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A Hopeless Illness Representation Style: Examining Chronic Illness and Depression with Coping as A Mediator

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A HOPELESS ILLNESS REPRESENTATION STYLE:
EXAMINING CHRONIC ILLNESS AND DEPRESSION WITH COPING AS A MEDIATOR

by

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THESIS CERTIFICATE OF APPROVAL

The thesis of Dana Arnold is approved:

Dr. Lori Lange, Committee Chair

Date

Dr. Francis (Dan) Richard

Date

Dedication

I would like to dedicate this work to my father Chris, my mother Debbie, my brother Nick, and boyfriend Kyle. They were always on my side, constantly encouraging me. They gave me strength and love. Thank you.

Acknowledgements

I would like to thank Dr. Lori Lange for taking me under her wing. You have been a joy to work with; your knowledge knows no bounds. Covid-19 threw a wrench in my thesis, but you led me through the struggle, and successfully out the other side. I could not be more grateful.

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I hope to stay life-long colleagues with you both!

Last but not least, I would like to thank Kyle. Thank you for moving with me to Jacksonville, sharing chores, and constantly cheering me on. I could not have been as successful without your comfort and support.

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Abstract

The self-regulation theory of illness representations (Leventhal et al., 2003) and the hopelessness theory of depression (Abramson et al., 1989) were used to observe how hopeless illness representations, depression, and coping styles interact. 238 participants with a chronic illness lasting three months or more were observed through the VOICE (Verification of Illness and Coping Experience) survey. Mediation was used to analyze the relationship between hopeless illness representations and depression, with passive coping as the mediator. All regressions in the mediation analysis were significant, and partial mediation was found. Patients with hopeless illness representations were more likely to use passive coping and have depression. Moreover, passive coping correlated with depression and increased the relationship between hopeless illness representations and depression. These findings add evidence to the need for patients being treated for a chronic illness to also be tested and, if required, treated for depression as part of their specialty care.

Keywords: self-regulation theory, illness representations, hopelessness theory of depression, chronic illness, hopeless illness representation (HIR) style, passive coping.

Examining Chronic Illness and Depression with Coping as a Mediator

Chronic illness and depression have been diagnosed together in tens of millions of Americans (Centers for Disease Control and Prevention [CDC], 2012). Around one third of patients with a chronic illness will also have the comorbidity of depression (Cleveland Clinic, n.d.). The self-regulation theory of illness representations posits that a person's perceived identification, cause, consequence, timeline, and controllability of their symptoms and/or illness are considered when self-regulating and planning their coping strategy (Leventhal et al., 2003). Coping is the operation(s) used to manage and reduce the illness and the symptoms that are associated with the illness. Discrepancies between any of the expected illness representations and the actual illness representations are anticipated to increase emotional distress (Johnson, 1999).

The hopelessness theory of depression (HToD) states that a person with a negative attributional style about internal, stable, and global life domains are more likely to have a higher risk of depression (Abramson et al., 1989). Abramson et al. (1989) believed that all three attributional domains needed to be negatively perceived together to influence the risk of depression.

Leventhal et al.'s (2003) illness representation "cause" can be internal or external, which also happens to be an attributional mechanism in Abramson et al.'s (1989) HToD. The illness representation "timeline" and the HToD attribute "stable" can both be measured in time (Leventhal et al., 2003; Abramson et al., 1989). Lastly, there is possible overlap between the illness representation "consequences" and the HToD attribute "global," because "global" infers that many or all aspects of someone's life are affected by consequences of their illness(es) (Abramson et al., 1989). I examine chronic illness using the self-regulation theory of illness representations and the hopelessness theory of depression to see how associated factors interact with the formation of coping strategies and depressive outcomes.

The Self-Regulation Theory of Illness Representations

The self-regulation theory of illness representations postulates that the combination of five illness representations (identification, cause, consequence, timeline, and controllability) are both a reflection and a reaction to an individual's cognition and emotion (Leventhal et al., 2003; Weinman et al., 1996). Each of the five illness representations have both abstract and concrete meanings to a patient (Leventhal et al., 2003). Abstract meanings are the feelings a patient associates with their illness, while concrete meanings are the actual symptoms and severity. The abstract and concrete meanings, along with the perceived illness experience of the patient convert associated stimuli into the five illness representations (Leventhal et al., 2003). The researchers believe that the perception of an illness and its symptoms has a bidirectional interaction with the actual illness and its symptoms.

Identity

Identifying or labeling a chronic illness, and/or symptoms of an illness, helps a patient build a schema of their illness (Johnson, 1999); a schema is a set of expectations for cause, controllability, timeline, and consequences of an illness. Low-level and high-level hierarchies play into a patient's schema of the illness' identity (Johnson, 1999). Low-level is the physical sensations that come from the symptoms and reactions to the illness. High-level is the physician's diagnosis, prognosis, and treatment plan for the patient. The stronger the identity, the more prepared the patient feels to cope with the illness(es) (Johnson, 1999). The more negative or weaker the identity, or if the identity of the illness is unknown, the more likely a patient will feel hopeless and unprepared for coping with their illness (Leventhal et al., 2003; Johnson, 1999). Hopelessness and unpreparedness also depend on a patient's experiences with similar symptoms or illness (Leventhal et al., 2003; Johnson, 1999).

Sometimes patients can perceive how to take care of an illness if their symptoms match something they have coped with before (Leventhal et al., 2003; Johnson, 1999). Perceptions are not always accurate, for example, rheumatoid arthritis (RA) and multiple sclerosis (MS) are identifiable by their symptoms, but there is no identified cause or cure for either chronic illness (Schiaffino et al., 1998). Patients then may build a cause and cure schema for coping on their own (Schiaffino et al., 1998). The same can be seen in patients with diabetes. Type 1 diabetes does not have a known cause (Lange & Piette, 2006). Though the patients in Lange and Piette's (2006) study all have the exact same diabetes diagnosis, they each had their own perception of the cause. The patients' schema and coping style were based on the individual perceptions versus the diagnosis the patients received (Lange & Piette, 2006).

Cause

Causes of a chronic illness can be from contact, like a virus; lack of something, like a certain nutrient; genetic, like a mutation or heredity; or unknown (Leventhal et al., 2003). The cause can be internal, suggesting that the patient believes the illness is something of their own doing that triggered the illness, or external, which refers to a cause that is outside the patient's control (Leventhal et al., 2003). For example, patients with RA are more likely to believe they are the cause of their illness, which can lead to a schema that makes them believe RA is more controllable (Schiaffino et al., 1998); this belief leads to the patients using a more active coping style. Whereas patients with MS tend to believe the illness was from an outside source, and therefore less controllable, leading them to adopt a more passive coping style (Schiaffino et al., 1998). As stated before, RA and MS do not have a known cause or cure (Schiaffino et al., 1998), which is why identification of internal and external attributes are illness “representations” placed on the illness by the patient (Leventhal et al., 2003). Moreover, the illness representations of chronic illnesses are often the interpretation or perception of the patient instead of facts (Leventhal et al., 2003).

Controllability

A participant’s perception of the identity and cause of the chronic illness are believed to contribute to the perception of the illness’ controllability (Schiaffino et al., 1998). Controllability is a patient’s perception of the illness’ preventability, curability, and the effectiveness of the treatments available (Leventhal et al., 2003). Perception of controllability can be associated with a patient's level of hope for a manageable life with their chronic illness (Leventhal et al., 2003). Patients with diabetes have been shown to perceive their controllability based on their education level (Lange & Piette, 2006). For RA and MS, there is no known cure, so again they do not have a sure path for controllability (Schiaffino et al., 1998). If patients with chronic kidney disease (CKD) believe their illness was uncontrollable, they were more likely to use a passive coping style, which has been associated with higher levels of depression (Nah et al., 2019). Timeline and controllability are continually reanalyzed by the patient for effectiveness (Leventhal et al., 2003).

Timeline

Timeline includes the perceived timeline of the illness, the expected age of onset, and the expected duration (Leventhal et al., 2003). Duration can be acute (short), chronic (long lasting), and/or intermittent (irregular frequencies). Patients with minimal symptoms of RA or MS tended to perceive their illness to be acute, even though RA and MS are chronic illnesses (Schiaffino et al., 1998). In chronic kidney disease, perceived timeline was associated with the passive coping styles “avoidance” and “denial” (Nah et al., 2019). Chronic timeline and negative consequences played a role in the perceived seriousness of the illness for patients with diabetes (Lange & Pitette, 2006). Perceived seriousness negatively associated with patients’ physical and mental health six months into treatment.

Consequences

Consequences of an illness are the perceived symptoms, severity of the symptoms, and impact the symptoms have on a patient’s life (Leventhal et al., 2003). Consequences can be physical, emotional, and external. External includes job status, marriage status, ability to do enjoyable things, etc. The more areas of a person’s life that chronic illness effects, the more likely the patient is to be depressed (Leventhal et al., 2003).

