genders, and it was found that for both males and females the regression of Role Limitations due to Emotional Problems on Retirement Stress on varying levels of Self-enhancing humor was significant ($F(3, 136) = 9.33, p <$

.001; $F(3, 115) = 10.15, p < .001$, respectively). The Retirement Stress \times Self-enhancing humor interaction was significant for males, $\beta = .24, p = .004$ (see Figure 12). The interaction for females was significant at $\beta = .18, p = .045$ (see Figure 13).

The regression of Emotional Wellbeing on Retirement Stress at varying levels of Self-enhancing humor was also significant for males and females ($F(3, 137) = 32.21, p < .001$; $F(3, 115) = 22.94, p < .001$, respectively). However, the Retirement Stress \times Self-enhancing humor interaction was significant only for males at $\beta = .18, p = .011$ (see Figure 14). For females the moderation effect was only trending towards significance at $\beta = .13, p = .098$.

An additional significant moderation effect was found that was not observed in the collective sample. For males and females, the regression of Emotional Wellbeing on Hassles Intensity at varying levels of Self-enhancing humor was significant ($F(3, 139) = 15.60, p < .001$; $F(3, 116) = 14.40, p < .001$, respectively). However, the interaction was significant for males, $\beta = .17, p = .026$ (see Figure 15), but not females ($\beta = .08, p = .327$).

Plotted, the moderation effects have similar patterns to those demonstrated in the combined sample (see Figures 1 and 2). It appears from these findings (see Figures 12-15) that for both males and females, during low periods of stress and hassles the degree to which Self-enhancing humor is adaptive changes; sometimes high Self-enhancing humor is indistinguishable from low Self-enhancing humor, other times it appears to be less adaptive. On the other hand, during periods of high stress, higher Self-enhancing humor is consistently related to more optimal health outcomes.

Affiliative Humor as a Moderator by gender

As described previously, four regressions and their corresponding interactions were significant in the combined sample: (a) the regression of General Health on Retirement Stress at varying levels of Affiliative humor; (b) the regression of Role Limitations due to Emotional Problems on Hassles Intensity at varying levels of Affiliative humor; (c) the regression of Social Functioning on Hassles Intensity at varying levels of Affiliative humor; and (d) the regression of Emotional Well-being on Hassles Intensity at varying levels of Affiliative humor. Examination of gender differences suggests that females were the driving force behind these outcomes.

The regressions of General Health on Retirement Stress at varying levels of Affiliative humor were significant when males and females were examined separately ($F(3, 137) = 7.12, p < .001$; $F(3, 115) = 11.53, p < .001$, respectively). However, the Retirement Stress \times Affiliative humor interaction was not significant for either gender when examined separately, although it was significant for the combined sample. It is noteworthy that the Retirement Stress \times Affiliative humor interaction approached significance for females ($\beta = -.14, p = .098$), but not for males ($\beta = -.08, p = .312$).

For both males and females the regression of Role Limitations due to Emotional Problems on Hassles Intensity at varying levels of Affiliative humor was significant, but the Hassles Intensity \times Affiliative humor interaction was significant only for females. For females, the regression was significant at $F(3, 116) = 6.80, p < .001$, and the interaction was significant at $\beta = -.23, p = .016$ (see Figure 16).

Again, although the regression of Social Functioning on Hassles Intensity at varying levels of Affiliative humor was significant for both males and females, the moderating effect was only found for females. As such, the regression was significant for females at $F(3, 116) = 4.34, p = .006$, and the corresponding interaction (Hassles Intensity \times Affiliative humor) was significant with $\beta = -.27, p = .007$ (see Figure 17).

Finally, following the same pattern, the regression of Emotional Wellbeing on Hassles Intensity at varying levels of Affiliative humor was significant for both males and females, but the interaction was only significant for females and not males. For females, the regression was highly significant ($F(3, 116) = 12.97, p < .001$), and the interaction of Hassles Intensity \times Affiliative humor was significant at $\beta = -.18, p = .045$ (see Figure 18).

Plotted out, these interactions (see Figures 16-18) follow the pattern of the combined sample (see Figures 3-6). When stress and hassles are low, high Affiliative humor appears to be adaptive and related to more optimal health outcomes. When stress and hassles are high, on the other hand, high Affiliative humor is related to less optimal health outcomes, as compared with the mean and low Affiliative humor use.

Self-defeating Humor as a Moderator by gender

As described previously, in the combined sample, two significant interactions were revealed with Self-defeating humor as a moderator: (a) the regression of Pain on Hassles Intensity at differing levels of Self-defeating humor; and (b) the regression of Pain on Retirement Stress at differing levels of Self-defeating humor. Although, for both

males and females, the regression of Pain on Hassles Intensity at differing levels of Self-defeating humor was significant, no significant interaction was found for either gender.

For both males and females, the regression of Pain on Retirement Stress at differing levels of Self-defeating humor was significant. However, a significant interaction was found only for males. Reporting only the outcomes for males, the regression was significant at $F(3,137) = 5.14, p = .002$, and the interaction was significant at $\beta = .17, p = .042$ (see Figure 19).

In addition to the findings above that overlap with the analysis of the combined sample, examining the moderating effect of Self-defeating humor by gender revealed interesting effects along additional health outcomes.

Separate analysis of males and females revealed the regression of Social Functioning on Retirement Stress at varying levels of Self-defeating humor was significant for both genders, but the interaction of Retirement Stress and Self-defeating humor was only significant for males. Reporting the males only, the regression was significant, $F(3, 137) = 13.86, p < .001$, and the Retirement Stress \times Self-defeating humor interaction was significant, $\beta = .24, p = .003$ (see Figure 20).

Again, for both males and females, the regression of Role Limitations due to Physical Problems on Retirement Stress at varying levels of Self-defeating humor was significant, but only for males was the moderating effect of Self-defeating humor significant. Reporting only the results of the males, the regression was significant, $F(3, 134) = 10.24, p < .001$, and the interaction was significant, $\beta = .19, p = .019$ (see Figure 21).

These significant interactions found for males followed the same trend reported on the combined sample, such that Self-defeating humor only appeared maladaptive when stress was low. However, when stress was high a higher Self-defeating score was related to less reported Pain, and thus appeared to have an adaptive quality for retirees.

Turning now to moderating effects that were significant for females, four regressions were significant for males and females both, but the corresponding interactions were only significant for females. The regressions were: (a) the regression of Role Limitations due to Emotional Problems on Hassles Intensity on varying levels of Self-defeating humor; (b) the regression of Role Limitations due to Emotional Problems on Retirement Stress on varying levels of Self-defeating humor; (c) the regression of Social Functioning on Hassles Intensity on varying levels of Self-defeating humor; and (d) the regression of Emotional Wellbeing on Hassles Intensity on varying levels of Self-defeating humor.

For females, the regression of Role Limitations due to Emotional Problems on Hassles Intensity on varying levels of Self-defeating humor was significant, $F(3, 115) = 8.64, p < .001$ and the interaction Hassles Intensity \times Self-defeating humor was significant, $\beta = -.27, p = .003$ (see Figure 22). For males, this interaction approached significance ($\beta = .11, p = .097$). Surprisingly, during low hassles, high Self-defeating humor appears to be somewhat adaptive, and related to less Role Limitations due to Emotional Problems. However, as hypothesized, during high hassles, high Self-defeating humor appeared maladaptive and related to more Role Limitations due to Emotional Problems for female retirees.

The regression of Role Limitations due to Emotional Problems on Retirement Stress on varying levels of Self-defeating humor was significant for females ($F(3, 114) = 10.32, p < .001$). The interaction was significant, $\beta = -.18, p = .032$ (see Figure 23). Again, for males, the interaction approached significance ($\beta = .15, p = .059$). The interaction for females demonstrated a similar pattern to the one described in the preceding paragraph. During periods of low stress female retirees with high Self-defeating humor had optimal outcomes on the Role Limitations due to Emotional Problems measure and did not appear to differ from those with low Self-defeating humor. However, once stress was high, high Self-defeating humor appeared to be maladaptive and was related to more Role Limitations.

The regression of Social Functioning on Hassles Intensity on varying levels of Self-defeating humor was significant for females ($F(3, 115) = 4.99, p = .003$). The interaction was significant, $\beta = -.25, p = .007$ (see Figure 24). Plotted, this interaction demonstrates that high Self-defeating humor was related to more optimal Social Functioning when hassles were low. When hassles were high, high Self-defeating humor was related to poorer Social Functioning. Meanwhile, those with low Self-defeating humor remained rather stable with optimal Social Functioning even as stress increased from low to high.

Finally, for females the regression of Emotional Wellbeing on Hassles Intensity on varying levels of Self-defeating humor was significant at $F(3, 115) = 18.13, p < .001$. The interaction was significant, $\beta = -.18, p = .026$ (see Figure 25). Again, this interaction depicts the hypothesized moderating effect of Self-defeating humor, in stark contrast to

the observed outcomes of the collective sample and the interaction results of the males. For female retirees, when hassles were low, humor levels have no impact. However, once hassles were high, high Self-defeating humor was related to poorer Emotional Wellbeing, and appeared to be maladaptive.

By examining gender differences of Self-defeating humor as a moderator, the contextual nature of humor as a moderator is underscored. It appears that not only the level of stress and hassles determines the adaptiveness of a humor style, but gender as well.

Aggressive Humor as a Moderator by gender

As described previously, three regressions and their corresponding interactions were significant for the combined sample: (a) the regression of Energy/Vitality on Hassles Intensity at differing levels of Aggressive humor; (b) the regression of Pain along Hassles Intensity at differing levels of Aggressive humor; and (c) the regression of Pain along Retirement Stress at differing levels of Aggressive humor. Examining the moderation effect of Aggressive humor by gender, similar results were revealed.

For both males and females the regression of Energy on Hassles Intensity on varying levels of Aggressive humor was significant ($F(3, 139) = 4.57, p = .004$; $F(3, 116) = 16.71, p < .001$, respectively). The interaction for males was not significant. The interaction for females was significant, $\beta = .25, p = .002$ (see Figure 26). This figure mirrors the combined finding.

For only females the regression of Pain on Hassles Intensity on varying levels of Aggressive humor was significant ($F(3, 116) = 6.89, p < .001$). The corresponding

interaction was significant, $\beta = .23$, $p = .009$ (see Figure 27). For females, the moderation effect mirrors that found in the combined sample.

For both males and females the regression of Pain on Retirement Stress on varying levels of Aggressive humor was significant, but neither gender showed a significant moderating effect of Aggressive humor.

Analyzing by gender, two additional significant interactions were found for males, but not females. For males the regression of Role Limitations due to Emotional Problems on Retirement Stress on varying levels of Aggressive humor was significant ($F(3, 136) = 9.69$, $p < .001$). The interaction was significant, $\beta = .23$, $p = .005$ (See Figure 28). Contrary to the hypothesis, but following a now clear trend, high Aggressive humor, rather than low Aggressive humor appeared to be adaptive when stress was high—and related to less Role Limitations due to Emotional Problems for male retirees.

The regression of Social Functioning on Retirement Stress on varying levels of Aggressive humor was also significant for males ($F(3,137) = 15.02$, $p < .001$). The interaction was significant, $\beta = .22$, $p = .004$ (See Figure 29). This interaction shows that Social Functioning is unrelated to high or low Aggressive humor when stress was low. When stress was high, however, high Aggressive humor appeared to have an adaptive quality for male retirees.

Discussion

In this study I aimed to examine further the relationship between humor and stress in retirement. My primary analysis was aimed at understanding the moderating effect of humor on the relationship between stress and measures of health. As a secondary inquiry,

I attempted to replicate a previous finding that humor is a unique buffer to retirement stress after controlling for variables that have been consistently linked with humor.

Self-enhancing Humor Not A Unique Predictor

I did not replicate my previous finding that humor is a more salient coping strategy with proximal stress (Hassles Intensity) than with distal stress (Retirement Stress; Freeman & Ventis, in submission). In a recent study I found that Self-enhancing humor correlated significantly with both stress measures (Freeman & Ventis, in submission). Moreover, Self-enhancing humor remained uniquely predictive with proximal stress once eight control variables were factored in (Freeman & Ventis, in submission). However, in the present investigation, once the eight controls were factored in, Self Enhancing Humor did not remain uniquely predictive of either the proximal stress, as measured by Hassles Intensity, or Retirement Stress.

Failure to replicate this previous finding, in both the combined sample and by gender, may be a function of the unique sample of retirees in the current study. Whereas data for the previous study were collected from a wide range of locations including the community, assisted living facilities, and retirement communities, the current research pulled from an email listing of college graduates. More than 60% of this sample acquired additional education beyond a four-year college degree. In addition, the 265 retirees that comprised the current sample were all comfortable enough with computers to complete a lengthy 45 minute online-survey, which was not true of the earlier sample. It appears that these well-educated, upper middle class participants may not need to rely as much on humor when dealing with stress. Highly educated, wealthy individuals tend to be buffered

from negative life experiences (Baltes & Lang, 1997) and may have a wealth of other coping strategies to choose from. This is plausible, given that humor is an emotional coping strategy, which makes the best of a stress one cannot change.

Failure to replicate the unique predictive power of humor with this educated and computer-savvy sample also underscores the complexity of humor. More research involving diverse samples should be conducted to fully understand the impact of humor, as it appears to have more of an impact for some groups than others. Consequently, further examination of Self-enhancing humor in relation to both proximal and distal stress is highly recommended.

