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Confirmatory Factor Analysis of the Adult Coping Inventory

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CONFIRMATORY FACTOR ANALYSIS OF THE ADULT COPING INVENTORY

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Psychology

by

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Abstract

There are few psychometrically sound measures that assess coping in adults. For example, a widely used measure of coping, the COPE, has highly unstable sub-scales and was developed using a homogenous sample (Lyne & Roger, 2000). Because of these limitations, the Adult Coping Inventory (ACI) was developed. The ACI is a 57-item measure that contains five factors including Problem Solving, Mindfulness, Maladaptive Coping, Social Support and Avoidance. Initial reliability and validity analyses demonstrate good construct, concurrent and incremental validity. The current study involved conducting a confirmatory factor analysis to confirm the factor structure of the ACI. The participant sample consisted of 586 adults (51.4% male, 82.3% white) from the United States collected from an online crowdsourcing website. Results of this study indicate that a five-factor model of the Adult Coping Inventory is the best fit. Next, reliability of the ACI factors and the measure overall were moderate to excellent. Convergent and divergent validity showed mixed findings; however, this may be related to the measure utilized for these analyses. Lastly, the ACI maladaptive subscale outperforms the Brief COPE on somatization, depression, anxiety and overall symptomology. Overall, the ACI is a good measure of coping and improves upon coping measures used in the literature.

Chapter 1. Introduction

Coping is defined as an individual utilizing cognitive and behavioral skills to reduce or tolerate the demands of a situation (Lazarus & Folkman, 1984). In other words, coping is an active process in which an individual utilizes a specific strategy (e.g., problem solving, avoidance, substance use) to manage unpleasant emotions as the result of stressful experiences. The use of positive coping strategies (e.g., positive reappraisal, behavioral approach strategies) have been linked to improved health outcomes such as decreased depressive symptoms among various populations (Garnefski & Kraaij, 2006; Littleton et al., 2007). Conversely, negative coping strategies (e.g., avoidance, substance use, emotional eating) have been linked to a multitude of negative outcomes such as increased depressive and anxiety symptoms and poorer health outcomes (Grant et al., 2013; Mauro et al., 2015; van Strien et al., 2016). Taken together, this suggests that specific coping strategies used by an individual is directly linked to their psychological adjustment and physical health.

There are many instruments that measure adaptive and maladaptive coping. However, each instrument has psychometric limitations such as poor scale development, the use of homogeneous participants in the construction and validation of the measure, or inconsistent factor structures. Given these limitations, the Adult Coping Inventory was created (ACI; Hollas, 2020). Based on an exploratory factor analysis, five factors emerged including Problem Solving, Mindfulness, Maladaptive Coping, Social Support and Avoidance (Hollas, 2020). The current study aims to validate the ACI, which was found to be reliable and valid during its development.

Overview of Coping

Various constructs of coping (e.g., emotion- vs. problem-focused coping and avoidance vs. approach strategies) have been examined throughout the literature. However, studies primarily

describe coping in terms of problem-focused and emotion-focused strategies (Brougham, Zail, Mendoza & Miller, 2009). This approach was first articulated by Lazarus (1998) who described these categories as dichotomous and essential components for an individual's integrated coping system. Problem-focused coping aims to eliminate or change the stressor (Brougham et al., 2009; Lazarus, 1998). Specific activities characterized as methods of problem-focused coping include: planning, taking action, developing new skills and persistent problem solving (Brougham et al., 2009; Chen et al., 2018); all of which are considered to be a form of adaptively coping with a negative situation. Additionally, among adolescents and adults, the use of problem-focused coping is positively associated with positive affect (Ben-Zur, 2009; Chen et al., 2018) and lower levels of loneliness (Deckx et al., 2018). Problem solving also buffered the development of anxiety and depressive symptoms after experiencing a stressful event (Roohafza et al., 2014). Problem-focused coping is also related to increased resiliency which is defined as the ability to adapt and recover after experiencing a stressor (Campbell-Sills, et al., 2005). Taken together, the results suggest that problem-focused coping strategies are associated with positive psychological outcomes and are considered adaptive coping strategies.

In contrast, emotion-focused coping aims to reduce emotional distress that occurs in response to a stressor (Brougham et al., 2009; Lazarus, 1998). The literature is inconsistent on whether emotion-focused strategies are adaptive or maladaptive (Baker & Berenbaum, 2007). For example, coping strategies such as denial and rumination are maladaptive emotion-focused coping as they are associated with increased depressive symptoms and stress levels (Britt et al., 2015; Ding et al., 2021; Thompson et al., 2010). On the other hand, adaptive emotion-focused strategies include meditation, seeking social support, and positive reappraisal (Garnefski & Kraaij, 2006; Holton et al., 2014). Specifically, positive reappraisal and meditation have been

found to improve health outcomes among individuals living with HIV/AIDS and hypertension (Finkelstein-Fox et al., 2020; Shi et al., 2017). Furthermore, the use of positive reinterpretation (i.e., positive meaning about the event for personal growth) was a protective factor for the development of anxiety and depression after experiencing a stressful event (Roohafza et al., 2014). Though there is inconsistency in the research about whether emotion-focused strategies result in positive or negative outcomes, emotion-focused coping is associated with low resiliency following a negative or stressful event, suggesting further evidence that emotion focused coping is more maladaptive in nature (Campbell-Sills, et al., 2005).

Although these strategies are described separately, emotion-focused and problem-focused coping are viewed as separate components of an integrated system. For example, when responding to a stressful situation, one may not be able to solve the problem initially. Therefore, using emotion-focused coping such as cognitive reappraisal or meditation may be more effective than to attempt to engage in problem-focused coping (Lazarus, 1998). A study by Thompson et al. (2010) found that maladaptive and adaptive coping strategies are sometimes used simultaneously. Specifically, in non-depressed adolescents who use maladaptive coping strategies (e.g., rumination), the simultaneous use of adaptive coping strategies still buffered depressive symptomology (Thompson et al., 2010).

Another common conceptualization of coping is approach versus avoidance strategies. Like problem-focused strategies, approach coping skills involve taking action in controllable situations (Roth & Cohen, 1986). Particularly, behavioral approach strategies, such as planning how to recover from experiencing a traumatic event or seeking information about the event, were associated with less distress among those who experienced a traumatic event of a longer duration (Littleton et al., 2007). Additionally, approach coping was associated with greater resilience

among military personnel (Chen et al., 2018).