Discrepancies in the expected illness representations for a specific illness can lead to dissonance (Johnson, 1999). Low amounts of dissonance have been observed to motivate patients to take actions against their dissonance (Johnson, 1999). However, large amounts of dissonance from large discrepancies between expectations and actuals, as well as unknown identities, can lead to ambiguity about a way forward and lead to hopelessness. In patients with RA, the more responsible the patient feels about their illness and the more curable the patient feels their chronic illness should be, the higher their depressive severity (Schiaffino et al., 1998). RA patients who perceived their RA as chronic were more likely to have less severe to no depressive symptoms. Unexpectedly, Schiaffino et al.’s (1998) RA participants with a moderate perception of their illness, but who were experiencing low symptom severity had higher levels of depression. Moreover, patients with MS whose symptoms varied were more likely to have higher levels of depression (Schiaffino et al., 1998).

A patient's perception or interpretation of the illness helps them regulate their behavior in response to the illness (Leventhal et al., 2003). Their perception then determines if they listen to and conform with their doctor's treatment plan. A negative attributional style can affect a patient's planning when they convince themselves the planning will make no difference (Leventhal et al., 2003). Lack of controllability can then make a patient feel hopeless and maybe even depressed. Self-regulation and coping are deterred by hopelessness, removing the motivation needed to manage the illness and its consequences (Hall & Fong, 2007; Lang & Piette, 2005).

The Hopelessness Theory of Depression

HToD is based on three attributional styles: internal/external, stable/unstable, and specific/global. Negative attributional styles for internal, stable, and global have been observed to lead to hopelessness (Abramson et al., 1989). Hopelessness is an expectancy of being helpless in a negative situation (DeVellis & Blalock, 1992). Negative inferential styles about a negative event of high importance to the patient are believed to lead to depression (Abramson et al., 1989). The negative inferential style attributes are always called cognitive vulnerability (Liu et al., 2015). This cognitive vulnerability is correlated with depression.

Negative Internal Attribute

A negative internal explanatory style is an attribute in the hopelessness theory of depression (Abramson et al., 1989). Negative internal attributes describe inferential characteristics about oneself and their abilities, inherent qualities, and characteristics. (Abramson et al., 1989). In terms of chronic illness, an individual may believe that they themselves are the cause of the illness. A patient's internal locus of control may lead them to believe they can control the symptoms of the chronic illness, but it can also lead them to feel personal blame when their efforts do not work (Abramson et al., 1989). A patient blaming themself for a negative outcome has been associated with depressive symptoms (Abramson et al., 1989). An unknown cause can be detrimental in a person with a negative internal view of their illness (Liu et al., 2015). Not knowing the cause can leave a person feeling ambiguous about a way forward. When mixed with a belief that the illness is their own fault, emotional distress increases (Johnson, 1999). A negative internal style will likely lead to a negative stable and negative global inferential style (Abramson et al., 1989).

Negative Stable Attribute

Stable suggests unchanging and unending (Abramson et al., 1989; Liu et al., 2015). When referring to chronic illness as stable it can mean the illness is progressing over its expected trajectory. A negative stable style suggests the illness will be a never-ending problem full of negative consequences and no possibility of control (Abramson et al., 1989; Liu et al., 2015). Not all patients see stability as negative, but those that do must also infer a negative global style to their illness for it to cause depressive symptoms (Liu et al., 2015). A stable negative inferential style, in combination with the negative internal style, is also theorized to increase a patient’s risk of depression (Abramson et al., 1989). Researchers believe that, if the negative attribution toward the event, and in this case toward the self, stays stable across time, the hopelessness will also stay (Abramson et al., 1989). Chronic illness should be expected to be long-lasting. However, with RA patients, it can be detrimental to their mental health if they believe their illness is chronic (Schiaffino et al., 1998). Although, Schiaffino et al. (1998) have also shown a discrepancy in timeline to be even more harmful for RA patients. For example, RA patients who expected the illness and symptoms to be acute but, instead were long-lasting, also had detriment to their mental health (Schiaffino et al., 1998; Johnson, 1999). The chronicity of an illness can be even more impactful if it is also attributed to negative global perceptions (Abramson et al., 1989).

Negative Global Attribute

Global refers to something that affects more than one domain of a person's life (Abramson et al., 1989). In chronic illness, negative global attributes could include physical symptoms, emotional symptoms, and/or aspects of the patient's environment. Physical negative global attributes tend to include the physical symptoms that accompany the illness, such as joint pain or loss of a foot. Gunn et al. (2012) found that the more morbidities a patient had, the more likely they were to be depressed. An example of multi-morbidity would be a patient with inflammatory bowel disease (IBD) who may also have cardiovascular issues, metabolic issues, and pancreatic issues (San Román, & Muñoz, 2012). Emotional symptoms can consist of aggression, anxiety, irritability, etc. Negative global environmental attributes refer to the external domains of a chronically ill patient, like losing a job, inability to spend time outdoors, or preventing an individual from their favorite activity(s). Additionally, loss of a person's job can cause further issues, such as financial strain and relationship strain. The HToD says that multiple areas need to be negatively affected to be considered a negative global attribution (Abramson et al., 1989). "How many" may be different between individuals, but on a wider scale it can be assumed that more than two negative domains are all that is needed to predict depression (Abramson et al., 1989).

Theories Overlap

Based on the self-regulation theory of illness representations (Leventhal et al., 2003) and HToD (Abramson et al., 1989) there seems to be overlap; for example, once the illness or symptoms are identified, the patient can then use this information to decide if the cause is internal or external. Based on the expected timeline of the illness, the patient can then determine if the negative internal cause will be stable. The consequences of the illness then inform the patient if the effects of the illness will be far reaching, aka global. Finally, the patient can then analyze the controllability of the illness and further build their self-regulating and coping strategies.

Coping

Coping is the implementation of multiple mechanisms to manage and reduce stress (Falvo, 2005; Liebermann et al., 2020). Like schemata, coping strategies are built from past knowledge and experience (Leventhal et al., 2003). To quickly clarify the difference between self-regulation and coping, self-regulation strategies are used to adjust a specific feature in someone's life so that they behave typically in a certain situation or environment, whereas coping strategies are about adapting to a problem that has occurred and a change for all efforts is required to attain a person's fullest potential (Aldwin et al., 2011). Coping style may affect the schemata used by being applied to the building of expectations or it may be the product of the schemata goal chosen (Leventhal et al., 2003).

Coping has many dimensions, but the ones I focused on here are active coping and passive coping. An active coping strategy is one that is directed at solving or reducing a problem (Liebermann et al., 2020). A passive coping strategy is one that is directed at avoiding or ignoring the problem. Mixed coping is a combination of active and passive techniques. Patients employing an active coping strategy or mixed coping strategy are shown to have fewer depressive symptoms than those using passive coping (Liebermann et al., 2020).

Active Coping

Active coping deals directly with the problem itself (Liebermann et al., 2020; Amirkhan & Auyeung, 2007). It uses planning to reduce the illness, with treatments prescribed by a doctor as well as those that are researched by the patient (Liebermann et al., 2020). Exercise is a problem-focused coping strategy used for illnesses such as chronic kidney disease and depression (Nah et al., 2019). A patient's perceived control over the illness determines whether they employ exercise as a coping strategy or not (Nah et al., 2019). Patients with chronic kidney disease were more likely to exercise as well as use a higher level of exercise if they perceived control over their illness' symptoms (Nah et al., 2019). Passive coping is believed to be selected more often when an individual is in circumstances that cannot be altered or are perceived as so (Lange & Piette, 2005; Brown et al., 2001; Macrodimitris & Endler, 2001; Heijman, 1999).

Passive Coping

Passive coping is the indirect reduction of emotional and physical pain accompanying an illness, usually marked by avoidant behavior (Liebermann et al., 2020; Nielsen & Knardahl, 2014; Amirkhan & Auyeung, 2007). In Heijman's (1999) study of Addison's Disease he found that patients with a strong illness identity and a perception of chronicity in duration accompanied a perception of little control that related to an avoidant coping style. Brown et al. (2001) observed patients' perceptions of chronic depression and its symptoms were associated with the coping strategy used. For example, patients who perceived negative consequences were more likely to be using active, religious, or self-blame coping styles. However, those who perceived themselves of having less control over their illness were more likely to be using fewer coping strategies that required planning. Others have also noted that a perception of loss of control in patients with a chronic illness leading to less preferred styles of coping (Lange & Piette, 2005; Macrodimitris & Endler, 2001).

Passive coping is also associated with depression (Brajković et al., 2009; Blalock & Joiner, 2000; Liebermann et al., 2020; Amirkhan & Auyeung, 2007). Benedetto et al. (2014) found evidence for passive coping associating with depression bidirectionally. They also found that coping and health (emotional and physical) were partially mediated by depression (Benedetto et al., 2014). Brajković et al. (2009) found evidence of planning, acceptance, and focus on emotional venting and denial to be predictors of poor mental health in MS patients; however, they did not find evidence of a less active coping style leading to poorer physical health like Benedetto et al. (2014).