Humor as a Moderator

The plotted interactions of the collective sample suggest that the “adaptiveness” of humor styles depends on the level (low or high) of stress or hassles one perceives. These results suggest that it may not be adequate to label a humor style as simply adaptive or maladaptive. It was found that Self-enhancing humor only appears to be truly adaptive in situations of high stress. In low stress situations, however, retirees with high Self-enhancing humor did not appear to differ from those reporting low Self-enhancing humor. In this way, the adaptiveness of the humor style appears to be contextual.

Similarly, in the combined sample, Self-defeating humor appears only maladaptive when daily hassles are low. However, when daily hassles are high a higher Self-defeating score is related to less Pain, and thus appears to have an adaptive quality. This is a consistent pattern when examining the Aggressive humor style as well. Thus, it

seems that the extent to which Self-defeating and Aggressive humor are maladaptive is truly situational.

Comparison of the moderation effect by gender has revealed a dispositional variable that affects the adaptiveness of a humor style—gender—although Self-defeating humor is the only humor style for which males and females displayed divergent outcomes. However, this consistent pattern of divergence between genders (across multiple health outcomes) underscores the importance of examining genders separately when exploring adaptiveness in the use of humor. Males followed the pattern of the combined sample, such that a high Self-defeating humor score was adaptive during high stress/hassles. Females, on the other hand, displayed the hypothesized pattern, such that a high Self-defeating humor score was more maladaptive when stress/hassles were high.

These results call attention to the importance of examining both contextual and person variables before labeling a humor style as “adaptive” or “maladaptive.” It appears that something as basic as gender might indicate the extent to which a humor style serves as an adaptive or maladaptive mechanism when dealing with stress and health. Perhaps age is another such relevant person variable.

These findings have interesting implications for the HSQ (Martin et al., 2003). The HSQ is a constructive acknowledgement that humor is not a unitary construct, but multi-faceted, including both positive and adaptive, as well as negative and maladaptive styles. However, the results of the present research imply that even the addition of positive and negative humor styles is not a sufficient acknowledgement of humor’s complexity. It appears that the adaptiveness of the humor styles may not be an all-or-

none phenomenon, but that adaptiveness or maladaptiveness of a given style may be a function of both contextual (e.g., high or low stress) and dispositional variables (e.g., gender). However, again, it should be kept in mind that this sample of retirees is comprised of well-educated college graduates from the same undergraduate institution. Future research should attempt to collect a more diverse sample to see if these results will be replicated. Moreover, further understanding of the contextual nature of the adaptiveness of humor styles may benefit from looking at different contexts. In this study daily hassles and stress were examined, but it may be that differing levels of self-esteem or anxiety also produce similar patterns that highlight the contextual nature of the humor styles.

Examining these moderation effects does not only reveal information about humor as a moderating effect, but intimates information about the general nature of these humor styles as well. For instance, in examination of Figures 4-6, it appears that Affiliative humor is just a more natural humor style in a low stress context. This humor style is consistently, and significantly, positively associated with cheerfulness, psychological wellbeing, and social intimacy (Martin et al., 2003), as well as harmony, sharing, and mutual happiness among in-group members (Kazarian & Martin, 2004). So while this humor may be adaptive in terms of enhancing social supports and relationships, it does not appear to be as effective in terms of directly coping with stress or health. Further investigation of situations that require adaptation, other than health, may further our understanding of the adaptiveness of Affiliative humor.

Taking a broader look at the moderating effects of the negative humor styles, it

could be argued that the use of Self-defeating and Aggressive humor styles may just be an acknowledgement of one's circumstances under high stress or high hassles (see Figures 7-9). In this way, the difference between high and low use of the negative humor styles during high stress situations may reflect a tendency to express or communicate feelings and awareness of discomfort as opposed to a tendency to suffer in silence. It may be that the communication of discomfort, although negative towards others (Aggressive humor) or oneself (Self-defeating) may be cathartic because the individual is simply expressing that there is a problem. Indeed, actively suppressing one's negative emotional experience has been related to the development of health problems (Pennebaker, 1992). Whereas Self-enhancing humor is adaptive because one is cognitively reappraising a stressful situation, the adaptiveness of the negative styles may function in a different way—by merely acknowledging or confronting a negative circumstance via humor.

As always, it is a concern with correlational data, that causality cannot be demonstrated, but if the relationship is causal, it may not be clear which variable is the cause and which is the effect. The present study proposes that changes in health outcomes in reaction to stress may be alleviated or exacerbated by the use of humor. This study is a partial replication of Nezu and colleagues (1988). Going beyond the correlational methodology used in the present study, Nezu et al. (1988) used a more rigorous prospective design to test this relationship. They reported finding humor as a moderator between stressful events and depressive symptoms (Nezu et al., 1988). Similarly, the present study found more significant results with mental health measures than the truly physical ones.

Interpreting Unexpected Correlations

Correlations that have not been previously reported, were revealed with this current sample. First, the Aggressive humor style had a significant positive correlation with Pain, contrary to expectations for a negative correlation with the health measures. On the other hand, Self-defeating humor, the other negative humor style, had an expected negative correlation with the health measures.

The moderating effect of Aggressive humor appears to support the positive correlation. Reports of high use of Aggressive humor appeared to be more adaptive in periods of high stress in both the combined sample and among the separate genders. However, this effect may not be entirely satisfying as an explanation. The Self-defeating humor style was negatively correlated with Emotional Wellbeing, as expected, and among the combined sample and males, appeared to have the same adaptive quality in high stress/hassles as Aggressive humor. Although the unexpected positive correlation between Aggressive humor and Pain appears to be indicative of a genuine moderating effect and not a mere anomaly, future research may clarify this finding.

An unpredicted significant gender difference with use of Affiliative humor was also revealed, as males reported more use of Affiliative humor than females. To my knowledge this has not been reported in previous studies using the HSQ. A brief inquiry into previous literature has revealed two common outcomes regarding gender differences on the HSQ. The most common finding is that males use the Self-defeating and Aggressive humor styles more than females, but no significant gender differences emerged with the Self-enhancing and Affiliative humor styles (Kazarian & Martin, 2004;

Martin et al., 2003). Otherwise, studies indicate that there are no gender differences across all four humor styles (Erickson & Feldstein; Martin & Lefcourt, 1983).

It is not entirely clear why in the current sample gender differences were found along the Affiliative humor measure. It is worth mentioning that the studies mentioned above utilized mostly college-aged samples. It may be that elderly males typically use more Affiliative humor, or this finding may be unique to this sample. Further research should be done to examine the use of humor among diverse elderly samples to clarify this unexpected outcome.

Limitations

As alluded to above, one limitation of this study is that stress measures were collected at a single time point. The use of ecological momentary assessments (EMAs), in which participants are reminded throughout the day to record immediate experiences, may reveal more information on proximal stress in particular. Previous studies have found that elderly individuals do not report as many hassles as younger adults (Aldwin et al., 1996). Perhaps it may be more difficult for older individuals to recall hassles retrospectively. It has also been suggested that the number of hassles decrease as the number of social roles decrease in old age (Aldwin, 2007). Alternatively, hassles from other sources, such as diminishing abilities and loss of acquaintances may increase for the elderly. The use of EMAs may help determine whether hassle reports decrease in older samples.

Likewise, Gottlieb and Wolfe (2002) promote study designs that facilitate observation of coping as it unfolds over time. Again the use of EMAs could prompt real-

time assessment of the use of humor as a coping strategy in conjunction with hassle and stress reports. A study utilizing EMA could then illuminate both real-time stress as well as the strategies used to cope with them.

Finally, these results should only be generalized to a very well-educated, Caucasian, elderly retired population. Future studies could examine these humor styles in relation to both proximal and distal stress measures among other, more diverse samples.

Future Directions

This line of research—investigating the stress and health buffering capacity of different humor styles—is designed to set the groundwork for more applied research designs in the future. For example, as adaptive consequences of differing humor styles are clarified in different contexts, future studies may test the feasibility of teaching coping humor to retirees for whom it is low or to reinforce coping humor in individuals who may use this style only in select instances. A previous study has proved that humor can be used to alter an emotional response in a therapeutic context (Ventis, Higbee, & Murdock, 2001). Ventis and colleagues found that humor can be effectively used to desensitize phobias and reevaluate a fear. The findings of Ventis and colleagues may have implications for the development of retirement transition groups designed to help individuals reassess affective response using humor. If humor can be introduced to reduce fear, it may be that humor can also be introduced to help relieve stress and help retirees reappraise daily life hassles as well.

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Table 1

Means and Standard Deviations for Humor, Stress, and Health Measures

	Combined		Male		Female	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Affiliative humor	42.57	9.21	43.85	8.21	41.08	10.14
Self-enhancing humor	40.11	7.55	39.82	7.09	40.44	8.11
Aggressive humor	22.98	8.16	26.16	7.93	19.29	6.72
Self-defeating humor	24.67	8.31	25.96	7.73	23.01	8.69
Retirement Stress	21.84	5.73	21.00	5.09	22.83	6.29
Hassles Intensity	1.15	0.28	1.12	0.28	1.18	0.27
General Health	68.16	19.93	68.25	18.91	68.00	21.23
Physical Functioning	80.56	20.32	82.08	19.15	78.90	21.61
Role Limitations (Physical)	79.13	31.51	82.56	28.60	75.00	34.31
Role Limitations (Emotional)	88.95	24.25	89.55	22.69	88.15	26.13
Energy/Vitality	65.25	19.57	66.29	19.12	64.06	20.18
Social Functioning	91.18	16.98	92.31	15.62	89.77	18.47
Pain	76.57	18.56	79.16	16.33	73.57	20.61
Emotional Wellbeing	82.36	13.42	83.90	13.17	80.52	13.59

Table 2

Intercorrelations Between Subscales of Humor Styles, Stress, and Subscales of Health

	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Aff	.490**	.144*	.324**	.100	-.126*	.075	.020	-.066	-.016	.074	.033	.038	.142*
2. SE		.005	.169**	-.251**	-.216**	.169**	.051	.065	.120	.198**	.119	.132*	.289**
3. Agg			.391**	-.035	-.118	-.036	.085	-.019	.010	.052	.079	.133*	-.063
4. SD				.114	.051	-.068	-.007	-.066	-.029	-.130	-.050	-.008	-.231**
5. SPRS					.507**	-.402**	-.302**	-.409**	-.382**	-.485**	-.432**	-.372**	-.593**
6. HI						-.252**	-.198**	-.232**	-.297**	-.391**	-.313**	-.306**	-.478**
7. GH							.581**	.484**	.278**	.554**	.428**	.481**	.381**
8. PF								.547**	.266**	.564**	.462**	.544**	.245**
9. Lim PH									.414**	.498**	.583**	.584**	.284**
10. Lim EH										.348**	.423**	.267**	.446**
11. Vitality											.550**	.591**	.568**
12. SF												.544**	.476**
13. Pain													.286**
14. EWB													---

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

Note: Aff = Affiliative Humor, SE = Self-enhancing Humor, Agg = Aggressive Humor, SD = Self-defeating Humor, SPRS = Retirement Stress, HI = Hassles Intensity, GH = General Health, PF = Physical Functioning, Lim PH = Role Limitations due to Physical Health, Lim EH = Role Limitations due to Emotional Health, SF = Social Functioning, EWB = Emotional Well-being

Table 3

Correlations Between Humor Styles and Proximal and Distal Stress

	Hassle Intensity	Hassle Frequency	Hassle Sum	Retirement Stress
Humor Style				
Self-enhancing	-.216**	-.118	-.155*	-.251**
Affiliative	-.126*	-.031	-.059	.100
Aggressive	-.118	.064	.024	-.035
Self-defeating	.051	.165**	.155*	.154

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

Table 4

Correlations Between Health and Humor Styles

	Self-Enhancing Humor	Affiliative Humor	Self-Defeating Humor	Aggressive Humor
General Health	.169**	.075	-.068	-.036
Physical Functioning	.051	.020	-.007	.085
Limitations (Physical)	.065	-.066	-.006	-.019
Limitations (Emotional)	.120	-.016	-.029	.010
Energy/Vitality	.198**	.074	-.130	.052
Social Functioning	.119	.033	-.050	.079
Pain	.132*	.038	-.008	.133*
Emotional Well-being	.289**	.142*	-.231**	-.063

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

Table 5

Correlations Between Health and Stress

	Hassles Intensity	Retirement Stress
General Health	-.252**	-.402**
Physical Functioning	-.198**	-.302**
Role Limitations due to Physical Health	-.232**	-.409**
Role Limitations due to Emotional Health	-.297**	-.382**
Vitality	-.391**	-.485**
Social Functioning	-.313**	-.432**
Pain	-.306**	-.372**
Emotional Well-being	-.478**	-.593**

** $p < .01$

Table 6

Correlations Between Control Measures, Self-enhancing Humor and Proximal and Distal Stress

	Self-enhancing Humor	Hassles Intensity	Retirement Stress
Social support	.226**(264)	-.043* (265)	-.325***(262)
Optimism	.258***(264)	-.221**(265)	-.376***(262)
Negative LES	-.132* (264)	.303***(265)	.478***(262)
Positive LES	.070 (264)	-.152** (265)	.066 (262)
Extraversion	.313***(263)	-.200**(264)	-.162** (261)
Openness	.247*** (262)	.042 (263)	.071 (260)
Neuroticism	-.368*** (263)	.419*** (264)	.559***(261)
Positive Affect	.339*** (263)	-.146* (264)	-.245***(261)