In contrast, the literature describes avoidant coping strategies as skills to reduce stress resulting from a situation rather than trying to solve the problem (Roth & Cohen, 1986). Avoidant strategies include: venting emotions, avoidance, behavioral disengagement (i.e., engaging in other activities instead of solving the problem), and mental disengagement (i.e., avoiding thinking about the stressor; Carver et al., 1989; Evans & Dunn, 1994). For example, using cigarettes or prescription/other drugs as a coping strategy was associated with poor self-rated health (Mauro et al., 2015). Avoidance coping also was a risk factor of developing anxiety and depression after experiencing a stressful event (Roohafza et al., 2014). Avoidance strategies also were associated with decreased resilience among a military population (Chen et al., 2018). More generally, avoidance coping has been found to be positively associated with negative affect and negatively associated with positive affect (Ben-Zur, 2018). Similar to emotion- and problem-focused coping, avoidance and approach strategies are not mutually exclusive as individuals use both types of strategies (Roth & Cohen, 1986).

Thus far, coping has been described in two dimensions, but evidence suggests a two-dimensional view of coping may be incomplete. Often, the coping strategies employed are situationally specific. For example, individuals tend to rely on problem-focused coping strategies for controllable situations (Carver, 2011) whereas emotion-focused strategies are more commonly used in uncontrollable situations (Carver, 2011). When emotion-focused strategies are used, it allows the individual to be able to use their resources and implement problem-focused coping strategies (Carver, 2011; Lazarus, 1998).

Despite the conceptualization of coping as two dimensional, measures of coping contain several factors. For example, the original factor analysis of the COPE questionnaire (Carver et

al., 1989) yielded four factors (task, emotion, avoidance, and cognitive coping). The task factor included active coping, planning, and suppression of competing activities (Carver et al., 1989). The emotion factor involved seeking social support and focusing on emotions (Carver et al., 1989). The avoidance factor was comprised of denial and mental and behavioral disengagement (Carver et al., 1989). Last, the cognitive coping factor included acceptance, restraint coping and positive reinterpretation and growth (Carver et al., 1989). The Coping Strategy Inventory consists of eight factors (problem solving, cognitive restructuring, express emotions, social support, problem avoidance, wishful thinking, self-criticism, and social withdrawal; Tobin, Holroyd, Reynolds, & Wigal, 1989). Thus, based on the existing measures of coping, a two-dimensional view of coping is not supported.

Social Support and Coping

Social support is a complex construct, with many manifestations (Barrera, 1986). Although researchers disagree on the definition of social support, a generally accepted definition of social support is behavior and support performed by others in an individual's life (Birtel et al., 2017; Thoits, 2011). There are different types of social support including perceived social support, instrumental support, informational support, appraisal support and emotional support (Barrera, 1986; Cooke et al., 1988). Additionally, social support typically comes from more than one source and includes family, friends, romantic partners, and co-workers (Barrera, 1986).

Social support consistently is associated with positive mental health outcomes. For example, social support has been found to be a protective factor against developing anxiety and depression (Roohafza et al., 2014). Among substance abusers, for example, higher levels of perceived social support were associated with less anxiety and depression (Birtel et al., 2017). Social support also is associated with greater resilience (i.e., successful adaptation and measure

of present and future strength; Wilks & Spivey, 2009). Additionally, adults with depression who perceived having less social support reported more severe symptoms, poorer recovery, and worse functional outcomes (Wang et al., 2018). Therefore, increased social support is associated with positive mental health outcomes.

Individuals with greater social support are physically healthier than those with less support. Among those with cardiovascular disease, greater perceived social support was associated with medication adherence (Burton et al., 2020). In contrast, low social support predicted cardiovascular disease, ischemic strokes and major adverse cardiovascular events (Freak-Poli, et al., 2021). When cancer patients have greater support from their family and friends, they have a greater fighting spirit (Calderon et al., 2021). Finally, substance abusers with greater perceived social support report better sleep than those with less support (Birtel et al., 2017). Taken together, these results indicate social support plays an important role on physical and mental health outcomes.

When examining variables associated with positive psychological outcomes, research often has examined the separate and combined impact of social support and positive coping. For example, perceived social support and various active coping skills both were associated with decreased anxiety and depression in adults (Roohafza et al., 2014). Another study examined college student achievement and found that lack of social support and positive coping was related to higher dropout rates (McNaughton-Cassil et al., 2021). The authors recommended that colleges create interventions for improving social support and coping skills in their students. In addition to social support and coping having similar outcomes, they have also been implicated in mediator models. Among visually impaired individuals, emotion focused coping partially mediated the relationship between perceived social support and psychosocial difficulties (Saleem

& Sultana, 2021). In addition, perceived social support and coping style mediated the relationship between resiliency and health-related quality of life among women recently diagnosed with breast cancer (Zhou et al., 2022). Overall, researchers tend to examine both coping and social support as outcome or predictor variables.

Perceived social support plays a positive role on the outcomes associated with physical and mental health as well as resiliency. However, researchers have examined social support and coping simultaneously. Therefore, having a coping measure that includes a social support subscale, such as the ACI, is beneficial to continue examining these variables together.

Mindfulness and Coping

Research on mindfulness has exploded in recent years. Mindfulness is defined as intentionally paying attention to the present moment nonjudgmentally (Kabat-Zinn, 1994). Many studies demonstrate the positive psychological effects of mindfulness on various populations (Hofmann et al., 2010; Keng et al., 2011; Tomlinson et al., 2017). There are different forms of mindfulness exercises and practices some of which include meditation (Keng et al., 2011), imagery/visualization (Nguyen & Brymer, 2018) and deep breathing (Paul et al., 2007), all of which are associated with positive psychological and health outcomes. A review of the literature on mindfulness as a coping strategy is presented here to demonstrate the importance of including a mindfulness domain within a coping questionnaire, which the ACI does.

Dispositional mindfulness involves being attentive to and nonjudgmental of thoughts and feelings and has been associated with positive outcomes. For example, using dispositional mindfulness with clinically anxious or depressed adults was associated with decreased alcohol and marijuana use (Weisner & Khoury, 2020). A meta-analysis examined the role of dispositional mindfulness on psychological health outcomes (Tomlinson, et al., 2018). Results

demonstrate in a nonclinical sample, the use of dispositional mindfulness is repeatedly associated with less symptoms of depression, anxiety, disordered eating and borderline personality disorder features. Additionally, dispositional mindfulness has been shown to increase resiliency among health care workers, first responders, active-duty military personnel and veterans (Kemper et al., 2015; Kaplan et al., 2017; Rice & Schroeder, 2019). Therefore, the use of dispositional mindfulness skills can have a significant impact on psychological outcomes among various populations.

Another mindfulness skill that is associated with positive outcomes among various populations is meditation. Meditation involves emphasizing mindfulness concentration (i.e. being present in the moment, nonjudgmental) and opening the mind for spiritual realization (Goyal et al., 2013). There are many forms of meditation including mindfulness meditations, breathing meditation and loving-kindness mindfulness meditation, to name a few. For those diagnosed with cancer, meditation decreased their subjective level of fatigue, sleep disturbance, and stress levels (Castellar et al., 2014; Metin et al., 2019). Additionally, for adults who experience various clinical concerns, meditation improved their symptoms of anxiety, depression, and pain (Goyal et al., 2013). Overall, meditation, which is a facet of mindfulness, also has an impact on psychological and physical outcomes.

