2016

Loss of Resources and Demoralization in the Chronically Ill: A Mediation Model

Maria Inês Torri Dischinger
University of North Florida, mdischinger@hotmail.com

Loss of Resources and Demoralization in the Chronically Ill: A Mediation Model

by

Maria Inês Torri Dischinger

A Thesis submitted to the Department of Psychology

in partial fulfillment of the requirements for the degree of

Master of Science in General Psychology

UNIVERSITY OF NORTH FLORIDA

COLLEGE OF ARTS AND SCIENCES

August, 2016

This Thesis titled Loss of Resources and Demoralization in the Chronically Ill: A Mediation

Model is approved:

_____   _____
Dr. Lori Lange

_____   _____
Dr. Paul Fuglestad

Accepted for the Department of Psychology:

_____   _____
Dr. Lori Lange

Accepted for the College of Arts and Sciences:

_____   _____
Dr. Barbara Hetrick

Accepted for the University:

_____   _____
Dr. John Kantner
Dean of the Graduate School

Dedication

I would like to dedicate this work for my father Walter, my mother Gêni, my grandfather Virgilio, and grandmother Maria. They were always on my side, constantly encouraging me.

Acknowledgments

When I met Dr. Lori Lange, on my first days at UNF, I knew that I had found the most understanding and humane mentor I could think of. She stood by me when my ideas were just beginning to migrate from a different time in my life to the then present moment. Conceiving the present theoretical model was literally a lengthy voyage, with no guarantees or paved pathways. The only certainties were the blank pages ahead of me and Dr. Lange's patience and serenity. Through all of these chaos, distant ideas came together, and I became full circle in my personal narrative. I would like to gratefully recognize my almost "saint" supervisor, Dr. Lori Lange.

Obviously, life didn't stop while I was in this process. But, unfortunately, it paused for some people around me, as if they were waiting until I was done with my work in order to resume life in its fullness. These people were my sisters Carmo and Clara, my mother-in-law Susana, and my dearest friends and relatives, whose names will not fit within the limits of this page. Thank you for being my backbone.

For my mother, whose caring support was such, that mere words will never be enough to describe how instrumental she was in the completion of this endeavor. Thank you from the bottom of my heart.

This section would be incomplete if I didn't dedicate some words to my most special companion: my husband Luis Felipe. He always inspired me to persist. He was the loving presence that comforted me in very difficult times. Thank you.

Table of Contents

List of Tables

List of Figures

Abstract

In order to obtain a closer look into the psychosocial impact of chronic conditions, symptom severity, loss of resources, and demoralization were investigated through a mediation analysis. The function and implication of social support was also explored within the circumstances of chronic conditions. Lastly, symptom chronicity was probed as an influential element in the understanding of the consequences of being chronically ill. Participants were 200 men and women, with a mean age of 46 years, and the dataset came from the VOICE (Verification of Illness and Coping Experience) survey. The concepts of Conservation of Resources (COR) theory and Demoralization Syndrome were utilized to portray the underlying processes experienced by individuals with chronic condition. Analyses between symptom severity and demoralization via loss of resources as the mediator were statistically significant. Symptom chronicity did not interact with symptom severity on predicting loss of resources, but analyses showed that individuals with less symptom chronicity reported both increased loss of resources and demoralization. Social support was confirmed as a moderator, buffering the effects of symptom severity on loss of resources. Exploratory analysis with the inclusion of both symptom severity and chronicity as the predictor variable, and the use of age as a moderating factor at the prediction of loss of resources was statistically significant, showing that when symptoms were more severe and chronic, younger participants experienced more losses than older participants. Additionally, when age was included as a moderator of the effect of symptom chronicity and severity at the prediction of social support, it was indicated that when symptoms were less chronic and severe, the average perception of social support was higher among younger participants, but, on the other hand, when symptoms were more chronic and severe,

younger participants suffered an abysmal drop in their social support perception. In light of the

aforementioned results, risk, protective, and developmental aspects are discussed, along with

implications for health care providers.

Keywords: symptom severity, symptom chronicity, social support, loss of resources, COR

theory, demoralization syndrome

Loss of Resources Due to Symptom Severity as a Mediator of Demoralization

Treating chronic diseases and conditions takes a heavy toll in the United States' healthcare system consuming 86% of its total yearly expenditure, which economically speaking, equals to 17.9% of the country's gross domestic product (Calitz, Pollack, Millard, & Yach, 2015). According to recent estimates, nearly 50% of all adults in the US have at least one chronic health condition, contributing to seven of the ten highest causes of death in 2010 (Center for Disease Control, 2013). More specifically, the highest prevalence rate falls among the middle-aged adults when considering only one chronic condition, as indicated by Ward, Schiller, and Goodman (2014). Taking into consideration that the current middle-aged cohort will be the future older population, intensive effort for reaching 5% of such population through the teaching healthy behavioral skills, could translate into future savings of $3.3 billion as indicated by Ahn et al. (2013). Additionally, by successfully stalling (unhealthy) aging, Goldman et al. (2013) estimate savings of $7 trillion dollars in the course of the next 5 decades, fact that is further expanded by Nikolich-Žugich et al. (2015), who specify multidisciplinary approaches that could be translated into future benefits for the soon-to-be older population.

In a multi-country study aimed at understanding the treatment burden for patients with chronic conditions, researchers revealed that patients with more than one condition (which accounted for 60% of their sample), had their treatment dispersed in different health care providers, which indicates poor implementation guidelines that could eventually foster cohesive and effective treatment plans (Tran, Barnes, Montori, Falissard, & Ravaud, 2015). Approaching an epidemic of such magnitude demands in-depth efforts, even more so when considering the fact that 67% of the affected population is still part of the US work force (Moses, Matheson,

Dorsey, George, Sadoff, & Yoshimura, 2013). In this regard, the largely used biomedical model in current public health interventions lacks biopsychosocial complexity (i.e., the interaction of psychological and physiological factors with the environment), which could offer opportunities for comprehensive intervention modalities (Burman & Margolin, 1992). The paucity of inclusive and preventative models contributes to the perpetuation of less effective health care models, evidenced by the fact that 65% of studies funded by the National Institutes of Health are focused on the secondary prevention of chronic illnesses (Calitz, Pollack, Millard, & Yach, 2015).

Understanding Chronic Conditions

For conceptualizing chronic illnesses, the US Center for Disease Control and Prevention (CDC) and the Statistical Classification of Diseases and Related Health Problems - ICD-10 (World Health Organization, 2016) will be used as a referential point. Goodman, Postner, Huang, Parekh, and Koh (2013) suggest that what is currently termed "chronic disease" and "chronic illness" to be substituted by a more comprehensive and accurate term, such as "chronic conditions" in order to foster standardization in the classification process. Health initiatives have been trying to go beyond the concept of chronic disease in order to include:

> Chronic conditions such as functional limitations, anatomic problems that are not manifestations of physical disease but are permanent or long-standing (e.g. developmental disorders, limb dysfunction, visual impairment), and a broad spectrum of behavioral health problems, some of which have been traditionally not been classified as diseases (Goodman et al., 2013, p. 01).

Chapter 18 of the ICD-10 (World Health Organization, 2016, p. 936) is devoted exclusively to "symptoms, signs, abnormal results of clinical or other investigative procedures, and ill-defined conditions regarding which no diagnosis classifiable elsewhere is recorded." Symptoms can belong to different body systems, including respiratory, circulatory, digestive,

nervous, musculoskeletal, and genitourinary systems. Also, symptoms may be located in bodily areas such as the abdomen, skin, speech and voice, along with cognitive, emotional, and behavioral signs, among other abnormal findings (ICD-10, 2016). Estimates on the prevalence of hard-to-diagnose symptoms in family practices run between 25% to 60% of the cases (Kirkwood et al., 1982). Unexplained symptoms are the most common category found in primary care (Kirmayer & Taillefer, 1997), as exemplified by Walitt, Nahin, Katz, Bergman & Wolfe (2015), whose study was performed through the analysis of the information collected by the 2012 National Health Interview Survey (conducted by the National Center for Health Statistics and by the Centers for Disease Control and Prevention). The latter authors report that 1.75% of the 84,446 subjects (which corresponds to a weighed sample of 225.7 million US adults) satisfied the criteria for fibromyalgia diagnosis, but 73% of such cases were misidentified with other diagnosis, which we can thus render paramount the understanding of the nature, or the etiology, of such cases. More specifically, chronic conditions can be subdivided into medically explained symptoms, medically unexplained symptoms and functional somatic syndromes (Brown, 2004).

Functional somatic syndromes (FSS) are characterized by physical symptoms and impairment in everyday life, which generally cannot be attributed to verifiable, conventionally defined diseases. Even though FSS cover a variety of disorders including chronic fatigue syndrome, multiple chemical sensitivity, fibromyalgia, and irritable bowel syndrome, similarities regarding diagnostic criteria, etiology, pathophysiology, neurobiology, psychological mechanisms, patient characteristics, and treatment responses have been documented. In terms of described disability, Komaroff et al. (1996) report, for instance, that chronic fatigue syndrome is deemed to be more debilitating than conditions such as heart failure. Treatments for FSS may

hence work through similar pathways, regardless the differences in symptom profiles (Christensen, Frostholm, Ornbol, & Schroder, 2015). Medically unexplained symptoms (MUS) are best characterized as symptom-based disorders in which the cause (or causes) of one's symptoms is not completely explained or understood either by current diagnostic markers (physiological exams) or by the medical community (Tan, Tillisch, & Mayer, 2004). Theories surrounding this syndrome suggest that there could be the presence of dysfunctions on the Autonomic Nervous System (ANS) and also on the Hypothalamic-Pituitary-Adrenal axis (HPA axis) in typical patients with MUS (Tak & Rosmalen, 2010).

Given the poor understanding of such disorders, patients have higher chances of not receiving proper care of their symptoms, which leads to even more distress, as symptoms are neither being addressed with proper diagnosis nor through the course of a treatment. Making things worse, when diagnosed, one may feel the negative impact of being identified (labeled) with a condition, such as chronic fatigue syndrome, that does not carry along ample medical and social understanding, and thus is less tolerated. In this regard, one's already frail psychophysiological situation may not be alleviated by one's surroundings, and one may have to rely mostly on one's own resources. On the other hand, medically explained symptoms are congruent with diagnostic criteria and physiological markers, thus are commonly identified and dealt with in a faster and more precise course of diagnosis and treatment.

Social Support and Psychological Implications of Chronic Conditions

Chronic disease population benefits from social support because being surrounded by other people may have the beneficial effect of fostering healthy behaviors (Uchino, 2009). Older people, after the onset of a severe disease, are particularly aided by social contacts for prevention

of cognitive decline and overall recovery (Charles & Carstensen, 2010). The maintenance of

social support and network is essential for protecting one's resources and identity, which are

deeply connected with interpersonal attachments, which Hobfoll, Freedy, Lane, and Geller

(1990) called the 'resource-identity model'. By this model, social support serves as "both an

instrumental function and a self-defining function necessary to insure a stable sense of self"

(Hobfoll et al., 1990, p. 467), becoming the fundamental stone upon which each human being

lays their roots for a healthy development of self-identity. Social support can be defined as the

knowledge that one is loved, cherished, and part of a network where reciprocity and

communication are present (Cobb, 1976). Social support helps to maintain psychophysiological

health, acting as a protective factor in stressful life events (Cohen & Wills, 1985; House, Landis,

& Umberson, 1988; Uchino, 2009), which is exemplified by being associated with lower rates of

human morbidity and mortality from many different diseases (August & Sorking, 2010; Uchino,

Cacioppo, & Kiecolt-Glaser, 1996). Furthermore, individuals who perceive more social support

also report higher levels of well-being (Demirtepe-Saygili, & Bozo, 2011).

Social support involves three different structures: network resources, social behaviors,

and appraisal of support (Hobfoll & Vaux, 1993). The first form entails the actual number of

people available, the second one includes behaviors associated with seeking social support, and

the latter form is the perception or belief of social support (Hobfoll et al., 1993). Uchino (2009)

further emphasizes the importance of the child-caretaker interaction on the development of later

life perceived support as a consistent positive environment in early years leads the individual to

increased perception of social support as an adult. Cohen and Wills (1985) also suggest two

models of social support: the Main-Effect and the Stress-Buffering model. In the first one, the

source of stress is irrelevant, thus higher levels of social support are positively associated with well-being (structural support). In the second one, deleterious stress effects are buffered by the perception and availability of social support (functional support).

Social support and coping share similar attributes, and in the context of chronic conditions, social support functions as an auxiliary component in the coping process (Thoits, 1986). This kind of beneficial association goes in the same lines of Hobfoll's Conservation of Resources theory (1989), in which it is advocated that whenever either subjective (internal) or objective (external) resources are lost or threatened, social support works as a "supporting actor" by expanding one's coping resources threshold for fighting stress. In the Transactional Model theory, Lazarus and Folkman (1984) champion one's diverse pool of resources as essential in the dynamic interaction with the environment. In this sense, the latter authors indicate that the more resources a person possesses (e.g., more social support), broader will be one's coping arsenal.