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 7

Summary of Hierarchical Regression Analysis for Variables Predicting Hassles Intensity

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Social support	.006	.005	.086
Optimism	.003	.005	.048
LES Positive	.006	.005	.068
LES Negative	-.013	.004	.207**
Extraversion	-.006	.003	-.130
Neuroticism	.016	.003	.347***
Openness	.005	.003	.102
Positive Affect	-.003	.003	-.085
Step 2			
Social support	.006	.005	.084
Optimism	.004	.005	.049
LES Positive	.006	.005	.070
LES Negative	-.013	.004	.205**
Extraversion	-.005	.003	-.124
Neuroticism	.015	.003	.337***
Openness	.005	.003	.106
Positive Affect	-.003	.003	-.079
Self-enhancing humor	-.001	.002	-.039

Note. $R^2 = .238$, $p < .001$ for Step 1; $\Delta R^2 = .001$ (ns) for Step 2

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 8

Summary of Hierarchical Regression Analysis for Variables Predicting Retirement Stress

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Social support	-.155	.084	-.106
Optimism	-.082	.083	-.055
LES Positive	-.066	.083	-.040
LES Negative	-.390	.067	.297***
Extraversion	.041	.050	.046
Neuroticism	.391	.055	.417***
Openness	.149	.049	.156**
Positive Affect	-.089	.048	-.111
Step 2			
Social support	-.158	.084	-.108
Optimism	-.081	.083	-.055
LES Positive	-.062	.083	-.037
LES Negative	-.386	.067	.294***
Extraversion	.047	.051	.052
Neuroticism	.380	.056	.405***
Openness	.154	.049	.162**
Positive Affect	-.084	.049	-.104
Self-enhancing humor	-.033	.040	-.044

Note. $R^2 = .465$, $p < .001$ for Step 1; $\Delta R^2 = .002$ (ns) for Step 2

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 9

Summary of Regression Analysis Between Self-enhancing Humor, Retirement Stress, and Emotional Well-Being

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Self-enhancing Humor (A)	.256	.089	.145**
Retirement Stress (B)	-1.199	.123	-.513***
A X B	.045	.015	.151**

Overall $F = 56.482, df = 3,257, p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 10

Summary of Regression Analysis Between Self-enhancing Humor, Retirement Stress, and Role Limitations Due to Emotional Problems

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Self-enhancing Humor (A)	.102	.186	.032
Retirement Stress (B)	-1.290	.259	-.307***
A X B	.109	.032	.205***

Overall $F = 19.194$, $df = 3, 256$, $p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 11

Summary of Regression Analysis Between Affiliative Humor, Retirement Stress, and General Health

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Affiliative Humor (A)	.080	.124	.037
Retirement Stress (B)	-1.392	.198	-.399***
A X B	-.048	.024	-.114*

Overall $F = 18.227, df = 3, 257, p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 12

Summary of Regression Analysis Between Affiliative Humor, Hassles Intensity, and Emotional Wellbeing

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Affiliative Humor (A)	.107	.079	.074
Hassles Intensity (B)	-34.345	3.830	-.528***
A X B	-.985	.367	-.157**

Overall $F = 10.988$, $df = 3,252$, $p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 13

Summary of Regression Analysis Between Affiliative Humor, Hassles Intensity, and Social Functioning

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Affiliative Humor (A)	-.036	.110	-.019
Hassles Intensity (B)	-30.424	5.310	-.368***
A X B	-1.124	.509	-.141*

Overall $F = 10.988$, $df = 3, 252$, $p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 14

Summary of Regression Analysis Between Affiliative Humor, Hassles Intensity, and Role Limitations Due to Emotional Problems

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Affiliative Humor (A)	-.158	.159	-.060
Hassles Intensity (B)	-43.408	7.692	-.363***
A X B	-1.810	.737	-.157*

Overall $F = 10.713$, $df = 3,251$, $p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 15

Summary of Regression Analysis Between Self-defeating Humor, Retirement Stress, and Pain

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Self-defeating Humor (A)	.064	.129	.029
Retirement Stress (B)	-1.207	.186	-.375***
A X B	.045	.020	.131*

Overall $F = 15.661$, $df = 3,256$, $p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 16

Summary of Regression Analysis Between Self-defeating Humor, Hassles Intensity, and Pain

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Self-defeating Humor (A)	-.046	.134	-.021
Hassles Intensity (B)	-26.242	5.392	-.291***
A X B	1.314	.562	.141*

Overall $F = 10.704$, $df = 3, 252$, $p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 17

Summary of Regression Analysis Between Aggressive Humor, Hassles Intensity, and Energy

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Aggressive (A)	-.050	.137	-.021
Hassles Intensity (B)	-33.513	5.688	-.354***
A X B	1.431	.609	.141*

Overall $F = 17.500, df = 3, 253, p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 18

Summary of Regression Analysis Between Aggressive Humor, Retirement Stress, and Pain

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Aggressive (A)	.253	.130	.111
Retirement Stress (B)	-1.117	.185	-.346***
A X B	.049	.020	.141*
Overall $F = 17.920, df = 3, 257, p < .001$			
* $p < .05$ ** $p < .01$ *** $p < .001$			

Table 19

Summary of Regression Analysis Between Aggressive Humor, Hassles Intensity, and Pain

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Aggressive (A)	.178	.134	.079
Hassles Intensity (B)	-22.559	5.545	-.250***
A X B	1.659	.594	.172**

Overall $F = 12.720$, $df = 3,253$, $p < .001$

* $p < .05$ ** $p < .01$ *** $p < .001$

Figure Captions

Note: For all Figures, increasing scores along the y-axis indicate more optimal health outcomes.

Figure 1. Regression lines predicting Emotional Wellbeing scores from Retirement Stress at varying levels of Self-enhancing humor.

Figure 2. Regression lines predicting Role Limitations due to Emotional Problems scores from Retirement Stress at varying levels of Self-enhancing humor.

Figure 3. Regression lines predicting General Health scores from Retirement Stress at varying levels of Affiliative humor.

Figure 4. Regression lines predicting Emotional Wellbeing scores from Hassles Intensity at varying levels of Affiliative humor.

Figure 5. Regression lines predicting Social Functioning scores from Hassles Intensity at varying levels of Affiliative humor.

Figure 6. Regression lines predicting Role Limitations due to Emotional Problems scores from Hassles Intensity at varying levels of Affiliative humor.

Figure 7. Regression lines predicting Pain scores from Retirement Stress at varying levels of Self-defeating humor.

Figure 8. Regression lines predicting Pain scores from Hassles Intensity at varying levels of Self-defeating humor.

Figure 9. Regression lines predicting Energy/Vitality scores from Hassles Intensity at varying levels of Aggressive humor.

Figure 10. Regression lines predicting Pain scores from Retirement Stress at varying levels of Aggressive humor.

Figure 11. Regression lines predicting Pain scores from Hassles Intensity at varying levels of Aggressive humor.

Figure 12. Regression lines predicting Role Limitations due to Emotional Problems scores from Retirement Stress at varying levels of Self-enhancing humor for males.

Figure 13. Regression lines predicting Role Limitations due to Emotional Problems scores from Retirement Stress at varying levels of Self-enhancing humor for females.

Figure 14. Regression lines predicting Emotional Wellbeing scores from Retirement Stress at varying levels of Self-enhancing humor for males.

Figure 15. Regression lines predicting Emotional Wellbeing scores from Hassles Intensity at varying levels of Self-enhancing humor for males.

Figure 16. Regression lines predicting Role Limitations due to Emotional Problems scores from Hassles Intensity at varying levels of Affiliative humor for females.

Figure 17. Regression lines predicting Social Functioning scores from Hassles Intensity at varying levels of Affiliative humor for females.

Figure 18. Regression lines predicting Emotional Wellbeing scores from Hassles Intensity at varying levels of Affiliative humor for females.

Figure 19. Regression lines predicting Pain scores from Retirement Stress at varying levels of Self-defeating humor for males.

Figure 20. Regression lines predicting Social Functioning scores from Retirement Stress at varying levels of Self-defeating humor for males.

Figure 21. Regression lines predicting Role Limitations due to Physical Problems scores from Retirement Stress at varying levels of Self-defeating humor for males.

Figure 22. Regression lines predicting Role Limitations due to Emotional Problems scores from Hassles Intensity at varying levels of Self-defeating humor for females.

Figure 23. Regression lines predicting Role Limitations due to Emotional Problems scores from SPRS at varying levels of Self-defeating humor for females.

Figure 24. Regression lines predicting Social Functioning scores from Hassles Intensity at varying levels of Self-defeating humor for females.

Figure 25. Regression lines predicting Emotional Wellbeing scores from Hassles Intensity at varying levels of Self-defeating humor for females.

Figure 26. Regression lines predicting Energy/Vitality scores from Hassles Intensity at varying levels of Aggressive humor for females.

Figure 27. Regression lines predicting Pain scores from Hassles Intensity at varying levels of Aggressive humor for females.

Figure 28. Regression lines predicting Role Limitations due to Emotional Problems scores from Retirement Stress at varying levels of Aggressive humor for males.

Figure 29. Regression lines predicting Social Functioning scores from Retirement Stress at varying levels of Aggressive humor for males.

Figure 1.

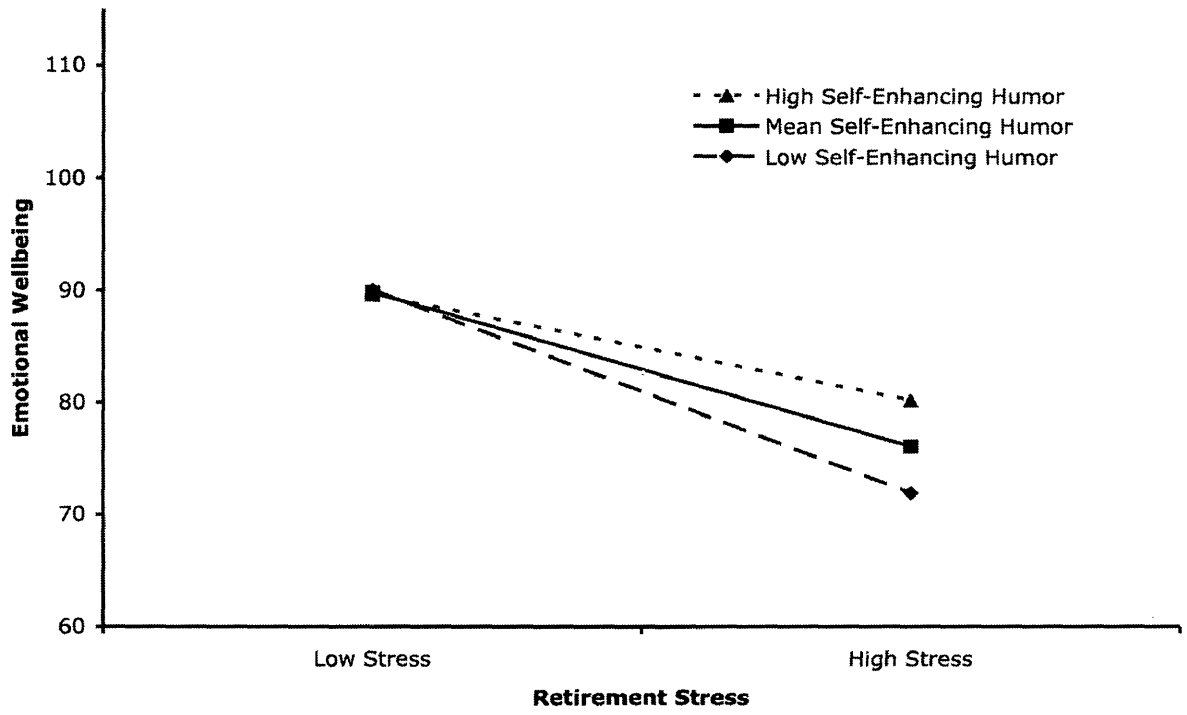


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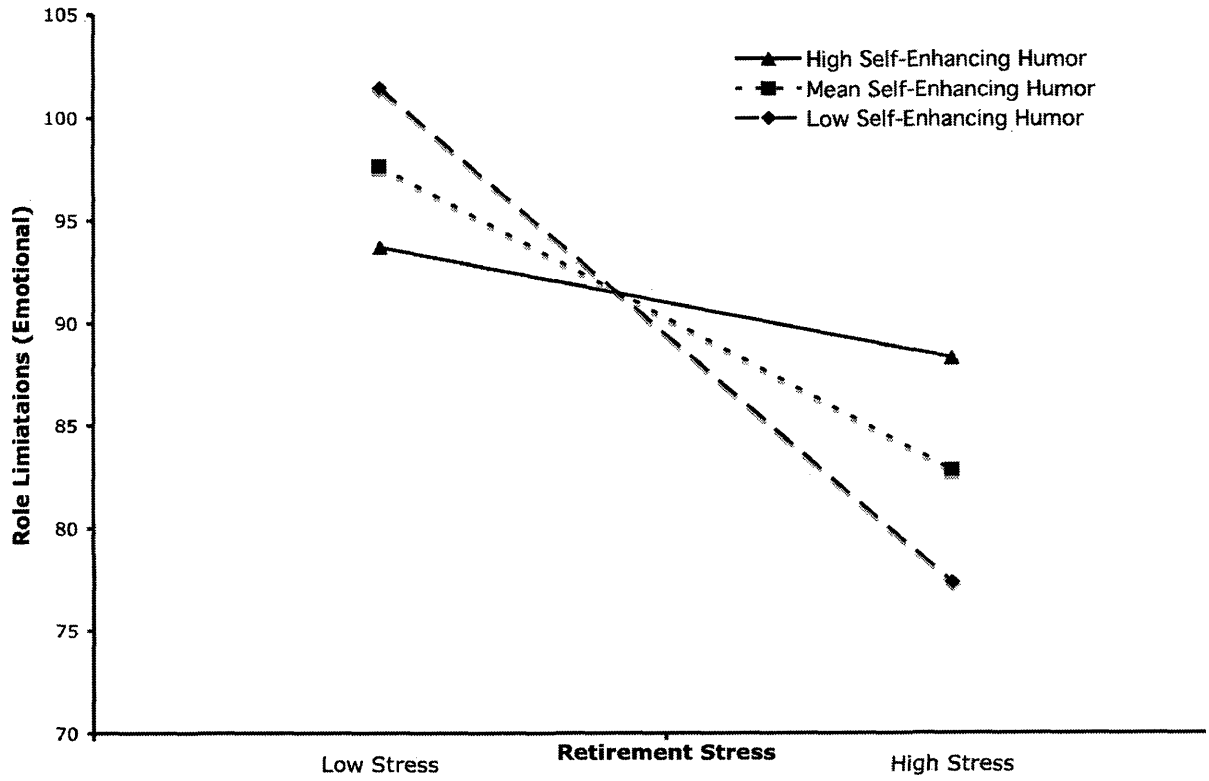