Guided imagery or visualization is another aspect of mindfulness. Much of the literature on guided imagery is with individuals experiencing physical health problems. Overall, the research found guided imagery to be associated with positive outcomes for individuals with health problems including improved sleep (Kwekkeboom et al., 2016), decreased pain (Fors et al., 2000; Hadjibalassi et al., 2017) and less anxiety (Fors et al., 2000; Hadjibalassi et al., 2017). During the midst of the COVID-19 pandemic, guided imagery was used in several settings to

help individuals cope. An online intervention for older adults (i.e., age 65 and older) was established during the pandemic to provide a supportive environment and teach coping skills (Shapira et al., 2021). Three of the seven sessions included guided imagery. Overall, the intervention reduced loneliness and depression compared to waitlist controls (Shapira et al., 2021). Sanadgol, et al (2020) taught ICU nurses to use guided imagery for coping with COVID related deaths. Nurses who received the training had a significant decrease in death anxiety compared to a comparison sample (Sanadgol, et al., 2020). Therefore, guided imagery has been used as an important tool for aiding individuals with mental health and physical health problems.

Mindfulness is a growing research topic and clinical practice that is associated with an array of positive psychological and health outcomes. However, measures of coping have not included items related to mindfulness.

Social Media and Coping

Previous coping measures (e.g., Brief COPE, WCQ) did not include items about social media. However, this domain has since been explored. Specifically, a review of the literature reported that both quantitative and qualitative studies of coping found that media use was an important coping strategy (Wolfers & Schneider, 2020). There are two possible frameworks, as hypothesized by these authors, that explain media use and coping with stress.

First, using media and the internet allows people to utilize coping strategies online that are also widely used offline (Wolfers & Schneider, 2020). For example, mental disengagement (e.g., doing something online to think less about the stressor) was the most used online coping strategy (Van Ingen et al., 2016). Additionally, there are many applications available that allow users to engage in guided meditation. Therefore, media use can be an outlet to engage in established coping strategies.

Media use can also be used as a separate strategy. One study of college students found that compared to other offline coping strategies, students who reported higher levels of stress also engaged in more media use coping strategies (Nabi et al., 2017). Additionally, for this sample, social media use was associated with social support, which is consistent with other literature that identifies social media use as a source of social support (van Ingen et al., 2016; Nabi et al., 2017).

It's important to note that in various studies that examined the relationship between media use and coping among different populations, offline coping strategies were used most frequently (van Ingen et al., 2016; Nabi et al., 2017). Consistent with the Adult Coping Inventory, the majority of the coping items are offline coping strategies. The online strategies of the ACI include seeking social support online and seeking information, which is consistent with the literature reviewed.

Current Coping Measures

Although there are several measures of adult coping, many are psychometrically flawed. The two most widely used measures of coping in the literature are the COPE questionnaire (Carver et al., 1989) and the Ways of Coping Checklist (Folkman & Lazarus, 1980; Kato, 2013). These two questionnaires and their abbreviated versions present with many flaws including lack of replicability, poor psychometrics with $\alpha < .7$ and factor instability across samples (Kato, 2013; Kraegloh, 2011; Lyne & Roger, 2000; Parker et al., 1993). Additionally, the authors had a priori hypotheses regarding the factors, which impacted the items that were selected, rather than allowing the data to determine the factor structure (Carver et al., 1989; Carver, 1997; Folkman & Lazarus, 1985). Lastly, these measures were all developed before the use of the internet and social media exploded in society. Therefore, the current coping measures that are widely used in

the literature may be missing a large component of coping strategies, i.e., the use of social media. As a result, the Adult Coping Inventory (ACI) was developed to address these issues (Hollas, 2020).

Adult Coping Inventory (ACI)

The ACI is a 57-item measure of coping skills among adults. It was developed in three phases. The goal of Phase 1 was to generate a large pool of items without any a priori hypotheses about the factor structure. The item pool was generated by reviewing existing coping measures and the coping literature. Next, items were reviewed by various individuals working in the field of clinical psychology for clarity and redundancy to ensure item clarity. The initial pool included 129 items. Next, the goal of Phase 2 was to determine the best factor structure of the ACI. Phase 2 began with administering the remaining items (129) to 526 adult participants who were demographically diverse. The data underwent an extensive exploratory factor analysis which created the factor structure. This analysis determined the ACI to be a five-factor measure including Problem Solving, Mindfulness, Maladaptive Coping, Social Support and Avoidance. The goal of Phase 3 was to determine the initial reliability and validity of the ACI. The full scale demonstrated excellent internal consistency ($\alpha = .92$) and the factor's reliability scores ranged from adequate to excellent (Factor 1 $\alpha = .92$; Factor 2 $\alpha = .89$; Factor 3 $\alpha = .86$; Factor 4 $\alpha = .89$; Factor 5 $\alpha = .76$). Based on the validity analyses, factors of the ACI were correlated with adaptive coping strategies including Problem Solving, Mindfulness and Social Support. Additionally, the factors of the ACI that correlated with maladaptive coping included Avoidance and Maladaptive Coping. Further, adaptive coping subscales of the ACI were associated with resilience and a decrease in depression symptomology. Whereas the maladaptive coping subscales of the ACI were associated with decreased resilience and increased depression,

anxiety, and stress symptoms. Finally, the ACI total score explained more variance than the Brief COPE on resilience, depression, and stress, indicating good incremental validity. Overall, the ACI appears to be a psychometrically sound instrument with updated items.

The ACI also supports the notion that coping is not a two-dimensional construct. Beyond the traditional constructs of coping (problem-focused, emotion-focused, approach, avoidance), which were reviewed above, the ACI highlights the importance of social support and mindfulness on coping. The scale is in Appendix B.

Understanding the ways in which individuals employ positive and negative coping strategies is a socially significant topic, especially in light of the current, stressful climate. Widely used coping measures include the Brief COPE and the Ways of Coping Checklist, each of which possess psychometric flaws. The ACI is an updated and more psychometrically sound measure of adult coping (Hollas, 2020). Although initial validity and reliability of the ACI is good, it requires further investigation. The current study sought to further validate the ACI and confirm the factor structure derived from the exploratory factor analysis.

Hypotheses

Hypothesis 1: The five-factor model (Problem Solving, Mindfulness, Maladaptive Coping, Social Support, Avoidance) of the ACI will be confirmed.

Hypothesis 2: The positive factors of the ACI (Problem Solving, Mindfulness, Social Support) will be highly negatively correlated with depression, anxiety and general distress.

Hypothesis 3: The negative factors of the ACI (Maladaptive Coping, Avoidance) will be highly positively correlated with depression, anxiety and general distress.