Chronic symptoms that develop into chronic conditions have the power of disrupting one's established routine and sense of identity. With a newly acquired diagnosis, novel roles are also assigned to individuals: "Learning that one has a serious chronic illness commonly becomes a pivotal point in a person's life, symbolizing an assault on the self" (Charmaz, 2010, p. 15). In a longitudinal study on diabetes, Lawton, Peel, Parry, and Douglas (2008) indicate that deriving meaning from an illness is a dynamic process in which controllable and uncontrollable events influence what a person understands of their health condition, leading to alternating perceptions of control and chaos regarding their symptoms. These subjective and objective events shape one's symptoms perception. Nevertheless, these events are not insulated from further interactions with the environment, both influencing the environment and being influenced by it. In a

comparative study on the effects of HIV/AIDS, Fife and Wright (2000) bring attention to the negative impact of stigma on both the individual's self-concept and their social surroundings.

According to the World Health Organization (1948, p. 100), health is "a complete state of physical, mental, and social wellbeing, and not merely the absence of disease or infirmity". With such statement in mind, becoming chronically ill has devastating consequences to one's holistic sense of life fulfillment. Furthermore, from a macro-level perspective, the burden of one's illness also has profound impact on his or her social environment, as social beings tend to affiliate to one another in times of stress, which Taylor, Klein, Lewis, Gruenewald, Gurung, and Updegraff, (2000) termed "Tend and Befriend". This pattern of affiliation is regarded as an evolutionary component for combating threatening events, being easily observed in animals for its protective factor over their offspring. One of the many underlying biological mechanisms that elucidates social affiliation and attachment behaviors comes from the presence of a uniquely mammalian neuropeptide called oxytocin, a hormone released by the pituitary gland, whose effects include relaxation, feelings of closeness, and comfort (Insel, & Young, 2001). But again, as chronic conditions tend to demand rich social resources, by requesting them in a continuous and high amount pattern, there is a risk of burdening or even extinguishing the sources. For instance, family members of a chronically ill patient are the first ones to experience the distress of being constantly involved in care-taking actions, becoming thus victims of burnout, phenomena illustrated in different studies (Bella, Garcia & Spaari-Bratfisch, 2011; Karadavut & Uneri, 2011).

Keeping in view the long-term consequences and necessary time for recovering after any tragic event, Bolin (1982) asserts that one cannot count on continuous helping in high amounts.

In such fashion, some degradation of social support is expected after the initial confluence of support, exposing previously vulnerable individuals to feelings of increased grieving whenever they assess their resource scarcity (Norris & Kaniasty, 1996). In these kinds of moments, people re-experience the initial trauma without the dampening effect from external support. Krzysztof Kaniasty (2005) indicates that perceived social support overshadows received social support as it has direct effect on promoting and protecting mental health in times of distress. From a different angle, in a study on anxiety and depressive symptoms among Israeli women whose deployed armed forces' relatives were in military operations, researchers were surprised by finding that these women would paradoxically experience more symptoms when receiving social support among themselves, which Hobfol and London (1986) called the 'pressure-cooker' phenomenon. Additionally, Coyne, Wortman, and Lehman (1988) suggest that victims and their supporters become prone to saturation due to excessive attention being devoted to the topic, leading them to cognitive denial and escape of social interaction.

The social support deterioration deterrence model (Norris & Kaniasty, 1996) was envisioned through the observation of both the importance of social support as a promoter of quality of life, but also the decay of perceived social support after the occurrence of natural disasters. As suggested by Norris et al. (1996), natural disasters serve as a scenario where social interactions undergo quantitative and qualitative alterations, working as a natural laboratory where human behavior can be observed. When witnessing such tragic events one cannot help but perceive the traumatic effects of losses reflected by the victims' physical exhaustion, emotional irritability, and also, by the presence of both social conflicts and disintegration that arise from the overall resources' paucity.

Symptom Severity and Demoralization. Psychological consequences that arise from having a chronic condition include existential concerns, impression of being a burden to other people, symptom distress, losses of dignity, self-worth and life meaning, among other intruding feelings or thoughts (Vehling & Mehnert, 2013). Before the introduction of demoralization as a syndrome, Engel (1967) would name the constellation of signs that are currently ascribed under demoralization as the "giving-up, given-up" complex, which included discouragement, unsuccessful coping, hopelessness, and helplessness. In 1968 Jerome Frank suggested demoralization as a syndrome, characterized by coping inability, helplessness, hopelessness, meaningless, subjective incompetence, and reduced self-esteem. It was only in 2001 that Kissane, Clarke and Street officially proposed demoralization as a syndrome, suggesting that it would begin as typical existential crisis among chronically physically ill patients until it would be exacerbated into a distress state, which they call the "demoralization syndrome."

With such concepts in mind, de Figueiredo (1993), Kissane, Clarke, and Street (2001), Jacobsen, Vanderwerker, Block, Friedlander, Maciejewski, and Prigerson (2006), and Angelino and Treisman (2001) shed light on the distinction between clinical depression and demoralization syndrome by bringing evidence that clinical depression had distinct symptoms from the latter. Demoralization does not typically include anhedonia (lack of pleasure) and loss of interest; it rather presents feelings of helplessness, personal failure, and losses of meaning and hope, commonly found among physically ill individuals. Furthermore, other studies indicate that the more physical symptoms one has, the more demoralization is experienced (Mehnert, Vehling, Hoecker, Lehmann, & Koch, 2011; Jones, Huggins, Rydall, & Rodin, 2003). According to Vehling and Mehnert (2013), the mediating mechanism that elucidates such connection between

the number of physical problems and demoralization is the loss of dignity, which explained 81%

of the effect on demoralization in their study.

Stress and Adaptation

In the 1930s, the stress conceptualization paradigm was reached through mechanism

analogies between live organisms and inert objects: A metallic item such as gold would have a

certain resistance to environmental stressors like heat or pressure until it would bend or "break."

Similarly, human beings would also have thresholds of resistance that whenever crossed, would

lead to decreased fit of the organism. In this sense, stress as a response was the core component

of Cannon's Stress model (1932). Later in the 50s, Selye proposed the General Adaptation

Syndrome (1950) in which the human body would get stressed as a defense mechanism, leading

it to a security shut-down whenever faced with excessive environmental stress; the organism

would go through the following route: Stress causes the body to enter in (a) an state of alertness,

then (b) resistance, and then (c) organism energy depletion. Further development on stress

research granted models that would focus on psychological aspects instead of physiological

aspects only (Caplan, 1964; Lindemann, 1944).

Additional models on stress were advanced throughout the years, bringing hypotheses

that the stress response would be bound to: a) events or stimulus (Elliot & Eisdorfer, 1982), b)

events vs. subjective perception and personality traits (Spielberger, 2013, 1972; Sarason, 1972,

1975), c) imbalance between environmental demands and response capability (McGrath, 1970),

d) unsuccessful transaction between one's subjective perception of owned resources (i.e., coping)

and environmental demands (Lazarus & Folkman, 1984), and e) imbalance between one's

physiological and psychological apparatus vs. objective environmental demands (Appley & Trumbull, 2012).

Human adaptation to stress flourished as a research theme through the observation of after-war combatants. Caplan (1964, 1974) concluded through his research that there were two major aspects that sustained individuals' mental health in the face of tragedy: sense of mastery and social support. Such aspects were also present in the work of Kelly (1966) and Sarason (1974) whose ideas of exchange of resources between persons and their socioecological niche were crucial as stress deterrents. The interplay of psychosocial resources with physical health outcomes was a major finding in the work of Nuckolls, Cassel, and Kaplan (1972), bringing empirical evidence to the positive association between social support and health.

The diagnosis of an illness, along with other impactful events, can be ascribed under the trauma mechanism described by Horowitz (1986), in which large amounts of non-normative information "flood" one's mind, becoming thus cumbersome material that will possibly not fit one's current mental schemata. The occurrence of non-normative events in someone's life removes the general and predictable ontogenetic course, carrying the connotation of loss, thus placing the individual in unforeseen challenges that demand adaptation (Staudinger, Marsiske, & Baltes, 1993). In this sense, chronic conditions can be conceptualized as a form of chronic stress because of their shared tenets: threat, overload, structural limitation, complexity, uncertainty, resource depletion, and the feeling of swimming against the tide (Wheaton, 1997). Besides, stressors are deeply connected to a person's appraisal, available resources, and sense of control, as Vaillant (1977, p. 374) sensibly wrote, "It is not stress that kill us. It is the effective adaptation to stress that permits us to live."

Resource Theories

Going back to the early awakening of the 20th century, Freud's groundbreaking theory of libido, or what he would later call energy, seems now like a forerunner of the current resource theories in which the libido or energy (i.e., resources) are translated into human behavior (Freud, 1940). Resources are noticeable within a myriad of human factors, but they may also be invisible, functioning as a transparent thread of fabric that sustains human life. In other words, resources can be either external or internal: External resources can be exemplified as level of education, access to clean water, electricity, medical services (Worden & Sobel, 1978), or even a flourishing social network (Greenglass, 1993). Internal resources can be translated into less tangible assets, but nevertheless, be equally or even more important depending on the circumstances being faced. Concepts such as self-esteem, proactive behavior (Aspinwall & Taylor, 1997), and hope are only a few examples of the many possible internal resources a person may possess. According to Hobfoll (2002), resource theories can be divided into four different theoretical frameworks in which conceptualizations regarding stress, coping, and adaptation will be further described.

Multi-Component Resource Theories. Two major theories carry component multiplicity. First, is the theory of Sense of Coherence, in which Antonovsky (1979) claims that each human being has three components (or beliefs) concerning events in their existence: a) pre-visibility, b) meaning-deriving skills, and c) faith on "something" above us that protects our best interests. Second, is the theory of personality Hardiness (Kobasa, 1979), which is characterized by three perception components: a) sense of control, b) stressors as challenges, and c) life-tasks as commitments.

Key Resource Theories. Different personality traits coexist and interact between themselves, functioning as key resources, in which the management of resources is a crucial skill in the process of selecting, altering, and implementing other available resources for dealing with a critical moment. For instance, there is a plethora of theories that involve the concept of control as their core element. But, in regards to stress, the most prominent ones are: internal control (Seligman, 1975), mastery (Pearlin & Schooler, 1978), and self-efficacy (Bandura, 1997). Studies on stress management (from minor to major events) revealed robust positive results regarding individuals who were highly rated on self-efficacy either as a disposition or as a personality trait. Dispositional optimism has also been shown as a strong manager of stressful situations through consistent goal-directed action, which leads to positive outcomes on health and well-being (Carver & Scheier, 1998; Scheier & Carver 1992). Results from studies on goal attainment show that situations demanding goal persistence as a personality characteristic have positive results (Seligman, 1975), while events in which control was not an option, abandoning the idea of control was found to be more adaptive (Janoff-Bulman & Brickman, 1982). An additional key resource is social support, which works as a process. In sum, studying key resources is important in understanding whether one resource might be the resulting development from another key resource, or even, whether their synergetic overlap may engender individual and collective human development, and resilience (Hobfoll, 2002).

Life Span Resource Models. In such models, changes brought by aging are examined as influential on resource capacity, and, consequently, are important factors on health outcomes and well-being. Baltes (1987) proposed the theory of Selective Optimization with Compensation (SOC) in which he debates the finitude and, the gain and loss of resources throughout human life

span. In this sense, whenever striving for a certain goal, one must possess managerial skills in order to select the right resource, optimize means to attain it, or compensate for absent resources. Because SOC is a comprehensive and dynamic theory, it is not limited to aging aspects only: It may be applied to different domains like work, health, or even finances (Hobfoll, 2002).

Integrated Resource Models. A holistic paradigm is achieved in these models through the addition of interactive key resources into integrated resource theories, allowing studies to offer strong causality hypotheses. The most representative of these stress models is the one offered by Lazarus and Folkman (1984), called the transactional stress model. In their theory, resource appraisal is essential to understanding how individuals cope with stress. More specifically, they believe the evaluation of intrinsic and extrinsic resources is determinant in how the process of coping is carried on. Further development on the same avenue of Integrated Resource models present conceptual ideas such as: (a) resources' optimal fit (French, Caplan, & Harrison, 1982); (b) resources generative features through the joining of personal and social resources (Holahan & Moos, 1991; Holahan, Moos, Holahan, & Cronkite, 1999); (c) the possession of valued resources influence, on an individual and national level, well-being levels (Diener, Diener, & Diener, 2009; Diener & Fujita, 1995); and (d) valued resources are strived to be obtained, retained, and protected from loss (even if it is only a threat), as claimed by Hobfoll's Conservation of Resources theory (1988, 1989, 2004).