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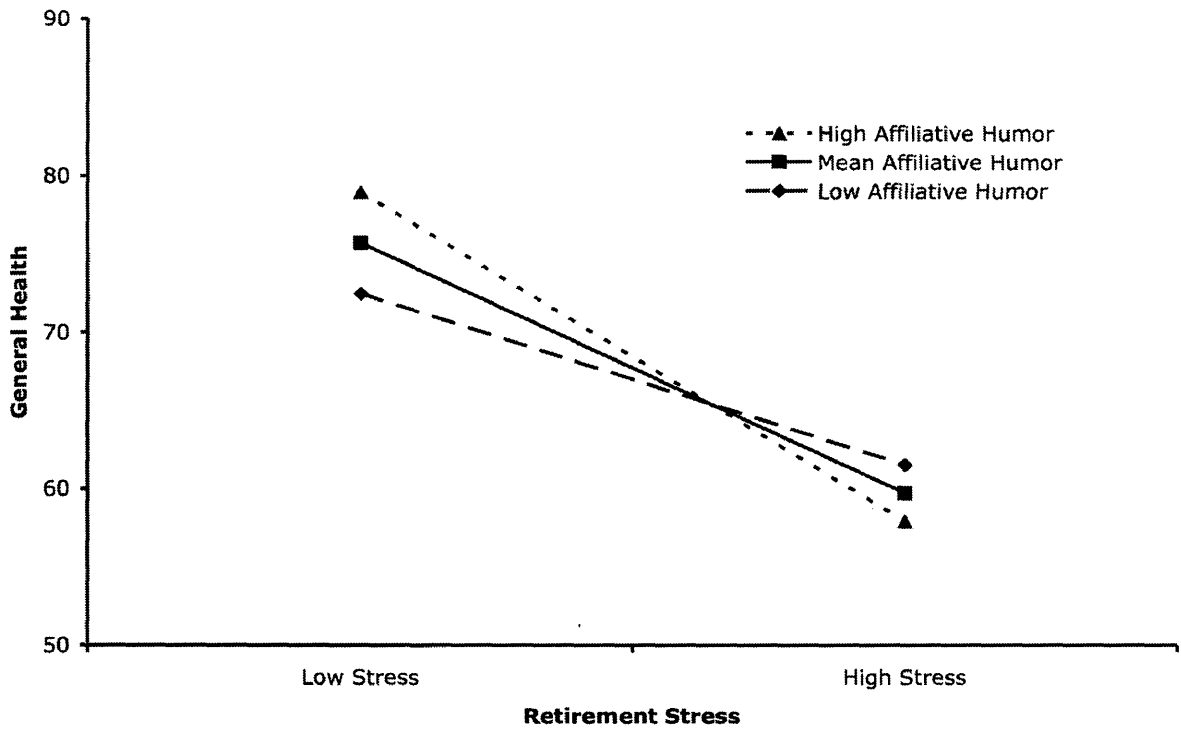


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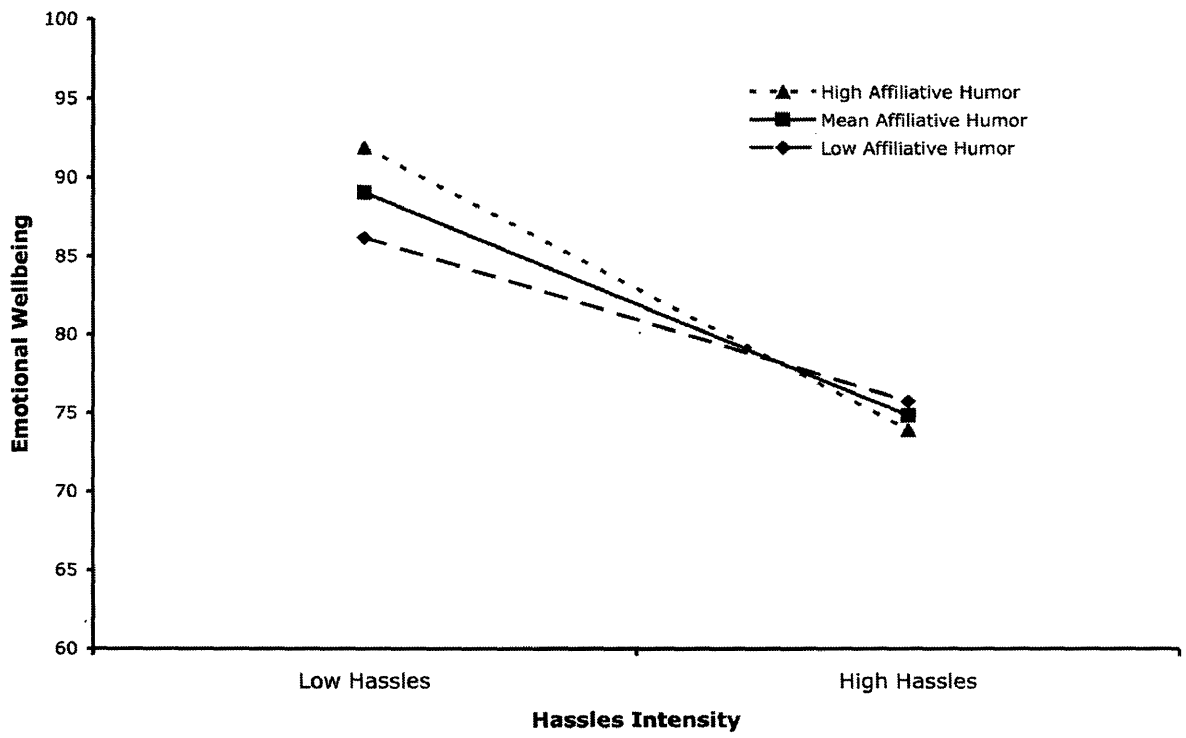


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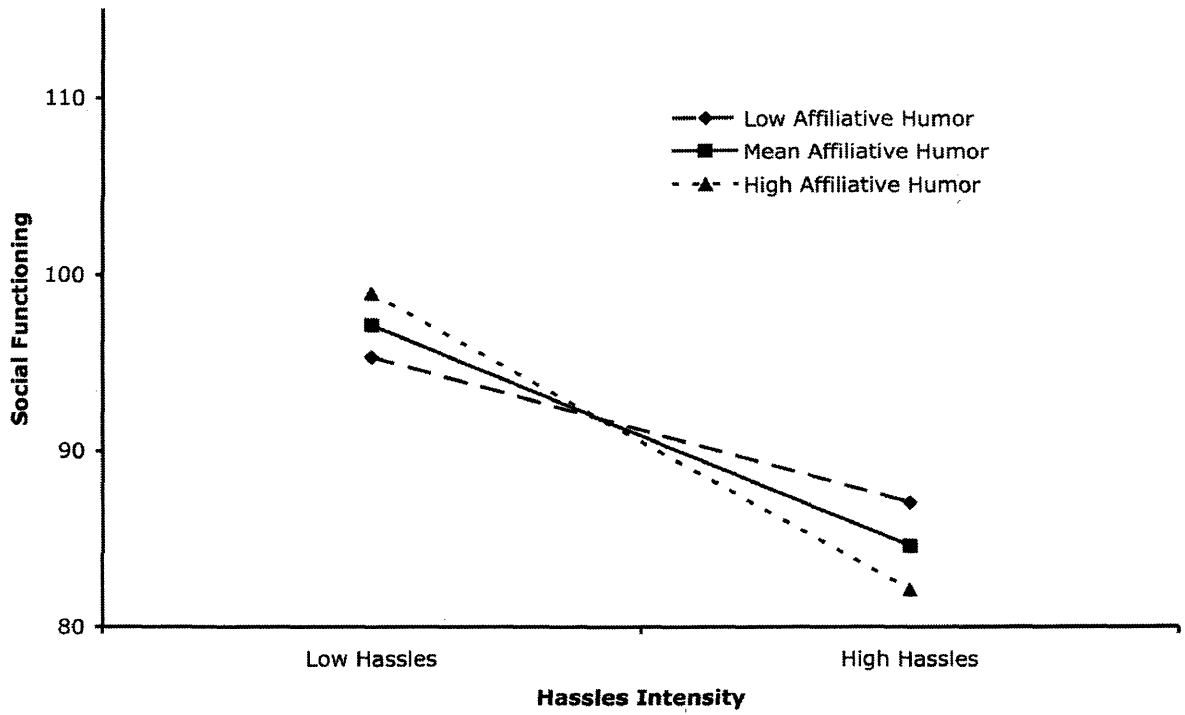


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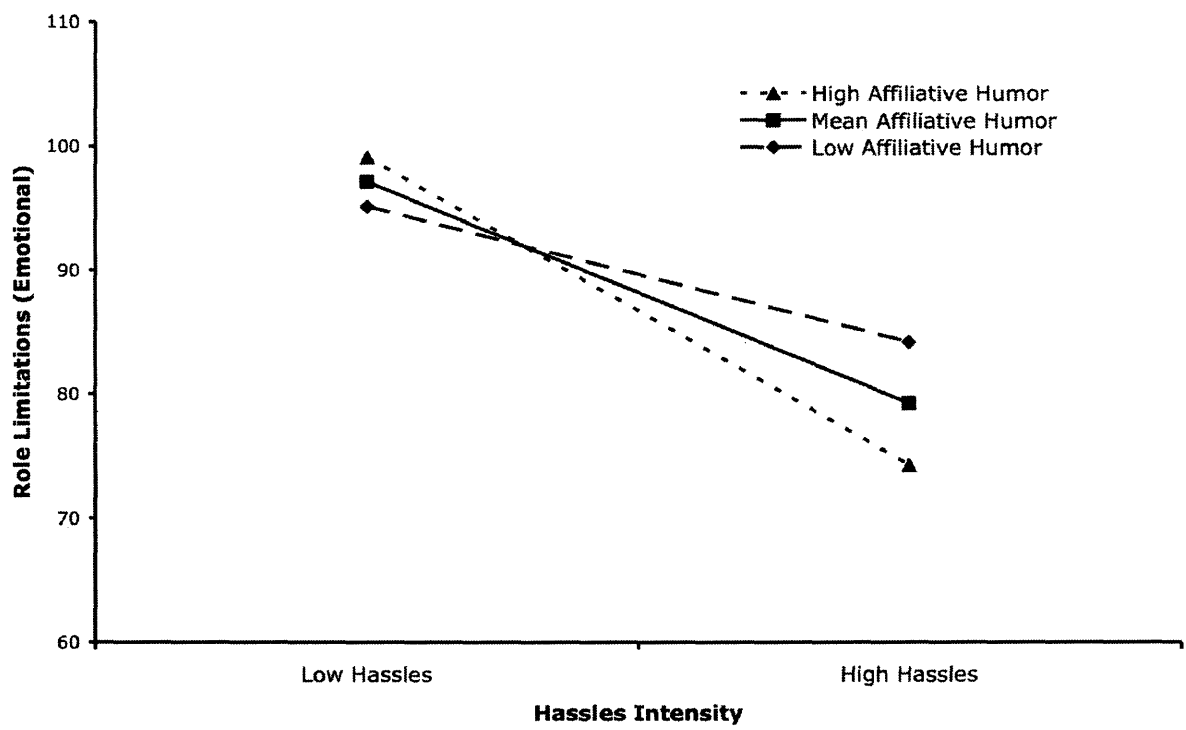