Hypotheses

1. Based on the HToD (Abramson et al., 1989) and the self-regulation theory of illness representations (Leventhal et al., 2003), I predict that HIR (A negative internal attribution for cause; a negative stable attribution for timeline; a negative global attribution for consequences) will relate to a higher depressive outcome.
2. Due to the self-regulation theory of illness representations (Leventhal et al., 2003), which postulates that illness representations will predict coping style, I predict that those with a hopeless illness representation style will be more likely to use a passive coping style.
3. Moreover, I predict that those using a passive coping style will be associated with a higher degree of depression, as seen in other literature (Brajković et al., 2009; Blalock & Joiner, 2000; Liebermann et al., 2020; Amirkhan & Auyeung, 2007).

4. Central to Leventhal et al.'s (2003) process model that illustrates illness representations predicting coping which in turn predicts appraisal of the outcome (see Figure 1), I predict that a passive coping style will mediate the effects of hopeless illness representations on depression as seen in Figure 2.

Figure 1

Leventhal et al.'s (2003) Illness Representations Process Model

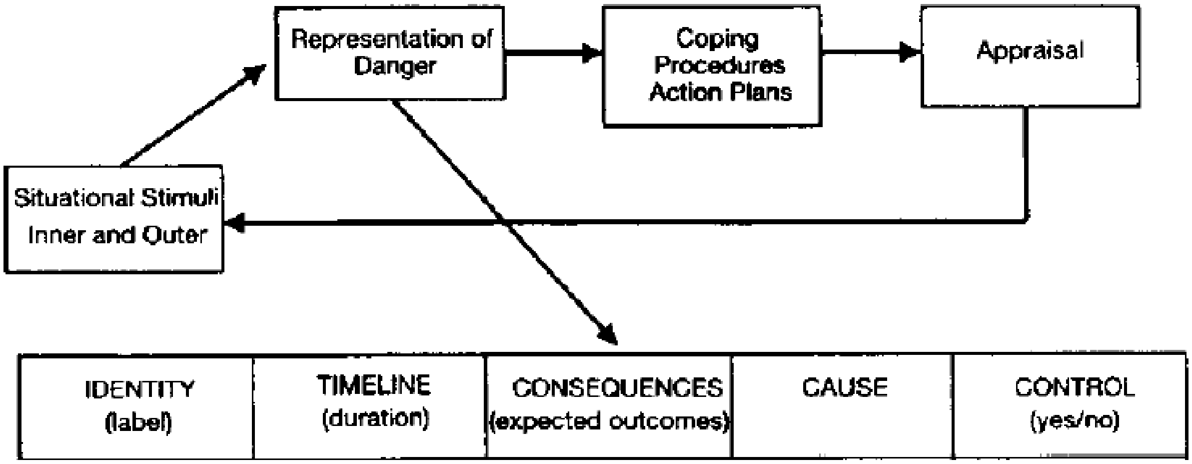
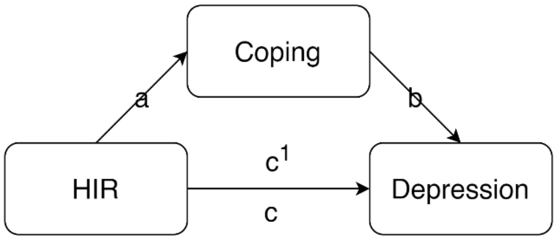


Figure 2

Mediation Process Model using HIR, Coping, and Depression



Method

Participants

Data was pre-collected from 238 participants anonymously online from the Voice: Verification of Illness Coping and Experience survey. The participants (n=788) were eligible to participate if they had persistent or intermittent somatic symptoms for at least three months and were at least 18 years in age. Participants (n=550) were removed if they did not complete all four surveys, which left us with 238 participants (n=39 Males & n=197 Females). Participants were able to participate from any country; 64.3% of them were from the United States and 22.3% did not respond to this question. Their ages ranged from 18 to 76, average age of the participants was 40. The participants' ethnicity was mainly white (89.1%). 50% of the participants were married and 59.2% had children. Income level of the participants ranged from less than $20,000 (26.1%), $20,000 to $50,000 (34%), $50,00 to $100,000 (25.2%), to more than $100,000 (12.2%). All had at least a high school diploma and 30.7% of them were employed. Of the 238, 216 (90.8%) participants rated depressed (≥10; Shin et al., 2019).

Design and Procedure

The study Verification of Illness, Coping and Experience (VOICE) was approved by the IRB and consisted of 12 measures and eight open-ended questions; the results of three of these measures was used in this study. The study was conducted voluntarily through a website created specifically for VOICE. Identification numbers were assigned at random for anonymity. Participants had to be at least 18 to consent to the study. Moreover, individuals had to have chronic illness symptoms consistently for at least the past three months to participate.

Measures

The sociodemographic information questions included information about age, sex, ethnicity, marital status, number of children, geographic location of residence, employment status, income, and educational attainment. The length of chronic illness symptoms was more than three months for all participants.

The eight-item Patient Health Questionnaire (PHQ-8), a variant of the PHQ, was used to assess the participants' current depression severity. The PHQ-8 was developed by Kroenke et al. (2009). It has a 4-point scale (0= *Not at all*, 1=*Several days*, 2=*More than half the days*, 3=*Nearly every day*) of the number of days over the past two weeks the patient has felt a certain way such as, "*Feeling down, depressed, or hopeless*" and "*Feeling bad about yourself – or that you are a failure or have let yourself or your family down*" (See Appendix A for the complete scale). The PHQ-8 using ≥10 as the cutoff score has a Cronbach's α= 0.89 in Shin et al.'s (2019) study; meaning that anyone with a score of 10 or greater is likely to have major depression at the time of filling out the questionnaire.

The Revised Illness Perception Questionnaire (IPQ-R) was used to assess participants' illness representations and hopelessness illness attributional style. The IPQ-R was created by Moss-Morris et al. (2002) with 56 statements; 31 of which were additional to the original Illness Perception Questionnaire (IPQ) by Weinman et al. (1996). The original cognitive statements for identity (a symptom list), cause (e.g. "A germ or virus caused my illness."), time-line (e.g. "My illness is likely to be permanent rather than temporary."), consequences (e.g. "My illness has serious economic and financial consequences."), and control (e.g. "There is very little that can be done to improve my illness.") were kept in the revised version (See Appendix B for the complete IPQ-R scale). An emotional representations category was added to the IPQ-R with statements like "Having this illness makes me feel anxious." as well as a psychological representations category with statements such as "Stress or worry." (Moss-Morris et al., 2002). Moreover, new statements like "My symptoms come and go in cycles" were added to the already existing categories to incorporate symptoms that were not covered in the original IPQ. The IPQ-R improved on the original IPQ's categories' reliability with Cronbach alpha's ranging from 0.79-

0.92 (Moss-Morris et al., 2002). The IPQ-R also proved to have good test-retest reliability in Moss-Morris et al.'s (2002) study ranging between .46 and .88 across categories. Moreover, the IPQ-R has discriminant validity, as shown it Moss-Morris et al.'s (2002) study, with correlations ranging from -.19 to -.26.

The Brief-COPE inventory was used to assess the participant's coping style. The COPE (Carver et al., 1989) was revised by Carver in 1997. Carver (1997) removed two sub-scales and adjusted three others for better construct validity (See Appendix C for the complete Brief-COPE inventory). The Brief-COPE is a 28-item inventory with 14 sub-scales and a 4-point Likert scale (*0 = I haven't been doing this at all, 1 = I've been doing this a little bit, 2 = I've been doing this a medium amount, 3 = I've been doing this a lot*). The sub-scales include Active Coping, Planning, Positive Reframing, Acceptance, Humor, Religion, Using Emotional Support, Using Instrumental Support, Self-distraction, Denial, Venting, Substance Use, Behavioral Disengagement, Self-blame. The sub-scales' reliability ranges from low to high (Cronbach's α=0.50 – 0.90); "substance use" having the highest reliability and "venting" having the lowest.

Hopeless Illness Representation (HIR) Latent Variable

Using Abramson et al.'s (1989) description of the three attributes I was able to extract the three attributes from the IPQ-R. Other researchers have done the same extraction from other inventories, like the Arthritis Helplessness Index and the Cognitive Style Questionnaire (DeVellis & Blalock, 1992; Metalsky & Joiner, 1992). Since I wanted to examine the internal, stable, and global attributes from the perspective of illness representations I used the cause (internal), chronic timeline (stable), and consequences (global) variables from the IPQ-R.

Since internal cause is often referred to as self-blame (Lawson et al., 2007; Lawson et al., 2013; Vanheusden et al., 2009), I took the six "psychological items" and the "self-blame" item from the subscale “cause” (See Table 1 for a list of the items extracted). The seven items were summed together to create the latent variable “internal”. The higher the score the more internal the cause attribution. Cronbach’s alpha for the latent internal variable was *a*= .89 “Internal” correlated with “I feel I am at least partially to blame for my illness” [*r*(218)= 0.34, *p*<.001] from the Internalized Shame subscale in the Dimensionality of Stigma questionnaire (Fife & Wright, 2000) suggesting convergent validity. Furthermore, “internal” did not correlate with the external causes from the IPQ-R, “A germ or virus caused…” [*r*(218)= -0.11, *p*=.08] and negatively correlated with “Pollution…” [*r*(218)= -.31, *p*<.001], which represents discriminant validity.