Conservation of Resources (COR) Theory

When Steven Hobfoll (1988, 1989) started ingraining his stress theory, he relied on well-established literature, but nevertheless, cautioned readers that the then available stress models did not have strong connections with empirical research. In this sense, his main goal as a researcher

was to bridge environmental and cognitive perspectives through the proposal of a comprehensive, but straight-forward stress model that could also offer more direct testing possibilities. For this purpose, he initially guided himself through the stress models of Walter Cannon (1932) and Hans Selye (1950). With such models in mind, Hobfoll (1988, 1989) aimed at developing a new model that could encompass the objectivity that empirical research rigorously requires without losing the complexities of human subjectivity. As a result, in 1988, Hobfoll mentioned for the first time the Conservation of Resources (COR) theory, defining stress as a:

> Reaction to the environment in which there is a: (a) the threat of a net loss of resources, (b), the net loss of resources, or (c) a lack of resource gain following the investment of resources. Both perceived and actual loss or lack of gain are envisaged as sufficient for producing stress. (Hobfoll, 1989, p. 516).

COR theory did not essentially differ from Lazarus and Folkman's (1984) transactional model, but went beyond their idea of coping resources as being bounded to stressful events only. Hobfoll (1989) designed a theoretical framework in which human behavior could also be predicted in low-stress circumstances and thus characterized by the striving of accumulation of resources that could be used to offset future stressful events, or even to foster well-being in times of lower stress.

Resources can be translated into one's subjective and situational valued objects, personal characteristics, conditions, and energy. Losses or gains have therefore two levels: an instrumental and a symbolic one (Wells, Hobfoll, & Lavin, 1999). For instance, in almost every culture, housing is appraised as highly valued asset given its function of basic human protection against outside threats. In this sense, a Hollywood mansion goes beyond the point of being a vital asset only, as it also carries a symbol of status and identity. Hobfoll (1989) suggests that

resources are not only strived to be outsourced, conserved or have them minimally lost in times of stress; resources may also be depicted as a "savings" account where investments should accrue and profit future resources. King, Taft, King, Hammond, and Stone (2006) go along the same lines by suggesting that people with more resources are less likely to face stressful events that may deteriorate one's physical and psychological health.

The loss of resources can cause stress, but gaining them might also bring eustress, particularly in times of low stress (Hobfoll, 2002). Rappaport (1981) emphasizes that people who are poorly equipped for gaining resources may feel more vulnerable, which, in turn, could lead them into adopting a rather protective than additive approach in life (Cheek & Buss, 1981). Someone who possesses clever strategies for spending resources that are more readily replenished (e.g., energetic resources like vitality, time, or money) instead of more finite ones for attaining one's goal, incurs in decreased risk of being impacted by loss in the event of not meeting one's desired outcome, which is in accordance with Aspinwall and Taylor's (1997) findings on the concept of anticipatory coping (i.e., applying resources in the service of future goal attainment and prevention of loss).

According to Hobfoll (1989, 2002), there are four kinds of valued resources: (a) object resources, (b) conditions, (c) personal characteristics, and (d) energies. Object resources are tangible assets that have instrumental function (e.g., a house). Conditions are states of belonging that are desired for their benefits (e.g., an expensive elite club membership that is received as a job bonus). Personal characteristics are the internal resources that can make unique contribution as stress buffering factors, as exemplified by dispositions such as wisdom, self-esteem, compassion, and high self-efficacy. Energies equate to general resources, which can be used for

obtaining any other specific resource, similar to a trade-in process (e.g., time spent studying for an exam that will grant someone a good grade).

At the core of Hobfoll's theory (1989) lies the idea that losses (e.g., death of a child) are almost invariably events that take a heavy toll on an individual psychological well-being. Hobfoll, Freedy, Green, and Solomon (1996) observed: "Loss is the primary operating mechanism driving stress reactions" (p. 324). On the other hand, events like transition, change or challenge, that may occur amid a "happy" event like marriage, are not stressful per se, but they may be qualified in a more or less favorable light depending on the circumstances one is experiencing.

Losses can be offset by alike replacements. For example, a pregnancy loss that is followed by a new pregnancy, or even, the loss of a job that becomes one's opportunity for investing into a new business enterprise. Nevertheless, compensatory actions may not always fully restore what was lost, and furthermore, resources used for coping with such losses may deplete ones' resources even more, becoming counterproductive (Schönpflug, 1985). Additionally, individuals who are already facing lower resources are at risk of having their reserves depleted in the event of consecutive losses (loss spirals), which may also be explained as the consequence of little resources leading to less adaptive coping strategies, which, in turn, expose these individuals to a situation of vulnerability.

Bringing forth Lazarus and Folkman's (1984) transactional theory, losses may always be reappraised, even though some losses are equally deemed as irreplaceable and devastating within alike cultures or groups (Lehman, Wortman, & Williams, 1987; Holmes & Rahe, 1967; Rokeach; 1973, Schwartz, 1992, 1994). In this sense, Rollo May (1980) emphasizes the human

need for consonance; some losses hurt basic views of one's world and self. In such cases, shifting the focus of attention or reevaluating resources as coping strategies (Johnson & Sarason, 1978; Lazarus et al., 1984) may prove themselves to be useless, unless the attempt for creating new meaning in one's life becomes fruitful (McAdams, 2010).

Loss Aversion: The Ghost Behind the Distressing Loss of Resources

Evolutionarily speaking, we are hard-wired to avoid and recollect events that lead to losses, especially when taking into consideration that resources are slowly gained and effortfully maintained. This is what Cacioppo and Berntson (1994, p. 413) called *negativity bias*: By a process of natural selection, we became loss-avoidant and reactive rather than the opposite. Empirical research on the cognition of loss (Kahneman & Tversky, 1984; Tversky & Kahneman, 1992) brought evidence that individuals tend to overestimate losses rather than gains, which is also neurologically and physiologically demonstrated in the work of Ito, Larsen, Smith, and Cacioppo (1998); Taylor (1991); and Westermann, Stahl, and Hesse (1996), among many others.

In a comprehensive review study entitled "Bad is Stronger than Good" (Baumaeister, Bratlavsky, Finkenauer, & Vohs, 2001), the almost omnipresent positive-negative asymmetry (Peeters & Czapinski, 1990) was given perspective by joining results from different areas of study in an attempt of establishing convergence among them. Among different topics, the ones most relevant to our scope showed that: a) when reacting to events, human (and animal) reaction to bad events is stronger than the opposite, by producing more emotion, being more difficult to adapt to, also by its superior endurance; b) in the realm of close relationships, bad events matter more than good events, influencing directly marital satisfaction; c) in interpersonal relationships, neutral interactions are considered almost as good as positive interactions, denoting how

powerful bad interactions may be; d) with respect to emotions, it was evidenced by a multi-cultural study that people have more words for negative emotions; bad emotions demand more cognitive processing, are avoided, and also remembered more than positive emotions; e) in terms of learning, people tend to learn faster and easier whenever contingent to bad events since negative stimuli demands more cognitive processing power, which is also shown by studies on neurological processes, as the brain retains and reacts more to bad events; and f) studies on the interaction of health and social support show that whenever subjects go through stressful events without social support, they display lower immunity, but the opposite is not always true. Overall, Baumeister et al. (2001) conclude that because of the underlying evolutionary human tendency to firmly avoid loss or even the possibility of loss, studies massively converge on affirming the pervasive strength of bad over good, which is deemed to be a rather adaptive and protective pattern for the survival of the synergetic human social and biological systems. The idea of synergetic systems is aligned with the concept of Chain Principle, developed in 1975 by Weinberg (as cited by Peeters et al., 1990), in which the efficacy of the chain is dependent on every link and only one weak link is able to destroy the chain functioning, even when there are other strong links in the chain.

The Interface of Chronic Conditions, Loss of Resources, and Demoralization

Being poorly equipped for stressful events compromises an organism, even when such effects are invisible (as exemplified through the work on allostatic load by McEwen, 1998). Whenever the organism starts showing signs or symptoms, the damage accumulated throughout one's life becomes overt, and many times, irreversible. Taking the resource perspective, circumstances of iterative losses commonly expose individuals to larger number of life-long

aversive events that are resource consuming, without offering replenishing circumstances for development of other sorts of resources (e.g., education attainment, social activities). With such a scenario, one's psychological and biological apparatus "pay the price" by displaying more stress reactivity, as exemplified by negative emotions and by physiological alterations such as subclinical measures of atherosclerosis (or the calcification in the coronary arteries) (Camelo et al., 2015; Carson et al., 2007; Diez -Roux et al., 2005; Gallo, Matthews, Kuller, Sutton-Tyrrell, & Edmundowicz, 2001; Lemelin et al., 2009).

Loss cycles imply less likelihood of meeting ongoing demands of day-to-day adaptation (Kaniasty & Norris, 1993; Lepore, Evans, & Schneider, 1991; Wells, Hobfoll, & Lavin, 1999). As indicated by Lazarus and Folkman (1984) and Hobfoll (1988), losing one's valued resources is at the core of a stressful experience. Long-lasting effects of traumatic events were observed in many studies (Bolger & Zuckerman, 1994; Julien & Markman, 1991; Lane & Hobfoll, 1992; Green, 1995; among other authors) with reports of effects for at least two years (Kaniasty, Norms, & Murrell, 1990), which is in accordance with Horowitz's trauma model (1986), in which excessive information is kept out of awareness until new cognitive schemata is able to process traumatic information which may eventually lead to a decrease of symptoms; until new cognitive schemata arrives, one may have to cope with adversity. Yet, one key mechanism remains: People with more general resources will either have the proper one or will have means for obtaining one that may fit the environmental demand (Hobfoll, 1989, 2002), phenomenon confirmed by Carver and Scheier (1998), whose research on goal-attainment suggests that resourceful individuals are more likely to maintain their work towards their goals.

Dohrenwend and Dohrenwend (1981) suggest that stressful circumstances (e.g., illnesses) are more likely to become chronic for people whose resources are already low. In a similar rationale, coping with chronic stress within deficient social resources circumstances leads to further social impoverishment (Hobfoll, Freedy, Lane, & Geller, 1990). Research on the relationship between psychosocial resources and health within low SES population reveals the scarcity of resilience resources (namely perceived control and social support), which further indicates that consecutive loss of resources are associated with worse health outcomes (Gallo & Matthews, 2003). Additionally, it has been extensively shown by research that resource loss in face of chronic stressors (e.g., intermittent bodily symptoms) is deeply connected with higher levels of anxiety and depression (Britton, Zarski, & Hobfoll, 1993; Dirik & Karanci, 2010; Luyster, Hughes, Waechter & Josephson, 2006; Lane & Hobfoll, 1992). Furthermore, whenever traumatic events occur, individuals become more susceptible to loss-sensitivity, which is the predisposition of perceiving loss in a broad and higher speed rate (Hobfoll, 1991). These findings go along with the second and the third COR theory corollaries, which state: "Not only are those who lack resources more vulnerable to resource loss, but that initial loss begets future loss", and "Those who possess resources are more capable of gain, and that initial resource gain begets further gain. However, because loss is more potent than gain, loss cycles will be more influential and more accelerated than gain cycles" (Hobfoll, 2011, p. 133). This increased vulnerability results from the continuous use of resources to offset losses, leading to the depletion of one's resource reservoir (see also Baltes, 1987).

Given the aforementioned ominous consequences that comes from the junction of resources paucity and intermittent symptoms, besides currently incipient literature on this matters, we

investigated the following factors in the present study: Symptom Severity (SOM-7), Perceived

Social Support (MSPSS), Symptom Chronicity (amount of time with intermittent symptoms)

Loss of Resources (Resource Loss Questionnaire), and Demoralization (Psychosocial Impact

Questionnaire). Thus, grounded on the theoretical framework of the Conservation of Resources

stress model (Hobfoll, 1989, 2002), along with the literature relating the impact of loss of

resources as a stairwell to further losses, the following hypotheses were posited and tested in this

study.

- Hypothesis 1: Participants who reported more symptom severity will report more demoralization.

- Hypothesis 2: Symptom severity will predict further loss of resources.

- Hypothesis 3: Resource losses will predict increased demoralization.

- Hypothesis 4: Resource losses will mediate the effects of symptom severity on demoralization.

- Hypothesis 5: Symptom chronicity (amount of time one is living with intermittent symptoms) will exacerbate the effect of symptom severity on loss of resources.

- Hypothesis 6: Social support will buffer the effect of symptom severity on loss of resources.

Method

Participants and Procedure

The present study was made of four comprehensive surveys designed to depict chronic

illness experiences from a patient-centered approach study named VOICE (Verification of

Illness, Coping and Experience). Surveys were conducted online through a website created for

this project where the information was collected and recorded. The study was open to consenting

individuals who reported at least three months of persistent physical symptoms and who were at

least 18 years old. Further criteria for exclusion were primary diagnoses of psychiatric,

neurologic, and somatic symptoms disorders. Participants volunteered on completing the

surveys, with no impediments or penalties for quitting them. All the surveys included an

informed consent with information regarding the project goals, privacy, time for completion,

potential scientific benefits, researchers and IRB contact information, and also a mental health

resource telephone number. Participants were assessed under four large scopes: personal views

of physical symptoms, coping with symptoms, relationships and support, and impact of illness.