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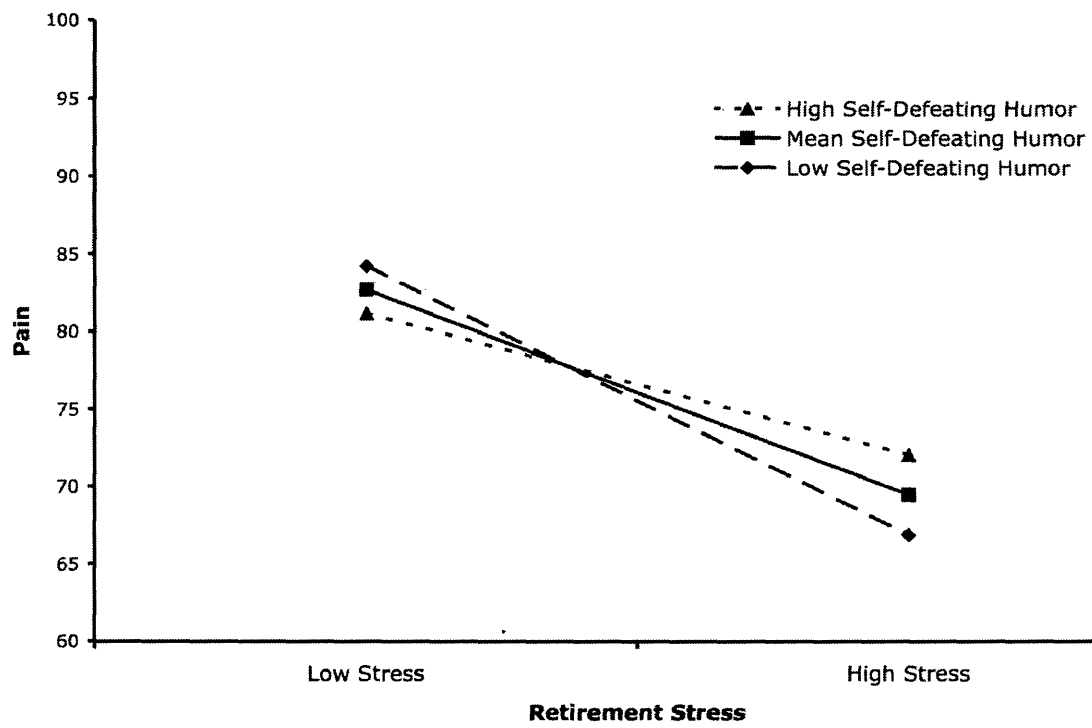


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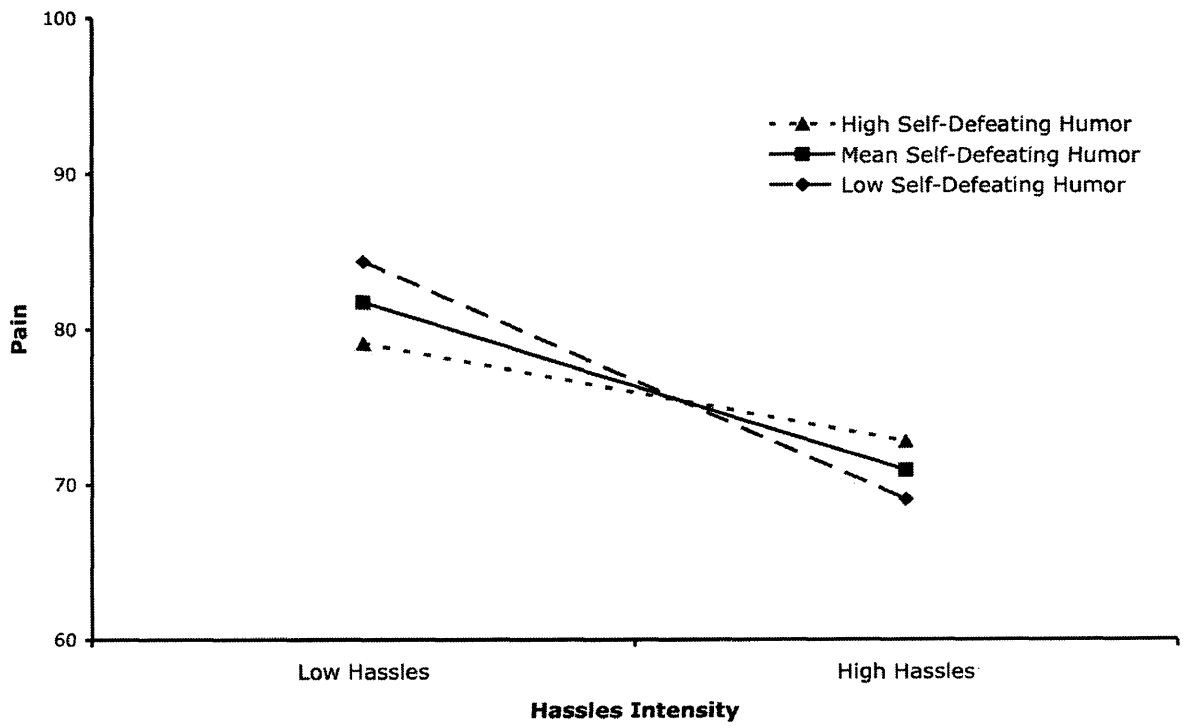


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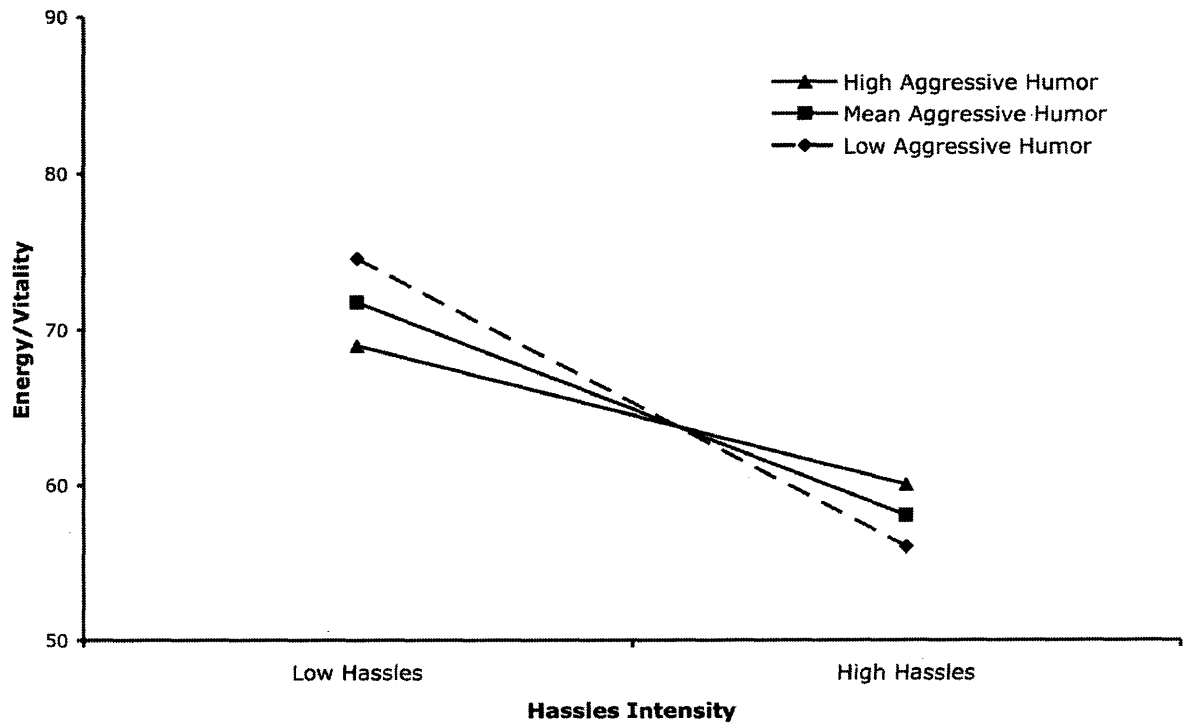


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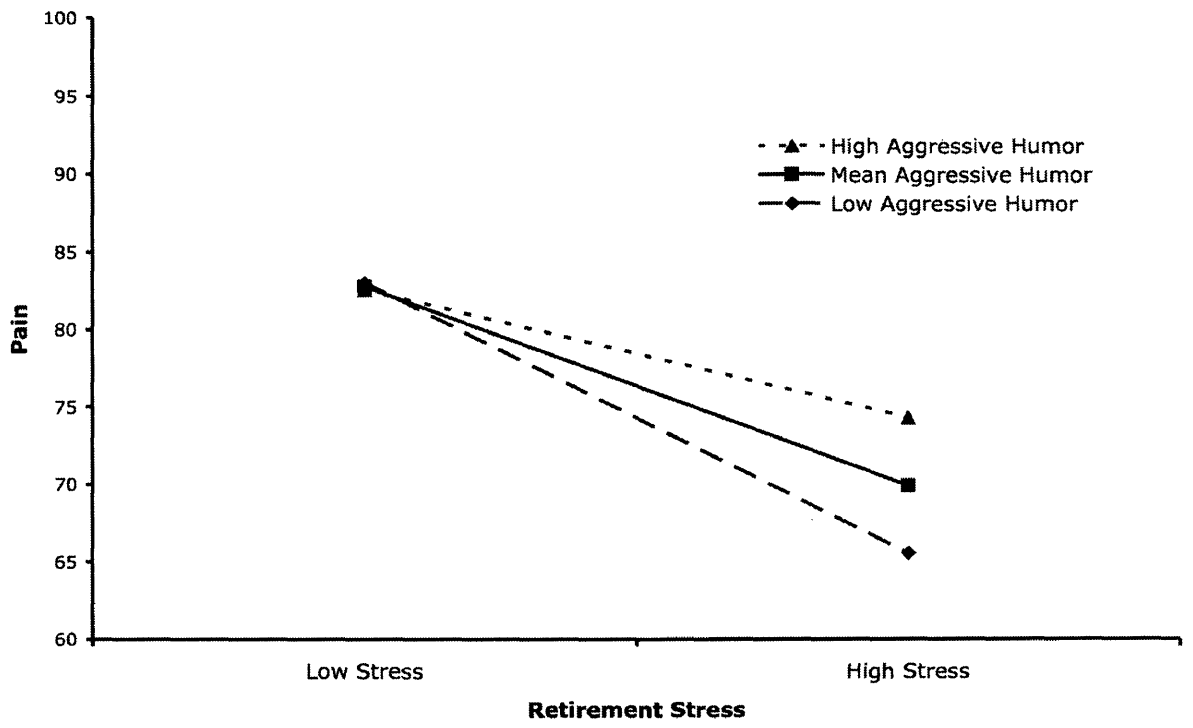


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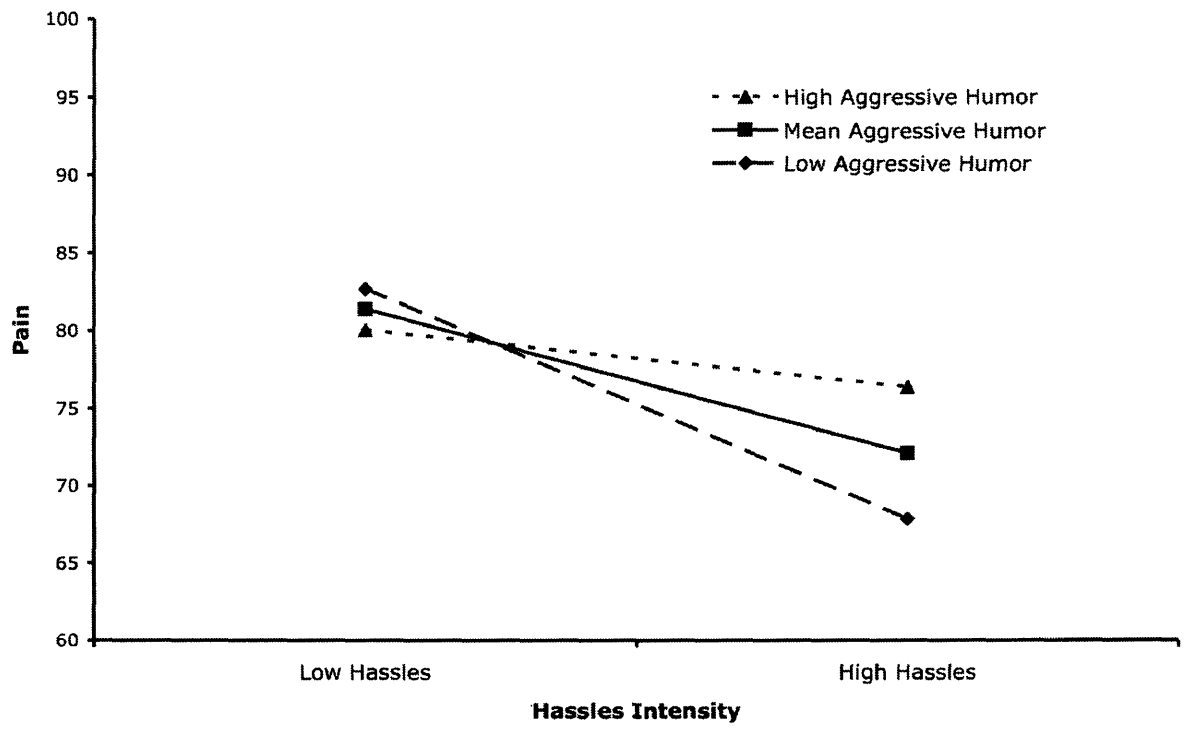