Hypothesis 4: The ACI will predict levels of depression, anxiety and global distress outcomes above and beyond the Brief COPE.

Chapter 2. Method

Participants

Participants included 586 adults between the ages of 18-64 who reside in the United States. The participants were recruited through Amazon Mturk, an online forum where qualifying participants complete questionnaires in exchange for monetary compensation. Participants (M = 51.5% and F = 48.5%) were predominately Caucasian (82.6%) with 7.7% African American, 5.3% Asian and 2.0% Hispanic. Most participants were college graduates (55.6%) and had an annual household income of \$50,000-\$99,999 (46.8%). See Table 1 for demographic characteristics.

Procedure

Following Institutional Review Board (IRB) approval, participants completed an online survey (Qualtrics survey) through Mturk. The survey began with an overview of the study goals and procedures. Participants were informed the purpose of this study is to examine the properties of a coping measure, the Adult Coping Inventory. Participants were told their responses would be kept confidential and if they wished to discontinue participation at any time, they are able to do so. Participants were informed on the risks and benefits of participating, as outlined in the consent form (Appendix A), and were provided information on their compensation for participation. After providing informed consent, participants completed the study.

Recommended guidelines for online data collection were utilized. Participants were compensated in accordance with minimum wage (Aguinis et al., 2020) and only participants with at least a 90% approval rating were eligible to participate in this study (Neale et al., 2021, Cobanoglu et al., 2021). To ensure a range of participant demographics, data collection batches were released on various days (week day, weekend) and time of day (morning, evening,

afternoon; Neale et al., 2021, Cobanoglu et al., 2021).

Measures

Adult participants completed a demographic form and the BSI-18, Brief COPE and the Adult Coping Inventory.

Demographic Questionnaire.

This measure was used to collect demographic information including age, gender, race, ethnicity, marital status, highest level of education, current occupation (e.g. unemployed, self-employed, etc.), annual household income and religious affiliation (Appendix C).

Table 2.1. Demographic Characteristics

	Frequency (N=586)	Percentage
Male	302	51.4
Female	284	48.3
18-25 years old	111	18.9
26-35 years old	249	42.3
36-45 years old	135	23.0
46-60 years old	77	13.1
60+ years old	12	2.0
White	484	82.3
Black or African American	45	7.7
Asian	31	5.3
Hispanic or Latino	12	2.0
American Indian or Alaska Native	12	2.0
Native Hawaiian or Other Pacific Islander	2	0.3
Not Hispanic or Latino	471	80.1
Hispanic or Latino	98	16.7
Married	427	72.6
Single	123	20.9
Living with unmarried partner	24	4.1
Separated	9	1.5
Widowed	1	0.2

(table cont'd.)

	Frequency (N=586)	Percentage
Standard College Graduate	326	55.4
Post-College Degree	108	18.4
Some College	98	16.7
High School/GED	46	7.8
\$0-24,999	54	9.2
\$25,000-49,999	191	32.5
\$50,000-99,999	274	46.6
\$100,000+	63	10.7
White Collar Occupation	216	36.7
Self-Employed	199	33.8
Blue Collar Occupation	103	17.5
Professional Career	43	7.3
Unemployed	23	3.9
Not enrolled in college	377	64.1
1 st year college student	4	0.7
2 nd year college student	9	1.5
3 rd year college student	14	2.4
4 th year college student	94	16.0
5 th year or higher college student	16	2.7
Graduate student	70	11.9

BSI-18.

The Brief Symptom Inventory-18 (Derogatis, 2000) is an 18-item measure that examines psychological distress and symptoms of anxiety, depression and somatization (Appendix D). The items are rated on a scale from 0 (“Not at all”) to 4 (“Extremely”). Each subscale consists of six items with a higher score indicating more symptoms within the domain. The global score is created by summing the three subscales together, with higher scores resulting in more distress. Internal consistency ranged from .91 to .93 for the subscales and is .97 for the global score in this sample.

Brief COPE.

The Brief COPE (Carver, 1997) is a 28-item self-report measure that examines coping skills. Items are rated on a scale from 1 (“not at all”) to 4 (“a lot”; Appendix E). Scores of adaptive and maladaptive coping will be generated based on Meyer’s (2001) methodology. The maladaptive coping factor is calculated by taking the sum of the behavioral disengagement, denial, venting and self-blame subscales. The adaptive coping factor is calculated by taking the sum of the active coping, planning, use of emotional support, use of instrumental support, positive reframing, acceptance, religion and humor. Chronbach’s alpha for the maladaptive scale is .83 and the adaptive scale is .88 in this sample.

Adult Coping Inventory (ACI).

The ACI is a 57-item measure of adult coping that includes five-factors including Problem Solving, Mindfulness, Maladaptive Coping, Social Support and Avoidance (Appendix B). Items are rated from 0 (“never”) to 3 (“always”). Higher scores on each subscale indicate greater use of those coping skills. In this sample, Chronbach’s alpha for the total scale is $\alpha = .95$ and the factor’s reliability scores ranged from $\alpha = .75-.93$.

Chapter 3. Results

Data Cleaning

In accordance with recommended guidelines for online data collection, multiple forms of inattention checks were included. Three attention checks were included within the survey (Aguinis et al., 2020; Cobanoglu et al., 2021; Neale et al., 2021). This included one item that identified as a validity check (“Please select “I’ve been doing this a medium amount”. This is a validity check.”), one open ended question to address inattention as well as reduce the likelihood of a bot completing the study (“What is your favorite TV show?”), and repeating a question at the beginning and the end of the study (“Please enter your age”; “What year were you born?”). Finally, response times less than 40% of the average response time was utilized as an attention check (Cobanoglu et al., 2021). Participants were denied compensation if they failed two of the four attention checks. Additionally, data was visually examined for “Christmas tree pattern”, extreme responses only and the same response for each question (Neale et al., 2021).

692 participants completed the online survey. 15 participants completed the study multiple times. Their data was only included in analyses one time following data screening procedures. 42 participants failed at least two attention checks and were removed from future analyses. 36 participants failed one attention check and failed the visual examination of their responses and therefore were removed from future analyses. 11 additional participants were removed due to researcher error.

The final sample included 586 adult participants that completed the questionnaire. Missing data ranged from 0% to 2% across all 103 variables. Nearest neighbor imputation was used to handle missing data which involves taking the average of a specified number of cases that are like the missing case and replace the missing value (Yang & Kim, 2019). Data points

were centered prior to analyses, following missing data and total score calculations. The data was determined to meet univariate normality. Univariate outliers were examined and nine participants were removed due to failing two out of the three outlier tests and a visual residual graph.

Therefore, these nine participants were significant outliers with leverage. Additionally, the data failed the multivariate normality test therefore corrections were made during analyses.

