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**HUMOR STYLES,
PSYCHOLOGICAL WELL-BEING,
AND DISTRESS:
EXAMINING THE IMPORTANCE OF
RESILIENCE AND HOPE**

by

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BACHELOR OF ARTS IN ENGLISH & PHILOSOPHY

MASTER OF SCIENCE IN NARRATIVE MEDICINE

THESIS

Submitted in Partial Fulfillment of the
Requirements for the Degree of

**Master of Science
Psychology**

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Albuquerque, New Mexico

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**HUMOR STYLES, PSYCHOLOGICAL WELL-BEING, AND DISTRESS:
EXAMINING THE IMPORTANCE OF RESILIENCE AND HOPE**

by

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ABSTRACT

The current research study investigated the relationship between different adaptive and maladaptive styles of humor, psychological well-being, and distress measures. The sample for this cross-sectional analysis included 237 undergraduate students at the University of New Mexico. Zero-order correlation analyses of all the study variables revealed that adaptive humor styles were associated with greater psychological well-being and lower psychological distress symptoms while maladaptive humor styles were generally related to lower well-being and greater distress symptoms. All four humor styles were significantly associated with hope, while only affiliative and self-defeating humor were associated with resilience. Mediation analyses revealed that resilience was a mediator of 29.17% of the effects of the humor styles on well-being and 33.33% of the effects of them on distress, and hope was a mediator of 100% of the effects of humor styles on well-being and 58.33% of their effects on distress. Implications and future research directions are discussed.

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INTRODUCTION

Background

Is laughter the best medicine? Does a sense of humor promote psychological well-being? While virtually all individuals know what it is like to experience humor and can point to a time when it has enriched their lives, systematically understanding humor's impact on our happiness and well-being proves a more slippery enterprise. This slipperiness is due, in part, to contemporary society's use of humor as an umbrella term for all laughter-related phenomena, including jokes, stand-up comedy, political satire, and ridicule (Martin, 2003). Contemporary psychological research follows this trend and engages humor as a broad, multi-faceted construct involving cognitive and emotional elements (Martin, 2000). Researchers may use humor to refer to the characteristics of a stimulus (e.g., jokes, cartoons, comedy films); mental processes involved in creating, processing, understanding, and appreciating humor (Feingold & Mazzella, 1993; Ruch & Hehl, 1998); the responses of an individual (e.g., smiling, laughter); or as an emotional state (e.g., amusement, cheerfulness, or mirth). Similarly, psychologists lack consensus about defining and measuring *sense of humor*, which may refer to a dispositional trait, behaviors, experiences, attitudes, or abilities related to amusement and laughter (Martin, 1993).

Across this conceptual and operational heterogeneity, psychologists have generally characterized the construct as wholly beneficial and capable of facilitating different facets of well-being. Researchers hypothesized that individuals with a greater sense of humor would enjoy more fulfilling interpersonal relationships and greater hardiness in the face of adversity (Martin, 2003). However, findings from early humor research exploring humor's facilitative effects on relationships and psychological well-being yielded equivocal empirical support for

this hypothesis. A review of the research literature reveals that a greater sense of humor does not always lead to higher levels of intimacy or relationship satisfaction (Nzlek & Derks, 2001), nor is it reliably associated with variables related to psychological well-being (e.g., higher levels of optimism, self-acceptance, or environmental mastery (Kuiper & Martin, 1998; Martin, 2001). Similarly, studies exploring the relationship between humor and psychological distress showed that humor inconsistently related to lower levels of anxiety and depression (Porterfield, 1987).

One possible explanation for these weak and inconsistent findings relates to some of the methodological issues in humor research, specifically the inherent conceptual limitations of traditional humor scales designed to assess individual differences in sense of humor and humor appreciation. Martin (2001) proposed that the conventional self-report measures, such as the Situational Humor Response Questionnaire (SHRQ; Martin & Lefcourt, 1984), the Multidimensional Sense of Humor Scale (MSHS; Thorson & Powell, 1993), the Humor Coping Scale (HCS; Lefcourt & Martin, 1983), and the Sense of Humor questionnaire (SHQ; Svebak, 1996), do not adequately incorporate past theoretical work distinguishing between different *types* of humor (e.g., convivial, perspective-taking, sarcastic, or disparaging humor), and their respective facilitative or deleterious effects on well-being (e.g., Allport, 1961; Freud, 1928; Maslow, 1954; Vaillant, 1993).

Humor as a Multidimensional Construct

Martin et al.'s (2003) humor style model reconceptualizes humor to distinguish between its adaptive and maladaptive functions. The humor styles model hypothesizes four main dimensions of humor expression, self-enhancing and affiliative humor styles (adaptive) and self-defeating and aggressive humor styles (maladaptive). The model further

distinguishes between humor that is expressed interpersonally and humor that is self-directed.

Self-enhancing humor reflects an adaptive humor style that enables individuals to maintain a humorous outlook in the face of adversity and serves as a coping mechanism that fosters intrapersonal rewards. Self-defeating humor represents a maladaptive humor style in which individuals excessively ridicule or mock themselves to avoid negative emotions or to ingratiate themselves to others. Affiliative humor represents an adaptive style that enables individuals to amuse and entertain others, enhances social relationships, and promotes interpersonal rewards. Aggressive humor reflects a maladaptive humor style that degrades interpersonal relationships as individuals tease or ridicule others to promote the self.

In developing their multidimensional approach to sense of humor, Martin et al. highlighted that the function of these different humor styles might not be enacted consciously but instead reflect a habitual pattern of responses to life events (Martin et al., 2003). Moreover, they emphasized that the dichotomy between adaptive and maladaptive humor does not extend to different humor style usage such that individuals regularly engage in multiple humor styles, even within a single interaction (Martin et al., 2003). Martin and colleagues developed their (2003) Humor Styles Questionnaire (HSQ; Appendix A) to measure individual differences in these four different humor styles, and their respective functions in everyday situations. At least up through 2015, the HSQ is the most widely used measure of humor in psychological research (Martin, 2015).

Why is Humor Related to Well-being?

For more than a century, theorists have proposed that humor might benefit psychological well-being by functioning as an effective coping mechanism that buffers the

adverse effects of stress (Freud, 1928; Lefcourt, 2001; Lefcourt & Martin, 1986). In contemporary humor research, psychologists hypothesize that humor may facilitate coping by two different processes: (1) increasing positive emotion and (2) promoting cognitive reappraisal. Congruent with Frederickson's (2001, 2009, 2013) Broaden-and-Build model, humor is thought to increase an individual's experience of positive emotions (e.g., mirth, joy, happiness, optimism), which can buffer the effects of negative emotion (Fredrickson & Levenson, 1998) and broaden our view of the world. Broadening our attentional focus creates a wider range of behavioral response options, which, in turn, allows us to build the emotional and social resources needed to cope with adversity and to foster other positive emotions.

Cognitive appraisal may serve as a second mechanism by which humor functions as an adaptive coping mechanism. Utilizing Lazarus and Folkman's (1984) transactional model of stress, psychologists hypothesize that humor enables effective cognitive reappraisal of potentially stressful situations to facilitate psychological well-being (Kugler & Kuhbander, 2015; Samson & Gross, 2012; Walter, 1976). The idea that humor involves a shift in perspective reflects classical incongruity humor theory, which conceptualized humor as the recognition of a mismatch between our conceptual understanding of reality and our actual perceptions of reality (Kant, I., 1892; Schopenhauer, A., 1818, 2016; Morreall, 1987).

Self-enhancing humor appears to be particularly effective in facilitating cognitive appraisal of a stressful event, and there is growing evidence to suggest that individuals who use this humor style protect their well-being by reframing stressors in a more positive light (Cann & Etzel, 2008; Cann et al., 2010; Fritz et al., 2017; Kuiper et al., 1995). Furthermore, evidence suggests that self-enhancing humor may mediate the relationship between depression and cognitive distortions, such that individuals who express self-

enhancing humor less frequently exhibit greater cognitive distortion and depression (Dozois & Beck, 2008; Rnic, Dozois, & Martin, 2016). While correlational research corroborates experimental findings related to self-enhancing humor's capacity to facilitate cognitive reappraisal to buffer the effects of stress, less is understood about the link between other humor styles, cognitive reappraisal, and coping.

Humor Styles & Psychological Well-Being

Over the last two decades, the HSQ has fostered a growing understanding of how self-enhancing, affiliative, self-defeating, and aggressive humor styles relate to different aspects of psychological well-being, broadly defined as the extent to which individuals are functioning at an optimal level (Cann & Collette, 2014; Diener, 2009; Ford, Lappi, & Holden, 2016; Kuiper et al., 2004; Martin et al., 2003). These aspects of psychological well-being include a range of variables related to both “positive” and “negative” mental health. “Positive mental health” refers to the presence of good things—e.g., happiness, life satisfaction (Diener et al., 1985), self-esteem, efficacy, and perceived support, satisfaction with relationships—while “negative mental health” typically refers to the absence of harmful things—e.g., anxiety (Spitzer et al., 2006), depression (Kroenke, Spitzer, & Williams, 2001), and perceived stress (Cohen, Kamarck, & Mermelstein, 1983).

Research using the HSQ consistently shows that adaptive and maladaptive humor styles relate differently to “positive” and “negative” mental health variables. For example, self-enhancing humor positively correlates with subjective well-being, self-esteem, and self-efficacy, while affiliative humor positively correlates with satisfaction with relationships, intimacy, and perceived social support (Galloway, 2010; Kuiper et al., 2004; Liu, 2012; Zeigler-Hill & Besser, 2011). Self-enhancing and affiliative humor also negatively

correlate with trait anxiety, depression, and overall psychological distress, while affiliative humor negatively correlates with loneliness and interpersonal anxiety, and self-enhancing humor negatively correlates with depression, anxiety, rumination, and perceived stress (Galloway, 2010; Kuiper et al., 2004; Liu, 2012; Zeigler-Hill & Besser, 2011).

Conversely, self-defeating humor is negatively associated with self-esteem and overall levels of psychological well-being (Cann, Stilwell, & Taku, 2012). Self-defeating and aggressive humor styles positively correlate with higher levels of aggression and hostility and negatively correlate with optimism (Cann et al., 2014; Ford et al., 2016; Kuiper et al., 2004). Self-defeating humor positively correlates with higher trait anxiety and depression levels, while self-defeating and aggressive humor positively correlates with overall psychological distress (Kuiper et al., 2004; Liu, 2012; Zeigler-Hill & Besser, 2011).

Notably, aggressive humor is not consistently related to more nuanced measures of psychological well-being (e.g., life satisfaction) or agreeableness (Kuiper et al., 2004).