While the four surveys encompassed multiple measures, only the ones relevant to this analysis

will be discussed here.

After the exclusion criteria, a total of 200 individuals participated in this study.

Sociodemographic variables associated with the current sample of participants included the

following characteristics: The age ranged from 18 to 76 years old and the mean was 46 years

(*SD*=12.88); 65% were in a stable relationship; 66.3% had children; 84% were female; the mode

income (32.5% of the sample) was in the $ 20,000-50,000 range; 79,9% lived in the US; and

88.3% were Caucasian. The duration of intermittent symptoms ranged from 4 months to 65

years, with a mean of 12.13 years (*SD*=12.15), and in terms of distribution, 23% of the

participants had symptoms between 3 months and 3 years, 18.4% had symptoms between 3 and 6

years, 20.4% between 6 and 10 years, 18.9% between 10 and 19 years, and 18.9% reported

having intermittent symptoms for between 19.1 to 65 years. Employment status was: 35% of

participants were employed, 29% were retired or other situations like homemaking, and 35.5%

were on disability or not working due to health issues. Also, 6.4% completed high school or less,

49.2% had more than high school but less than a bachelor's degree, and 44.4% had completed a

bachelor's degree or more. In terms of receipt of medical treatment, 65% of the pool of

participants reported not having received it, but 88.5% reported being diagnosed by a health care

professional, and 85.9% take some medication. When asked whether they were currently

experiencing symptoms, 21% of the respondents reported extreme symptoms, 40.5% reported

experiencing a lot of symptoms, 32% were experiencing moderate symptoms at the moment of

the survey, and 6% were somewhat experiencing symptoms. Lastly, 19.5% of our sample

indicated that they had undergone psychotherapy.

Measures

Sociodemographic Information. Questions included information about age, sex, race/ethnicity,

marital status, number of children, geographic location of residence, employment status, income,

and educational attainment.

Symptom Severity. In our current study, the 53-item Screening for Somatoform Symptoms - 7

(SOMS-7) was slightly adapted in order to include a total of 63 somatic symptoms. The

instrument was originally developed by Rief and Hiller (2003), with criteria captured from the

DSM-IV and the ICD-10 in order to assess patients for somatization disorder. Scores are

obtained by the participants' rating for frequency and intensity of symptoms on a three-point

scale ranging from "bothered a lot" to "not bothered at all" according to how often each

symptom was experienced as part of each individual's condition. The original reliability rating

for this instrument had a Cronbach's $\alpha = 0.92$. This instrument internal validity is also supported

by the presence of a strong association with standardized interviews as well as scales used for

depression, somatization, and psychopathology screening (Rief & Hiller, 2003). A reliability

analysis with our pool of participants rated a Cronbach's $\alpha = .96$, demonstrating high internal

validity (see Appendix A for list of symptoms).

Loss of resources due to health symptoms. A 19-item questionnaire was created to assess the

amount of losses participants experienced due to health symptoms (see Appendix B). Loss of

resources is at the center of COR stress theory (Hobfoll, 1989, 2002); thus, the questionnaire

included items that represented objective and subjective losses (e.g., lost job, loss of friends, self-

identity loss), but our interest was primarily aimed at general resource losses rather than specific

kinds of resource losses. Participants could pick as many losses as they found were relevant to

their current situation. The answers were based on a yes/no response, with smaller amount of

responses suggesting less losses and larger amounts of responses implying in more losses. The

score was computed by summing all items score (method also used by Freedy et al., 1994), with

good internal consistency (Cronbach's $\alpha = .89$).

Social Support. The Multidimensional Scale of Perceived Social Support – MSPSS assesses

perceived social support from three different sources: friends, family and significant others. It

has demonstrated good internal consistency, with a Cronbach's $\alpha = .88$ (Zimet, Dahlen, Zimet, &

Forley, 1988). Participants who completed the MSPSS indicated their agreement with items

(e.g., *I can talk about my problems with my family)* on a 7-point *Likert-*scale, ranging from *very strongly disagree* to *very strongly agree*. Scores from the 12-item scale ranged from 1 to 7, with higher scores suggesting greater levels of perceived social support. Reliability analysis extracted from our sample had a Cronbach's α = .95, denoting high internal consistency (see Appendix C for complete scale).

Symptom Chronicity. Participants informed the length of their intermittent symptoms, which should be going on for a minimum of 3 months.

Demoralization. This measure was obtained from the 48-item Psychosocial Impact questionnaire developed by Mohr et al. (1999) through the study of the psychosocial consequences of multiple sclerosis. The instrument assesses psychosocial effects of chronic illnesses. Respondents indicate on a 5-point scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, 5 = *strongly agree*) which rating best describes their feelings. Katz, Flasher, Cacciapaglia, and Nelson (2001) replicated the study from Mohr et al. (1999) using a population diagnosed with lupus and the results found were very similar to the original study, indicating good reliability. The 12-item demoralization subscale used in our analyses included items such as: "*I feel like my family is just waiting for me to die or go away*"; *"I am embarrassed to be seen in public because of my health condition"* (see complete scale in Appendix D). The demoralization subscale in Mohr et al.' (1999) study sample had a Cronbach's α = .90. In our sample, reliability analysis resulted in Cronbach's α = .95, which is coherent with the original reliability rating, equating thus in high internal consistency.

Results

In a preliminary set of analyses correlations were conducted to understand the

associations between variables. Next we examined patterns of association between the predictor

variables and outcome variables using hierarchical linear regressions. Through the observation of

such patterns, mediational models were hypothesized and tested. The mediation models that

contained only one mediator were tested following the approach of Baron and Kenny (1984) and

for the mediational models that included more complex pathways, a non-parametric bootstrap

approach was employed (Preacher & Hayes, 2008). In all of the analyses, different levels of a

predictor (e.g., racial– ethnic categories, different levels of income) were dummy coded. For all

the analyses, confidence intervals (CIs) were calculated at 95% and were conducted with 10,000

bootstrap samples. For performing the statistical analyses, we used SPSS software package (IBM

- version 23) along with the use of macro PROCESS, version 2.15 (Hayes, 2013).

Demographics, Symptom Severity, Losses, and Demoralization

Analyses of variance (ANOVA) were computed to ascertain any differences in our

chosen variables' group means, using Bonferroni (summary of findings can be found in Tables 1

and 2). Comparisons between demographic variables showed that gender and educational

attainment did not differ significantly in their means for any of our tested variables. In terms of

ethnicity, there was a difference between groups in demoralization, losses, social support, and

chronicity with white participants reporting increased losses [$F(1, 195) = 8.087$, $p=0.005$],

increased demoralization [$F(1, 195) = 8.045$, $p=0.005$], lower social support [$F(1, 194) = 6.079$,

$p=0.015$], and higher symptom chronicity [$F(1, 192) = 5.120$, $p=0.001$- using Brown-Forsythe]

than non-white participants. Differences in income level showed that participants who reported

earning more than $100,000 per year significantly differed from all other lower income brackets by reporting more social support [$F(3, 185) = 3.867$, $p=0.010$], and decreased symptom severity [$F(3, 183) = 8.902$, $p<0.001$]. The only exception was in health-related losses; the top-tier earning bracket was significantly different from the groups who reported earning less than $20,000 and from the participants who reported earning between $20,000 and $50,000, with the $50,000-$100,000 income bracket not presenting a different mean than the other groups [$F(3,186) = 3.371$, $p=0.020$]. Employment status groups differed reliably on mean demoralization, [$F(2,197) = 9.142$, $p<0.001$], symptom severity [$F(2,187) = 9.336$, $p<0.001$], and losses [$F(2,198) =12.225$, $p<0.001$]: The group composed by the disabled participants showed significantly higher means in demoralization than the other groups, and, regarding symptom severity, participants who reported being disabled had significantly higher means than the working group only. Additionally, in terms of loss of resources, the working group had significantly lower means than the disabled and the retired/other group. With regards to age, it was positively correlated with symptom chronicity ($r=.446$, $p<.001$), loss of resources ($r=.167$, $p=.023$), and negatively correlated with social support ($r= -.194$, $p=.008$).

Bivariate Relationships

Product-moment correlations were computed between our variables of interest and are presented in Table 3. The analyses showed statistically significant positive correlations ($p<0.0001$) between symptom severity, loss of resources, and demoralization. Symptom chronicity had a statistically significant negative correlation with demoralization, but it did not have any statistically significant relationship with any other variables. Social support had

statistically significant negative correlations with loss of resources, demoralization, and symptom

severity.

Table 1

Analysis of Variance for Demographics, Demoralization, Symptom Severity, and Losses

Variables		n	Demoralization		Symptom Severity		Losses	
			M	*SD*	*M*	*SD*	*M*	*SD*
Race								
	Caucasian	174	3.24	1.42	47.32	24.01	11.17[**]	4.50
	Non-Caucasian	23	2.71[*]	1.21	38.35	22.78	7.95	6.06
Education								
	HS or <	12	3.72	.53	54.11	23.15	12.66	3.05
	< BA	92	3.06	.00	45.82	22.38	10.22	5.25
	> BA	84	3.15	.90	44.51	22.15	10.85	5.20
Income								
	< $20K	48	3.38	.90	51.68 [b]	25.57	12.04[b]	5.01
	$20-50K	65	3.20	.96	50.80 [b]	24.34	11.30[b]	5.46
	$50-100K	51	3.20	.85	46.69 [b]	20.94	10.68[ab]	4.35
	> $100K	26	3.19	.99	28.75[***a]	18.00	8.23[*a]	5.47
Work								
	Working	72	2.84 [b]	.92	38.32 [b]	21.78	8.72[***a]	5.19
	Disabled/Sickness	71	3.50[***a]	.78	55.24[*a]	22.37	12.77 [b]	4.23
	Retired/Other	58	3.21 [b]	.99	45.50 [ab]	25.11	10.82 [b]	5.28
Sex								
	Female	169	3.14	.95	47.60	23.95	10.54	5.20
	Male	32	3.36	.83	39.59	23.44	11.90	4.95
Marital Status								
	Committed	132	3.25	.93	46.10	23.42	10.88	5.08
	Non-Committed	64	3.02	.95	47.20	25.43	10.67	5.46

Note. *p<.05; **p<.01; ***p<.001; Means with different letters were significantly different from each other. The racial categories used by the US Census (African-American, Asian American, Latinos/-as, Native-American, and Pacific Islander) have been collapsed into the category "non-White."

Table 2

Analysis of Variance for Demographics, Social Support, and Symptom Chronicity

Variables		n	Social Support		Chronicity	
			M	*SD*	*M*	*SD*
Race						
	Caucasian	174	4.58	1.42	12.90[***]	12.61
	Non-Caucasian	23	5.35[*]	1.21	6.83	6.53
Education						
	HS or <	12	4.34	1.14	10.08	8.20
	< BA	92	4.78	1.52	12.26	12.93
	> BA	84	4.65	1.34	12.56	12.56
Income						
	< $20K	48	4.42 [b]	1.34	13.19	12.42
	$20-50K	65	4.57 [b]	1.41	12.04	11.90
	$50-100K	51	4.58 [b]	1.56	13.09	12.25
	> $100K	26	5.50[*a]	1.32	10.44	13.60
Work						
	Working	72	4.66	1.33	10.68	11.59
	Disabled/ Sickness	71	4.70	1.57	11.67	9.44
	Retired /Other	58	4.69	1.26	14.54	15.37
Sex						
	Female	169	4.68	1.42	12.42	12.56
	Male	32	4.66	1.34	10.54	9.72
Marital Status						
	Committed	132	4.86[**]	1.42	11.62	11.28
	Non-Committed	64	4.27	1.34	13.50	14.00

Note. *p<.05; **p<.01; ***p<.001; Means with different letters were significantly different from each other. The racial categories used by the US Census (African-American, Asian American, Latinos/-as, Native-American, and Pacific Islander) have been collapsed into the category "non-White."