Confirmatory Factor Analysis

The data were determined to be multivariately non-normal, therefore, a CFA using maximum likelihood with robust standard errors and χ^2 was utilized (Brown, 2015). The five-factor model was determined by the results of the EFA (Hollas, 2020). To define the metric of latent variables, a marker indicator (i.e., sample variance is passed on to the latent variable) was specified for each factor (Brown, 2015) The marker indicator was the item on that factor which had the highest factor loading in the EFA (Hollas, 2020). The analysis was performed using the lavaan package in the R program (Rosell, 2012). The following fit indices were analyzed: chi-square statistic (χ^2), standardized root mean square residual (SRMR), root mean squared error of approximation (RMSEA), Tucker-Lewis Index (TLI) and comparative fit index (CFI; Brown, 2015). When applicable, robust measures of fit indices were evaluated. To demonstrate good fit, the chi-square statistic should not be significant; SRMR ≤ 0.08 ; RMSEA ≤ 0.06 ; and CFI and TLI ≥ 0.95 (Cheung and Rensvold, 2002; van de Schoot et al., 2012). Adequate fit statistics include SRMR of ≤ 0.10 ; RMSEA ≤ 0.08 ; and CFI and TLI ≥ 0.90 . (Cheung and Rensvold, 2002; van de Schoot et al., 2012). Although chi-square statistics are reported, the large sample size skews the results of the chi-square and therefore it is not used in interpretation (Brown, 2015). Multiple models were examined (one-, two-, three- and five-factor models). A chi-square difference test was performed to compare the two best fitting models. Goodness-of-fit indices for all models are

presented in Table 2.

Initially, a one-factor model was analyzed which included all items. Overall, the one-factor model demonstrated good fit on one of the four indices and adequate fit on one of the four indices. Upon examining the factor loadings, 16 items with loadings below .5 were removed (See Appendix F for items removed). This improved the overall fit and the reduced measure demonstrated good fit on two of the four indices.

Since the literature tends to examine coping as a two-factor construct, a two-factor model was analyzed with positive and negative factors. Items in the five-factor model factors of Problem Solving, Mindfulness, and Social Support were included in the positive factor. Items in the five-factor model factors of Avoidance and Maladaptive Coping were included in the negative factor. The two-factor model demonstrated good fit on two of four goodness-of-fit indices. Upon examining the factor loadings, 9 items were removed with loadings below 0.5 (See Appendix F for items removed). These results also represented good fit on two of four indices.

Then, a three-factor model was analyzed with positive coping, negative coping, and social support factors. These factors were selected because social support has been analyzed in the literature as a separate construct from coping. The positive coping factor included items from the five-factor model factors of Problem Solving and Mindfulness. The negative coping factor included items in the five-factor model factors of Avoidance and Maladaptive Coping. Finally, the social support factor was the original Social Support factor of the five-factor model. Overall, the model demonstrated good fit on two of four indicators. After examining the factor loadings, 9 items were removed due to low factor loadings below 0.5 (See Appendix F for items removed). Again, the reduced model indicated good fit on two of four indices.

Lastly, the five-factor model, based on the EFA results, was analyzed. Results of the five-

factor model indicated a good fit on two of four indicators. After examining the factor loadings, two items were removed with factor loadings below 0.5 (See Appendix F for items removed). This model demonstrated good fit on two indicators and adequate fit on the other two indicators. The comparative fit index, CFI, continued to increase with each successive model and only approached acceptable fit for the five factor model. Therefore, the five-factor model is the best fitting model.

Table 3.1. Confirmatory Factor Analysis Goodness-of-Fit Results

Model	χ^2	df	SRMR	RMSEA	CFI	TLI
One factor (57 items)	5567.75*	1539	0.08	0.07	0.73	0.72
One factor (41 items)	2418.40*	779	0.05	0.06	0.86	0.85
Two factors (57 items)	4804.62*	1538	0.08	0.06	0.78	0.77
Two factors (48 items)	2987.26*	1079	0.06	0.05	0.85	0.85
Three factors (57 items)	4467.14*	1536	0.08	0.05	0.81	0.80
Three factors (48 items)	2512.46*	1031	0.05	0.05	0.89	0.88
Five factors (57 items)	3315.77*	1529	0.06	0.04	0.89	0.89
Five factors (55 items)	2994.56*	1420	0.06	0.04	0.90	0.90

Notes: * significant at $p < .00$.; SRMR = Standardized root mean squared residual; RMSEA = Root mean square error of approximation; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index.

To compare the fit between the models, the five-factor model with 55 items and the five-factor model with 57 items, a chi-square difference test was conducted. The 57 item five-factor model represents the full model, and the 55 item five-factor model represents the reduced mode. Results indicate the 55 item five-factor model significantly better fits the data ($F(1420, 1529) = 276.39, p < .001$).

Reliability

Reliability was calculated for each factor and the total score using Chronbach's alpha. The full scale demonstrated excellent internal consistency ($\alpha = .95$) and the factors reliability scores range from adequate to excellent (Problem Solving $\alpha = .90$; Mindfulness $\alpha = .93$; Maladaptive Coping $\alpha = .84$; Social Support $\alpha = .87$; Avoidance $\alpha = .75$). These results are similar to the reliability

results from the EFA (Hollas, 2020).

Convergent Validity

Convergent validity was examined by conducting partial correlations between the Brief Cope and the ACI. For the following analyses, control variables included various demographic variables including age, gender, ethnicity, marital status, highest level of education, occupation, college enrollment status, income and religious affiliation. In this analysis, the adaptive and maladaptive subscales of the Brief Cope were utilized which was determined by Meyer (2001).

There was a positive partial correlation between the adaptive coping scale of the Brief COPE and the total score of the ACI, which was statistically significant, $r(564) = .55, p < .00$. Additionally, each factor of the ACI was significantly related to the adaptive and maladaptive subscales on the Brief COPE after controlling for various demographic variables. The Problem Solving, Mindfulness and Social Support scales were positively related to the adaptive coping scale, $r(568) = .50, r(564) = .54, r(563) = .50, p < .00$. The Maladaptive Coping and Avoidance subscales were positively related to maladaptive coping scale of the Brief COPE $r(545) = .49, r(545) = .14, p < .00$. These findings are listed in Table 4.