Martin Seligman's PERMA theory (2002, 2012) offers a potentially fruitful conceptual framework for understanding the relationship between different humor styles and psychological well-being. Drawing from other models of well-being (e.g., Ryff, 1989), Seligman's PERMA theory conceptualizes well-being as comprising five distinct elements: (1) positive emotion; (2) engagement; (3) relationships; (4) meaning; and (5) accomplishment. The positive emotion element involves experiencing positive emotions (e.g., contentment, hope, gratitude) and viewing life from a positive perspective. The engagement element refers to experiences of intense concentration, internal motivation, and absorption while immersing ourselves in our work, intimate relationships, and leisure

activities. The third element, relationships, refers to creating strong, stable emotional bonds and concerns experiences of love, care, intimacy, and social support. The meaning element concerns a sense of belonging to something bigger than ourselves and involves pursuing activities that give one a sense of purpose in life. The accomplishment element refers to pursuing success, mastery, competence, and achievement for its own sake.

Research shows that fulfillment in three dimensions of PERMA is associated with lower rates of depression and high life satisfaction (Asebedo & Seay, 2014; Bertisch et al., 2014; Headey et al., 2010; Kern et al., 2015; Scheueller & Seligman, 2010). The PERMA theory's broad, comprehensive conceptual framework may offer a more nuanced understanding of the relationship between adaptive and maladaptive humor styles and hedonic (positive emotion) and eudemonic (engagement, relationships, meaning, and accomplishment) dimensions of well-being. Conceptualizing well-being in a more differentiated way may also help us explain some of the variability in past findings on aggressive humor styles. To date, few studies have examined the relationship between adaptive and maladaptive humor styles and the different elements of PERMA, and the ones that have were focused on specialized populations, thus limiting generalizability of the results (Giapraki et al., 2020).

When it comes to a general adult sample, we might expect self-enhancing humor to have a stronger relationship to the positive emotion, meaning, and accomplishment elements of PERMA since this humor style fosters intrapersonal rewards. Since self-defeating humor can be used to seek social approval and mask negative emotions, we might expect this humor style to have a stronger relationship with the relationship element of PERMA and a relatively weak relationship with the positive emotion and accomplishment

elements. Given that affiliative humor occurs primarily in a social context and promotes interpersonal rewards, we might expect a stronger relationship between this humor style and the relationship, meaning, and engagement elements of PERMA. Since aggressive humor occurs in an interpersonal context and involves disparaging others, we might expect this humor style to have a weak relationship with the relationship element of PERMA but a strong relationship with the accomplishment element.

Given that strong, consistent correlations mark relations between different humor styles and psychological well-being, it makes sense to explore more fully possible mediating factors between these two variables. Baron and Kenny (1986) have argued that “mediation...is best done in the case of a strong relation between the predictor and criterion variable” whereas moderating factors are typically introduced into modeling efforts when “an unexpectedly weak or inconsistent relation” exists (p. 1178). The only exception to strong consistency of relation between humor styles and psychological well-being arrives in the context of aggressive humor styles, given that some studies have found no consistent negative relation between aggressive styles and well-being. However, those studies that have found a relation present a robust relation between the two, which warrants further mediational investigation even with this humor style.

Hope as a Mediator of the Effects of Humor

Hope concerns specific cognitive, emotional, and behavioral processes linked to our desire and ability to make good things happen in the future. Unlike optimism, which is a broader, unitary construct defined as the general expectation of more good things than bad happening in the future, hope involves a relatively stable set of beliefs in our ability to achieve specific goals (e.g., successful agency) and discover different ways to reach these

goals (e.g., pathways). Hope is negatively linked with depression and externalizing behaviors (Karaimak, 2007; Snyder, 2002; Snyder & McCullough, 2000) and is positively linked with increased psychological well-being, self-esteem, and resilience. Hope is also related to better relationships and higher levels of social support and is a significant predictor of life satisfaction and PERMA elements.

Hope may also play an important role in mediating the relationships between different humor styles, well-being, and mental health. Little research to date has explored the relationship between different humor styles and hope. Cann et al.'s (2010) longitudinal study with undergraduate university students in the Southeastern United States observed a positive relationship between affiliative and self-enhancing humor styles and dispositional hope ("overall score") and identified a negative relationship between self-defeating humor style and hope ("overall score"). Falanga et al.'s (2020) study with Italian adolescents and young adults showed that adaptive humor styles predict hope ("overall score") and its agency and pathway dimensions, while self-defeating humor negatively influenced hope. Better understanding the relationship between hope and adaptive and maladaptive humor styles could potentially help explain how and why different humor styles affect psychological well-being and distress.

Resilience as a Mediator of the Effects of Humor

Resilience, defined as the "ability to bounce back from stress" (Smith et al., 2008), offers an alternative framework for understanding the relationship between humor, coping, and well-being. Research shows that resilience is positively associated with active coping, positive reframing, optimism, and purpose in life and negatively associated with anxiety, perceived stress, depression, and negative affect (Sagone & De Caroli, 2014; Shi et al., 2015;

Smith et al., 2008). Resilience has also been positively associated with self-enhancing and affiliative humor styles (Cheung & Yue, 2012; McCullars, 2021; Mildenhall, 2012) and negatively associated with self-defeating and aggressive humor styles (McCullars et al., 2021).

Resilience may be a robust overall proxy variable for how people cope with stress and may play an important role in mediating the relationship between different humor styles, well-being, and mental health. While past research indicates that humor (as a unitary construct) is a significant contributory factor in resilience building (McCann et al., 2013; Pande, 2014; Svebak, Romundstad, & Holmen, 2010), if and how adaptive and maladaptive humor styles impact resilience has yet to be determined. For example, self-enhancing humor may boost resilience by increasing positive emotion and enabling us to reframe adverse experiences in a more positive light. Affiliative humor may foster resilience by promoting positive relationships and enhancing social support. Conversely, self-defeating may decrease resilience by reinforcing maladaptive thoughts and increasing negative emotions. Aggressive humor may also decrease resilience by limiting the availability of social support. Research examining the link between adaptive and maladaptive humor styles and resilience can potentially help explain how and why adaptive and maladaptive humor styles impact psychological well-being and distress.

Humor Styles Across Ethnicity & Gender

Since its introduction in 2003, the HSQ has been translated into more than 30 languages and utilized in studies around the world, including in Western Europe (e.g., Saroglou & Scariot, 2002; Vernon et al., 2008), Asia (Chen & Martin, 2007), and the Middle East (e.g., Kalliny, Cruthirds, & Minor, 2006; Taher, Kazarian, & Martin, 2008). Previous

research investigating humor style preferences across countries and geographic regions indicates that individuals from Western countries tend to express more maladaptive humor styles while individuals from Eastern countries generally use more adaptive styles of humor (e.g., Chen & Martin, 2007; Hiranandani & Yue, 2014; Yue et al., 2016). Kazarian and Martin's (2004) study comparing Lebanese, Canadians', and Belgians' humor styles indicated that individuals were more likely to engage affiliative humor if they were from horizontal-collectivist cultures that value harmony and group-cohesion whereas individuals from vertical-collectivist cultures that emphasize self-sacrifice for the sake of the group used more self-defeating humor. Moreover, results showed that individuals were more likely to employ aggressive humor to enhance their social status if they came from vertical individualist cultures that emphasized competitiveness.

Few studies have explored differences in the relationship between different humor styles and subjective well-being across Eastern-Western cultures with contradictory results. For example, Schneider et al.'s (2018) meta-analysis indicated that culture moderated the effect of aggressive humor on self-esteem and depression for Easterners but not for Westerners, while findings from Jiang et al.'s (2020) meta-analysis suggested that culture did not moderate the relationship between different humor styles and subjective well-being. To our knowledge, no studies have investigated differences in humor styles preferences across ethnicity and race within the United States or how these differences influence mental health and well-being outcomes.

A growing body of literature focuses on humor style differences across gender. This preliminary research suggests that gender may interact with humor's buffering effects on stress, increasing anxiety for women but not men (Abel, 1998; Saxon et al., 2017). Studies

examining gender differences in humor style preferences indicate that men appear to use an aggressive

humor style more often than women (Davis, 2006; Kotthoff, 2006; Martin et al., 2003), while women endorse an affiliative humor style to a greater extent than men (Sillars et al., 2020). Based on findings from their study with 431 adolescents in Taiwan, Wu et al. (2016) proposed that empathy may mediate the relationship between gender and aggressive humor style such that women are less likely to use aggressive humor because they express more empathetic concern for others. Overall, these findings highlight the need for more research examining gender differences in humor style preferences.

Current Study

Since humor may be best thought of as a multidimensional construct captured by the humor styles questions, this study examined the relationship between these four humor styles and psychological well-being and distress measures. Two of the primary ways that humor may affect well-being and distress may be through its effects on resilience and hope. This study examined how, if at all, hope and resilience mediate the effects of humor styles on well-being. Finally, this study explored differences in the relationship between humor style preferences, well-being, and mental health across ethnicity and gender.

Research Aims and Hypotheses

Research Aim 1: To determine the relationship between affiliative, self-enhancing, aggressive, and self-defeating humor styles and psychological well-being.

Hypothesis 1a.: Affiliative and self-enhancing humor will be related to greater psychological well-being.

Hypothesis 1b.: Aggressive and self-defeating humor will be related to less psychological well-being.

Research Aim 2: To determine the relationship between different humor styles and psychological distress.

Hypothesis 2a.: Affiliative and self-enhancing humor will be related to less psychological distress.

Hypothesis 2b.: Aggressive and self-defeating humor will be related to greater psychological distress.

Research Aim 3: To determine the relationship between different humor styles and resilience.

Hypothesis 3a.: Affiliative and self-enhancing humor will be related to greater resilience.

Hypothesis 3b.: Aggressive and self-defeating humor will be related to less resilience.

Research Aim 4: To determine the relationship between different humor styles and hope.

Hypothesis 4a.: Affiliative and self-enhancing humor will be related to greater hope.

Hypothesis 4b.: Aggressive and self-defeating humor will be related to less hope.

Research Aim 5: To determine if resilience mediates the effects of different humor styles on psychological well-being and distress.

Hypothesis 5a.: Resilience will partially mediate the effects of different humor styles on psychological well-being.

Hypothesis 5b.: Resilience will partially mediate the effects of different humor styles on psychological distress.

Research Aim 6: To determine if hope mediates the effects of different humor styles on psychological well-being and distress.

Hypothesis 6a.: Hope will partially mediate the effects of different humor styles on psychological well-being.

Hypothesis 6b.: Hope will partially mediate the effects of different humor styles on psychological distress.

Exploratory Research Aim 7: To determine how humor styles differ across gender and ethnicity.

Hypothesis 7a.: Humor styles will differ across gender

Hypothesis 7b.: Humor styles will differ across ethnicity

Methods

Participants

The sample included 237 participants who completed the survey. Of these participants, 9 identified as Black (3.8%), 19 as Asian American (8%), 126 as White (53.2%), and 60 as American Indian or Alaska Native (25.3%). Additionally, 96 participants were Hispanic (40.5%). The rest of the participants were classified either as multiple races ($n = 16$, 6.8%) because they identified as ‘Multiple Races’ or as ‘Other Race’ ($n = 7$, 3.0%). Nearly three fourths of the sample identified as female (76.8%) and two participants identified as “other gender” (and less than one percent as “other gender” (0.8%). The remaining participants, nearly one fourth, identified as male (22.4%). Participants’ ages ranged from 18 to 66 with a mean of 25.56 years ($SD = 8.60$). Table 1 displays descriptive statistics for all the continuous variables in the study.