Table 3

Pearson's Product Moment Correlations for Symptom Severity, Symptom Chronicity, Social

Support, Loss of Resources, and Demoralization

	1.	2.	3.	4.	5.
1. Symptom Severity	1	-.007	-.368[**]	.573[**]	.450[**]
2. Symptom Chronicity		1	-.054	-.045	-.183[*]
3. Social Support			1	-.415[**]	-.330[**]
4. Loss of Resources				1	.784[**]
5. Demoralization					1

Note. ∗∗ $p<.01$, two-tailed. ∗ $p<.05$, two-tailed

Simple Mediation

According to Baron and Kenny (1986) the mediation path can be visualized and

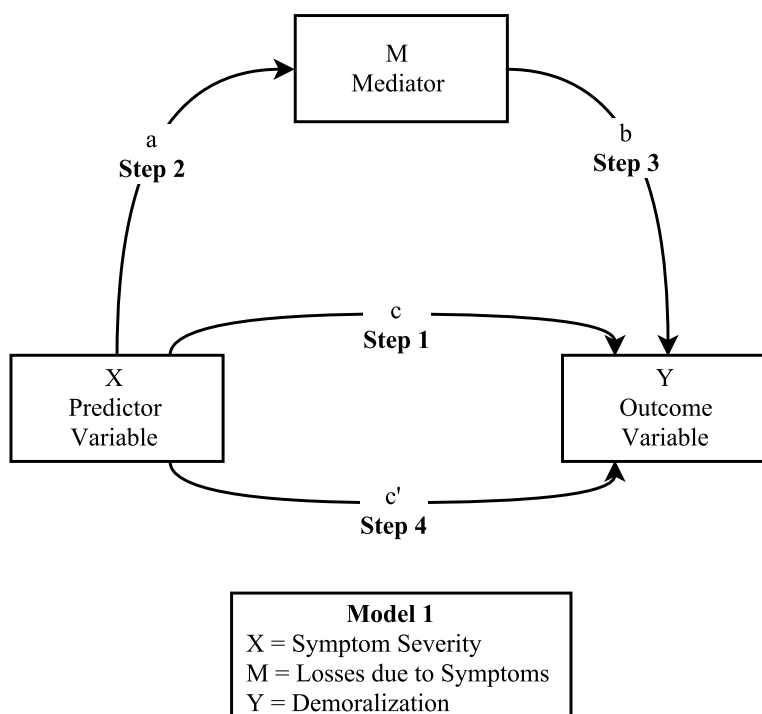operationalized through four steps, depicted in Figure 1.

Figure 1. Mediation Conceptual Template

The sequential steps for a successful mediation can be described as:

1. Confirm the significance of the relationship between the initial IV and DV (X → Y). This path is also known as "c".

2. Confirm the significance of the relationship between the initial IV and the mediator (X → M). This path is also known as "a".

3. Confirm the significance of relationship between the mediator and the DV in the presence of the IV (M|X → Y). This path is also known as "b".

4. Confirm the insignificance (or the meaningful reduction in effect) of the relationship between the initial IV and the DV in the presence of the mediator (X|M → Y). This path is also known as c'.

For each analysis, the demographic variables were entered into as the first regression "block" (income, age, sex, employment status, race, and marital status), followed by symptom severity (second "block" in the regression analysis), as predictors of demoralization (Step 1, or, c). As for the Step 2 of the mediation analysis, losses due to symptoms (mediator) is regressed on symptom severity (controlling for the covariates – demographic variables). In Step 3, demoralization (outcome variable) is regressed on losses (mediator), always controlling for the covariates. As the final act, in Step 4, the regression of demoralization (outcome variable) on symptom severity (predictor variable), controlling for losses (mediator) and the original covariates, the result should decrease, and preferably, become statistically nonsignificant, as the mediator remains statistically significant. The first three steps should have statistically significant regression coefficients, with the exception of step four, which should not be statistically significant (when compared to the first step). The previous sequence is exemplified with the use

of the variables belonging to model 1, but these same steps are performed for the remaining of the models. In the next sections, these same steps are described in further detail, with all the pertaining statistical information.

Model 1: Loss as a Mediator Between the Symptom Severity Effect on Demoralization

In Step 1 of the mediation model, the demographic variables income, age, sex, employment status, race, and marital status were significant predictors for demoralization [$F(6,169)=2.142$, $p=.020$], accounting for 5.2% of demoralization's variation (adjusted R^2) and for 6.2% of the variance on losses [$F(6,169)= 2.938$, $p=0.009$]. For the regression of demoralization on symptom severity, ignoring the mediator and controlling for the socio-demographic variables, the overall model was significant [$F(7,167)= 8.464$, $p<0.001$], with symptom severity standardized $\beta = .441$, $t(167) = 6.327$, $p<.0001$, which can be described as: The more severe were the symptoms the more demoralized were the participants (see Figure 2, step 1, or c).
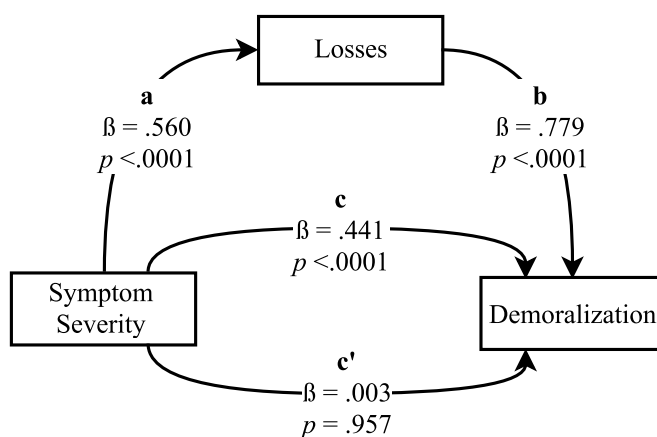

Figure 2. Loss of Resources as a Mediator.

In step 2 of the mediation model, the regression of symptom severity on the mediator, losses, controlling for the socio-demographic variables, had a significant overall model [$F(7,168)= 14.695$, $p<0.001$], with symptom severity standardized $\beta = .560$, $t(168) = 8.791$, $p <.0001$, accounting for 35.4% of losses' variation (adjusted R^2); in other words, the more severe were one's symptoms, the more losses one experienced (see step 2, or path a of Figure 2). In step 3 of the process, the mediator (losses), controlling for symptom severity and sociodemographic variables, had an overall significant model [$F(8,166)= 37.039$, $p<0.001$] accounting for 62.4% of demoralization variation (adjusted R^2), with losses standardized $\beta = .779$, $t(166) = 13.238$ $p=<.0001$ (see step 3, or path b of Figure 2). Step 4 of the analyses, which is pictured in Figure 2 at path c', revealed that, controlling for the mediator (losses) and sociodemographic variables, symptom severity was no longer a significant predictor of demoralization (standardized $\beta = .003$, $t(166) = .054$, $p= .957$). According to Baron and Kenny (1986), the fulfillment of all of the 4 steps confirms that a mediation took place since the relationship between the predictor variable and the outcome variable was altered by the presence of the mediation variable, which transformed it from a significant ($\beta = .441$, $p < 0.001$) into a non-significant relationship ($\beta = .003$, $p = .997$). In order to sustain the mediational hypothesis, additional statistical analyses were conducted; the Sobel's test (Sobel, 1982) confirmed full mediation in our proposed model ($z = 7.260$, $p <0.0001$), besides, the ratio of indirect to direct effect of symptom severity (X) on demoralization (Y) revealed an effect of 138.565, with a 95% bootstrapped confidence intervals (C.I.) ranging from 141.356 to 45,701.490. Since these C.I. do not contain any zero, they reiterate loss of resources as the mediator between symptom severity and demoralization (Hayes,

2013). With alternate words, the effect of symptom severity on demoralization (direct effect) is operated via loss of resources (indirect effect).

Integrating Moderation and Mediation through Conditional Process Modeling

In an attempt to propose a theoretical model that could contemplate the complexities that human behavior entails, we estimated conditional process models, represented by Figures 3 and 6, which were analyzed with the utilization of the macro PROCESS Version 2.15 (Hayes, 2013) for SPSS. The non-parametric approach proposed by Hayes (2013) employs bootstrapping in order to test the coefficients of the predictor variable to mediator relation and the mediator to outcome variable relation, controlling the predictor variable (Preacher & Hayes, 2004, 2008). This statistical approach is considered an advancement of the causal steps introduced by Baron and Kenny (1986), which were employed in our previous section, in Model 1. Hayes (2009), in an impacting article entitled *"Beyond Baron and Kenny: Statistical Mediation Analysis of the New Millennium,"* reiterate the mediator role as a *conduit,* or, the messenger of the predictor variable effect on the outcome variable, in a causal process. The seminal work by Baron and Kenny (1986) benefited over the years from updates in statistical methodologies used for such analyses, inciting researchers like Hayes (2009) to cast some light on the mechanisms underlying these new approaches. The causal steps suggested by Baron and Kenny in 1984 suffer from low power in detecting the indirect effect of X (predictor variable) on Y (outcome variable) carried through M (the mediator variable) because the mechanism used for detecting such effect is grounded on a set of hypotheses, but, the effect itself is not quantified. In this sense, Preacher and Hayes (2004, 2008) suggested a more precise way of assessing mediation analyses (bootstrapping approach) through the measurement of the coefficient of the cross products of the

predictor to mediator relation and the mediator to outcome relationship, controlling for the

predictor variable. According to Preacher and Hayes (2004) and MacKinnon, Lockwood,

Chondra, Williams, and Jason (2004), the bootstrap method is advantageous for its "skepticism"

about normal sample distribution and for its superior control of Type II error. By the replication

of the bootstrap process (it can range from 1000 to 50,000 times) it reaches an empirical

approximation of the supposed sampling distribution of the indirect effect, which is then

expressed by confidence intervals of the indirect effect. These confidence intervals imply

statistical significance (i.e., different from zero) with *%* confidence, that the confidence intervals

do not cross zero.

Model 1A: A Moderated Mediation Version of Model 1
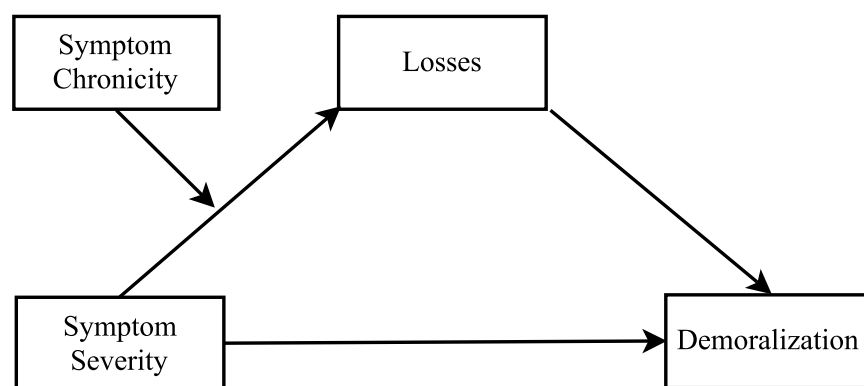
Figure 3. Moderated Mediation Conceptual Diagram

Model 1A examined the potential interaction of symptom severity with symptom

chronicity on predicting loss of resource (see Fig. 3). The previous variables' interaction was not

statistically significant [B =.000, t(163)= .032, p=.975], but the main effect of symptom

chronicity on losses was marginal [B = -.062, t(163)= -1.911, p=.058]. Symptom severity

contributed with $B =.119$, $t(163)= 8.240$ $p<.0001$ on predicting loss of resources and the overall

model was significant [$F(9,163)= 12.188$, $p<0001$, $R^2=.393$]. Symptom severity effect was not

contingent to the different levels of chronicity on the resulting amount of losses. The complete

model (including the moderator and covariates displayed in Fig. 4) accounted for approximately

64% of the variance in demoralization rating (see complete results in table 4). This model was

examined to determine whether symptom chronicity significantly interacted with symptom

severity to produce differential effects on the mediator (losses), controlling for ethnicity, age,

sex, employment status, income, and marital status, with an overall model of $F(8,164)= 28.655$,