Table 1

Items Used for the Creation of "Internal" Latent Variable

	Condensed Items
1	Stress or worry
2	My own behavior
3	Family problems
4	Mental attitude
5	Overwork
6	Emotional state
7	Personality

The “stable” variable was created by using the 6-item chronic timeline subscale from the IPQ-R. Timeline is already an established variable in the IPQ-R survey with convergent validity between the chronic items and discriminant validity between the chronic and acute questions. When acute items are reversed, the entire timeline variable has a Cronbach’s alpha of 0.83. The chronic timeline items are summed together so that the higher the score, the more the participant expects their disease to be chronic.

The “global” variable was created out of the IPQ-R’s 6-item subscale “consequences”. “My illness does not have much effect on my life” was reverse scored so that all high numbers represented negative consequences. The six items were summed, so that the final product's higher numbers were equivalent to more negative consequences. "Global" correlated with "Loss" [$r(218)=.68$, $p<.001$], a latent variable created from summing The Social Impact scale's number of "loss[es] as a result of your illness," suggesting convergent validity.

Lastly, similar to other literature, the internal, stable, and global variables were then summed (Metalsky & Joiner, 1992; DeVellis & Blalock, 1992; Alloy & Clements, 1998). When combined they make a hopeless latent variable, and because of the combination of both theories, the latent variable was named "Hopeless Illness Representations. HIR correlates with "…defeat…" [$r(222)=.404$, $p<.001$] from the Psychosocial Impact scale and "…hopelessness…" [$r(222)=.404$, $p<.001$] from the PHQ-8, which represents convergent validity.

Passive Coping Latent Variable

The "passive coping" latent variable was created from the Brief-Cope Inventory (Carver, 1997) using five avoidant subscales and the self-blame subscale for a total of 12 items, which can be seen in Table 2. As discussed previously, passive coping is mainly made up of avoidant coping strategies (Liebermann et al., 2020; Nielsen & Knardahl, 2014; Amirkhan & Auyeung, 2007; Johnson, 1999). The five avoidant subscales were discussed by Blalock and Joiner (2000). They found evidence of behavioral-avoidant items like distraction, substance use, venting, and behavioral disengagement, and cognitive-avoidant items such as denial or minimizing. They do not discuss self-blame; however, self-blame is brought up as being part of passive coping by McInnis et al. (2014). The six subscales were summed together to create a passive coping latent variable, where higher scores mean the participant uses more passive coping strategies. The Cronbach's alpha for the latent passive coping variable was $a= .72$. Passive coping did not correlate with the active coping subscale in the brief-cope, which suggests discriminant validity.

Table 2

Brief-Cope Subscales Used for the Creation of "Passive Coping" the Latent Variable

	Subscales
1	Self-Distraction
2	Denial
3	Venting
4	Substance Use
5	Behavioral Disengagement
6	Self-Blame

Data Analysis

Using a G Power calculator (Faul et al., 2007; Faul et al., 2009), the preferred sample size for this study was 111 participants for a one-tailed test with 95% power and an effect size of ~.30 (allowing for .05 error), which means I had plenty of participants for my study. Reliability tests were run on the three questionnaires. Next, bivariate analyses were run to identify any confounds in sociodemographics that needed to be controlled for. Finally, regression analyses were run using the Hayes Process Modeling Macro model 4 (Hayes, 2018) for simple mediation.

Mediation

The Hayes Process Modeling (Hayes, 2018) was computed through SPSS with a Hayes Processing Macro (Hayes, 2018). The Hayes Process Model 4 was used with bootstrapping at 5000 for simple mediation testing. HIR was the independent variable (IV), passive coping was the mediator (M), and depressive outcome was the dependent variable (DV). I tested if HIR was related to passive coping and in turn correlated with a higher degree of depressive outcomes. For successful mediation, I confirmed the significance of “path a,” also known as the relationship between the IV and the M ($X \rightarrow M$). Then, confirmed the significance of “path b,” which is the relationship between the mediator and the DV in the presence of the IV ($M|X \rightarrow Y$). Finally, confirming the insignificance (full mediation), or the meaningful reduction in effect (partial mediation), of “path c’,” which is the relationship between the initial IV and the DV in the presence of the M (X|M → Y).

Results

Covariates

Demographics variances were analyzed with HIR, passive coping, and depression (See Table 3) using a one-way between-subjects analyses of variance (ANOVA) with the Bonferroni post hoc to ascertain any differences in means. Country, education, and sex did not differ significantly in their means for any of the tested variables. There was a significant difference between work status and depression level means, $F(2, 219) = 9.32$, $p < .001$. Bonferroni post hoc analyses indicated that individuals working have significantly less depression (n=108, M = -3.11, SD = 1.14) than individuals retired or choosing to be out of work (n=43, M = 3.11, SD = 1.14) and individuals out of work due to disability or being sick (n=71, M = 3.83, SD = 0.90). There are also significant differences between marital status means and HIR [$F(1, 219) = 5.31$, p=.022]. Race had significant mean differences from HIR [$F(2, 219) = 8.68$, p<.001]. White participants had significantly higher HIR (n=197, M=65.07, SD=8.41) than did participants in the “other” category (n=18, M=57.22, SD=9.21). Income had significant mean differences from depression [$F(3, 215) = 4.03$, p=.008]. Those with the lowest income had significantly higher depression level means (n=59, M=20.41, SD=6.45) than those with the highest income (n=28, M=16.32, SD=6.21). Also income had significant mean differences from passive coping ($F(3, 209) = 4.49$, p=.017). Those with the lowest income had significantly higher passive coping level means (n=56, M=10.95, SD=5.58) than those with the highest income (n=27, M=7.22, SD=4.41).

Table 3

Means, Standard Deviations and One-Way Analyses of Variance for Demographics, Depression, Passive Coping, and HIR

		Depression		Passive Coping		HIR	
Variables		*M*	*SD*	*M*	*SD*	*M*	*SD*
Country							
	USA	19.76	6.06	9.23	5.05	64.34	9.27
	Other	20.43	5.84	10.60	5.52	66.10	8.37
Income							
	<$20K	20.41^{a}	6.45	10.95^{a}	5.58	64.58	8.95
	$20-50K	20.70^{b}	6.02	9.32	4.99	64.72	9.75
	$50-100K	19.44	5.14	9.07	4.91	64.56	8.20
	> $100K	16.32^{ab}	6.21	7.22^{a}	4.41	62.04	8.76
Relationship							
	Committed	20.26	5.75	9.57	5.23	65.16^{a}	8.47
	Non-Committed	18.58	6.63	9.10	4.96	62.17^{a}	9.91
Race							
	White	19.87	5.99	9.47	6.10	65.07^{ab}	8.41
	Black	18.17	4.96	10.29	5.23	57.71^{a}	15.00
	Other	17.94	7.63	8.13	4.19	57.22^{b}	9.21
Education							
	HS or <	22.26	7.01	11.38	6.63	64.72	11.68
	<BA	19.76	6.19	9.36	5.02	64.34	9.32
	>BA	18.92	5.70	9.03	5.00	63.90	8.04
Sex							
	Male	20.41	6.27	9.30	5.88	63.97	8.69
	Female	19.53	6.09	9.47	4.99	64.29	9.07
Work							
	Work/ School	18.32^{ab}	6.17	10.11	4.80	62.61^{a}	9.62
	Retired/ Other	19.05^{a}	5.88	9.76	5.75	64.89	7.36
	Disabled/ Sick	22.15^{b}	5.50	8.80	5.13	66.32^{a}	8.11

Note. Means with different superscript letters were significantly different at $p<.05$. The “other” race category is made up of Hispanic/Latino, Asian/Pacific Islander, and Other/Multiple Ethnicities.

Passive coping, HIR, relationship status, and income level are all correlated to depression as seen in Table 4. This means “relationship status” and “income level” needed to be controlled for during the mediation analyses. However, their correlations are low, so they should not have too much of an effect on the regression analyses.