Procedures

These data were collected during the Fall of 2020. Study investigators recruited undergraduate students enrolled at the University of New Mexico (UNM), including students taking psychology courses through UNM’s Gallup campus and students taking an online Positive Psychology course through UNM’s Albuquerque campus. Participants in the Positive Psychology course were recruited via email and a posting on the course website. Those taking other psychology courses were recruited through emails and online notices posted by instructors. Investigators who recruited and consented students in the positive psychology class were not involved with the respective psychology courses in any way.

After providing informed consent, students completed an online questionnaire administered through *Opinio*, a secure online-survey system. After answering a series of

demographic questions (e.g., age, gender, race, ethnicity), students completed an online survey, which included questions from a variety of self-report measures (see Appendix A). All forms, questions, and procedures for this study were approved by the UNM's Human Research and Review committee. This study was completed during the first year of the COVID-19 pandemic.

Measures

1. Humor Measures

Humor styles. This was measured using the *Humor Styles Questionnaire (HSQ)*. The HSQ (Martin et al., 2003) is a 32-item questionnaire comprising four subscales that measure individual differences in humor styles. Responses are assessed using a 7-point Likert scale ranging from 1 (totally disagree) and 7 (totally agree). Subscales measure different humor styles: affiliative (e.g., "I laugh and joke a lot with my friends."), self-enhancing (e.g., "Even when I'm by myself, I'm often amused by the absurdities of life."), aggressive (e.g., "If I don't like someone, I use humor or teasing to put them down."), and self-defeating (e.g., "I often try to make people like or accept me more by saying something funny about my weaknesses, blunders, or faults."). The HSQ shows high internal consistency on all four subscales, with Cronbach's alpha ranging from 0.77 to 0.81 (Martin et al., 2003). Cronbach's $\alpha = .73$ for the present study.

2. Psychological Distress Measures

Perceived stress. This was measured using *The Perceived Stress Scale (PSS)*. The PSS (Cohen, Kamarck, & Mermelstein, 1983) measures the extent to which respondents recognize their lives as "unpredictable, uncontrollable, and overloading." Responses to the 10-item self-report measure are assessed using a 5-point Likert scale ranging from never (0)

to very often (5), and sample items include, “How often have you felt difficulties were piling up so high that you could not overcome them?” (Cohen et al., 1983). For the present study, Cronbach’s $\alpha = .73$.

Depression. This was measured using the *Patient Health Questionnaire—9* item version (PHQ-9). The PHQ-9 (Kroenke, Spitzer & Williams, 2001) is a self-report scale developed to determine depression severity in primary care patients and is based on the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) criteria for Major Depressive Disorder (Kroenke et al., 2001). Participants rate the presence of depressive symptoms (e.g., “feel down, depressed, or hopeless”) over the past two weeks using a 3-point Likert scale ranging from not at all (0) to nearly every day (3). The PHQ-9 shows excellent test-retest reliability (intraclass correlation = 0.88) and excellent internal reliability (Cronbach’s $\alpha = .87$; Kroenke et al., 2001). Cronbach’s α was .84 for the present study.

Anxiety. This was measured using the *Generalized Anxiety Disorder-7* item version (GAD-7; Spitzer et al., 2006). The GAD-7 is a brief self-report scale developed to determine anxiety severity in primary care patients and is based on the DSM-IV criteria for Generalized Anxiety Disorder (GAD) (Spitzer et al., 2006). Participants rate the presence of anxiety symptoms (e.g., “feeling nervous, anxious, or on edge”) over the past two weeks using a 3-point Likert scale ranging from not at all (0) to nearly every day (3). The GAD-7 comprises four anxiety severity categories split into normal (0-4), mild anxiety (5-9), moderate anxiety (10-14), and severe anxiety (≥ 15). We used the recommended cut-off point for anxiety (≥ 10) for this study. The GAD-7 shows excellent internal consistency (Cronbach’s $\alpha = .92$)

and good test-retest reliability (intraclass correlation = .83; Spitzer et al, 2006). For the present study, Cronbach's $\alpha = .88$.

3. *Psychological Well-Being Measures*

Hope. This was assessed using the *Dispositional Hope Scale* (HS; Snyder et al., 1991). The scale comprises eight items, with four items each assessing agency (e.g., "I energetically pursue my goals") and pathways thinking (e.g., "There are lots of ways around a problem"). Items are scored on a four-point Likert scale ranging from definitely false (1) to definitely true (4). The HS shows strong internal consistency (Cronbach's alpha ranges from .74-.84; Snyder et al, 1991). For the present study, Cronbach's $\alpha = .88$

Resilience. This was measured using the *Brief Resilience Scale* (BRS; Smith et al., 2008). The BRS is designed to assess the ability to bounce back or recover from stress and comprises six-items (e.g., "I tend to bounce back quickly after hard times"). Participants rate items on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The BRS shows good internal consistency (Cronbach's alpha ranges from .80-.90) and acceptable test-retest reliability (intraclass correlation = .63; Smith et al., 2008). For the present study, Cronbach's $\alpha = .85$

Psychological Well-being. This was measured using the *PERMA Profiler* (Butler & Kern, 2016). The *PERMA Profiler* includes 15 items assessing the five elements of PERMA with three items for each element. These elements include positive emotion (e.g., "How often do you feel joyful"), engagement (e.g., "To what extent do you feel excited and interested in things?"), relationships (e.g., "How satisfied are you with your personal relationships?"), meaning (e.g., "To what extent do you generally feel like you have a sense of direction in your life?"), and accomplishment (e.g., "How often do you achieve important goals you set

for yourself?”). The items are scored on an eleven-point Likert scale ranging with anchors that varied with the items. *The PERMA Profiler* subscales have demonstrated acceptable test re-test reliability, internal and cross-time consistency, and evidence for construct, convergent, and divergent validity. Cronbach’s $\alpha = .88$ for the present study.

Statistical Analysis

SPSS Version 28 was used for all quantitative analyses. All measures were inspected for distribution of normality followed by descriptive analyses for each of the study’s continuous variables. Zero-order correlation analyses were then used to examine the relationship between different humor styles and positive and negative mental health variables (*Hypotheses 1a—4b*). To examine *Hypotheses 5a—6b*, a cross-sectional mediation analysis was conducted using Process macro by Hayes (2013) to determine if resilience and hope mediated the effects of different humor styles on mental health outcomes. The completely standardized indirect effects were calculated using bootstrapping methods, whereby 5000 new samples were generated, with replacement, from the original sample. Results were interpreted based on recommendations in Baron & Kenny (1986) and in Preacher & Hayes (2004). The mediation analyses were only conducted where there was a significant correlation between all three variables.

To examine differences in humor styles across gender, ethnicity, and race (*Hypotheses 7a-7b*), independent sample *t*-tests were conducted, and zero-order correlation analyses were repeated and compared across gender, ethnicity, and race. Gender was coded 1 = males, 2 = Females, and 3 = Other. Ethnicity was coded 1 = Hispanic, 0 = non-Hispanic. Race was coded 1 = Asian, 2 = Black, 3 = American Indian/Alaskan Native, 4 = White, 5 = Mixed, 6 = Other. Levene’s test for equality of variances was non-significant for each of the

independent t-tests, therefore results were interpreted using two-side p -values, assuming equal variance. Given the unequal sample size between each subgroup, effect sizes were calculated using Hedge's g correction.

The zero-correlations analyses of humor styles with the outcome variables were compared using the methods developed for comparing independent sample correlations by Lenhard and Lenhard (2014). A p -value of .05 served as the primary test for statistical significance, and Cohen's guidelines for interpreting correlation and beta weight effect sizes were employed (e.g., small = .10, medium = .30, large = .50; Cohen, 1988).

Results

Correlation Analyses

While correlations between humor styles and the proposed mediator and mental health variables will be presented below, correlations among the other variables are summarized here. Correlations between all variables were consistent with prior literature. The correlation analysis revealed a significant positive correlation between self-enhancing humor and affiliative humor as well as a significant positive correlation between self-defeating humor and aggressive humor. No significant relationship was found between adaptive humor styles (self-enhancing humor and affiliative humor) and maladaptive humor styles (self-defeating humor and aggressive humor). Results also revealed a significant positive correlation between hope and resilience; both hope and resilience were positively correlated with overall psychological well-being as well as each of the individual elements of PERMA (positive emotions, engagement, relationships, meaning, accomplishment). Furthermore, results revealed significant positive correlations between each of the negative mental health variables. Perceived stress, depression, and anxiety were also significantly negatively correlated with overall psychological well-being as well as each of the individual elements of PERMA. Each of these correlations were significant at $p < .01$. Table 2 displays zero-order correlations for the study variables for all participants.

Aim 1: Relationship Between Humor Styles and Psychological Well-Being

The first aim was to examine the relationship between different humor styles and psychological well-being. Two hypotheses were proposed for the relationships between adaptive and maladaptive humor styles and measures of psychological well-being: (1) the first hypothesis (H_{1a}) was that self-enhancing humor and affiliative humor would be related

to greater psychological well-being; and (2) the second hypothesis (H_{1b}) was that self-defeating humor and aggressive humor would be related to lower psychological well-being.

These hypotheses were tested using the correlation analyses displayed in Table 2 and Table 3. Findings from these analyses revealed a significant positive association of both self-enhancing and affiliative humor styles with overall psychological well-being (PERMA). Results also showed a significant positive association between affiliative humor and each of the individual elements of PERMA, and a significant positive association between self-enhancing humor and the positive emotion, engagement, meaning, and accomplishment elements of PERMA (see Table 3). A significant negative association of both self-defeating humor and aggressive humor with overall psychological well-being as well as with each of the individual elements of PERMA was also found.

Aim 2: Relationship Between Humor Styles and Psychological Distress

The second aim of the current study was to examine the relationship between different humor styles and psychological distress. Two hypotheses were proposed for the relationships between adaptive and maladaptive humor styles and the measures of psychological distress: (1) the first hypothesis (H_{2a}) was that self-enhancing humor and affiliative humor would be related to lower levels of psychological distress; and (2) the second hypothesis (H_{2b}) was that self-defeating humor and aggressive humor would be related to greater psychological distress.

These hypotheses were also tested using the correlation analyses displayed in Table 2. Results of the correlation analysis revealed a significant negative association of both self-enhancing humor and affiliative humor with perceived stress. They also showed a significant negative correlation between affiliative humor and both anxiety and depression. However, no

significant relationship was found between self-enhancing humor and the other mental health variables (anxiety and depression). Additionally, the analysis revealed a significant positive association between self-defeating humor, perceived stress, anxiety, and depression.

However, no significant relationship was found between aggressive humor and the three mental health variables (perceived stress, anxiety, and depression).