Table 3.2. Validity Correlations

Subscales	ACI: Problem Solving	ACI: Mindfulness	ACI: Maladaptive	ACI: Social Support	ACI: Avoidance	ACI: Total Score
Adaptive Coping	.50**	.54**	.13**	.50**	.36**	.55**
Maladaptive Coping	.21**	.33**	.49**	.35**	.14**	.38**
Somatization	-.10*	-.11*	.30**	---	-.14*	---
Depression	---	-.10*	.40**	---	-.16**	---
Anxiety	---	-.09*	.35**	---	-.16**	---
Global Severity Index	---	-.10*	.37**	---	-.16**	---

Notes. *Correlation significant at the $p < .05$ level; ** Correlation significant at the $p < .01$ level; controlling for age, gender, ethnicity, marital status, highest level of education, occupation, college enrollment status, income and religious affiliation

Concurrent Validity

Partial correlations were utilized to examine the relationship between the BSI-18 and the ACI. Factor 1 (Problem Solving) and Factor 2 (Mindfulness) have a significant negative relationship with the Somatization scale, $r(538) = -.10$, $r(538) = -.11$, $p < .05$. Additionally, Factor 2 has a significant negative relationship with the Depression scale, $r(538) = -.10$, $p < .05$. Factor 2 demonstrated a significant negative relationship with the Anxiety scale, $r(538) = -.09$, $p < .05$. Factor 2 also has a significant negative relationship with the Global Severity Index scale, $r(538) = -.10$, $p < .05$.

As expected, Factor 3 (Maladaptive Coping) has a significant positive relationship with the Somatization scale, $r(544) = .30$, $p < .00$. Additionally, Factor 3 has a significant positive relationship with the Depression scale, $r(541) = .40$, $p < .00$. Factor 3 has a significant positive relationship with the Anxiety scale, $r(541) = .35$, $p < .00$. Finally, Factor 3 has a significant positive relationship with the Global Severity Index scale, $r(541) = .37$, $p < .00$. Unexpectedly, Factor 5 (Avoidance) had a significant negative relationship with the Somatization scale, $r(541) = -.14$, $p < .00$, the Depression scale, $r(541) = -.16$, $p < .00$, Anxiety Scale, $r(541) = -.16$, $p < .00$, and the Global Severity Index scale, $r(541) = -.16$, $p < .00$.

Incremental Validity

Incremental validity was examined to explore whether the ACI increases predictive validity above and beyond the Brief COPE. Hierarchical regressions were utilized to examine the potential of this relationship for each outcome measure (somatization, depression, anxiety, Global Index). In the first step, appropriate demographic variables were entered. Next, the maladaptive subscale of the Brief COPE was entered in the second step. Finally, the maladaptive ACI subscale was entered in the third step of the equation.

For somatization, the overall model was significant on the second step $F(1, 545) = 46.90, p < .00$; Adjusted $R^2 = .37$), indicating the Brief COPE maladaptive subscale significantly predicted somatization ($\beta = .24, t = 5.3, p < .00$). The third step, $\Delta F(2, 544) = 45.71, p < .00$; $\Delta R^2 = .02$, Adjusted $R^2 = .39$, was also significant, with the ACI maladaptive score significantly contributing to the model ($\beta = .23, t = 4.87, p < .00$). Therefore, the ACI maladaptive subscale demonstrates incremental validity for somatization. Results are shown in Table 5.

Table 3.3. Somatization Incremental Validity

Variable	Step One		Step Two		Step Three	
	β	Sig	β	Sig	β	Sig
Age	-.21	.394	-.11	.66	-.07	.76
Ethnicity	3.11	<.001***	3.06	<.001***	2.79	<.001***
Marital Status	-1.36	<.001***	-1.07	.008**	-1.08	.006**
Highest Level of Education	.41	.17	.30	.30	.25	.38
Current College Enrollment	.95	<.001***	.88	<.001***	.89	<.001***
Religion	-.63	<.001***	-.53	<.001***	-.50	<.001***
Brief Cope Maladaptive	--	--	.24	<.001***	.12	.02*
ACI Maladaptive	--	--	--	--	.23	<.001***
Adjusted R^2	.34	<.001***	.37	<.001***	.39	<.001***
ΔR^2			+.03		+.03	

Notes. *Correlation significant at the $p < .05$; **Correlation significant at the $p < .01$; ***Correlation significant at the $p < .001$

For depression, the overall model was significant on the second step $F(1, 545) = 35.02, p < .00$; Adjusted $R^2 = .30$), indicating the Brief COPE maladaptive subscale significantly predicted depression ($\beta = .34, t = 7.17, p < .00$). The third step, $\Delta F(2, 544) = 39.87, p < .00$; $\Delta R^2 = .06$, Adjusted $R^2 = .36$, was also significant, with the ACI maladaptive score significantly contributing to the model ($\beta = .34, t = 7.16, p < .00$). Therefore,

the ACI maladaptive subscale accounts for incremental validity for depression. Results are shown in Table 6.

Table 3.4. Depression Incremental Validity

Variable	Step One		Step Two		Step Three	
	β	Sig	β	Sig	β	Sig
Age	-.18	.48	-.04	.88	.01	.96
Ethnicity	2.80	<.001***	2.74	<.001***	2.34	<.001***
Marital Status	-.73	.09	-.33	.43	-.35	.38
Highest Level of Education	-.06	.86	-.21	.49	-.28	.33
Current College Enrollment	.89	<.001***	.80	<.001***	.81	<.001***
Religion	-.51	<.001***	-.38	.00**	-.33	.00**
Brief Cope Maladaptive	--	--	.34	<.001***	.16	.00**
ACI Maladaptive	--	--	--	--	.34	<.001***
Adjusted R ²	.24	<.001***	.30	<.001***	.36	<.001***
ΔR^2			+.06		+.06	

Notes. *Correlation significant at the $p < .05$; **Correlation significant at the $p < .01$; ***Correlation significant at the $p < .001$

For anxiety, the overall model was significant on the second step $F(1, 545) = 38.16, p < .00$; Adjusted $R^2 = .32$), indicating the Brief COPE maladaptive subscale significantly predicted anxiety ($\beta = .26, t = 5.49, p < .00$). The third step, $\Delta F(2, 544) = 41.33, p < .00$; $\Delta R^2 = .05$, Adjusted $R^2 = .37$, was also significant, with the ACI maladaptive subscale significantly contributing to the model ($\beta = .31, t = 6.55, p < .00$). Therefore, the ACI maladaptive subscale demonstrates incremental validity for anxiety. Results are shown in Table 7.