Table 4

Correlation Matrix of Covariates and Passive Coping, HIR, and Depression

Variables	n	M	SD	1	2	3	4	5
1. HIR	222	64.20	9.02	-				
2. Passive Coping	205	26.39	8.62	0.35**	-			
3. Income Level	232	2.24	0.99	-0.07	-0.21**	-		
4. Marital Status	237	5.05	2.39	0.19**	-0.11	0.36**	-	
5. Depression	224	19.67	6.10	0.38**	0.43**	-0.19**	0.16*	-

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

Mediation

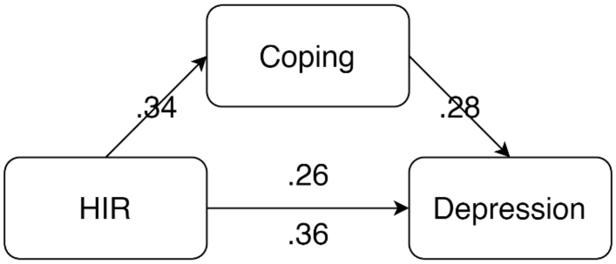
Using Hayes (2018) process model SPSS macro for mediation, three regression models were tested. Though mediation is used to test causation, causality cannot be tested in this study; instead, I am testing whether passive coping enhances the relationship between HIR and depression, as well as if passive coping makes the direct relationship between HIR and depression insignificant (full mediation) or reduces their relationship (partial mediation). The *a* path is HIRs relationship with passive coping, the *b* path is passive coping’s relationship with depression, and finally, the coefficient regression (c') is HIR’s relationship with depression.

Covariates were considered when running mediation. Income level was negatively associated with passive coping [b= -.19, t(187)= -2.60, p<.001] and depression b= -.18, t(186)= -2.62, p=.009). Relationship status was associated with depression, b= .34, t(187)= 4.89, p<.001.

Path *a*’s regression between HIR and passive coping was significant, b= .34, t(187) = 4.89, p<.001; evidence that HIR predicts passive coping. Path *b*’s regression between passive coping and depression is significant, *b*= .28, *t*(186)= 4.28, *p*<.001. Path *b* suggests that passive coping predicts depression. Path c is significant, b= .36, t(187)= 5.41, p<.001, showing that there is a relationship between HIR and depression independent of coping style. Finally, path *c'*, between HIR and depression is significant, *b* = .26, *t*(186) = 3.89, *p*<.001; this suggests that HIR predicts depression even when controlling for their mutual relationship with passive coping. Since *c'* is significant, if mediation is found, it will only be partial mediation. The total effect of HIR on depression = 0.25, *S.E.* = 0.06, *t(131)*=4.87, *p*=< .001 (See Figure 3). The direct effect of HIR on depression, removing passive coping = 0.18, *S.E.* = 0.06 *t*(131)=3.43, *p*=< .001. The indirect effect of HIR on depression through passive coping, Indirect= 0.07, *SE*= 0.02, 95% *CI*(0.03, 0.12). The mean bootstrapped indirect effect = 0.11, *S.E.* = 0.04, *CI*(0.04, 0.19), *R* = 0.54, *R*^2= 0.29 *p*<.001, meaning partial mediation was found. Additionally, the Sobel test gave evidence for c path and c' path being from different populations, *z*(238)=3.21, *S.E.*= 0.02, *p*=.001; suggesting the mediating effect is greater than 0.

Figure 3

HIR's Relationship with Depression Through Coping as a Mediator



Discussion

This study adds to the current literature on chronic illness and depression by examining them through hopeless illness representations. In this study, I explored whether HIR was related to depression, then looked at passive coping's relationship with HIR. I also viewed the relationship between passive coping and depression. Finally, I analyzed the relationship between HIR and depression with passive coping as a mediator. The results of the statistical analyses supported all four hypotheses with passive coping partially mediating the relationship between HIR and depression.

Hopeless Illness Representations and Depression

In support of hypothesis 1, HIR predicted depression. The hopelessness theory of depression states that negative internal, negative stable, and negative global attributes about an important problem, in this case chronic illness, will likely predict depression (Abramson et al., 1989). Negative internal stands for self-blame, negative stable stands for a problem that is long-lasting or never-ending, and negative global represents a few or more areas of a person's life that are negatively affected by the problem. Abramson et al. (1989) theorized that all three attributions must be present at the same time to cause depression.

Though the dataset did not have the Attributions survey included, I was able to capture the attributions through the IPQ-R. Moreover, the Attributions survey does not have good reliability, but this study showed very good reliability and validity for the variables chosen to represent negative attributions. The acceptable reliability estimate of the attribution measure in the current study is probably the result of using a sample of chronically ill participants. Their "important problem" was their illness, unlike the Attributions survey which uses multiple scenarios to try to find a problem that is important to the participant. It was also fitting that the HToD variables came from the IPQ-R's illness representations since the final variable was meant to capture illness representations that were hopeless.

Hopeless Illness Representations and Passive Coping

The relationship between HIR and passive coping proved to be robust, supporting hypothesis 2. In Leventhal et al.'s (2003) self-regulating theory of illness representations, illness representations fed the formation of coping strategies. The researchers also hypothesized that passive coping and illness representations may have a bidirectional relationship, where results of coping can also feed the individual's view of their illness representations (Leventhal et al., 2003). The relationship between HIR and passive coping is important to understand taking into consideration the detrimental feedback passive coping could be giving to illness representations (Falvo, 2005). The inhibition of growth and potential that Falvo (2005) saw in passive coping may make the illness representations feel more hopeless than they already were.

Passive Coping and Depression

In turn, passive coping related to depression, which supports hypothesis 3. Passive coping has been tied to depression in many studies (Brajković et al., 2009; Blalock & Joiner, 2000; Liebermann et al., 2020; Amirkhan & Auyeung, 2007; Falvo, 2005). Passive coping occurs when a patient focuses their coping efforts on the result of an issue, instead of coping with the issue itself. For example, a chronically ill patient may overeat or smoke to make their mood better but might also ignore the exercise that may make their physical symptoms better, which may be the cause for the bad mood in the first place (Nah et al., 2019). There are some patients who use a mixed coping strategy which is less likely to be associated with depressive symptoms but is not as protective from depression as active coping (Liebermann et al., 2020).

Since coping strategies can come in several combinations, researchers have suggested finding specific coping patterns of both active and passive coping and rating them on their effectiveness (Nielsen & Knardahl, 2014; McInnis et al., 2014). McInnis et al., (2014) suggests making coping profiles for each type of illness. Taking into consideration that different chronic illnesses have a different ratio of risk for being accompanied by depression (Bruce, 2020), making individual illness profiles could be valuable.

Hopeless Illness Representations, Passive Coping, and Depression

As for passive coping acting as a mediator between HIR and depression, partial mediation was found, supporting hypothesis 4, meaning that passive coping further increases the relationship between HIR and depression. A key assumption of Leventhal et al.’s (2003) model is that there is a pathway from illness representations, to coping, to appraisal. In my model, the illness representations are hopeless, and the appraisal is a mental appraisal, depression.

Benefits

In this large sample of patients with chronic illness, I was able to examine illness representations in a hopeless style being associated with depression, expanding the evidence that hopelessness can predict depression (Abramson et al., 1989). This study also gave evidence of a mediating role for passive coping in the relationship between HIR and depression, expanding on Leventhal et al.’s (2003) model of illness representations. Moreover, this study added evidence to the need for patients with a chronic illness to receive depression testing and care during their chronic illness care (CDC, 2012).

Limitations

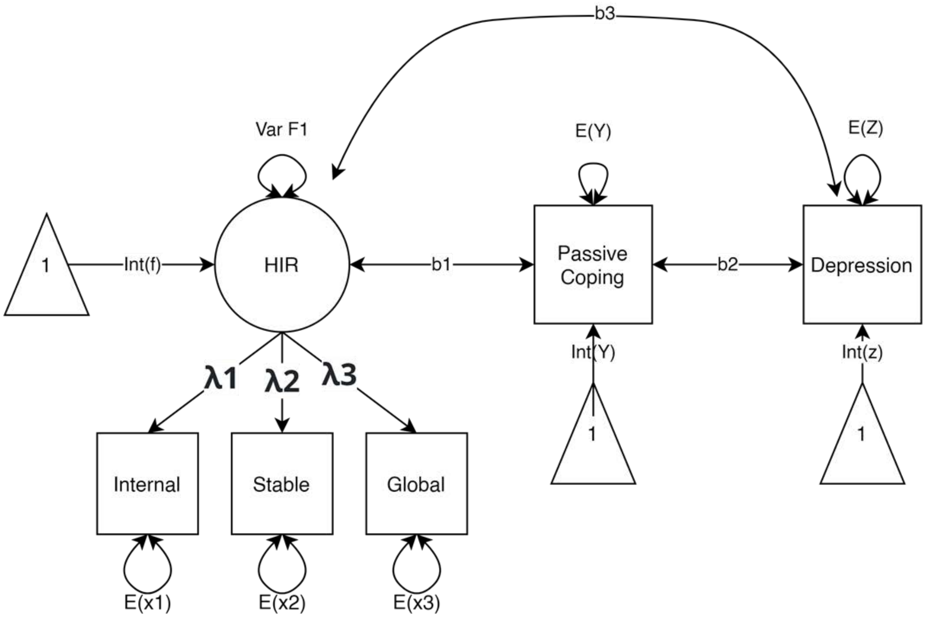
This study was unable to test for causality. All questions were asked at one point in time. Future researchers would benefit from collaborating with a hospital and interview patients from initial diagnosis to future illness upkeep. Researchers theorized that the relationship between illness representations, coping style, and depression are all bidirectional (Leventhal et al., 2003;

Abramson et al., 1989; Benedetto et al., 2014), indicating that illness representations may change over the course of the illness.