Aim 3: Relationship Between Humor Styles and Resilience

The third aim was to examine the relationship between different humor styles and resilience. Two hypotheses were proposed for the relationships between adaptive and maladaptive humor styles and measures of resilience: (1) the first hypothesis (H_{3a}) was that self-enhancing humor and affiliative humor would be related to greater levels of resilience; and (2) the second hypothesis (H_{3b}) was that self-defeating humor and aggressive humor would be related to lower levels of resilience. Results from the correlation analysis shown in Table 2 revealed a significant positive relationship between affiliative humor and resilience, and a significant negative association between self-defeating humor and resilience. However, self-enhancing humor and aggressive humor showed no significant relationship with resilience.

Aim 4: Relationship Between Humor Styles and Hope

The fourth aim was to examine the relationship between different humor styles and hope. Two hypotheses were proposed for the relationships between adaptive and maladaptive humor styles and hope: (1) the first hypothesis (H_{4a}) was that self-enhancing humor and affiliative humor would be related to greater levels of hope; and (2) the second hypothesis (H_{4b}) was that self-defeating humor and aggressive humor would be related to lower levels of hope. The correlation analysis shown in Table 2 revealed significant positive associations of

both self-enhancing humor and affiliative humor with hope. Additionally, self-defeating humor and aggressive humor were both found to have significant negative associations with hope.

Aim 5: Testing the Mediating Role of Resilience

The fifth aim was to determine whether resilience mediates the effects of different humor styles on psychological well-being and distress. Prior to examining these relationships, two hypotheses were specified: (1) the first hypothesis (H_{5a}) was that resilience would mediate the effects of the humor styles on psychological well-being; and (2) the second hypothesis (H_{5b}) was that resilience would mediate the effects of the humor styles on psychological distress. Since self-enhancing and aggressive humor were not related to resilience (see Table 2), it was only examined as a potential mediator of affiliative and self-defeating humor as shown in Tables 4 and 5, respectively. The first hypothesis was partially supported in that resilience mediated the effects of affiliative humor on accomplishment (see Table 4) and the effects of self-defeating humor on PERMA and each of the elements of PERMA (see Table 5). The second hypothesis was partially supported in that resilience mediated the effects of affiliative humor on depression (see Table 4) and the effects of self-defeating humor on stress, anxiety, and depression (see Table 5). Overall, resilience mediated the effects of 29.17% (seven out of 24) of the effects of the humor styles on the well-being measures and of 33.33% (four out of 12) of the humor styles on the distress measures.

Aim 6: Testing the Mediating Role of Hope

The sixth aim was to determine whether hope mediates the effects of different humor styles on psychological well-being and distress. Two hypotheses were specified: (1) the first hypothesis (H_{6a}) was that hope would mediate the effects of humor styles on psychological

well-being; and (2) the second hypothesis (H_{6b}) was that hope would mediate the effects of humor styles on psychological distress. Since all humor styles were related to hope (see Table 2), it was examined as a potential mediator of all four humor styles as shown in Tables 6-9. The first hypothesis was fully supported in that hope mediated the effects of all four humor styles on PERMA and each of the elements of PERMA (see Tables 6-9). The second hypothesis was partially supported in that hope mediated the effects of affiliative and self-defeating humor on stress, anxiety, and depression, and of self-enhancing humor on stress (see Tables 6-8). Overall, hope mediated the effects of 100% (24 out of 24) of the effects of the humor styles on the well-being measures and of 58.33% (seven out of 12) of the humor styles on the distress measures.

Aim 7: Examining Mean Differences Across Gender, Ethnicity, and Race

The seventh aim was to determine whether means for the humor styles or their correlations with well-being and distress differed across gender, ethnicity, and race. There were no specific hypotheses due to lack of previous research. The number of comparisons reflect the number of humor styles x the number of comparisons across each gender, ethnicity, and race category x the number of mental health outcome variables. Table 10 shows the means for each of the humor styles across gender, ethnicity, and race. Out of the comparisons across gender and humor styles, there was only one significant difference in that men endorsed greater levels of aggressive humor than women. No significant differences were found in humor styles across ethnicity. There were three significant differences in humor styles across race. Specifically, Blacks participants were higher than participants in the White and American Indian/Alaskan Native groups, and Asian participants were higher than American Indian/Alaskan Native participants in aggressive humor.

Tables 11-18 show the difference in correlations between humor styles and measures of psychological well-being, psychological distress, and the two potential mediators across gender, ethnicity, and race. Across mental health variables and the two gender categories (the “other gender” category was not analyzed because it only included two participants), there was only one significant difference in that males had a stronger negative correlation between self-defeating humor and accomplishment than females (see Table 16). There were seven significant differences with one for self-enhancing humor, two for affiliative humor, and four for aggressive humor across the two ethnic categories. There was a stronger positive correlation between self-enhancing humor and engagement for non-Hispanic participants than for Hispanics participants (see Table 12). There were stronger positive correlations between affiliative humor and both engagement and meaning for Hispanic participants than for non-Hispanic participants (see Table 14). There was a stronger negative correlation between aggressive humor and both relationships and meaning for non-Hispanic participants than for Hispanics participants (see Table 18). Finally, there was a positive correlation between aggressive humor and both anxiety and depression for non-Hispanics participants, while there was a non-significant negative correlation for participants in the Hispanic group (see Table 17).

Across race categories, there were 94 significant differences in the correlations between the humor styles and well-being, distress, and mediation measures. There were 38 significant differences for self-enhancing humor (see Table 11), 11 for affiliative humor (see Table 13), 28 for aggressive humor (see Table 17), and 17 for self-defeating humor (see Table 15). While space prohibits mentioning all 94 significant differences and the large number of comparisons suggests that many may have been found by chance, the

concentration of differences in the aggressive and self-enhancing humor styles assumed four patterns, as described below.

First, White participants had a small, non-significant negative relationship between aggressive humor and well-being ($r = -.041$); however, Asian, Black, and American Indian/Alaska Native participants generally had medium-to-large negative correlations between aggressive humor and each of the well-being measures (mean $r = -.381$). Second, similarly, while White participants had very small negative correlations between aggressive humor and distress (mean $r = -.050$), participants in the Asian, Black, and American Indian/Alaska Native subgroups generally had medium positive correlations between aggressive humor and psychological distress measures (mean $r = .281$). Third, Black participants had a consistently stronger positive relationship between self-enhancing humor and each of the well-being measures than participants in the Asian, American Indian/Alaska Native, and White groups (mean $r = .835$ vs. $.180$, respectively; See Table 12). Fourth, Black participants had a consistently stronger negative relationship between self-enhancing humor and distress measures than did Asian, American Indian/Alaskan Native, and White participants (mean $r = -.556$ vs. $.180$, respectively; See Table 11).

Discussion

The primary purpose of this study was to explore the relationship between different humor styles, psychological well-being, and negative mental health outcomes. A secondary aim of this study was to examine the extent to which resilience and hope mediate these relationships. This study also explored differences in the relationship between humor style preferences, well-being, and mental health across gender, ethnicity, and race. Our results fully supported study hypotheses in that (1) adaptive humor styles were related to greater psychological well-being and hope (H_{1a} & H_{4a}); (2) maladaptive humor styles were related to lower psychological well-being and hope (H_{1b} & H_{4b}); and (3) hope partially mediated the effects of different humor styles on psychological well-being and distress (H_{6a} & H_{6b}). Our findings partially supported our remaining hypotheses in that (1) adaptive humor styles were related to lower psychological distress and greater resilience (H_{2a} & H_{3a}); (2) maladaptive humor styles were related to greater psychological distress and lower resilience (H_{2b} & H_{3b}); and (3) resilience partially mediated the effects of different humor styles on psychological well-being and distress (H_{5a} & H_{5b}).

Key Findings

Addressing the research aims of the present study, we found that adaptive humor styles (self-enhancing and affiliative humor) were almost always related to greater well-being while maladaptive humor styles (self-defeating and aggressive humor) were consistently related to lower overall well-being. Similarly, self-defeating humor was consistently associated with distress variables. The relation between adaptive humor styles and distress was more variable, however, and no significant associations were identified between aggressive humor and any distress variables. These findings add to a growing body of

literature supporting Martin et al.'s (2003) reconceptualization of humor as a multidimensional construct and highlight the importance of distinguishing between humor's adaptive and maladaptive functions when examining the effect of different humor styles on psychological well-being and distress.

The lack of relationship between aggressive humor and the distress variables is consistent with prior work. For example, previous studies have demonstrated consistent relationships between aggressive humor styles and factors such as self-esteem, loneliness, and relationship dissatisfaction (Cann et al., 2004; Martin et al., 2003; Stieger et al., 2011). However, these factors relate to an individual's distress in a more distal or peripheral fashion, unlike anxiety, depression, and stress, which bear a proximal relation to psychological distress. Our study found that aggressive humor styles may have less of an association to these more proximal measures of psychological distress, which may suggest that expression of aggressive humor is more likely a consequence of proximal outcomes rather than a potential cause. Additionally, research examining the convergent validity between the HSQ and other validated measures of humor (e.g., SHQ, CHS) indicates that the aggressive humor subscale generally does not correlate well with other humor self-report measures (Doris, 2004; Kazarian & Martin, 2004).

Moreover, in examining the relationship between different humor styles and the five distinct elements of well-being captured by the PERMA Profiler (positive emotions, engagement, relationship, meaning, and accomplishment), we found that both self-enhancing and affiliative humor had the strongest positive association with the engagement element of PERMA, while self-enhancing humor had a stronger positive association with PERMA's accomplishment element compared to affiliative humor. While our results revealed a modest

positive association between affiliative humor and the relationship element of PERMA, there was no evidence for a direct association between self-enhancing humor and PERMA's relationship element. The findings also indicated a negative association between each of the maladaptive humor styles and the individual elements of PERMA. However, results revealed a more robust negative association between self-defeating humor and PERMA's positive emotion, engagement, relationship, and meaning elements, relative to aggressive humor. These results underscore the importance of conceptualizing well-being in a more differentiated way when examining the relationship of well-being with different humor styles. Some of the null results in previous research with aggressive humor may be explained by a failure to differentiate between the hedonic (positive emotions) and eudemonic (engagement, relationship, meaning, accomplishment) dimensions of well-being.

These findings also highlight the importance of distinguishing between humor's interpersonal and intrapersonal functions when examining the relationship between different humor styles and well-being. Self-enhancing humor, which is typically self-directed, may foster greater intrapersonal functioning related to well-being, such as increasing one's internal motivation and sense of competence or achievement for its own sake. Affiliative humor, which is typically directed towards others, may facilitate well-being by fostering interpersonal functioning, such as increasing one's ability to form stable, loving relationships and experience greater positive emotions within the context of those relationships.

In contrast, aggressive humor, which involves sarcasm or ridicule directed towards others, may inhibit interpersonal functioning by creating distance between oneself and others, making it difficult to develop and engage in intimate relationships that help foster well-being. Self-defeating humor, which is self-directed but also expressed interpersonally, may decrease

psychological well-being more broadly by inhibiting both intrapersonal and interpersonal functioning. Amusing others by saying or doing humorous things at one's own expense may create a feedback loop that reinforces poor self-worth and low self-efficacy, which may, in turn, decrease one's sense of belonging in the world or with one's peers.