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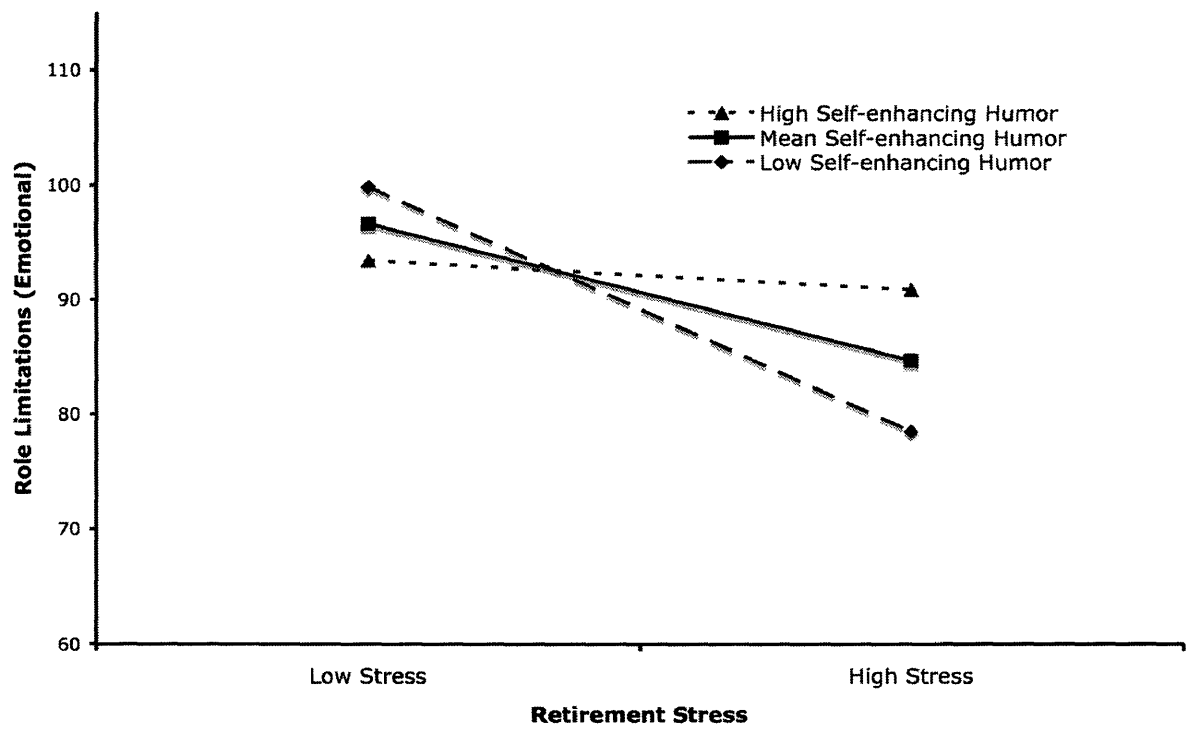


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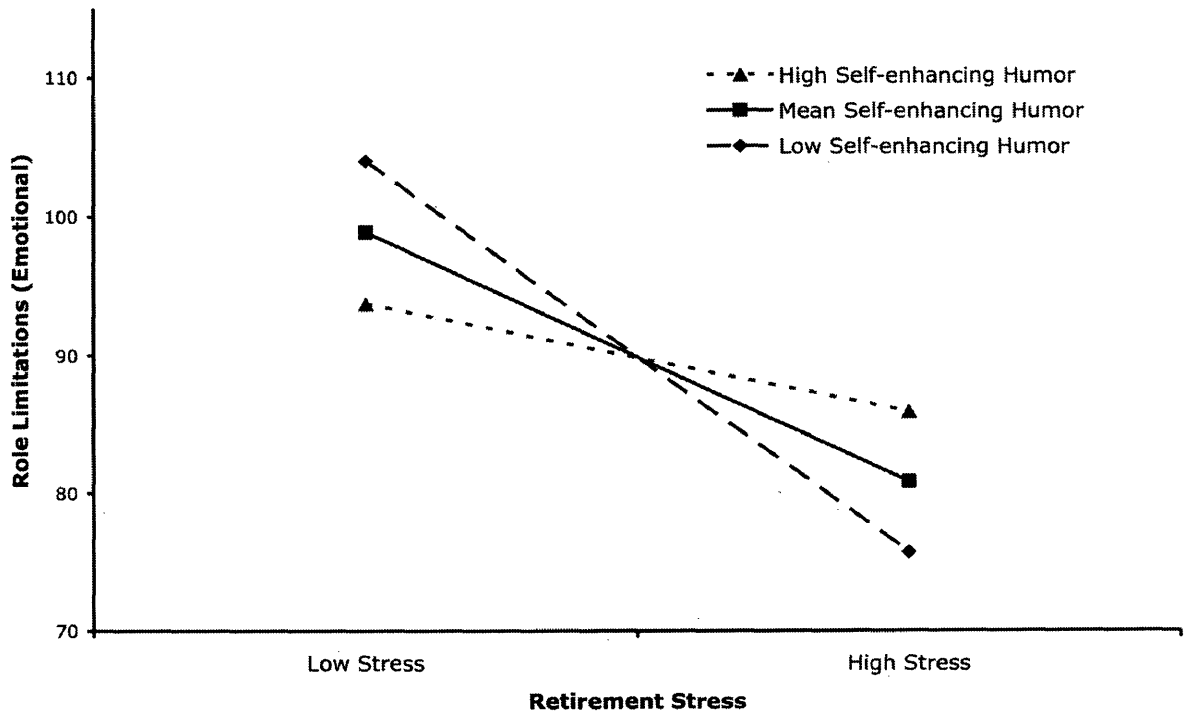


Figure 14



Figure 15

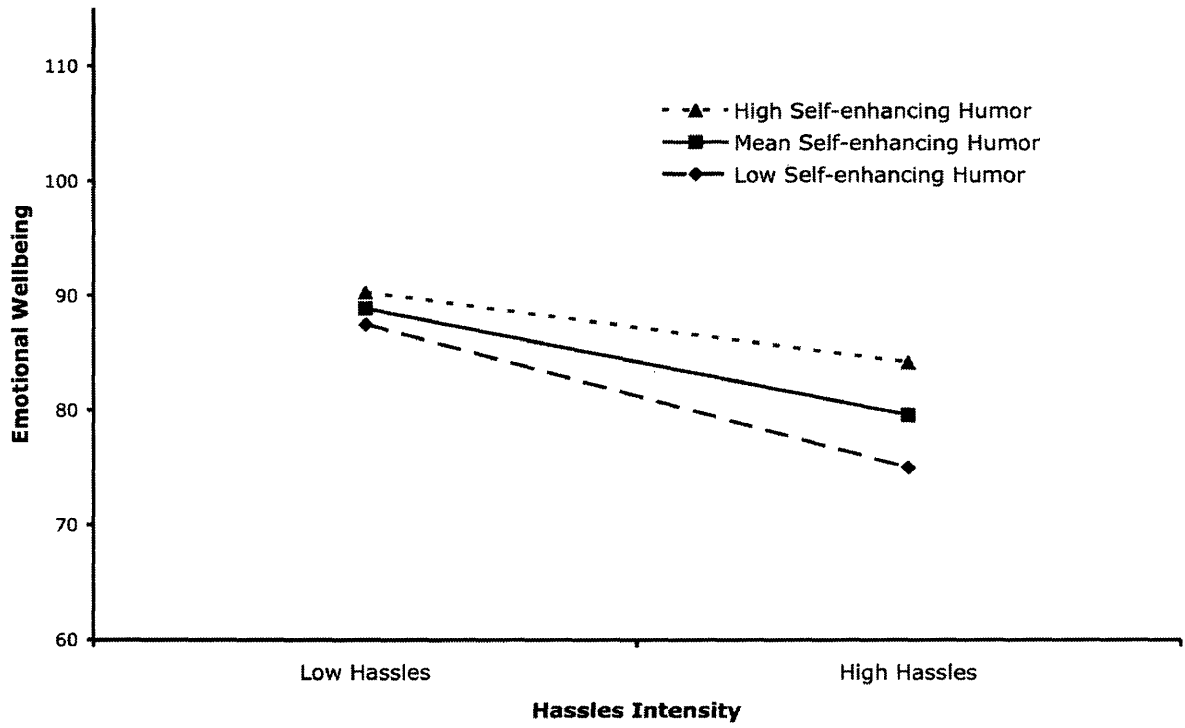


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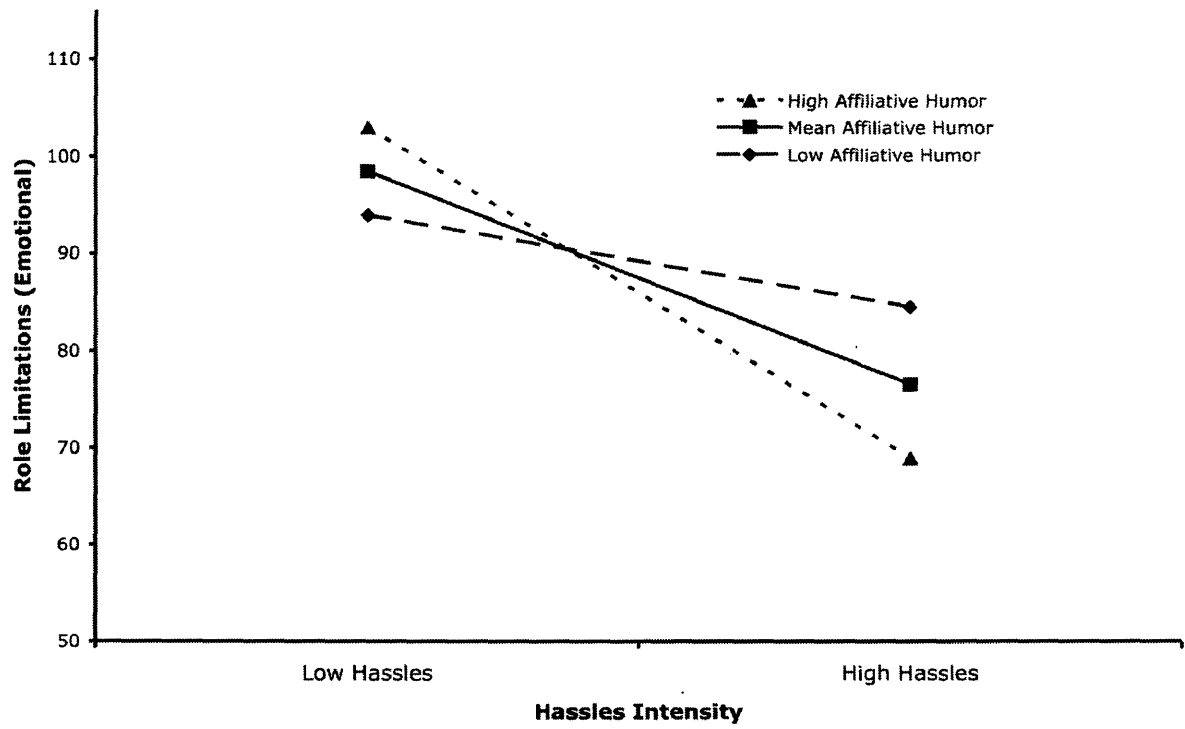


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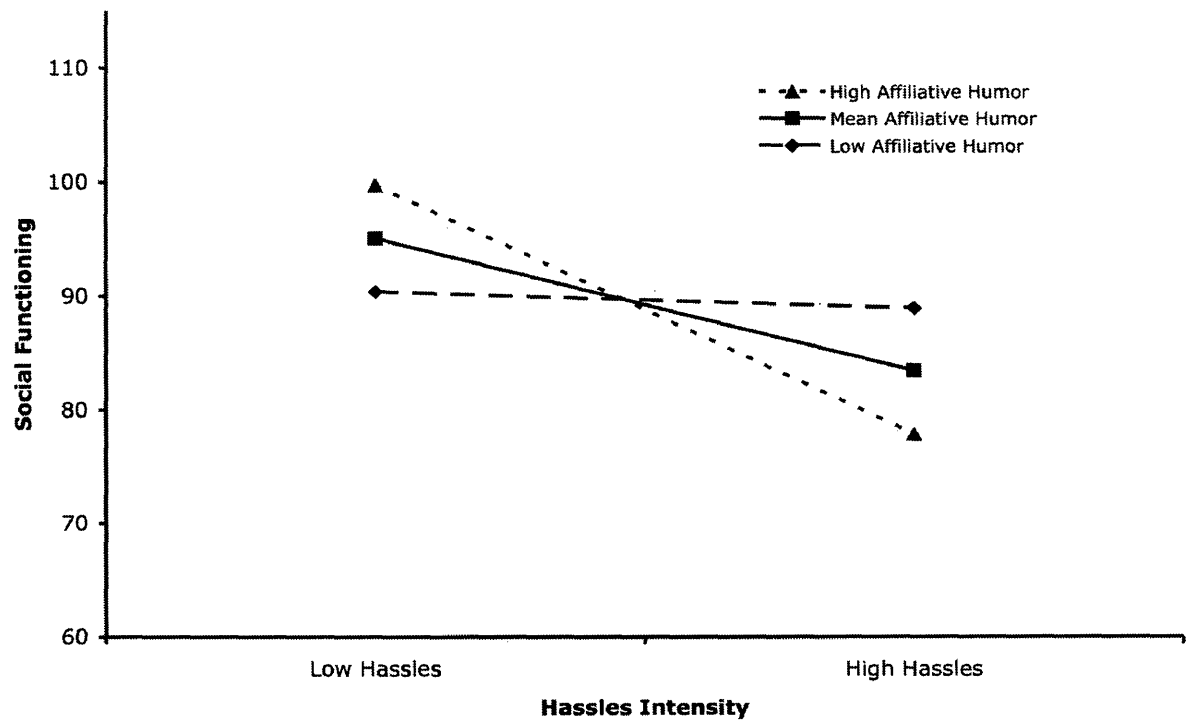