Due to the possible bidirectional relationship between illness representations, coping style, and depression, future researchers may benefit from testing a more intricate model, see Figure 4. The model used in this study only measured a one directional path. Bidirectional relationships have been reported between illness representations and depression (Leventhal et al., 2003). Illness representations and coping style have been postulated to have a bidirectional relationship (Leventhal et al., 2003). A bidirectional relationship has also been observed between illness representations and physical health (Nah et al., 2019).

Figure 4

Intricate Path Analysis Including Bidirectional Relationships of all Variables



Future Direction

Physical health's relationship with illness representations and depression (Nah et al., 2019) is likely evidence that there are more variables involved in explaining the relationships between HIR, coping, and depression. Moreover, illness representations, coping style, and depression are only explaining 42% of the variance. Other categories of health, other than mental health, may be interacting bidirectionally with illness representations, coping style, and depression. Nah et al. (2019) discuss the importance of physical health when talking about CKD. Other literature has provided evidence for social health as well (Gündüz et al., 2019; Cadman et al., 2012; Leventhal et al., 2003). Furthermore, depression could be broadened to general mental health by using the SF-36 health survey (Ware et al., 2001).

To make a causal claim, temporal precedence is required. In terms of depression and chronic illness, it is sometimes difficult to tell which one came first. Forming a relationship with a patient's primary physician(s) and having the physician give a depression and coping questionnaire at every patient's visit could potentially capture which comes first. Tracking patients before they get depressed and before they are sick could open a window into the moment when they get sick and/or depressed. Growing a network of physicians inside a major hospital could give the researcher the benefit of tracking the patient across all their visits, giving researchers an even more specific window of events.

Conclusion

Depression is more likely to be present when a chronically ill patient has hopeless illness representations. When passive coping is being used by a patient, the adjoining depression level is likely to be higher. Additionally, the higher the level of passive coping, the more likely HIR will have a higher depression level. Further analyses could draw out this concept. It builds on the evidence for depression care that is at least equal to the care the individual is receiving for their chronic illness.

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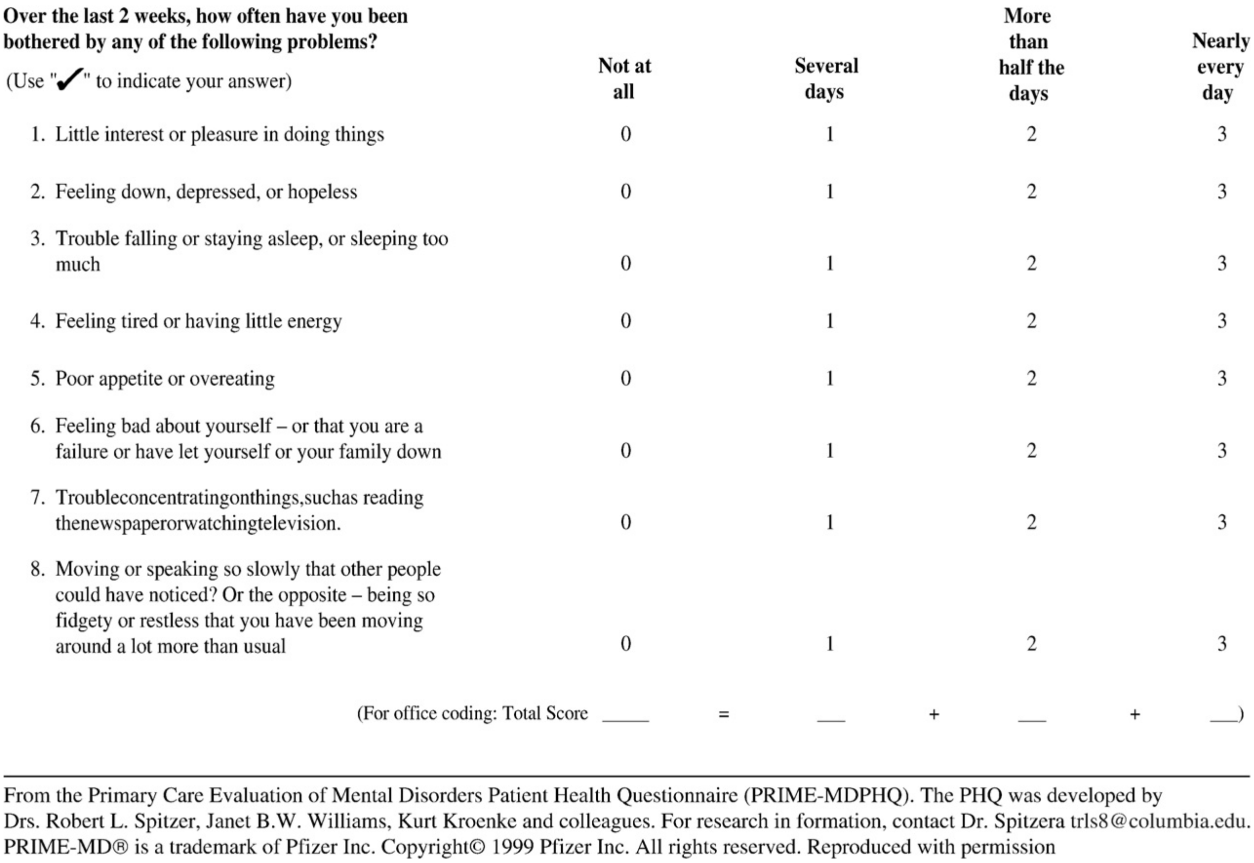
Appendices

Appendix A

Patient Health Questionnaire eight-item depression measure (PHQ-8)
PHQ-8



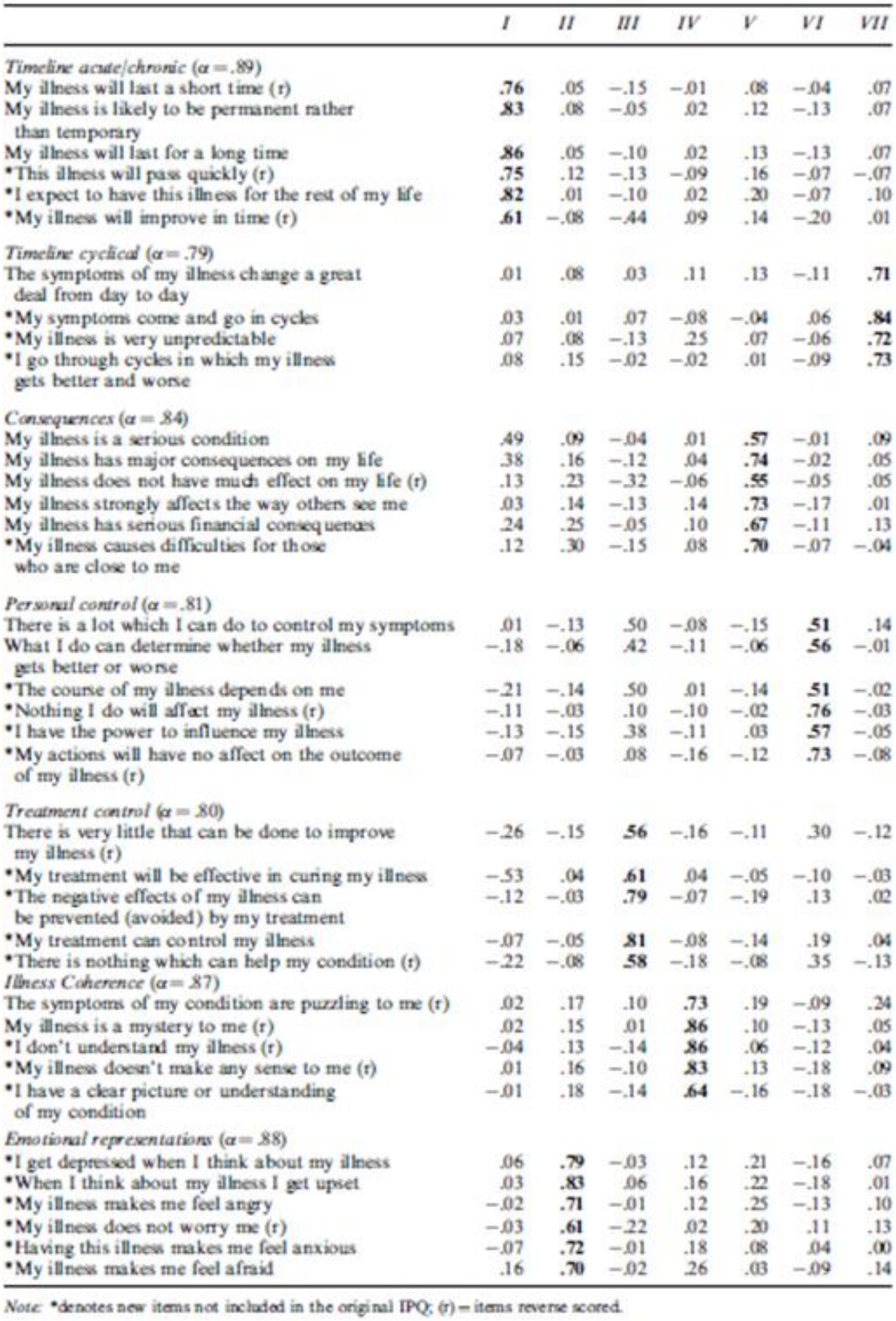
Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use "✓" to indicate your answer)	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down	0	1	2	3
7. Troubleconcentratingonthings,suchas reading thenewspaperorwatchingtelevision.	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3