Addressing our study's secondary aims, resilience and hope were explored as mediators for the relation between humor styles and mental health variables. Affiliative and self-defeating humor related to resilience in the expected directions, and results of our mediation analyses indicated that resilience partially mediated the effects of humor styles on 29.17% of the well-being measures and on 33.33% of the distress measures. Previous work suggests that affiliative and self-defeating humor may differently influence resilience by facilitating or inhibiting the availability of social support, which can buffer the adverse effects of stress (Berscheid & Reis, 1998; Kupier & McHale, 2009). For example, Kirsh & Kupier (2003) observed that affiliative humor facilitated higher levels of social self-esteem and greater exposure to positive social interactions whereas self-defeating humor led to lower social self-esteem and greater social rejection.

We also found that all four humor styles were related to hope in the expected directions and hope partially mediated the effects of humor styles on 100% of the well-being measures and on 58.33% of the distress measures. Humor styles likely influence hope through several different pathways (e.g., our beliefs in our abilities to achieve personal goals and overcome obstacles in the path to success). Self-enhancing humor may facilitate more positive emotions and greater cognitive reappraisal when thinking about future goals, thereby fostering one's sense of agency and ability to identify novel pathways to reach said goals. Similarly, affiliative humor may promote hope by enhancing an individual's level of

social support, which, in turn, yields greater access to the emotional and logistical resources needed to achieve one's goals. Aggressive humor may inhibit hope by alienating potential allies, thus limiting one's social support network and the number of potential pathways to one's goal. Self-defeating humor may facilitate more negative emotions when thinking about one's future and promote a sense of hopelessness.

On the one hand, our findings are consistent with previous research showing that adaptive and maladaptive humor styles may affect our psychological health and well-being by differentially influencing hope (Cann et al., 2010; Falanga et al., 2020). On the other hand, our results showing that self-enhancing humor was not significantly related with resilience go against previous findings (Cann & Collette, 2014; McCullars et al., 2021) and were particularly surprising given that this humor style has been linked with intrapsychic coping in the literature (Kupier, 2004). These null results may be related to some of the questions that have been raised regarding the validity of HSQ's subscales. Specifically, Heintz & Ruch (2015) have critiqued the construct validity of the self-enhancing humor subscale, arguing that the items on this subscale are incongruous with the conceptual definition of self-enhancing humor. These null findings may also be due to our using the BRS to assess resilience. Prior work demonstrating a relation between self-enhancing humor and resilience has employed the Connor-Davidson Resilience Scale (CD-RISC; Connor-Davidson, 2003), which measures factors that contribute to the promotion of resilience rather than resilience itself. Furthermore, while the CD-RISC only has positively worded items, the BRS has reverse coded items to correct for positive response bias. This potential bias in the CD-RISC may have exaggerated the positive relationship self-enhancing humor and resilience.

Finally, our exploratory analyses regarding differences across gender, ethnicity, and race revealed significant differences in the mean levels of aggressive humor across gender and racial subgroups. Additionally, our findings revealed patterns of significant differences in correlations between aggressive and self-enhancing humor styles and the well-being and distress measures across race. The differential relationship between aggressive humor, psychological well-being, and distress across racial subgroups may reflect differences in cultural norms and values. For example, aggressive humor may be more congruent with Western European individualist values, and its use in social contexts may be more normative (Jiang et al., 2019). As such, White individuals may use aggressive humor as a tool to forge relationships or strengthen one's status with other dominant group members, which may explain the non-significant association between aggressive humor and well-being in the White subgroup.

In contrast, aggressive humor may be more dissonant with cultures that embrace collectivist values and may violate social norms when directed towards members of one's own cultural group (Yue et al., 2016). For our Asian and American Indian/Alaskan Native participants, aggressive humor may have a stronger negative impact on mental health and well-being outcomes in that it may decrease social support amongst members of the same cultural background or weaken one's sense of belonging within one's family or broader social structure. As discussed in the limitations section, these findings should be recognized as a sliver of a much larger picture as there are likely many other socio-cultural influences that contribute to the above relationships.

Although the Black subgroup comprised only nine individuals, our results indicated that these participants were significantly higher in aggressive humor relative to participants

from the American Indian/Alaskan Native and White subsamples. Additionally, our findings suggest that engaging in aggressive humor may be associated with worse well-being outcomes for Black individuals while use of self-enhancing humor may be associated with more beneficial well-being and mental health outcomes. These patterns may reflect the way in which Black culture-specific humor has historically played a crucial role in coping with systematic oppression and inequality within the African American community (Gillota, 2013; Watkins, 1999). Self-enhancing humor, which facilitates perspective taking, may help Black individuals reclaim power and a sense of control during experiences of racism and prejudice and promote group solidarity or cultural pride by highlighting the absurdities of different practices or policies that uphold the status quo.

These patterns may also be related to intra-group differences in Black racial ethnic identity development, which broadly refers to stages of one's identification with White Eurocentric values and attitudes towards one's Black culture and traditions that allow Black Americans to form a positive racial identity (Cross, 1991, 1995). As demonstrated in Reifsteck's (2018) study, self-enhancing humor may have more beneficial effects for individuals in earlier stages of their Black identity development who adhere to social norms of the dominant White culture (e.g., Pre-Encounter stage) whereas for Black individuals who identify with and feel strongly connected to Black culture and values (e.g., Immersion-Emersion or Internalization stages) aggressive humor may be more beneficial. These findings underscore the importance of understanding humor within a racial ethnic identity framework to better understand how one's attitudes, beliefs, and identification with one's own ethnic and racial group versus the dominant culture may moderate the relationship between different humor styles, psychological well-being, and distress.

Finally, our findings indicate that, apart from a small group of participants who identified with the “Other” or “Multiple race” subgroups, self-defeating humor had a significant relationship with positive and negative mental health outcomes for all gender, ethnic, and racial subgroups. Given the consistent negative correlations between self-defeating humor and well-being on the one hand, and its positive correlations with distress in our overall sample and other subgroups, it is likely that the “Other” and “Multiple race” subgroups would have followed suit with more participants in each subsample. Replication studies with larger samples of individuals who identify as “Other” and “Multiple race” would help elucidate the relationship between self-defeating humor, well-being, and mental health across different racial subgroups.

Clinical Implications

Though the direction of the relationship between self-defeating humor and positive and negative mental health cannot be determined by this study’s cross-sectional design, if additional research indicates that decreasing self-defeating humor results in increased well-being and lower psychological distress, it may be an important target for intervention. Intervention within the therapeutic relationship might involve attending to a client’s use of self-defeating humor in session and exploring its connection with the client’s emotions and negative self-evaluations. It may also be beneficial for the client to practice reframing self-deprecating jokes using self-enhancing or affiliative humor to learn how to make light of their errors or faults in a more self-accepting manner. Importantly, emerging research suggests that interventions that target positive affect yield better clinical outcomes as compared to interventions with an exclusive focus on targeting negative emotions (Craske et

al., 2023). Taken together, attention to client language with respect to humor styles may represent a clinical target for future prevention and intervention efforts.

Given that sharing humor with a client can enhance therapeutic alliance by fostering a feeling of belonging (Franzini, 2001; Valentine & Gabbard, 2014), it may be equally important to attend to the therapist's use of different humor styles in psychotherapy sessions. A therapist's use of self-defeating humor may inadvertently arrest the client's stream of thought, minimize the importance of what the client is sharing, or restrict their client's ability to express negative emotions. Intervention might involve therapists receiving formal training on how to employ different humor styles appropriately and for the client's benefit in therapy. Training might include: (1) specific techniques that link humor with the logic or the goals of the session, (2) use of supervisors to provide modeling and feedback related to humor use, and (3) developing cultural competence and cultural humility in relation to a client's use of humor (Banmen, 1982; Franzini, 2001; Walsh, 2015).

Limitations

This study had several limitations worth mentioning. First, the study was cross-sectional and correlational. Given that utilizing cross-sectional data violates two out of the three requirements for causality (e.g., temporal precedence and removal of confounding variables) and may yield biased estimates relative to the assumed longitudinal processes (Cole & Maxwell, 2003; Maxwell, Cole, & Mitchell, 2011), no definitive conclusions can be drawn about causality. While results from the current study are consistent with the theory that adaptive humor styles are related to positive outcomes and maladaptive humor styles are related to negative outcomes, a longitudinal study design is needed to determine how these different humor styles may change mental health outcomes over time. Longitudinal studies

with multiple time points would enable researchers to develop an understanding of how and when hope mediates the relationship between humor styles, psychological well-being, and negative mental health by looking at mediation over time and examining how much one variable influences the other.

Additionally, this study was limited in sample size, specifically the sample sizes for the different gender, ethnicity, and racial subgroups. As a result, the study lacked sufficient power to detect significant subgroup differences in relationships using a p -value of .05 to determine significance. It is also important to recognize that this study may not be representative of the community at large. First, this study was conducted with undergraduate students at a university located in a majority-minority state, which may limit the generalizability of our findings, particularly to other age groups and geographic regions. Additionally, there are likely other variables (e.g., social economic status, education level, level of acculturation, etc.) that may influence the relationship between different humor styles and mental health. Future research should examine how these variables may moderate the effects of different humor styles on positive and negative mental health outcomes.

Finally, it is worth noting this study's limitations with respect to measurement, specifically the reliance on psychological rating scales to measure individual differences in humor styles expression, well-being, and psychological distress. Although rating scale methods are a time- and cost-efficient way to assess characteristics of interest in psychological research, questions have been raised about their ability to capture the nuance and complexity of psychological phenomena (Uher, 2022). With respect to the HSQ, one of the more salient limitations of using a rating scale to index a construct like humor is that the collected information is completely decontextualized from important information such as: (1)

the relationship between the presenter and their audience (e.g., parent, employer, friend); (2) how others respond to one's use of different humor styles (e.g., is the joke well received or is it perceived as offensive); or (3) the medium in which the humor is conveyed (e.g., humor that is expressed verbally versus humor expressed through text, memes, or GIFs).

Apart from self-defeating humor, which necessarily involves making oneself the subject of the joke, the HSQ does not capture nuance regarding the target of self-enhancing, affiliative, and aggressive humor. Some of the null results in previous research with aggressive humor may be due to a failure to examine who or what the joke is ridiculing. For example, aggressive humor that is directed toward the dominant group (e.g., "punching up") can draw attention to implicit attitudes or stereotypes, which may help members of non-dominant groups cope with their disadvantage status or provide opportunities for discussion and effect social change (Sharp & Hayes, 2016; Strain et al., 2016).

Future Directions

Findings and limitations of the current study highlight several fruitful directions for future research. First, given that this is one of the first studies to use *The PERMA Profiler* to examine the relationship between different humor styles and well-being, more research is needed to elucidate the relationship between adaptive and maladaptive humor styles and PERMA's positive emotion, engagement, relationship, meaning, and accomplishments elements. Second, given that the HSQ was developed and validated using primarily non-Hispanic White undergraduate samples in the United States, future research should examine the validity and reliability of the HSQ with diverse populations. Researchers should engage community based participatory research (CBPR) frameworks and qualitative research methods (e.g., focus groups, one-on-one interviews with members of different ethnic and

racial subgroups) to determine whether HSQ items and statements accurately reflect their views. Qualitative analyses of these interviews should guide recommendations for developing culturally adapted versions of the HSQ, and the adapted questionnaire should be followed by studies examining the validity and reliability of adapted questionnaires.