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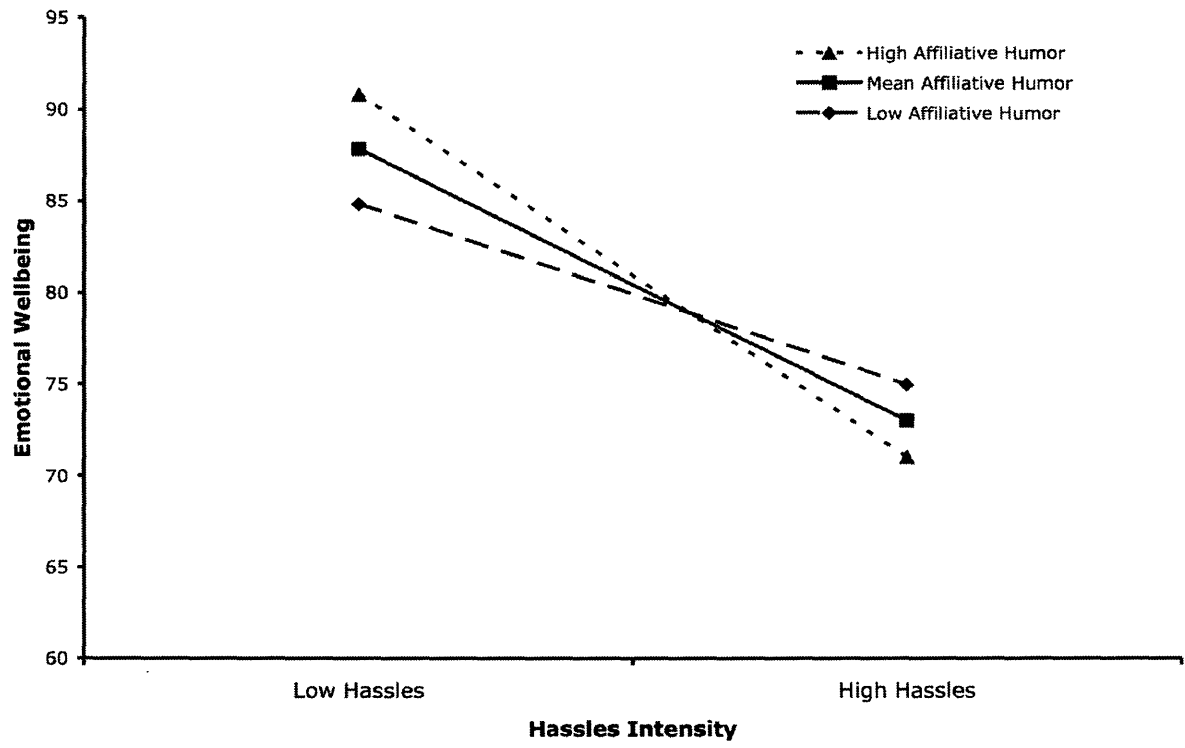


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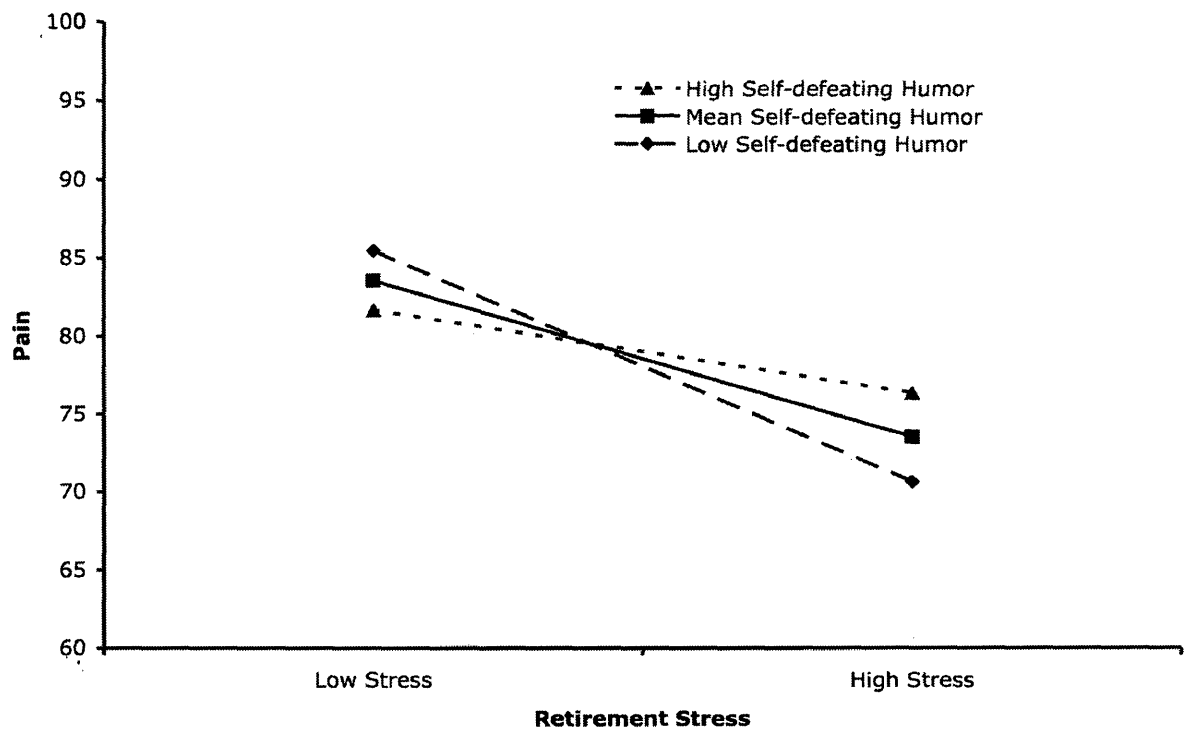


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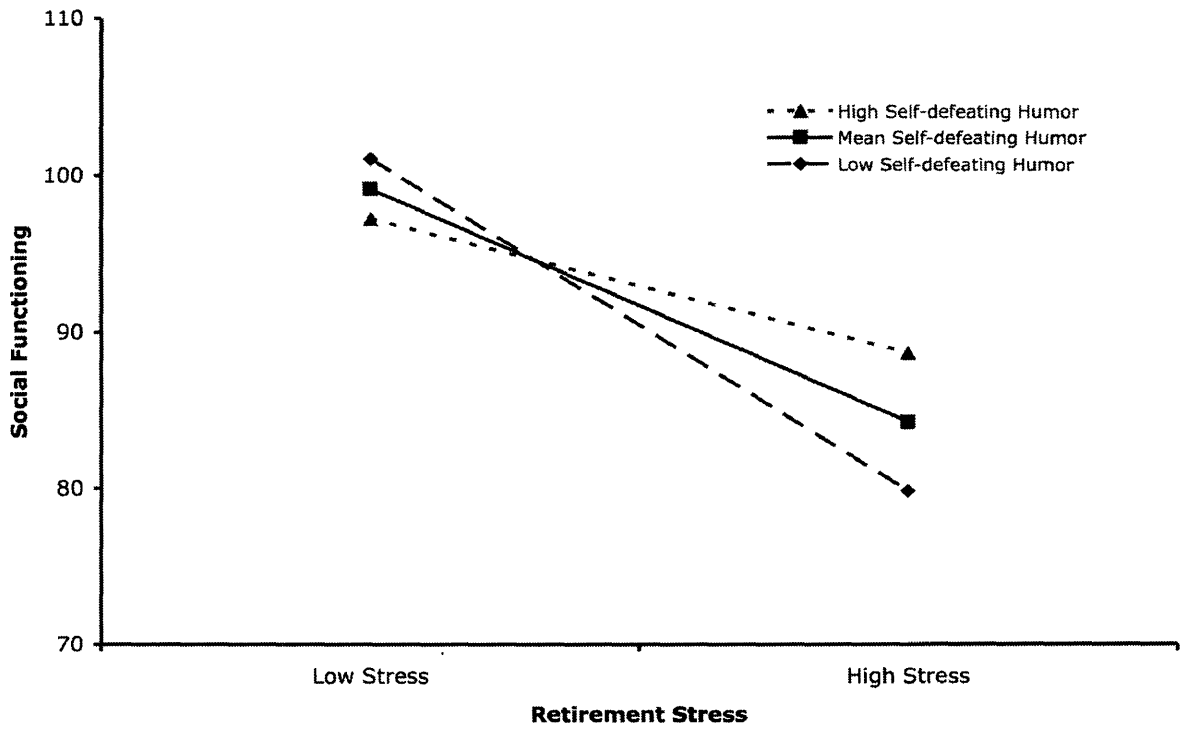


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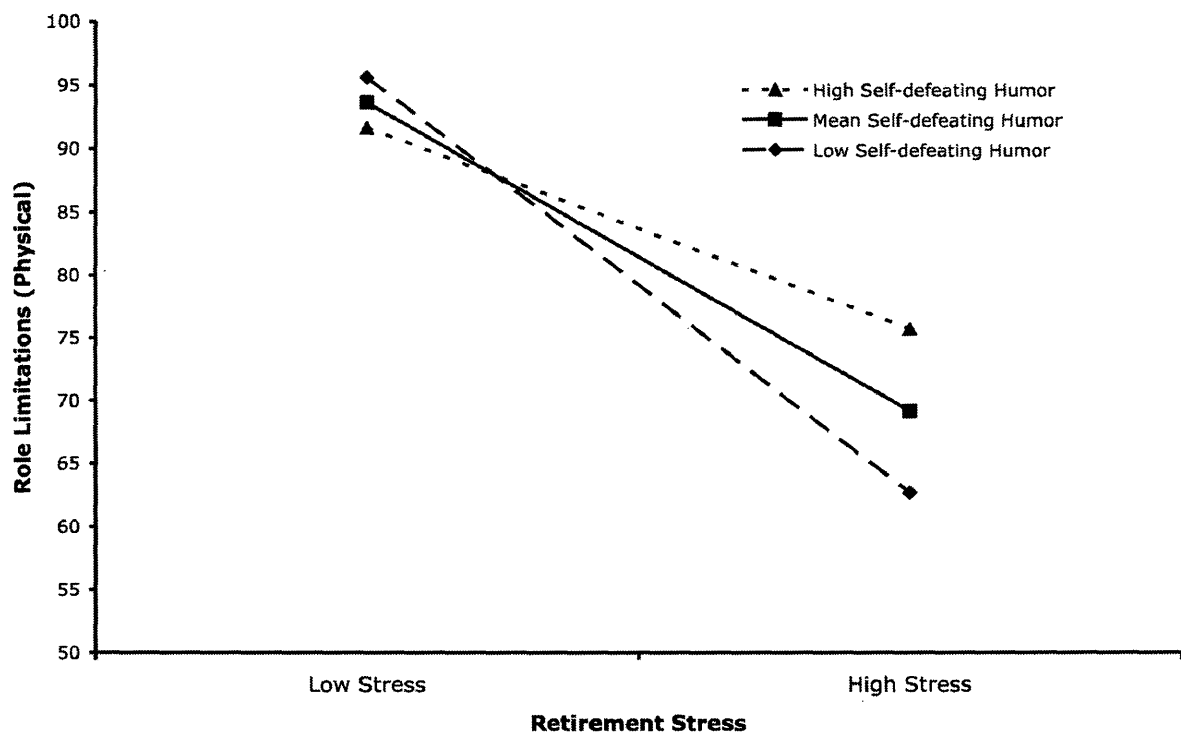