Table 3.5. Anxiety Incremental Validity

Variable	Step One		Step Two		Step Three	
	β	Sig	β	Sig	β	Sig
Age	-.18	.46	-.08	.76	-.03	.90
Ethnicity	2.81	<.001***	2.76	<.001*	2.39	<.001***

(table cont'd)

Variable	Step One		Step Two		Step Three	
	β	Sig	β	Sig	β	Sig
Marital Status	-1.15	.01**	-.85	.04*	-.87	.03*
Highest Level of Education	.05	.86	-.06	.83	-.13	.65
Current College Enrollment	.92	<.001***	.86	<.001***	.86	<.001***
Religion	-.57	<.001***	-.47	<.001***	-.42	<.001***
Brief Cope Maladaptive	--	--	.26	<.001***	.09	.07
ACI Maladaptive	--	--	--	--	.31	<.001***
Adjusted R ²	.28	<.001***	.32	<.001***	.37	<.001***
ΔR^2				+.04		+.05

Notes. *Correlation significant at the $p < .05$; **Correlation significant at the $p < .01$; ***Correlation significant at the $p < .001$

For global symptom index, the overall model was significant on the second step $F(1, 545) = 43.93, p < .00$; Adjusted $R^2 = .35$), indicating the Brief COPE maladaptive subscale significantly predicted the global symptom index ($\beta = .84, t = 6.33, p < .00$). The third step, $\Delta F(2, 544) = 46.78, p < .00$; $\Delta R^2 = .05$, Adjusted $R^2 = .40$, was also significant, with the ACI maladaptive subscale significantly contributing to the model ($\beta = .88, t = 6.56, p < .00$). Therefore, the ACI maladaptive subscale accounts for incremental validity for overall symptomology. Results are shown in Table 8.

Table 3.6. Global Symptom Index Incremental Validity

Variable	Step One		Step Two		Step Three	
	β	Sig	β	Sig	β	Sig
Age	-.57	.42	-.22	.75	-.09	.90
Ethnicity	8.72	<.001***	8.55	<.001***	7.51	<.001***
Marital Status	-3.24	.01**	-2.24	.05*	-2.30	.04*
Highest Level of Education	.40	.64	.03	.97	-.16	.85
Current College Enrollment	2.76	<.001***	2.54	<.001***	2.55	<.001***
Religion	-1.71	<.001***	-1.37	<.001***	-1.25	<.001***
Brief Cope Maladaptive	--	--	.84	<.001***	.37	.01**

(table cont'd)

Variable	Step One		Step Two		Step Three	
	β	Sig	β	Sig	β	Sig
ACI Maladaptive	--	--	--	--	.88	<.001***
Adjusted R ²	.31	<.001***	.35	<.001***	.40	<.001***
ΔR^2				+.05		+.05

Note. *Correlation significant at the $p < .05$; **Correlation significant at the $p < .01$; ***Correlation significant at the $p < .001$

Overall, these results indicate the ACI maladaptive scale demonstrates incremental validity on somatization, depression, anxiety and the global symptom index.

Chapter 4. Discussion

Coping remains an important topic in the literature and studies examining coping among different populations continues to grow. Although studies utilize well-known coping measures, these measures are inherently flawed. They were developed with homogenous samples that may not be applicable to the growing populations coping research is examining. Additionally, the psychometric properties of these measures could be improved. The aim of this study was to confirm the factor structure of the Adult Coping Inventory, a recently empirically-driven measure developed to assess coping in adults. Additionally, this study aimed to provide further evidence of the ACI's psychometric properties that were found to be greater than the previously developed coping measures.

Confirmatory Factor Analyses were conducted on multiple factor structures (one-, two-, three-, five-factors) of the ACI. Various goodness-of-fit indices were examined to determine whether the factor structure was an adequate or good fit of the data. Additionally, items with factor loadings below 0.5 were removed for each factor structure to examine whether this improved the factor fit. A five-factor model with 55 items was determined to be the best fit of the data.

Overall, the results suggest that the Adult Coping Inventory has good internal consistency, construct validity, concurrent validity and incremental validity. Specifically, the internal consistency of the full scale was excellent ($\alpha = 0.95$) and ranged from moderate to excellent on each subscale ($\alpha = .90, .93, .84, .87, .75$). When examining construct validity between the ACI and the Brief COPE, the ACI total score and each factor demonstrated construct validity. Concurrent validity was examined between the ACI and the BSI-18. The Mindfulness subscale of the ACI demonstrated a significant positive relationship with each

subscale of the BSI-18 as expected. Additionally, the Problem Solving subscale was significantly negatively correlated with the Somatization subscale. However, the Social Support subscale and the ACI Total Score did not demonstrate significant relationships with any subscale on the BSI-18. Given these results, partial correlations between the Brief COPE and the BSI-18 was analyzed. These results also demonstrate surprising findings with minimal correlations between the adaptive subscale and the BSI-18 scales. Therefore, the BSI-18 may not be the best measure to examine concurrent validity for the ACI.

Further, the ACI Maladaptive subscale was significantly positively correlated with each subscale of the BSI-18 as expected. This finding was consistent with the partial correlations between the Brief COPE maladaptive subscale and the BSI-18. Unexpectedly, the Avoidance subscale was significantly negatively related to each scale of the BSI-18. Even though the items on the Avoidance subscale demonstrate avoidance behaviors (e.g., avoiding/leaving a stressful situation, taking time by yourself), these behaviors may be more adaptive given these findings. For example, research indicates avoidance strategies may be helpful in the short-term but unhelpful long-term coping skills (Bardeen, 2015; Hayes et al., 1996). More research on this factor may be warranted to determine whether it is an adaptive or maladaptive subscale.

Finally, the ACI maladaptive coping factor significantly accounts for variance on somatization, depression, anxiety and overall symptomology indicating good incremental validity. Overall, the ACI outperforms the Brief COPE and demonstrates a psychometrically good measure of coping.

Limitations

Although the Adult Coping Inventory demonstrated good factor structure, there remain limitations that could be addressed in future research. First, like the EFA data collection, the

participants were collected from an online crowd sourcing website. Despite having a wide range of demographic variables, it is unclear whether online samples are generalizable to individuals who do not participate in online crowd sourcing websites. Next, as mentioned previously, the BSI-18 may not be the most appropriate measure to assess concurrent validity given the lack of correlations between the positive factors of the ACI and Brief COPE.

Future Directions

Future research should further explore the concurrent validity of the ACI with measures it has not been compared to previously (DASS-21, BSI-18). Given the differences in these results, an additional study would help clarify the relationship between the ACI and other measures.

Next, future research could explore the use of the Adult Coping Inventory as a longitudinal measure. For example, research could examine whether this ACI is sensitive to individuals changing their coping skills through the course of psychological treatment.

Finally, the ACI was developed for use with a general adult population. Future research can explore whether the factor structure remains the same with participants from special populations (e.g., medical patients, psychiatric diagnoses, elderly adults).

Conclusions

The results confirm the five-factor model of the ACI. The ACI demonstrates better psychometric properties than previously used coping measures and was developed on a less homogenous sample. Therefore, the ACI is a good alternative to measuring coping behavior in future research.

Appendix A. Institutional Review Board Approval



Date: 13-Jan-2022
To: Mary L Kelley
LSUAM | Col of HSS | Psychology
From: Alex Cohen
Chair, Institutional Review Board
Re: IRB # IRBAM-21-1181
Title: Confirmatory Factor Analysis of the Adult Coping Inventory
Submission Type: Amendment
Brief Amendment Description: Updating the survey questions.
Review Type: Exempt Review
Review Date: 12-Jan-2022
Risk Level: Minimal
Status: Approved
Approval Date: 12-Jan-2022
Approval Expiration Date: 22-Dec-2024
LSU Proposal Number:
(if applicable)

Appendix B. Adult Coping Inventory (Final)

This next set of questions asks about the coping methods you use in your life. There are no right or wrong answers. Answer the questions based on what you do, not if the coping strategy helps or not.