Additionally, developing the HSQ scale to incorporate humor style appreciation, not just expression, might enable a deeper understanding of how both differentially relate to well-being and mental outcomes. Humor style appreciation concerns one's preferences for styles of humor, not simply one's penchant for creating humor. How one assigns value to other's humor and what forms of humor that one seeks in others out may play as important, if not more important, a role in developing and maintaining well-being than the humor that one actually exercises in one's own life. For example, an individual who otherwise resists employing aggressive humor in her own life might well seek that out in a comedy revue and benefit enormously from the experience.

Third, given the over-reliance on correlational data in extant humor research, it would be beneficial for researchers to explore the influence of different humor styles on well-being and psychological distress through process-oriented, experimental designs. For example, researchers might explore the real-time emergence and interplay of different humor styles as they are exercised in response to actual situational dynamics under conditions of control and manipulation. For example, researchers might examine how individuals adopt one humor style over another to being presented with different stressors. Given that maladaptive humor styles were strongly correlated with one another in this study, it is possible that an individual who typically uses aggressive humor might engage more self-defeating humor during a stressful event. Since adaptive humor styles were also strongly correlated to one another, it is

also possible that an individual who typically uses more self-enhancing humor might respond to stress by adopting more affiliative humor. Research with such aims may benefit from collection of real time data, such as Ecological Momentary Assessment (EMA; Stockton et al., 2016).

There is also a pressing need for qualitative process oriented work, which offers greater ecological validity and examines these relationships more synthetically. Qualitative research approaches (e.g., unstructured interviews and grounded-theory thematic analysis) allow researchers the opportunity to examine how meaning-making unfolds in one's day-to-day life and would enable a more nuanced understanding of how humor emerges within the context of an individual's lived experience (Krauss, 2005; Manning & Kunkle, 2014). Moreover, qualitative research methods facilitate nuanced accounts of cultural processes, practices, and rituals and may be particularly useful for understanding how individuals with marginalized identities engage adaptive and maladaptive humor to navigate their social worlds (Manning & Kunkle, 2014). While there is emerging qualitative research examining the integration of humor into psychotherapy (e.g., Raeke & Proyer, 2022; Rudkuck et al., 2014), more research is needed and future studies might systematically examine intra- and intergroup differences in humor by conducting unstructured interviews with individuals from different cultural groups.

Conclusion

This study adds to a growing body of evidence delineating the relationship between adaptive and maladaptive humor styles, different elements of psychological well-being, and symptoms of psychological distress. Additionally, this study extends previous research by providing preliminary evidence that hope mediates the relationship between different humor

styles and mental health outcomes. This study also addresses a gap in the extant literature, providing preliminary evidence that humor style preferences differ across gender and race and that the relationship between aggressive humor and positive and negative mental health outcomes may vary based on race. While more research is needed to clarify the clinical implications of these relationships, these findings can inform existing mental health prevention and intervention efforts to enhance psychological well-being among college students.

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Table 1*Descriptive Statistics for the Main Study Variables*

Variable	Mean	SD	Range	Skewness	Kurtosis
Humor Styles					
Affiliative Humor	5.454	.985	1.750-7.000	-.648	.308
Self-Enhancing Humor	4.451	.954	1.630-6.880	-.141	.078
Aggressive Humor	3.174	.937	1.000-6.250	.198	-.147
Self-Defeating Humor	3.372	1.146	1.000-6.630	.359	-.092
Negative Mental Health	4.451	.954	1.000-6.250	.198	-.0147
Perceived Stress	2.776	.687	1.000-4.500	-.205	-.175
Anxiety	2.256	.764	1.000-4.000	.355	-.647
Depression	2.060	.691	1.000-4.000	.574	-.483
Positive Mental Health					
PERMA Total	8.200	1.442	1.530-9.870	-.729	.861
Positive Emotions	7.788	1.691	.670-1.000	-.644	.838
Engagement	8.364	1.536	1.330-1.000	-.799	.917
Relationships	8.051	2.039	.3300-1.000	-.793	.402
Meaning	8.236	1.820	1.000-1.000	-.646	.261
Accomplishment	8.565	1.482	3.000-1.000	-.645	.267
Potential Mediators					
Hope	6.236	1.012	3.000-8.000	-.467	-.119
Resilience	3.262	.767	1.170-5.000	-.111	-.396

Table 2*Zero-order Correlations of Humor Styles and Mental Health Variables for All Participants*

	1	2	3	4	5	6	7	8	9	10
1. SEH	—									
2. AFF	.319**	—								
3. SDH	0.017	-0.084	—							
4. AGG	-0.031	-0.098	.273**	—						
5. Hope	.287**	.208**	-.346**	-.217**	—					
6. Resilience	0.087	.132*	-.359**	-0.105	.535**	—				
7. Stress	-.138*	-.168**	.368**	0.096	-.559**	-.539**	—			
8. Anxiety	-0.029	-.134*	.257**	0.091	-.274**	-.395**	.502**	—		
9. Depression	-0.076	-.147*	.419**	0.102	-.371**	-.421**	.582**	.740**	—	
10. PERMA	.203**	.225**	-.388**	-.246**	.641**	.425**	-.567**	-.368**	-.526**	—

Note. $N = 234-37$. * $p < .05$, ** $p < .01$ (2-tailed)

SEH = Self-Enhancing Humor; AFF = Affiliative Humor; SDH = Self-Defeating Humor; AGG = Aggressive Humor; PERMA = PERMA Profiler.

Table 3*Zero-order Correlations of Humor Styles and Individual PERMA Elements for All Participants*

	1	2	3	4	5	6	7	8	9
1. SEH	—								
2. AFF	.319**	—							
3. SDH	0.017	-0.084	—						
4. AGG	-0.031	-0.098	.273**	—					
11. PERMA-P	.145*	.156*	-.322**	-.177**	—				
12. PERMA-E	.283**	.275**	-.307**	-.223**	.622**	—			
13. PERMA-R	0.094	.150*	-.347**	-.211**	.686**	.494**	—		
14. PERMA-M	.149*	.192**	-.400**	-.202**	.769**	.605**	.780**	—	
15. PERMA-A	.219**	.189**	-.235**	-.226**	.594**	.574**	.452**	.709**	—

Note. $N = 234-37$. * $p < .05$, ** $p < .01$ (2-tailed)

PERMA-P = Positive Emotion Subscale; PERMA-E = Engagement Element; PERMA-R = Relationship Element; PERMA-M = Meaning Element; PERMA-A = Accomplishment Element.

Table 4*Resilience Mediation Analyses of the Effects of Affiliative Humor on Well-being and Distress ^a*

Criterion Variable (CV)	Total effect of IV on DV	Effect of IV on MD (a)	Effect of MD on DV (b)	Direct effect (c')	Indirect effect	Boot SE	Sobel Test (z value)	95% BCI	
								Lower	Upper
Stress	-.170**	.132*	-.526***	-.101	-.070	.036	-2.00	-.143,	.001
Anxiety	-.140*	.132*	-.383***	-.089	-.051	.028	-1.94	-.107,	.004
Depression	-.153*	.132*	-.408***	-.099	-.054*	.029	-2.47	-.114,	-.001
PERMA	.224***	.132*	.403***	.171**	.053	.030	1.96	-.001,	.115
<i>Positive Emotion</i>	.159*	.132*	.416***	.104	.055	.030	1.96	-.001,	.119
<i>Engagement</i>	.276***	.132*	.212**	.248***	.028	.019	1.75	-.001,	.072
<i>Relationships</i>	.145*	.132*	.254***	.112	.034	.020	1.82	-.001,	.078
<i>Meaning</i>	.349**	.132*	.408***	.135*	.054	.031	1.96	-.001,	.119
<i>Accomplishment</i>	.192**	.132*	.416***	.137*	.055*	.030	2.13	.001,	.116

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

^a Standardized beta coefficients are given for total effect, effect of IV on MD, Effect of MD on CV, Direct Effect, and Indirect Effect

Table 5*Resilience Mediation Analyses of the Effects of Self-Defeating Humor on Well-being and Distress ^a*

Criterion Variable (CV)	Total effect of IV on DV	Effect of IV on MD (a)	Effect of MD on DV (b)	Direct effect (c')	Indirect effect	Boot SE	Sobel Test (z value)	95% BCI	
								Lower	Upper
Stress	.368***	-.359***	-.468***	.200***	.168***	.036	4.76	.101, .242	
Anxiety	.255***	-.359***	-.348***	.1301*	.125***	.031	4.00	.071, .189	
Depression	.418***	-.359***	-.311***	.307***	.112***	.029	3.87	.060, .172	
PERMA	-.390***	-.359***	.328***	-.272***	-.118***	.034	-3.97	-.192, -.058	
<i>Positive Emotion</i>	-.321***	-.359***	.361***	-.192**	-.130***	.031	-4.13	-.196, -.072	
<i>Engagement</i>	-.307***	-.359***	.154*	-.252***	-.055*	.031	-2.17	-.121, -.001	
<i>Relationships</i>	-.352***	-.359***	.163*	-.293***	-.059*	.029	-2.32	-.117, -.009	
<i>Meaning</i>	-.403***	-.359***	.323***	-.287***	-.116***	.034	-3.95	-.191, -.057	
<i>Accomplishment</i>	-.234***	-.359***	.402	-.089***	-.144***	.036	-4.33	-.221, -.081	

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

^a Standardized beta coefficients are given for total effect, effect of IV on MD, Effect of MD on CV, Direct Effect, and Indirect Effect

Table 6*Hope Mediation Analyses of Effects on Self-Enhancing Humor on Psychological Well-being and Distress ^a*

Criterion Variable (CV)	Total effect of IV on DV	Effect of IV on MD (a)	Effect of MD on DV (b)	Direct effect (c')	Indirect effect	Boot SE	Sobel Test (z value)	95% BCI	
								Lower	Upper
Stress	-.136*	.287***	-.566***	.026*	-.162***	.042	-4.16	-.249	-.083
PERMA	.202***	.287***	.636***	.020*	.182***	.046	4.28	.093	.272
<i>Positive Emotion</i>	.143*	.287***	.555***	-.016	.159***	.0425	4.14	.078	.248
<i>Engagement</i>	.282***	.287***	.387***	.171**	.111***	.030	3.72	.053	.173
<i>Meaning</i>	.147*	.287***	.632***	-.035	.181***	.045	3.87	.094	.268
<i>Relationships</i>	.145*	.287***	.254***	.111	.129***	.036	4.26	.062	.203
<i>Accomplishment</i>	.219**	.287***	.661***	.029	.190***	.046	4.31	.098	.280

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

^a Standardized beta coefficients are given for total effect, effect of IV on MD, Effect of MD on CV, Direct Effect, and Indirect Effect

Table 7*Hope Mediation Analyses of the Effects on Affiliative Humor on Well-being and Distress ^a*