$p<0.001$.
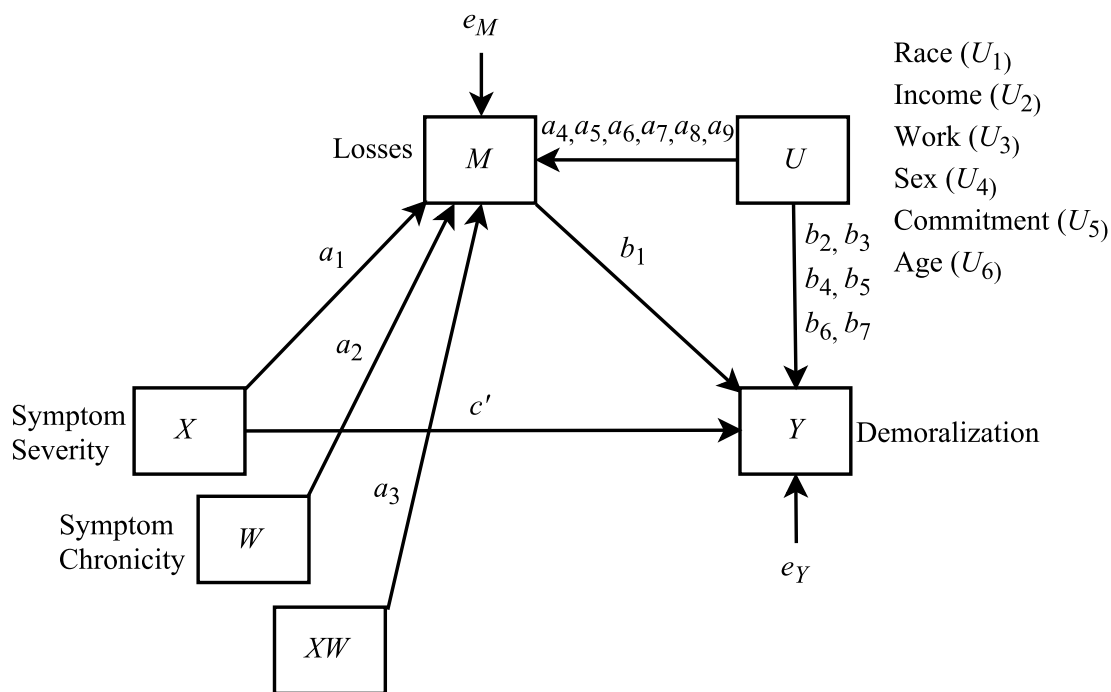
Figure 4. Moderated Mediation Statistical Model (Hayes, 2015, p. 9)
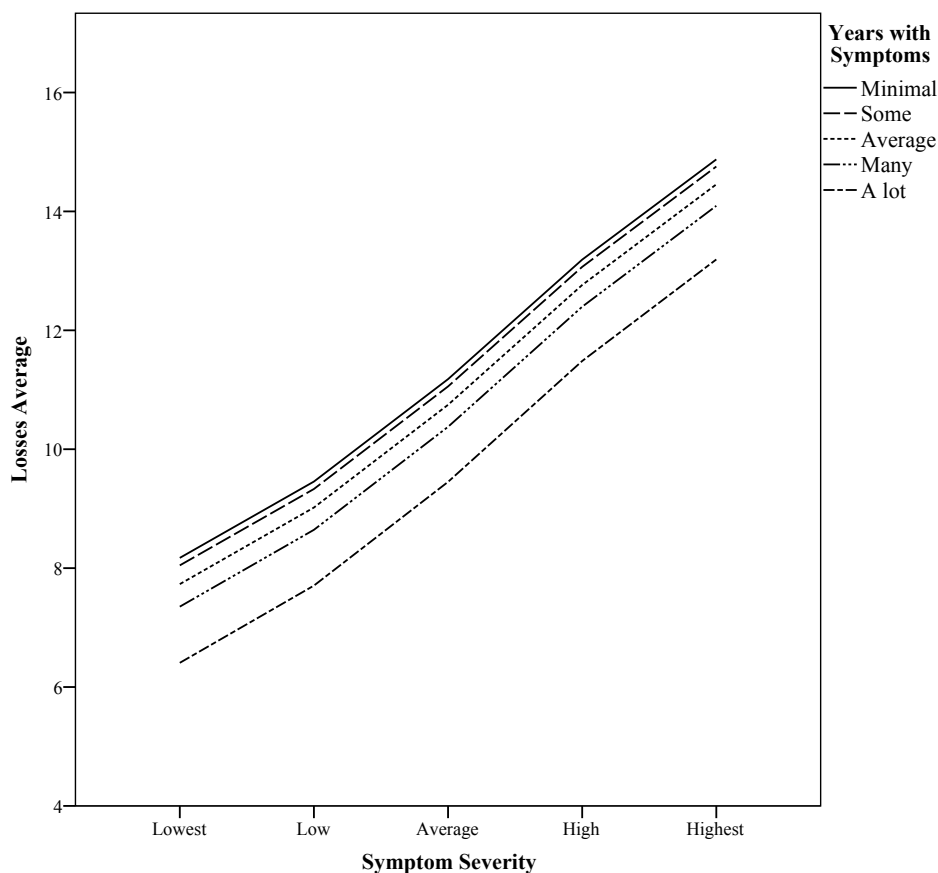
Figure 5. Symptom Chronicity as a Moderator Between Symptom Severity and Losses.

Table 4

Unstandardized OLS Regression Coefficients with Confidence Intervals (Standard Errors in

Parentheses) Estimating Loss of Resources and Demoralization. Symptom Severity and Symptom

Chronicity are Mean Centered.

		Loss of Resources (M)			Demoralization (Y)	
		Coefficient	95% CI		Coefficient	95% CI
X (Severity)	$a_1 \rightarrow$	0.119***(0.014)	0.090, 0.147	$c' \rightarrow$	0.000(0.002)	-0.004, 0.004
M (Loss)				$b_1 \rightarrow$	0.142***(0.011)	0.120, 0.164
Chronicity(W)	$a_2 \rightarrow$	-0.062+(0.032)	-0.125, 0.002			
$X \times W$	$a_3 \rightarrow$	0.000(0.001)	-0.0020, 0.003			
Race (U_1)	$a_4 \rightarrow$	-1.827(1.330)	-4.453, 0.799	$b_2 \rightarrow$	-0.173(0 .147)	-0.463, 0.117
Income (U_2)	$a_5 \rightarrow$	-0.168(0.378)	-0.914, 0.578	$b_3 \rightarrow$	-0.002(0 .056)	-0.112, 0.109
Work (U_3)	$a_6 \rightarrow$	0.651(0.462)	-0.262, 1.564	$b_4 \rightarrow$	0.080(0.067)	-0.051, 0.212

Sex (U_4)	$a_7\rightarrow$	1.923(1.172)	-0.392, 4.238	$b_5\rightarrow$	0.031(0.106)	-0.178, 0.240
Commit(U_5)	$a_8\rightarrow$	0.363(0.768)	-1.153, 1.879	$b_6\rightarrow$	-0.157(0.107)	-0.369, 0.055
Age (U_6)	$a_9\rightarrow$	0.048(0.032)	-0.015, 0.111	$b_7\rightarrow$	-0.007+(0.004)	-0.015, 0.001
Constant	$i_M\rightarrow$	7.121*(3.174)	0.855,13.388	$i_Y\rightarrow$	2.175***(0.426)	1.334, 3.016

$$R^2 = 0.393 \qquad\qquad R^2 = 0.638$$
$$F(9,163) = 12.188*** \qquad\qquad F(8,164) = 28.655***$$

Note. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

In the line graph (Fig. 5), it is illustrated that symptom chronicity does not interact with symptom severity through altering the consequential losses participants could experience. Nevertheless, it can be observed that people living with intermittent symptoms for a higher amount of years (high symptom chronicity) reported less losses than people living with symptoms for a lesser amount of time (low symptom chronicity). With such results in mind, it was further tested whether losses could possibly mediate the relationship between symptom chronicity and demoralization. Indeed, results indicate that as symptoms become more chronic, less losses occur (results shown in Fig. 6). This results are also corroborated by the zero-order correlation between symptom chronicity and demoralization presented in Table 3, with a Pearson's $r = -.183$, $p=0.01$, which means that the less chronic the symptoms, the more demoralized are the respondents.
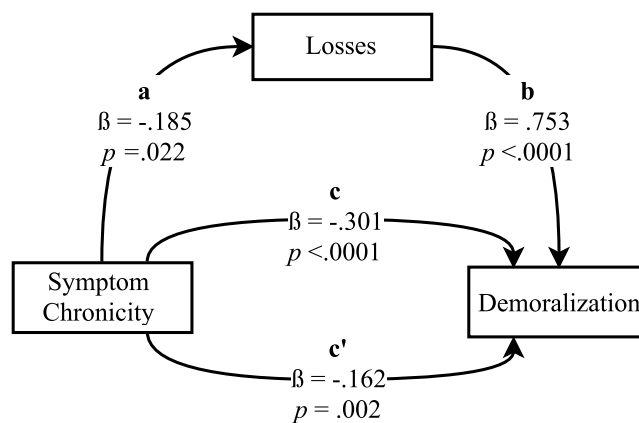
Figure 6. Mediation Diagram

Model 1B: A Moderated Mediation Version of Model 1.

Model 1B examines the possible interaction of social support with symptom severity at predicting losses, with its statistical model displayed in Fig. 7, and its results in Table 5.
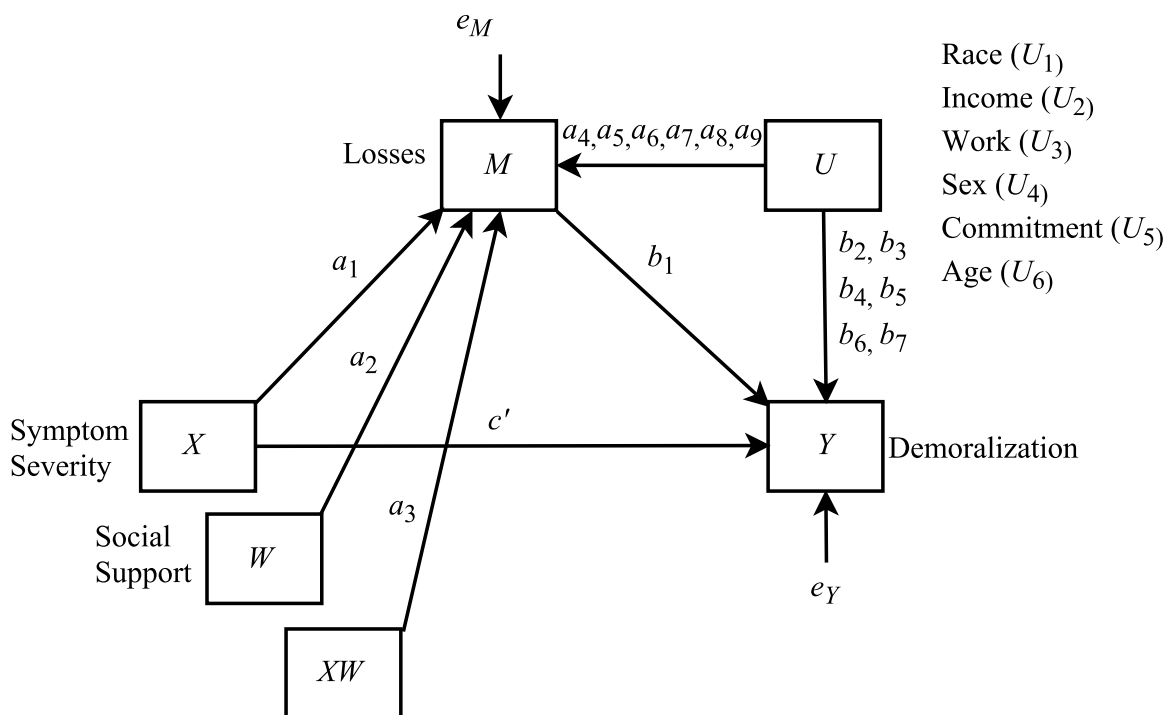
Figure 7. Moderated Mediation Statistical Model (Hayes, 2015, p. 9)

The interaction of social support (W) with symptom severity (X) was found to be statistically significant [$B = .018$, $t(165) = 2.358$, $p = .020$], with the main effect of social support on losses also deemed significant [$B = -1.004$, $t(165) = -3.969$, $p < .0001$]. The interaction XW added to loss of resource's variance an increase of $R^2 = .013$ [$F(1,166) = 5.582$, $p = 0.19$]. The statistical analyses indicate that social support moderated the relationship between symptom severity and loss of resources, which implies that the indirect effect is also moderated. Results

were evaluated at 5 different levels of social support (at the 10th, 25th, 50th, 75th, and 90th percentiles of our pool of respondents), and each level was also demonstrated through confidence intervals (see Table 6).

The simple mediation model proposed at the beginning of the Results section (Model 1, Fig. 1, p. 30) tested and confirmed the mediation of losses between symptom severity and demoralization as statistically significant. Through the progression of Model 1 into a moderated mediation, the simple mediation effect becomes also prone to the variation of the proposed moderator's levels (see Table 6). The indirect effect of loss of resources on demoralization was significant for participants whose social support was either at its highest or its lowest percentile value since its confidence intervals did not contain any zeroes in between their upper and lower values. For instance, loss of resources was a significant mediator of the relationship between symptom severity and demoralization for the ones whose social support was the lowest possible.