When you are stressed, how frequently are you using the following coping strategies:

	Most of the time	Some of the time	Seldom	Never
Take a walk				
Take a bath or shower				
Avoid stressful situations				
Ask for help				
Talk to someone about what is bothering me				
Feeling shame/guilt				
Think back to past situations for solutions				
Take quiet time to myself				
Chat with someone online about what is bothering me				
Engage in positive self-talk				
Engage in a social activity				
If my initial solution, doesn't work, choose a different solution and try it				
Identify the problem				
Listen to music				
Practice a skill or hobby				
Reward myself for successfully using a solution				
Take my frustration out on myself				
Easily annoyed by others				
Visualize myself somewhere peaceful				
Clean my house				
Avoiding other people				
Commit to engage in something meaningful and important everyday				
Talk to a friend about the problem				
Evaluate the possible outcomes of the situation				
Checking the facts of the situation				
Exercise				
Venting my emotions				
Plan to use the highest rated solution				
Stop and think about my response				
Do something nice for someone else				
Pretend I am in other person's shoes				
Practice deep breathing				

Consume a healthy diet				
Determine whether there is another way to look at the situation				
Visualize a place I enjoy				
Avoid people or situations that are upsetting				
Seek information online about the situation				
Stretch my muscles				
Seek reassurance from others				
Brainstorm all possible solutions				
Rate how effective each solution is				
Talk to someone about my feelings around what is bothering me				
Do something creative (i.e. paint, arts and crafts)				
Leave stressful situation				
Take my frustration out on others				
Engage in an activity by myself				
Blame others for the situation				
Assess the outcome after I used the solution				
Nonjudgmentally accepting the experience				
Blame myself for the situation				
Feeling ignored, criticized or rejected				
Read a book				
Dwell on the worst outcome				
Talk to someone about something positive				
Talk about the experience				

Appendix C. Demographics Questionnaire

Age:

- 18-25
- 26-35
- 36-45
- 46-60
- 60+

Race:

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White

Ethnicity:

- Hispanic or Latino
- Not Hispanic or Latino

What is your current gender identity:

- Male
- Female
- Transgender
- Gender Fluid
- Different identity (please state):_____

Marital Status:

- Single, never married
- Married
- Separated
- Widowed
- Living with unmarried partner

Level of highest education:

- Less than Junior High School
- Junior High School (6th, 7th, 8th grade)
- Some High School (9th, 10th, 11th, 12th grade)/ Did not Graduate
- High School Graduate/GED
- Some College (at least 1 year) or specialized training (Associate Degree)
- Standard College Graduate (B.A., B.S.)
- Post-College Advanced Degree (Masters or Doctorate)

Occupation:

- Unemployed
- Blue Collar work

- White Collar work
- Self-employed
- Professional career (e.g. Doctor, Lawyer, etc)

Are you currently enrolled in college?

- No
- Yes – 1st year
- Yes – 2nd year
- Yes – 3rd year
- Yes – 4th year
- Yes – 5th year or higher
- Yes – Graduate Student

Current annual household income:

- \$0-\$24,999
- \$25,000 – \$49,999
- \$50,000 – \$99,999
- Over \$100,000

Religious Affiliation

- Christian
- Jewish
- Muslim
- Buddhist
- Hindu
- Other: _____
- None

Appendix D. Brief Symptom Inventory-18

How much were you distressed by:

1. Faintness or dizziness
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
2. Feeling no interest in things
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
3. Nervousness or shakiness inside
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
4. Pains in heart or chest
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
5. Feeling lonely
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
6. Feeling tense or keyed up
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
7. Nausea or upset stomach
 - a. Not at all
 - b. A little bit
 - c. Moderately

- d. Quite a bit
- e. Extremely
- 8. Feeling blue
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
- 9. Suddenly scared for no reason
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
- 10. Trouble getting your breath
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
- 11. Feelings of worthlessness
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
- 12. Spells of terror or panic
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
- 13. Numbness or tingling in parts of your body
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
- 14. Feeling hopeless about the future
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit

- e. Extremely
- 15. Feeling so restless you couldn't sit still
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
- 16. Feeling weak in parts of your body
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
- 17. Thoughts of ending your life
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely
- 18. Feeling fearful
 - a. Not at all
 - b. A little bit
 - c. Moderately
 - d. Quite a bit
 - e. Extremely

Appendix E. Brief COPE

These items deal with ways you've been coping with the stress in your life since you found out you were going to have to have this operation. There are many ways to try to deal with problems. These items ask what you've been doing to cope with this one. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

- 1 = I haven't been doing this at all
- 2 = I've been doing this a little bit
- 3 = I've been doing this a medium amount
- 4 = I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in. 3. I've been saying to myself "this isn't real."
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do. 24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.

Appendix F. Items Removed For Factor Analysis

One-Factor Model (41-items)

- Item 3: Avoid stressful situations
- Item 5: Identify irrational beliefs
- Item 7: Feeling shame/guilt
- Item 9: Take quiet time to myself
- Item 11: Go over and over the situation in mind
- Item 19: Take my frustration out on myself
- Item 20: Easily annoyed by others
- Item 23: Avoiding other people
- Item 31: Stop and think about my response
- Item 38: Avoid people or situations that are upsetting
- Item 46: Leave stressful situation
- Item 47: Take my frustration out on others
- Item 49: Blame others for the situation
- Item 52: Blame myself for the situation
- Item 53: Feeling ignored, criticized or rejected
- Item 55: Dwell on the worst outcome

Two-Factor Model (48-items)

- Item 3: Avoid stressful situations
- Item 5: Identify irrational beliefs
- Item 9: Take quiet time to myself
- Item 11: Go over and over the situation in mind
- Item 23: Avoiding other people
- Item 31: Stop and think about my response
- Item 38: Avoid people or situations that are upsetting
- Item 46: Leave stressful situation
- Item 48: Engage in an activity by myself

Three-Factor Model (48-items)

- Item 3: Avoid stressful situations
- Item 5: Identify irrational beliefs
- Item 9: Take quiet time to myself
- Item 11: Go over and over the situation in mind
- Item 23: Avoiding other people
- Item 38: Avoid people or situations that are upsetting
- Item 39: Seek information online about the situation
- Item 46: Leave stressful situation
- Item 48: Engage in an activity by myself

Five-Factor Model (55-items)

- Item 5: Identify irrational beliefs
- Item 11: Go over and over the situation in mind

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Vita

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