(For office coding: Total Score _____ = ___ + ___ + ___)

From the Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MDPHQ). The PHQ was developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues. For research in formation, contact Dr. Spitzera trls8@columbia.edu. PRIME-MD® is a trademark of Pfizer Inc. Copyright© 1999 Pfizer Inc. All rights reserved. Reproduced with permission

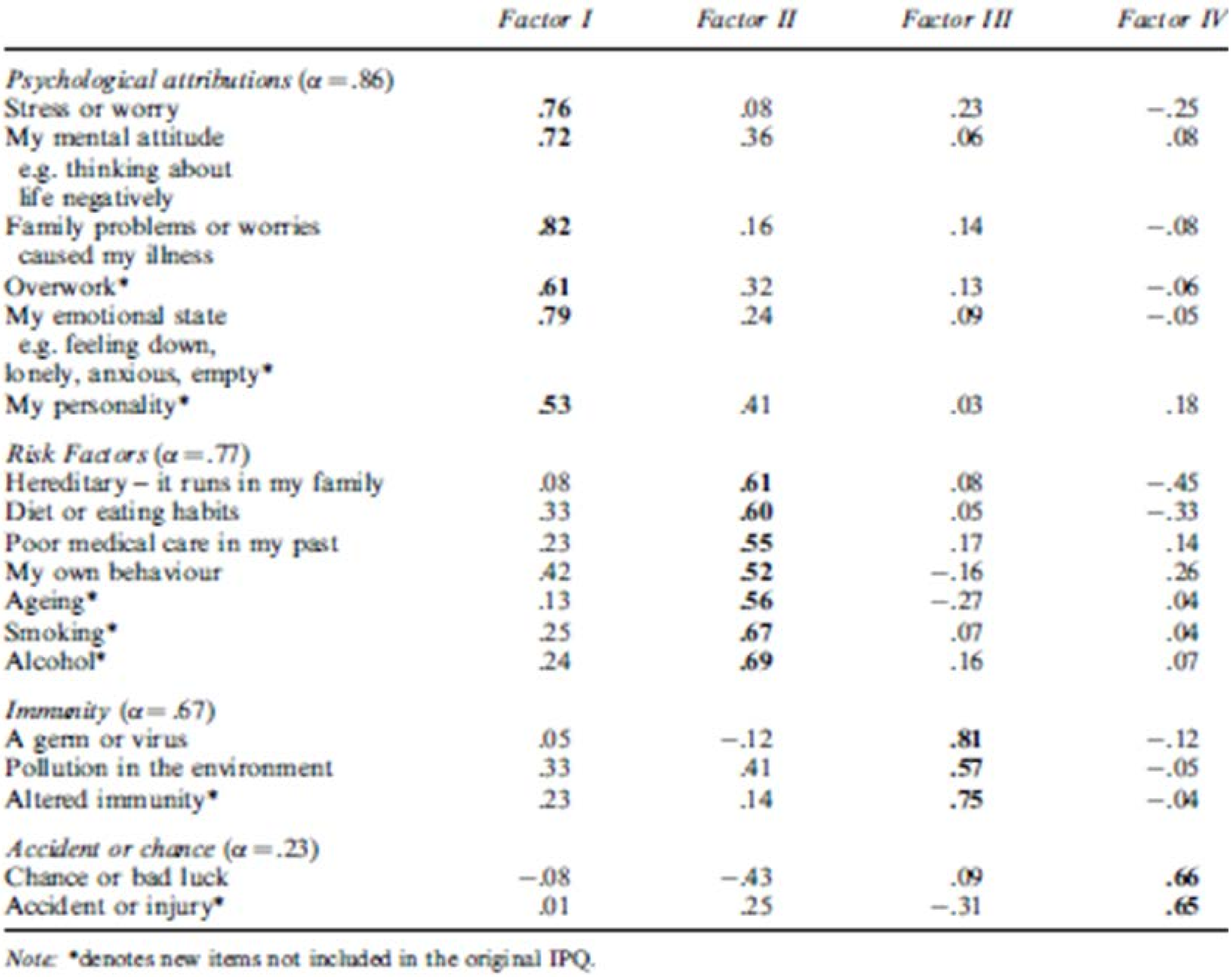
Appendix B

The Revised Illness Perception Questionnaire (IPQ-R)



	I	*II*	*III*	*IV*	*V*	*VI*	*VII*
Timeline acute/chronic (α = .89)							
My illness will last a short time (r)	**.76**	.05	−.15	−.01	.08	−.04	.07
My illness is likely to be permanent rather than temporary	**.83**	.08	−.05	.02	.12	−.13	.07
My illness will last for a long time	**.86**	.05	−.10	.02	.13	−.13	.07
*This illness will pass quickly (r)	**.75**	.12	−.13	−.09	.16	−.07	−.07
*I expect to have this illness for the rest of my life	**.82**	.01	−.10	.02	.20	−.07	.10
*My illness will improve in time (r)	**.61**	−.08	−.44	.09	.14	−.20	.01
Timeline cyclical (α = .79)							
The symptoms of my illness change a great deal from day to day	.01	.08	.03	.11	.13	−.11	**.71**
*My symptoms come and go in cycles	.03	.01	.07	−.08	−.04	.06	**.84**
*My illness is very unpredictable	.07	.08	−.13	.25	.07	−.06	**.72**
*I go through cycles in which my illness gets better and worse	.08	.15	−.02	−.02	.01	−.09	**.73**
Consequences (α = .84)							
My illness is a serious condition	.49	.09	−.04	.01	**.57**	−.01	.09
My illness has major consequences on my life	.38	.16	−.12	.04	**.74**	−.02	.05
My illness does not have much effect on my life (r)	.13	.23	−.32	−.06	**.55**	−.05	.05
My illness strongly affects the way others see me	.03	.14	−.13	.14	**.73**	−.17	.01
My illness has serious financial consequences	.24	.25	−.05	.10	**.67**	−.11	.13
*My illness causes difficulties for those who are close to me	.12	.30	−.15	.08	**.70**	−.07	−.04
Personal control (α = .81)							
There is a lot which I can do to control my symptoms	.01	−.13	.50	−.08	−.15	**.51**	.14
What I do can determine whether my illness gets better or worse	−.18	−.06	.42	−.11	−.06	**.56**	−.01
*The course of my illness depends on me	−.21	−.14	.50	.01	−.14	**.51**	−.02
*Nothing I do will affect my illness (r)	−.11	−.03	.10	−.10	−.02	**.76**	−.03
*I have the power to influence my illness	−.13	−.15	.38	−.11	.03	**.57**	−.05
*My actions will have no affect on the outcome of my illness (r)	−.07	−.03	.08	−.16	−.12	**.73**	−.08
Treatment control (α = .80)							
There is very little that can be done to improve my illness (r)	−.26	−.15	**.56**	−.16	−.11	.30	−.12
*My treatment will be effective in curing my illness	−.53	.04	**.61**	.04	−.05	−.10	−.03
*The negative effects of my illness can be prevented (avoided) by my treatment	−.12	−.03	**.79**	−.07	−.19	.13	.02
*My treatment can control my illness	−.07	−.05	**.81**	−.08	−.14	.19	.04
*There is nothing which can help my condition (r)	−.22	−.08	**.58**	−.18	−.08	.35	−.13
Illness Coherence (α = .87)							
The symptoms of my condition are puzzling to me (r)	.02	.17	.10	**.73**	.19	−.09	.24
My illness is a mystery to me (r)	.02	.15	.01	**.86**	.10	−.13	.05
*I don't understand my illness (r)	−.04	.13	−.14	**.86**	.06	−.12	.04
*My illness doesn't make any sense to me (r)	.01	.16	−.10	**.83**	.13	−.18	.09
*I have a clear picture or understanding of my condition	−.01	.18	−.14	**.64**	−.16	−.18	−.03
Emotional representations (α = .88)							
*I get depressed when I think about my illness	.06	**.79**	−.03	.12	.21	−.16	.07
*When I think about my illness I get upset	.03	**.83**	.06	.16	.22	−.18	.01
*My illness makes me feel angry	−.02	**.71**	−.01	.12	.25	−.13	.10
*My illness does not worry me (r)	−.03	**.61**	−.22	.02	.20	.11	.13
*Having this illness makes me feel anxious	−.07	**.72**	−.01	.18	.08	.04	.00
*My illness makes me feel afraid	.16	**.70**	−.02	.26	.03	−.09	.14

Note: *denotes new items not included in the original IPQ; (r) – items reverse scored.