Table 5

Unstandardized OLS Regression Coefficients with Confidence Intervals (Standard Errors in Parentheses) Estimating Loss of Resources and Demoralization. Symptom Severity and Social Support are Mean Centered

		Loss of Resources (M)			Demoralization (Y)	
		Coefficient	95% CI		Coefficient	95% CI
X (Severity)	$a_1 \rightarrow$	0.107***(0.014)	0.079, 0.135	$c' \rightarrow$	0.000(0.002)	-0.004, 0.004
M (Loss)				$b_1 \rightarrow$	0.141***(0.011)	0.120, 0.163
Support (W)	$a_2 \rightarrow$	-1.004***(0.253)	-1.504, -.0.505			
X x W	$a_3 \rightarrow$	0.018* (0.007)	0.003, 0.032			
Race (U_1)	$a_4 \rightarrow$	-1.181(1.174)	-3.498, 1.136	$b_2 \rightarrow$	-0.174(0.147)	-0.463, 0.115
Income (U_2)	$a_5 \rightarrow$	0.055(0.362)	-0.661, 0.770	$b_3 \rightarrow$	-0.002(0.055)	-0.111, 0.107
Work (U_3)	$a_6 \rightarrow$	0.769+(0.427)	-.0.073, 1.612	$b_4 \rightarrow$	0.081(0.066)	-0.049, 0.212
Sex (U_4)	$a_7 \rightarrow$	1.539(1.129)	-0.691, 3.769	$b_5 \rightarrow$	0.031(0.106)	-0.178, 0.239
Commitment	$a_8 \rightarrow$	-0.234(0.726)	-1.667, 1.199	$b_6 \rightarrow$	-0.153(0.106)	-0.362, 0.056

(U_5)

Age (U_6)	$a_9\rightarrow$	0.001(0.029)	-0.056, 0.059	$b_7\rightarrow$	-0.007+(0.004)	-0.015, 0.001
Constant	$i_M\rightarrow$	9.282**(2.816)	3.721, 14.843	$i_Y\rightarrow$	2.173***(0.420)	1.343, 3.003

$$R^2 = 0.441 \qquad\qquad R^2 = 0.641$$

$$F(9,165) = 18.925*** \qquad\qquad F(8,166) = 29.503***$$

Note. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

Table 6

Indirect Effects and Confidence Intervals at the 10th, 25th, 50th, 75th, and 90th Percentiles of

Perceived Social Support

Social Support Levels	Effect	SE	t	BC[a] 95% bootstrapped C.I. Lower	Upper
-1.987	0.071***	0.019	3.810	0.034	0.108
-0.904	0.090***	0.014	6.254	0.062	0.119
0.096	0.108***	0.014	7.759	0.080	0.135
0.929	0.122***	0.016	7.522	0.090	0.155
1.929	0.140***	0.021	6.581	0.098	0.182

Note. [a] Confidence Intervals (C.I.) are bias-corrected (BC). $***p < .001$.
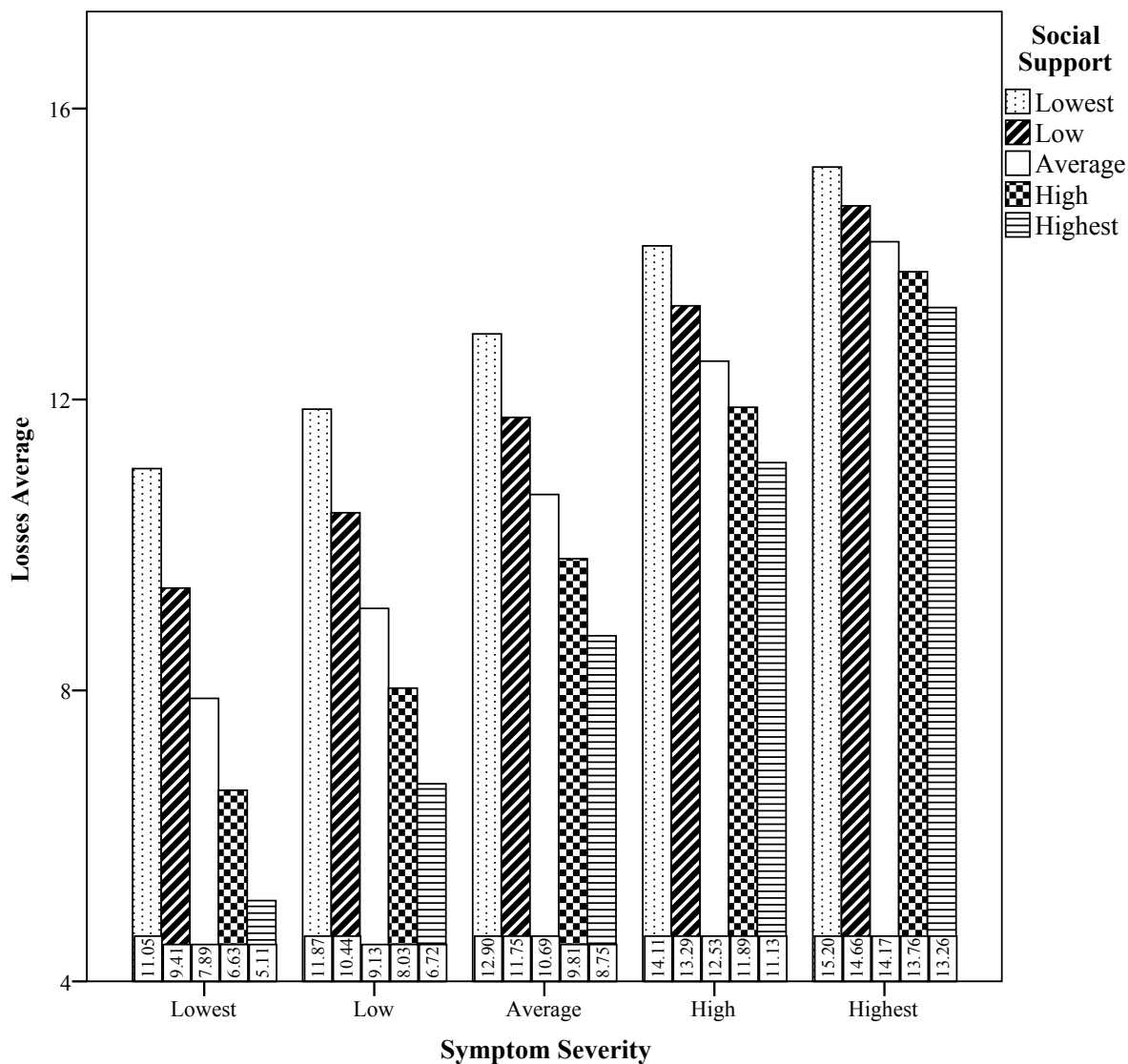
Figure 8. Symptom Severity, Social Support, and Losses Bar Chart (Loss Average Inside Bars)

By examining the interaction bar graph (Fig. 8) it becomes clear: As symptom severity

increases, loss of resources also increases. At higher symptom severity, losses are somewhat

similar for people either on the lower or on upper side of social support (look at the average

losses inside the highest symptom severity's patterned bar), nonetheless, the ones perceiving

more social support did indeed report fewer losses. More markedly, people with low symptom

severity (specially the ones at the lowest spectrum of severity) who were on the higher side of social support (specially the ones at the highest side of social support) had the severity of their symptoms' effect buffered by the strong presence of social support, with a resulting decrease in their score of resource losses.

Discussion

The literature review offered different empirical explanations for potential pathways among our variables of interest. Nevertheless, at the center of our tested models was the rationale of COR stress theory (Hobfoll, 1989, 2002), which, indeed, proved itself to be a robust explanatory theory for our hypothesized models. The results of our statistical analyses indicate that losses occurred due to symptom severity serves as a mechanism that explains the effects of severity on demoralization.

Symptom Severity and Loss of Resources

Consistent with research on resource loss (Dirik & Karanci, 2010; Holahan, Moos, Holahan, & Cronkite, 1999; Zeidner, Ben-Hur, & Reshef-Weil, 2011), which indicates that loss of resources lies at the core of stressful events, we found that resource loss due to symptom severity was the nexus for predicting demoralization. A key assumption of COR theory is that the reduction of individual resources commonly leads to personal distress and negative affective outcomes such as depression and post-traumatic stress disorder (Hobfoll, 2002; Hobfoll, Vinokur, Pierce, & Lewandowski-Romps, 2012). The sample of participants in the present study was composed by people whose lives have been marked by the presence of chronic conditions. In face of such reality, these participants were challenged to adapt to the consequential changes experienced due to their health contingencies. Frequency and intensity of symptoms (i.e., symptom severity), captured by SOM-7 assessment (Rief & Hiller, 2003), depicted how much one is bothered by the presence of bodily symptoms. From the lengthy list of symptoms, participants were most severely bothered by tiredness, unrefreshing sleep, trouble falling asleep, and pain at joints and hips.

A strong, statistically significant effect was observed in participants with higher symptom severity, leading to increased loss of resources, phenomena fully supported by the second corollary of COR theory (Schumm, Doane, & Hobfoll, 2012), often referred to as *loss spirals*. More specifically, our findings are aligned with this corollary in the sense that our predictor variable implies a taxing event: Symptom severity denotes a degree of distress (i.e., presence of body symptoms) and its consequential disturbance (i.e., being bothered by symptoms), experienced by our respondents. According to the second principle of COR theory (Schumm et al., 2012), becoming distressed demands the use of further resources either for protecting one's resource pool or for recovering from lost resources in order to maintain the resource reservoir homeostasis. Therefore, being bothered (distressed) causes disturbances in one's resource reservoir, either by the use of resources for neutralizing such disturbance (use of resource=loss of resource) or by the acknowledgment that there are no available resources for lessening such stressful event (lack of resource=reallocation of another key resource=loss of resource).

As a further taxing event, our mediator variable assessed the amount of losses participants had experienced due to their health conditions (ongoing symptoms=loss of health). In other words, symptom severity displays the presence of symptoms (presence of symptom=loss of health=loss of resources) and also how much one is bothered by them (becoming bothered=distress=loss of resources). Similarly, loss of resources (mediator variable) displays the amount of losses caused by those symptoms. The ones who reported being more distressed by the presence of symptoms also reported higher amounts of resource losses.

Loss of Resources and Demoralization

By the regression of demoralization on loss of resources, the motto of *loss spirals* still

takes its course. As stated in the previous page, the initial loss of resources in a certain domain

(e.g., sickness) leaves one's pool of resources in a state of instability, which demands the use of

other key resources (e.g., money for treatment) as a remediating attempt. If the source of

resource consumption (i.e., sickness) is not eradicated, it will continuously instigate the depletion

of other key resources (e.g., self-esteem, professional performance, interpersonal relationships,

etc.), leading to a dilapidation of one's total resource reserve.

In estimating such a threatening scenario, additional consequences are rather dire,

circumstances which were confirmed in our analyses: One becomes demoralized in the process

of sequential losses. Additionally, this ongoing leak of resources predisposes individuals,

families, and groups of people to the loss of protective resources that might otherwise help offset

risk factors, thus paving the way to retraumatization. In turn, the loss of protective resources

further sinks one's ability to recover from loss spirals, in a bidirectional relationship depicted in

the chart developed by Schumm, Doane, and Hobfoll (2012, p. 115) reproduced below (Fig. 9).
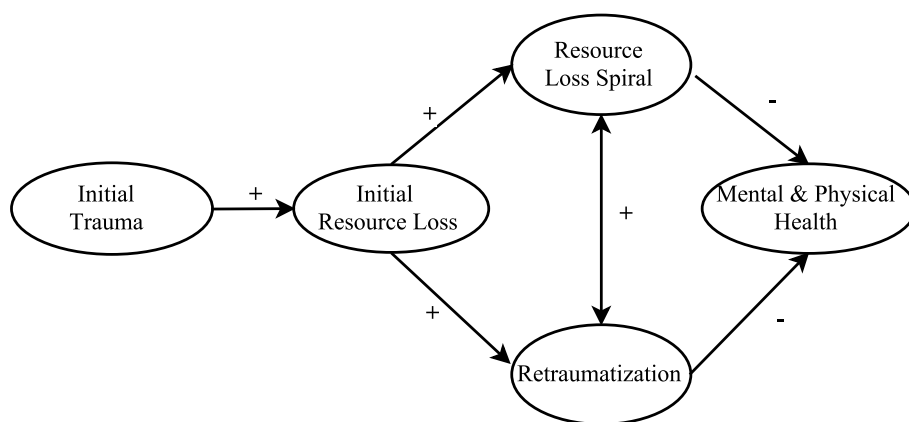

Figure 9. Loss Spirals Model. It is demonstrating how initial trauma and resource loss can lead to cycles of resource loss spirals and retraumatization. These cycles, will, in turn, erode mental and physical health.

In a German study among cancer patients conducted by Vehling and Mehnert (2013), the number of physical problems were significant predictors of demoralization and dignity loss, with loss of dignity as a mediator explaining the effect of physical problems on demoralization. Also, research on the consequences of being chronically ill bring to our attention how much it may reduce one's well-being as well as social participation, in addition to interfering with one's capacity of earning money for covering their own health costs (Rijken & Groenewegen, 2006). These previous and other studies are examples of the deleterious consequences that loss spirals can bring to one's life.

Loss of Resources as a Mediator of Symptom Severity Effect on Demoralization

In an effort to showcase the rationale of COR theory (Hobfoll, 1989, 2002) as a process, loss of resources was hypothesized as the vehicle connecting our predictor variable to our outcome variable. In the current study, participants reporting higher symptom severity also reported in more loss of resources and, as a consequence, felt more demoralized. As a matter of fact, 77% of our participants' sample reported having symptoms for more than 3 years, 66% feel that others doubt their illness, and 65% informed not having received medical treatment for their symptoms. These data denote circumstances of delegitimation, lack of understanding, and sense of desolation as problems are not formally met with solutions. By experiencing prolonged symptoms with scarce conditions (no proper medical treatment and social stigma), our participants had their initial stress of becoming symptomatic amplified to higher levels of demoralization by accruing losses, results that are consistent with Hobfoll's (1996) assertion that both severity and the amount of exposure to a stressful event are chief predictors of detrimental psycho-social sequels.

The subscale of demoralization, chosen from the psychosocial impact questionnaire by Mohr et al. (1999, see appendix D), reflects the construct of Demoralization Syndrome, which was first described by Jerome Frank (1968). According to the latter author, helplessness is experienced whenever the usual fight or flight defense mechanisms are pointless in face of any potential harm in which both confidence in authority and survival skills are jeopardized. Also, along with helplessness, other feelings such as inadequacy, confusion, sadness, and hopelessness arise. Afterward, non-specific physical symptoms may also erupt in reaction to demoralizing stress (which were displayed by the WWII veterans).