Criterion Variable (CV)	Total effect of IV on DV	Effect of IV on MD (a)	Effect of MD on DV (b)	Direct effect (c')	Indirect effect	Boot SE	Sobel Test (z value)	95% BCI	
								Lower	Upper
Stress	-.164*	.208**	-.548**	-.050	-.114**	.035	-3.08	-.184, -.048	
Anxiety	-.129*	.208**	-.258***	-.058	-.054*	.021	-2.52	-.098, -.018	
Depression	-.141*	.208**	-.357***	-.067	-.074**	.024	-2.82	-.124, -.028	
PERMA	.219***	.208***	.623***	.089	.130**	.039	3.13	.053, .206	
<i>Positive Emotion</i>	.150*	.208**	.543***	.037	.113**	.035	3.08	.043, .184	
<i>Engagement</i>	.272***	.208**	.397***	.189**	.082**	.027	2.92	.032, .137	
<i>Relationships</i>	.146*	.208**	.427***	.057	.089**	.028	2.95	.037, .145	
<i>Meaning</i>	.185**	.208**	.610***	.058	.127**	.037	3.12	.053, .201	
<i>Accomplishment</i>	.183**	.208**	.660***	.046	.137**	.041	3.15	.059, .218	

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

^a Standardized beta coefficients are given for total effect, effect of IV on MD, Effect of MD on CV, Direct Effect, and Indirect Effect

Table 8*Hope Mediation Analyses of the Effects of Self-Defeating Humor on Well-being and Distress^a*

Criterion Variable (CV)	Total effect of IV on DV	Effect of IV on MD (a)	Effect of MD on DV (b)	Direct effect (c')	Indirect effect	Boot SE	Sobel Test (z value)	95% BCI	
								Lower	Upper
Stress	-.363***	-.346***	-.492***	.193***	.170***	.032	4.72	.110	.235
Anxiety	.248***	-.346***	-.214***	.1738*	.074**	.027	2.80	.022	.131
Depression	.411***	-.346***	-.260***	.321***	.090***	.025	3.38	.044	.143
PERMA	-.380***	-.346***	.579***	-.180***	-.200***	.035	-5.01	-.273	-.133
<i>Positive Emotion</i>	-.314***	-.346***	.502***	-.141*	-.174***	.032	-4.72	-.239	-.113
<i>Engagement</i>	-.301***	-.346***	.377***	-.170*	-.130***	.030	-4.13	-.193	-.075
<i>Relationships</i>	-.341***	-.346***	.364***	-.215**	-.126***	.030	-4.08	-.189	-.072
<i>Meaning</i>	-.390***	-.346***	.553***	-.199***	-.191***	.035	-4.95	-.263	-.125
<i>Accomplishment</i>	-.225**	-.346***	.672***	.007	-.232***	.039	-5.16	-.311	-.156

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

^a Standardized beta coefficients are given for total effect, effect of IV on MD, Effect of MD on CV, Direct Effect, and Indirect Effect

Table 9*Hope Mediation Analyses of the Effects of Aggressive Humor on Well-being and Distress ^a*

Criterion Variable (CV)	Total effect of IV on DV	Effect of IV on MD (a)	Effect of MD on DV (b)	Direct effect (c')	Indirect effect	Boot SE	Sobel Test (z value)	95% BCI	
								Lower	Upper
PERMA	-.238***	-.217***	.618***	-.104*	-.134**	.040	-3.27	-.213,	-.054
<i>Positive Emotion</i>	-.170*	-.217**	.539***	-.053	-.117**	.036	-3.20	-.188,	-.047
<i>Engagement</i>	-.218**	-.217**	.408***	-.130*	-.089**	.029	-3.04	-.150,	-.034
<i>Relationships</i>	-.206**	-.217**	.413***	-.116	-.090**	.029	-3.05	-.150,	-.035
<i>Meaning</i>	-.193**	-.217**	.609***	-.060	-.132**	.040	-3.26	-.210,	-.055
<i>Accomplishment</i>	-.216**	-.217**	.654***	-.074	-.142**	.044	-1.34	-.228,	-.057

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

^a Standardized beta coefficients are given for total effect, effect of IV on MD, Effect of MD on CV, Direct Effect, and Indirect Effect

Table 10*Means of the Humor Styles Across Gender, Ethnicity, and Race*

Group	Sample Size	Affiliative Humor	Self-Enhancing Humor	Aggressive Humor	Self-Defeating Humor
Gender					
Males	52	5.476	4.513	3.601 ^a	3.354
Females	183	5.442	4.426	3.061 ^a	3.366
Other	2	5.938	5.063	2.375	4.375
Ethnicity					
Hispanic	96	5.380	4.361	3.166	3.296
Non-Hispanic	141	5.503	4.512	3.179	3.424
Race					
Asian	19	5.509	4.336	3.526 ^b	3.415
Black	9	5.625	4.833	3.917 ^{cd}	3.069
AI/AN	60	5.253	4.675	2.952 ^{bc}	3.352
White	126	5.515	4.328	3.130 ^d	3.310
Mixed	16	5.448	4.550	3.375	3.820
Other	7	5.714	4.339	3.500	3.913

Note. Means sharing the same superscript are significantly different at $p < .05$.

Table 11

Zero-Order Correlations of the Self-Enhancing Humor Style with the Mental Health Variables across Gender, Ethnicity, and Race

Group	Sample Size	Perceived Stress	Anxiety	Depression	PERMA Total	Resilience	Hope
Gender							
Males	52	-.137	-.038	-.091	.306*	.202	.440**
Females	183	-.150*	-.031	-.089	.197**	.059	.268***
Ethnicity							
Hispanic	96	-.202*	-.088	-.094	.143	-.033	.260*
Non-Hispanic	141	-.096	.021	-.068	.258**	.177*	.312***
Race							
Asian	19	-.094	-.172	-.124	.064 ^a	.569* ^{abc}	.501* ^a
Black	9	-.422	-.725* ^{abc}	-.522	.869** ^{abcde}	.489	.898*** ^{abcde}
AI/AN	60	-.095	.195 ^a	.013	.276* ^b	.037 ^a	.261* ^b
White	126	-.171 ⁺	-.044 ^b	-.127	.139 ^c	.056 ^b	.208* ^c
Mixed	16	-.175	-.049 ^c	-.032	.163 ^d	-.132 ^c	.430 ⁺ ^d
Other	7	.387	-.366	.055	-.107 ^e	-.010	.134 ^e

Note. Correlations sharing the same superscript are significantly different at $p < .05$. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

Table 12*Zero-Order Correlations of the Self-Enhancing Humor Style with the PERMA Variables across Gender, Ethnicity, and Race*

Group	Sample Size	Positive Emotions	Engagement	Relationships	Meaning	Accomplishment
Gender						
Males	52	.263+	.270+	.074	.264+	.379**
Females	183	.141+	.294***	.100	.134+	.207**
Ethnicity						
Hispanic	96	.158	.155 ^a	.091	.092	.112
Non-Hispanic	141	.142+	.384*** ^a	.114	.196*	.303***
Race						
Asian	19	-.077 ^a	.284 ^b	-.136 ^a	.081 ^a	.247 ^a
Black	9	.853** ^{abcde}	.808** ^{bcd}	.840** ^{abcde}	.855** ^{abcde}	.785* ^{abc}
AI/AN	60	.151 ^b	.441*** ^e	.155 ^b	.183 ^b	.287* ^b
White	126	.086 ^c	.184* ^{ce}	.073 ^c	.121 ^c	.119 ^c
Mixed	16	.254 ^d	.072 ^d	.097 ^d	.023 ^d	.250
Other	7	-.199 ^e	.324	-.434 ^e	-.264 ^e	.158

Note. Correlations sharing the same superscript are significantly different at $p < .05$. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

Table 13*Zero-Order Correlations of the Affiliative Humor Style with the Mental Health Variables across Gender, Ethnicity, and Race*

Group	Sample Size	Perceived Stress	Anxiety	Depression	PERMA Total	Resilience	Hope
<hr/>							
Gender							
Males	52	-.222	-.014	-.153	.354**	.278*	.333*
Females	183	-.163*	-.178*	-.163*	.204**	.093	.185*
Ethnicity							
Hispanic	96	-.252*	-.204*	-.217*	.368*** ^a	.103	.297**
Non-Hispanic	141	-.115	-.083	-.100	.134 ^a	.148+	.141+
Race							
Asian	19	-.216	-.131	-.321	.246	.194	.610*** ^a
Black	9	-.496	-.348	-.319	.261	.244	.110
AI/AN	60	-.250+	-.151	-.197	.258*	.316** ^a	.342*** ^b
White	126	-.131	-.142	-.148+	.229*** ^b	.060 ^a	.089 ^{ab}
Mixed	16	-.060	.001	-.080	.638*** ^b	.071	.651**
Other	7	-.626	-.057	.157	.355	.491	.355
<hr/>							

Note. Correlations sharing the same superscript are significantly different at $p < .05$. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

Table 14*Zero-Order Correlations of the Affiliative Humor Style with the PERMA Variables across Gender, Ethnicity, and Race*

Group	Sample Size	Positive Emotions	Engagement	Relationships	Meaning	Accomplishment
Gender						
Males	52	.286*	.370**	.160	.346*	.272+
Females	183	.140+	.251***	.148*	.158*	.188*
Ethnicity						
Hispanic	96	.274**	.444****a	.251*	.328****a	.277**
Non-Hispanic	141	.079	.166*a	.103	.100 ^a	.124
Race						
Asian	19	.009	.575*b	-.015	.188	.437+
Black	9	.337	.301	.196	.282	.107
AI/AN	60	.250+	.136 ^{bc}	.218+	.199 ^b	.258*
White	126	.150+	.356***	.125	.180* ^{bc}	.157+ ^a
Mixed	16	.372	.643***c	.338	.636*** ^{bc}	.641*** ^a
Other	7	.074	.255	.322	.443	.524

Note. Correlations sharing the same superscript are significantly different at $p < .05$. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

Table 15*Zero-Order Correlations of the Self-Defeating Humor Style with the Mental Health Variables across Gender, Ethnicity, and Race*

Group	Sample Size	Perceived Stress	Anxiety	Depression	PERMA Total	Resilience	Hope
Gender							
Males	52	.478***	.344*	.518***	-.506***	-.481***	-.435**
Females	183	.333***	.225**	.382***	-.358***	-.321***	-.310***
Ethnicity							
Hispanic	96	.366***	.235*	.373***	-.378***	-.319**	-.356***
Non-Hispanic	141	.369***	.273**	.449***	-.395***	-.393***	-.342***
Race							
Asian	19	.184	.445+	.644**	-.409+	.207 ^a	-.034 ^a
Black	9	.601+	.815**abc	.815**ab	-.759*	-.524	-.541
AI/AN	60	.473***	.453***d	.566***c	-.395**	-.513***b	-.202 ^b
White	126	.285**	.117 ^{ad}	.347***ac	-.377***	-.395***a	-.444***ab
Mixed	16	.492+	.306 ^b	.336	-.370	-.019 ^b	-.193
Other	7	.491	-.042 ^c	-.097 ^b	-.204	-.336	-.450