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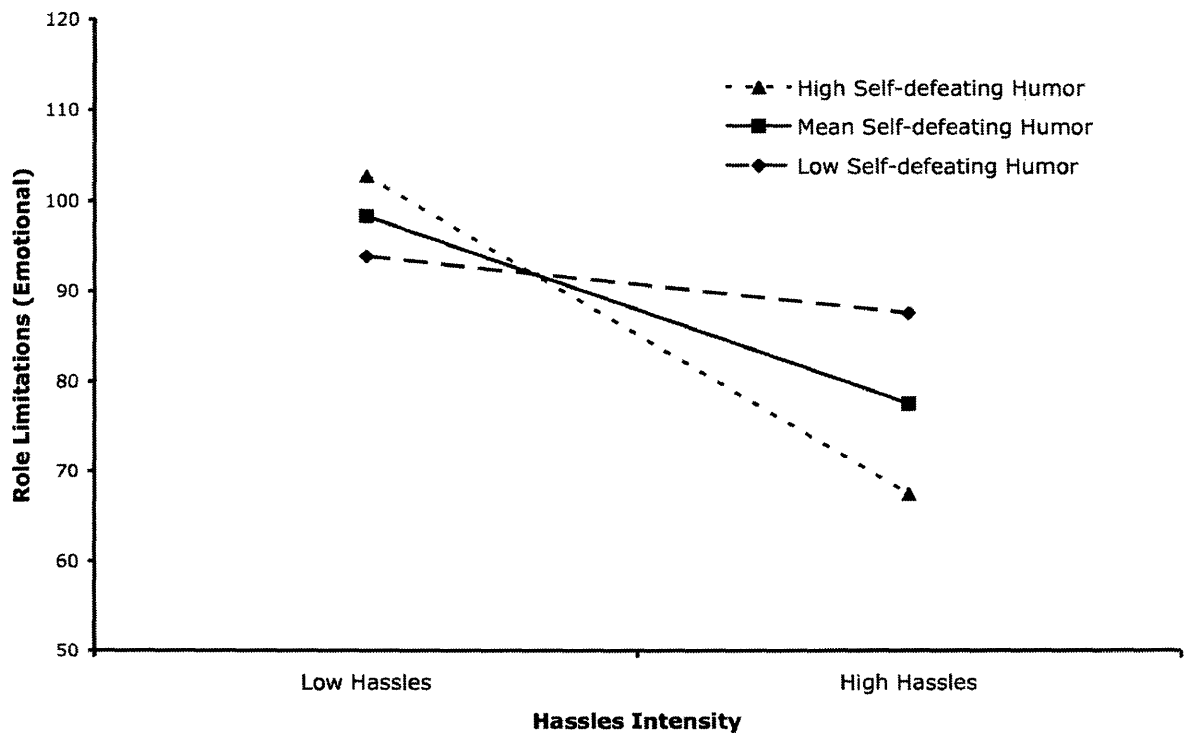


Figure 23



Figure 24

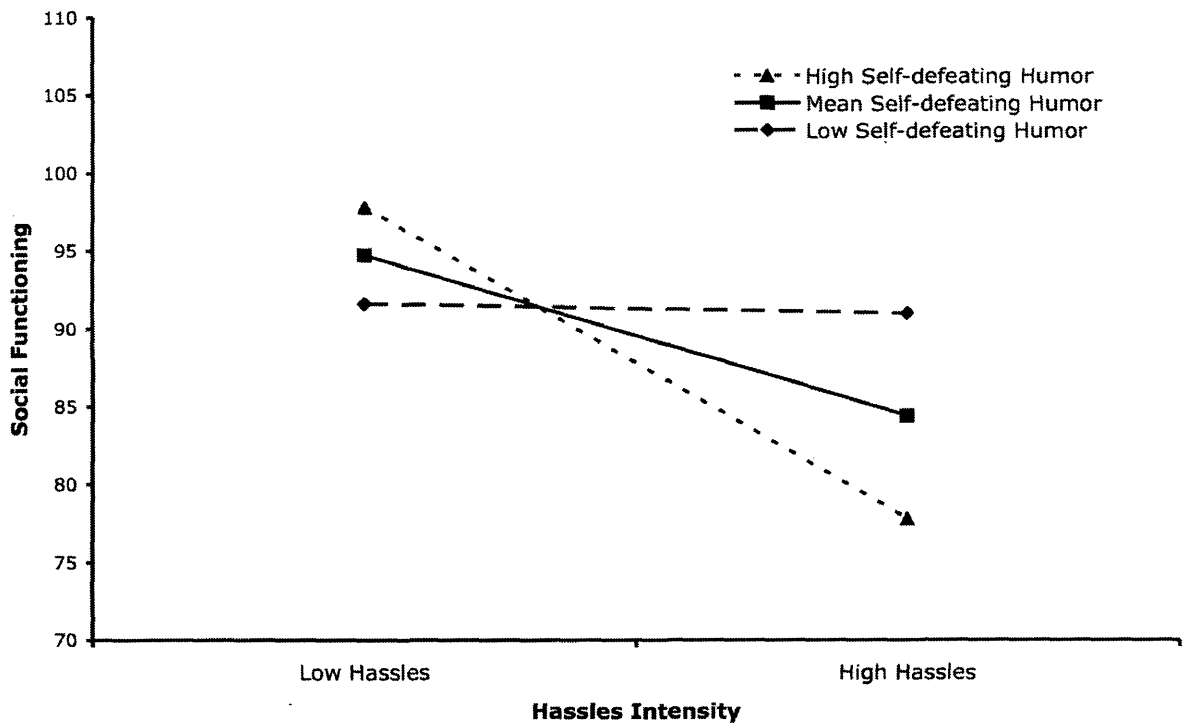


Figure 25



Figure 26

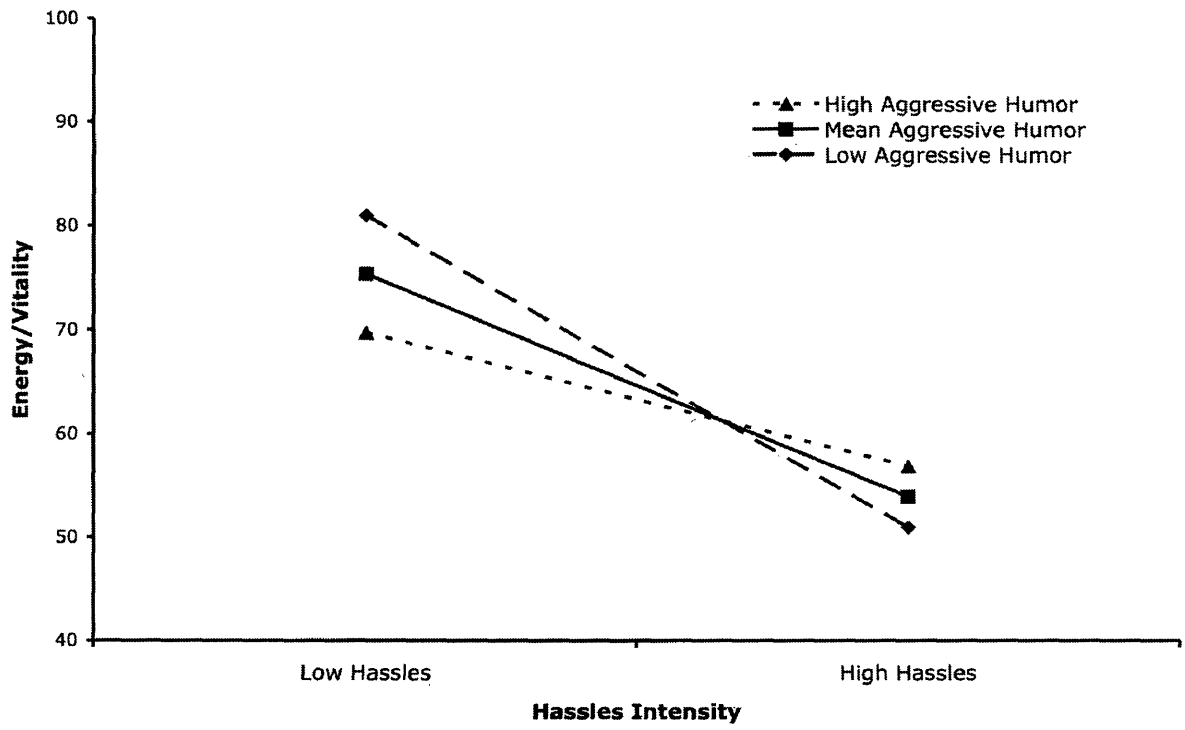


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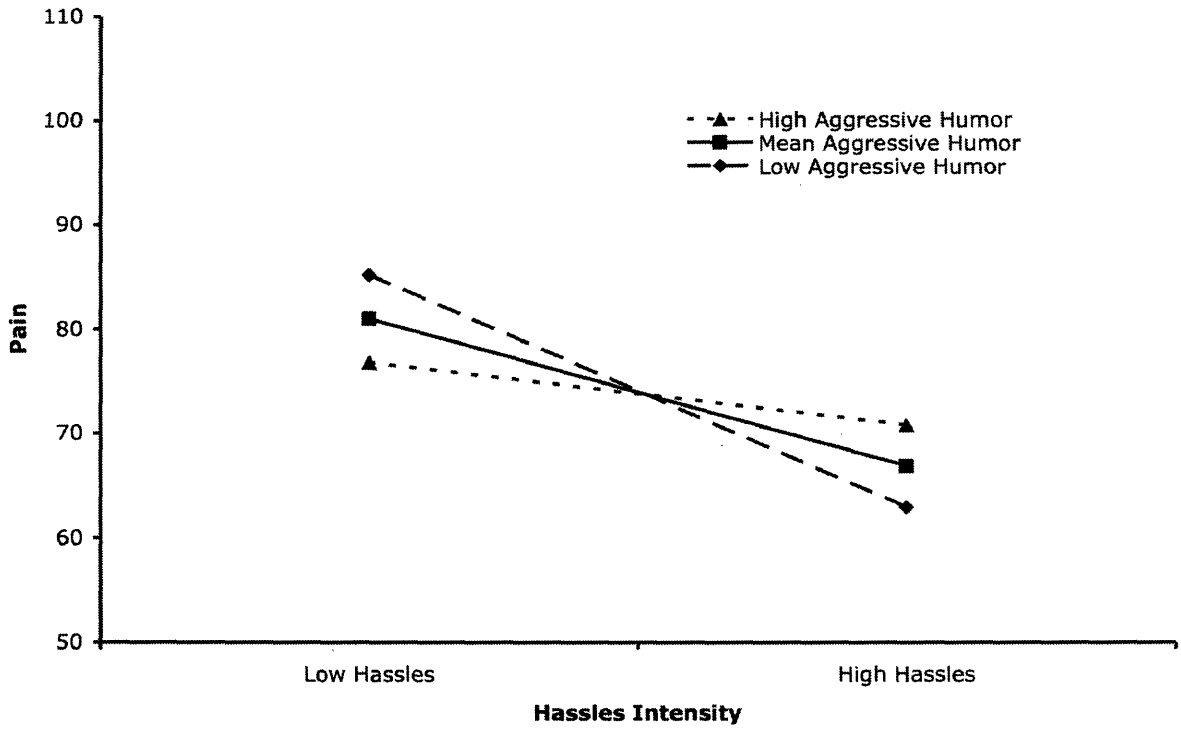


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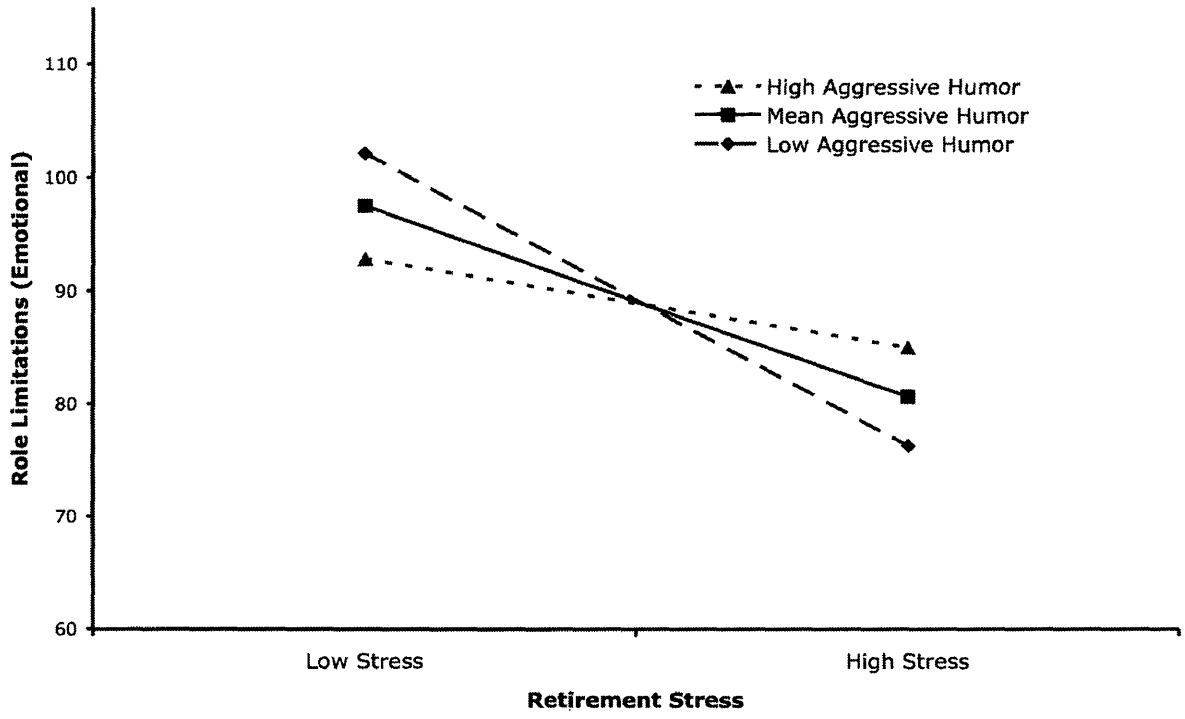


Figure 29