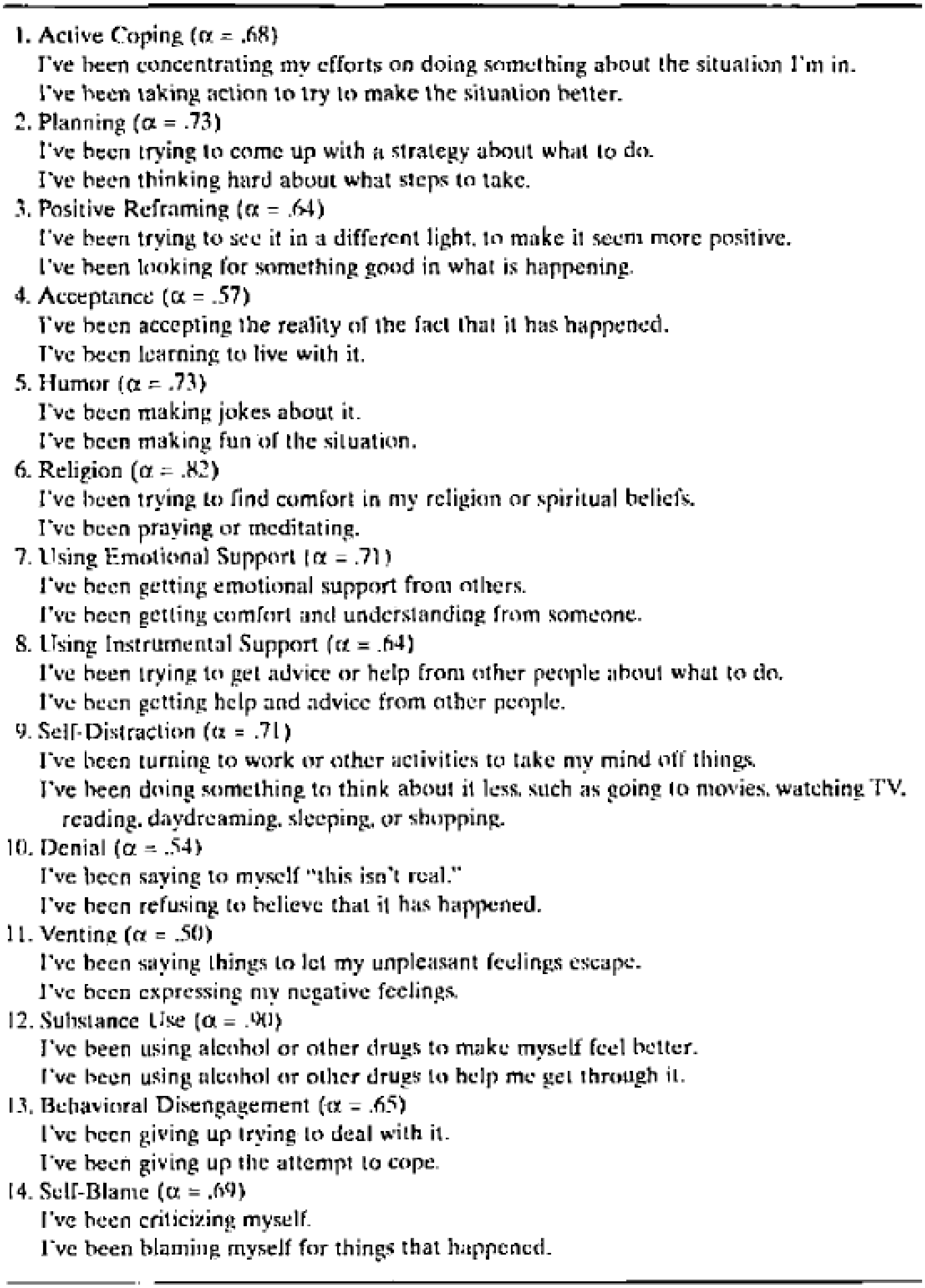


	Factor I	*Factor II*	*Factor III*	*Factor IV*
Psychological attributions (α = .86)				
Stress or worry	**.76**	.08	.23	−.25
My mental attitude e.g. thinking about life negatively	**.72**	.36	.06	.08
Family problems or worries caused my illness	**.82**	.16	.14	−.08
Overwork*	**.61**	.32	.13	−.06
My emotional state e.g. feeling down, lonely, anxious, empty*	**.79**	.24	.09	−.05
My personality*	**.53**	.41	.03	.18
Risk Factors (α = .77)				
Hereditary – it runs in my family	.08	**.61**	.08	−.45
Diet or eating habits	.33	**.60**	.05	−.33
Poor medical care in my past	.23	**.55**	.17	.14
My own behaviour	.42	**.52**	−.16	.26
Ageing*	.13	**.56**	−.27	.04
Smoking*	.25	**.67**	.07	.04
Alcohol*	.24	**.69**	.16	.07
Immunity (α = .67)				
A germ or virus	.05	−.12	**.81**	−.12
Pollution in the environment	.33	.41	**.57**	−.05
Altered immunity*	.23	.14	**.75**	−.04
Accident or chance (α = .23)				
Chance or bad luck	−.08	−.43	.09	**.66**
Accident or injury*	.01	.25	−.31	**.65**

Note: *denotes new items not included in the original IPQ.

Appendix C

The Brief-COPE Inventory



1. Active Coping ($\alpha = .68$)
   - I've been concentrating my efforts on doing something about the situation I'm in.
   - I've been taking action to try to make the situation better.
2. Planning ($\alpha = .73$)
   - I've been trying to come up with a strategy about what to do.
   - I've been thinking hard about what steps to take.
3. Positive Reframing ($\alpha = .64$)
   - I've been trying to see it in a different light, to make it seem more positive.
   - I've been looking for something good in what is happening.
4. Acceptance ($\alpha = .57$)
   - I've been accepting the reality of the fact that it has happened.
   - I've been learning to live with it.
5. Humor ($\alpha = .73$)
   - I've been making jokes about it.
   - I've been making fun of the situation.
6. Religion ($\alpha = .82$)
   - I've been trying to find comfort in my religion or spiritual beliefs.
   - I've been praying or meditating.
7. Using Emotional Support ($\alpha = .71$)
   - I've been getting emotional support from others.
   - I've been getting comfort and understanding from someone.
8. Using Instrumental Support ($\alpha = .64$)
   - I've been trying to get advice or help from other people about what to do.
   - I've been getting help and advice from other people.
9. Self-Distraction ($\alpha = .71$)
   - I've been turning to work or other activities to take my mind off things.
   - I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
10. Denial ($\alpha = .54$)
    - I've been saying to myself "this isn't real."
    - I've been refusing to believe that it has happened.
11. Venting ($\alpha = .50$)
    - I've been saying things to let my unpleasant feelings escape.
    - I've been expressing my negative feelings.
12. Substance Use ($\alpha = .90$)
    - I've been using alcohol or other drugs to make myself feel better.
    - I've been using alcohol or other drugs to help me get through it.
13. Behavioral Disengagement ($\alpha = .65$)
    - I've been giving up trying to deal with it.
    - I've been giving up the attempt to cope.
14. Self-Blame ($\alpha = .69$)
    - I've been criticizing myself.
    - I've been blaming myself for things that happened.

Vita

Dana Arnold holds a master's degree in psychology from the University of North Florida (UNF) and a bachelor's degree in psychology from the University of Central Florida (UCF). She also has an associate's degree in business management from the Community College of Rhode Island (CCRI). During her master's degree she worked in Dr. Lori Lange's Health Science lab and assisted in reviewing manuscripts, as well as cleaning, updating, and formatting a manuscript on loneliness in transplant patients for publication. She also worked in Dr. Curtis Phills Prejudice lab where she learned how to use eye tracking software and machinery. Additionally, she completed a summer statistics camp, where she gained a deeper learning of structural equation modeling. She also interned for Florida's Data Science for Social Good (FL-DSSG) as a team leader, where she gained integral knowledge into Tableau, geographic mapping, and presenting to stake holders. As a student at UNF, she worked as a graduate research assistant and online teacher's assistant. As a graduate research assistant for the Center of Community Based Learning (CCBL), she received advanced statistical and methodological training. While at CCBL, she managed a longitudinal data collection, and with mentor Dr. Dan Richard, collaborated with Dr. Matthew Johnson, owner of the NASCE data set, originally from Brown University but now the president of Albion University, and his team. Together they are preparing a manuscript on community service and student/organizational profiles. As a teacher's assistant she helped teach cognitive psychology and perception psychology, learning to build classes in CANVAS, as well as her communication skills with students. She is also part of the OspreyPERCH program for Dr. Carlene Taylor, working on Animal Assisted Interventions (AAI), Animal Assisted Therapy (AAT), and embedded counseling services. Moreover, she is working with Dr. Taylor on a collaboration with Nemours Specialty Care Clinic’s Assisted Dog and Pony Therapy (ADAPT) program, headed by Dr. Elizabeth Schilling.