Note. Correlations sharing the same superscript are significantly different at $p < .05$. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

Table 16*Zero-Order Correlations of the Self-Defeating Humor Style with the PERMA Variables across Gender, Ethnicity, and Race*

Group	Sample Size	Positive Emotions	Engagement	Relationships	Meaning	Accomplishment
Gender						
Males	52	-.226	-.466***	-.349*	-.524***	-.469*** ^a
Females	183	-.340***	-.264***	-.360***	-.361***	-.151 ^a
Ethnicity						
Hispanic	96	-.268**	-.323**	-.309**	-.412***	-.268**
Non-Hispanic	141	-.355***	-.301***	-.365***	-.394***	-.219**
Race						
Asian	19	-.167	-.521*	-.341	-.337	-.348
Black	9	-.720*	-.796* ^{ab}	-.598 ⁺	-.775*	-.750* ^{bc}
AI/AN	60	-.296*	-.336*** ^a	-.392**	-.446***	-.055 ^b
White	126	-.308***	-.255** ^b	-.319***	-.370***	-.289*** ^d
Mixed	16	-.408	-.405	-.337	-.398	.185 ^{cd}
Other	7	-.058	-.086	-.101	-.328	-.371

Note. Correlations sharing the same superscript are significantly different at $p < .05$. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

Table 17*Zero-Order Correlations of the Aggressive Humor Style with the Mental Health Variables across Gender, Ethnicity, and Race*

Group	Sample Size	Perceived Stress	Anxiety	Depression	PERMA Total	Resilience	Hope
Gender							
Males	52	.292*	.302*	.331*	-.383**	-.116	-.251+
Females	183	.060	.079	.080	-.198**	-.140+	-.185*
Ethnicity							
Hispanic	96	.026	-.056 ^a	-.076 ^a	-.125	-.040	-.175+
Non-Hispanic	141	.137	.184 ^{*a}	.218 ^{***a}	-.317 ^{***}	-.145+	-.245 ^{**}
Race							
Asian	19	.238	.239	.299	-.547 ^{*ab}	-.009	-.165
Black	9	.043	.568 ^a	.435	-.669 ^{*cd}	-.017	-.502
AI/AN	60	.245 ^a	.172	.287 ^{*a}	-.337 ^{***e}	-.253+	-.342 ^{**}
White	126	-.057 ^a	-.011	-.082 ^b	-.045 ^{ace}	-.043	-.096
Mixed	16	-.111	-.265 ^a	-.075	-.183	-.050	-.209
Other	7	.140	.262	-.037	.322 ^{bd}	.198	-.082

Note. Correlations sharing the same superscript are significantly different at $p < .05$. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

Table 18*Zero-Order Correlations of the Aggressive Humor Style with the PERMA Variables across Gender, Ethnicity, and Race*

Group	Sample Size	Positive Emotions	Engagement	Relationships	Meaning	Accomplishment
Gender						
Males	52	-.298*	-.313*	-.237+	-.352*	-.347*
Females	183	-.149*	-.209**	-.188*	-.137+	-.161*
Ethnicity						
Hispanic	96	-.047	-.229*	-.062 ^a	-.024 ^a	-.201*
Non-Hispanic	141	-.256**	-.221**	-.292**** ^a	-.309**** ^a	-.242**
Race						
Asian	19	-.678**** ^{abcd}	-.158	-.431 ^{+ab}	-.506** ^{ab}	-.382
Black	9	-.719* ^{efgh}	-.699* ^{ab}	-.576 ^c	-.489	-.723* ^{ab}
AI/AN	60	-.145 ^{ae}	-.253+	-.337** ^{de}	-.354** ^c	-.257*
White	126	-.025 ^{bf}	-.107 ^a	-.015 ^{ad}	.020 ^{ac}	-.072 ^a
Mixed	16	.024 ^{cg}	-.411	-.257	-.089	.057 ^b
Other	7	.428 ^{dh}	.217 ^b	.470 ^{bce}	.345 ^b	-.063

Note. Correlations sharing the same superscript are significantly different at $p < .05$. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

APPENDIX A

Humor Styles Questionnaire

Totally Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Totally Agree
1	2	3	4	5	6	7

1. I usually don't laugh or joke around much with other people. *¹
2. If I am feeling depressed, I can usually cheer myself up with humor. ²
3. If someone makes a mistake, I will often tease them about it. ³
4. I let people laugh at me or make fun at my expense more than I should. ⁴
5. I don't have to work very hard at making other people laugh—I seem to be a naturally humorous person.¹
6. Even when I'm by myself, I'm often amused by the absurdities of life. ²
7. People are never offended or hurt by my sense of humor. *³
8. I will often get carried away in putting myself down if it makes my family and friends laugh. ⁴
9. I rarely make other people laugh by telling funny stories about myself. *¹
10. If I am feeling upset or unhappy, I usually try to think of something funny about the situation to make myself feel better. ²
11. When telling jokes or saying funny things, I am usually not very concerned about how other people are taking it. ³
12. I often try to make people like or accept me more by saying something funny about my own weaknesses, blunders, or faults. ⁴
13. I laugh and joke a lot with my closest friends. ¹
14. My humorous outlook on life keeps me from getting overly upset or depressed about things. ²
15. I do not like it when people use humor as a way of criticizing or putting someone down. *³
16. I don't often say funny things to put myself down. *⁴
17. I usually don't like to tell jokes or amuse people. *¹
18. If I'm by myself and I'm feeling unhappy, I make an effort to think of something funny to cheer myself up. ²
19. Sometimes I think of something that is so funny that I can't stop myself from saying it, even if it is not appropriate for the situation. ³
20. I often go overboard in putting myself down when I am making jokes or trying to be funny. ⁴
21. I enjoy making people laugh. ¹
22. If I am feeling sad or upset, I usually lose my sense of humor. *²
23. I never participate in laughing at others even if all my friends are doing it. *³
24. When I am with friends or family, I often seem to be the one that other people make fun of or joke about.⁴
25. I don't often joke around with my friends. *¹

26. It is my experience that thinking about some amusing aspect of a situation is often a very effective way of coping with problems. ²
27. If I don't like someone, I often use humor or teasing to put them down. ³
28. If I am having problems or feeling unhappy, I often cover it up by joking around, so that even my closest friends don't know how I really feel. ⁴
29. I usually can't think of witty things to say when I'm with other people. ^{*1}
30. I don't need to be with other people to feel amused – I can usually find things to laugh about even when I'm by myself. ²
31. Even if something is really funny to me, I will not laugh or joke about it if someone will be offended. ^{*3}
32. Letting others laugh at me is my way of keeping my friends and family in good spirits. ⁴

* Items marked with an asterisk are reverse keyed.

¹ Affiliative Humor Subscale

² Self-Enhancing Humor Subscale

³ Aggressive Humor Subscale

⁴ Self-Defeating Humor Subscale

APPENDIX B

Brief Resilience Scale

1	2	3	4	5
Strongly Agree	Disagree	Neutral	Agree	Strongly agree

1. I tend to bounce back quickly after hard times.
2. I have a hard time making it through stressful events. *
3. It does not take me long to recover from a stressful event.
4. It is hard for me to snap back when something bad happens. *
5. I usually come through difficult times with little trouble.
6. I tend to take a long time to get over set-backs in my life. *

* Items marked with an asterisk are reverse keyed.

APPENDIX C

PERMA Profiler

Not at all Completely
0 1 2 3 4 5 6 7 8 9 10

1. How much of the time do you feel you are making progress towards accomplishing your goals? ⁵
2. How often do you become absorbed in what you are doing? ²
3. In general, how often do you feel joyful? ¹
4. How often do you achieve the important goals you have set for yourself? ⁵
5. In general, to what extent do you lead a purposeful and meaningful life? ⁴
6. To what extent do you receive help and support from others when you need it? ³
7. In general, to what extent do you feel that what you do in your life is valuable and worthwhile? ⁴
8. In general, to what extent do you feel excited and interested in things? ²
9. In general, how often do you feel positive? ¹
10. How often are you able to handle your responsibilities? ⁵
11. How often do you lose track of time while doing something you enjoy? ²
12. To what extent do you feel loved? ³
13. To what extent do you feel you have a sense of direction in your life? ⁴
14. How satisfied are you with your personal relationships? ³
15. In general, to what extent do you feel contented? ¹

¹ Positive Emotion subscale

² Engagement subscale

³ Relationship subscale

⁴ Meaning subscale

⁵ Accomplishment subscale

APPENDIX D

Dispositional Hope Scale

Definitely	Mostly	Somewhat	Slightly	Slightly	Somewhat	Mostly	Definitely
False	False	False	False	True	True	True	True
1	2	3	4	5	6	7	8

1. I can think of many ways to get out of a jam. ¹
2. I energetically pursue my goals. ²
3. I feel tired most of the time.
4. There are lots of ways around any problem. ¹
5. I am easily downed in an argument.
6. I can think of many ways to get the things in my life that are important to me. ¹
7. I worry about my health.
8. Even when others get discouraged, I know I can find a way to solve the problem. ¹
9. My past experiences have prepared me well for my future. ²
10. I've been successful in life. ²
11. I usually find myself worrying about something.
12. I meet the goals that I set for myself. ²

¹ Pathway subscale

² Agency subscale

APPENDIX E

Patient Health Questionnaire—9 item version

Not at all	Several days	More than half the days	Nearly every day
0	1	2	3

How often have you been bothered by the following over the past 2 weeks?

1. Little interest or pleasure in doing things?
2. Feeling down, depressed, or hopeless
3. Trouble falling or staying asleep, or sleeping too much?
4. Feeling tired or having little energy?
5. Poor appetite or overeating?
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down?
7. Trouble concentrating on things, such as reading the newspaper or watching television?
8. Moving or speaking so slowly that other people could have noticed? Or so fidgety or restless that you have been moving a lot more than usual?
9. Thoughts that you would be better off dead, or thoughts of hurting yourself in some way?*

*Question removed from questionnaire administration for the purposes of this study

APPENDIX F

Generalized Anxiety Disorder—7 item version

Not at all	Several days	More than half the days	Nearly every day
0	1	2	3

Over the last two weeks, how often have you been bothered by the following problems?

1. Feeling nervous, anxious, or on edge?
2. Not being able to stop or control worrying?
3. Worrying too much about different things?
4. Trouble relaxing?
5. Being so restless that it is hard to sit still?
6. Becoming easily annoyed or irritable?
7. Feeling afraid, as if something awful might happen?

APPENDIX G

Demographics

1. Age _____

2. Sex/Gender

___ Male

___ Female

___ Other (please specify)

3. What ethnic group(s) do you identify with (check all that apply)

___ Hispanic

___ Non-Hispanic

___ Mixed (specify in box below)

___ Other (specify in box below)

4. What racial group(s) do you identify with?

___ American Indian/Alaska Native

___ Asian

___ Black/African American

___ Native Hawaiian/Pacific Islander

___ White

___ Mixed (specify in box below)

___ Other (specify in box below)