Taking in consideration that the participants in our study were facing ongoing symptoms without definite solutions (health threat), and many stated that their symptoms were received with skepticism by close ones and health care providers (erosion of trust), one cannot help but recognize their signs of demoralization: helplessness, loss of meaning, feeling a burden to other people, and hopelessness.

Symptom Severity, Symptom Chronicity, and Losses

Central to COR theory is the phenomenon of *loss spirals* (see Fig. 9). When unfortunate events happen sequentially, a rapid loss of resources depletes a person from their usual resource reserve, without chance for replenishment. In this sense, it was hypothesized that the more chronic the symptoms, the more losses one would experience, which was tested by the regression of losses on symptom severity, with symptom chronicity as a moderator. Paradoxically, this hypothesis resulted as being statistically nonsignificant. As symptoms were reported as being more severe, losses would also increase linearly, and, although not significant, the more chronic were the symptoms, the less losses would be reported, even when symptoms were in their

highest intensity (see Fig. 5, p. 48). Since chronicity alone was almost significant in its

prediction of losses, we cogitated that if we slightly altered the parameters, we could have some

clarification regarding the influence of age on losses. Thus, we multiplied symptom chronicity

by symptom severity to transmute our predictor variable (*X*) and added age (*M*) as the

moderating factor for predicting losses. As a result, the interaction of *X* with *M* was significant,

adding an 8.3% change in the variation of losses [$F(1,165)=18.041, p<.0001$] with an overall

model of $F(8,165)=5.244, p<.0001$, controlling for race, income, work status, sex, and

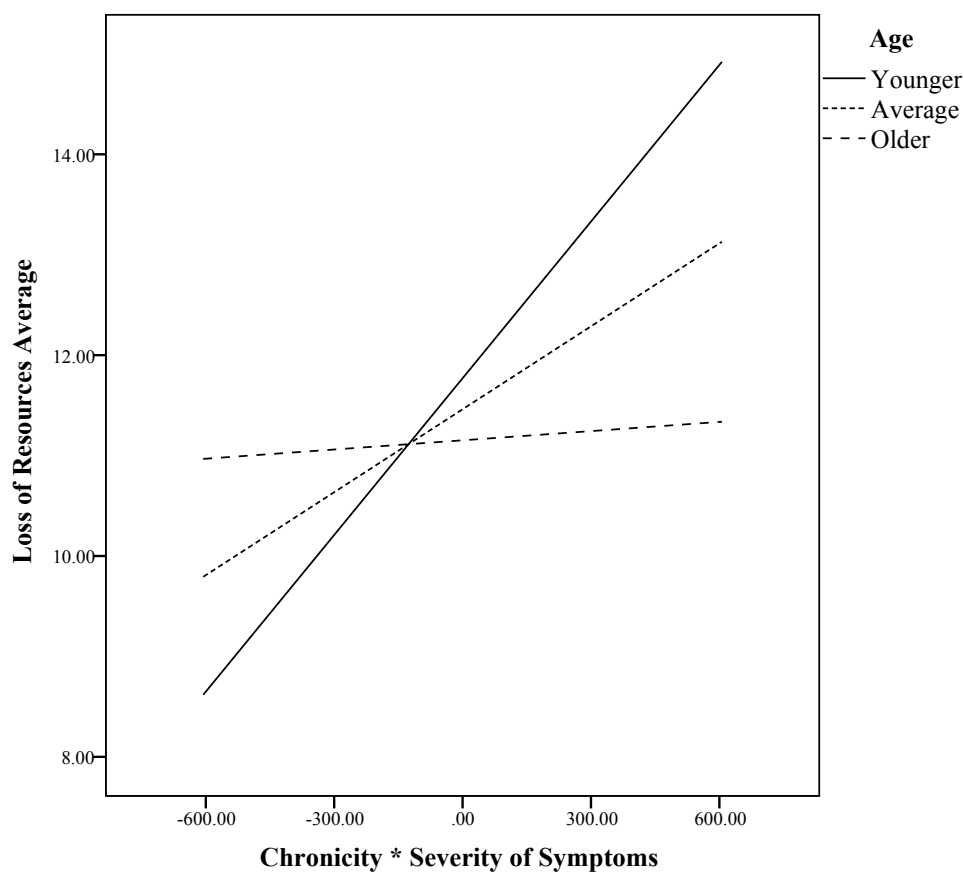relationship status (see Fig. 10).

Figure 10. Interaction of Age with Symptoms Chronicity and Severity at Predicting Losses

One plausible explanation for this surprising result comes from the research by Hobfoll, Banerjee and Britton (1994), who suggested that as time passes by, people become more adapted to their health circumstances or even, through the possession of certain personal characteristics, are abler to curb or even shape the ghastly effects of chronic symptoms. This explanation is aligned with COR theory as it states that whenever someone is in lack of a certain resource (health), but is in possession of less finite resources (e.g., high self-efficacy), one could be able to create other resources for substituting or buffering the absence of the missing resource. Another possible explanation is that, through the long-term of their lives, people may unexpectedly or purposely gain other resources, which are a major source of relief and dampening of their distress. This latter explanation is in accord with the 3rd principle of COR theory (Hobfoll & Vaux, 1993; Hobfoll, Ritter, Lavin, Hulsizer, & Cameron, 1995; Hobfoll, Freedy, & Solomon 1996), as the gain of resources may be of greater importance when they come in the succession of unfortunate events.

Another underlying aspect is the fact that as symptoms become increasingly chronic, one is also growing older, and by this element itself, a myriad of changes do occur. First, it must be acknowledged that with age comes natural and expected losses to death of friends, loved ones, and relatives, and, as Baltes (1987) would say: As one gets older, resources are not so easily replenished. Second, even though senior individuals face decaying resources, one also matures into better managing their own resources in ways to optimize them and by choosing wisely in order to protect them, or as Baltes and Baltes (1990) named this phenomenon: selective optimization with compensation. By this model, elder individuals select events in their lives from which they can extract meaning as a way of compensating for the losses associated with aging.

Third, according to Hobfoll, Freedy, Green, and Solomon (1996), elderly victims are less vulnerable to psychological problems when compared to younger individuals, which indicates that age may also be considered a personal resource, with senior individuals having an advantage, specially over middle-aged subjects, as the latter tend to multi-task between the caretaking of both children and their own parents in stressful events. Fourth, as suggested by Baltes, Staudinger, Maercker, and Smith (1995), aging has the advantage of enhancing personal resources, by bringing wisdom in later years. Fifth, as highlighted by Baumeister, Bratlavsky, Finkenauer, and Vohs (2001), health does not necessarily bring happiness, but for the ones who are older or battling a severe chronic illness, health improvements bring a solid positive impact. With all of these aspects taken in consideration, although losses are deemed as more impactful and long-lasting than gain of resources (Wells, Hobfoll, & Lavin, 1999), gains become critical and increase in their saliency especially when losses have been both chronic and severe.

Symptom Severity, Social Support, and Loss of Resources

It was hypothesized that social support would moderate the relationship between symptoms severity and loss of resources. As a matter of fact, results were statistically significant. Through the observation of the line graph on the next page (Fig. 11), the dampening effect of social support was more drastic among people with less severe symptoms, with respondents at the lowest spectrum of symptom severity reporting the least amount of losses when social support was at its highest amount. It becomes apparent by inspecting the lines at the graph (Fig. 11) that as symptom approaches its highest severity, the lines approach themselves, suggesting that social support matters less for the ones with extreme symptoms, but still, the relationship between social support, symptom severity, and loss of resources is maintained in the following

order: As symptoms increase in their severity, losses also increase in their amount, and, social support interacts with symptom severity by reducing the amount of losses, with the ones with higher amount of social support experiencing less losses.
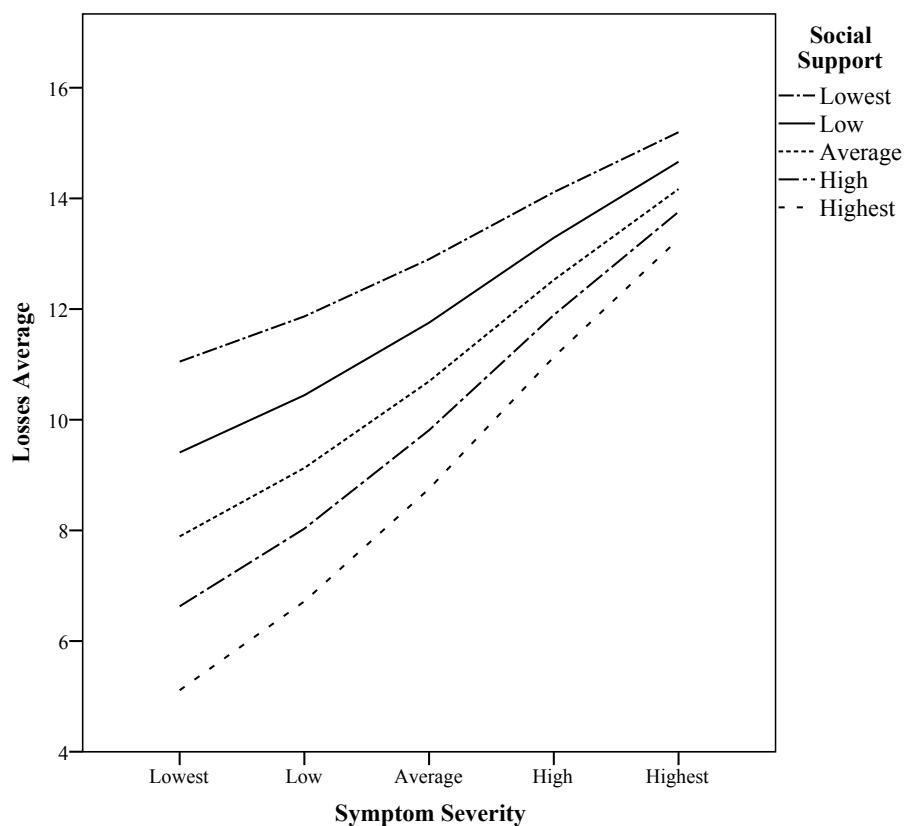
Figure 11. Interaction of Symptom Severity with Social Support on Loss of Resources

Our findings are aligned with the 2nd principle of COR theory (Hobfoll, 1989, 1998, 2001; Hobfoll & Lilly, 1993), which states that the investment of resources is necessary to protect against resource loss, to offset losses, and to gain resources. Our analyses were not devoted to the analysis of the first or the latter aspect of resource investment, but the second one. Thus, social support was included in our analysis as a way of understanding whether it could

function as a buffering agent to the losses brought by symptom severity. By observing Fig. 11, we can infer that people with more resources (social support) are indeed less vulnerable to losses.

Nevertheless, social support loses its "power" as severity reaches extreme levels, which could be explained by different aspects. In a scenario in which someone is experiencing extreme symptom severity, one may also become more dependent of other's support and, especially for family members, this can be somewhat burdensome. Such kind of situation was represented in the research by Lane and Hobfoll (1992): Patients, angry at their sickness would either vent their anger at their supporters or would even silently carry their feelings. In turn, their care-takers would become resentful, which led them to alienate their patients, in some sort of self-fulfilling prophecy. On the other hand, research conducted by Gerhart, Sanchez Varela, Burns, Hobfoll, and Fung (2015) with stem cell transplant patients revealed that angered patients could be appeased, but only with the condition of high perceived social support, thus displaying less physical distress.

In a literature review on the effects of social support by Baumeister, Bratslavsky, Finkenauer, and Vohs (2001), it is affirmed that social support fosters health and well-being, but there are some caveats. According to Baumeister et al., whenever social interactions go awry, they have a stronger negative impact than when these interactions are either neutral or positive. Similarly, the social support deterioration deterrence model formulated by Norris and Kaniasty (1996) on the role of social support as a promoter of quality of life in extreme moments was tested in a study with Italian rescue workers (Prati & Pietrantoni, 2010). The latter authors advert that social support may become deficient as needs rise, more specifically, when the exposure to

incidents were more critical, social support was less perceived by the workers or even, less

efficient.

With all of the aforementioned research findings, we speculate whether social

interactions in the higher spectrum of symptom severity do not fall victim to both deterioration

and/or biased perception by the ill person. This admits to some interrogations: First, would the

social interactions be supportive or instrumental enough to bring solace to the chronically

severely ill? Second, could these same interactions be prone to the negligence self-fulfilling

prophecy described by Lane and Hobfoll (1992)? Third, would the pattern of seeking social

support be the same for the ones who are facing severe symptoms? Would they have the usual

"cool" approach for pursuing and maintaining interpersonal relationships? Fourth, since we do

not know what source of social support our participants are referring to, we could consider that

as symptoms progress in severity, one becomes more dependent of the ones closer to them. And,

if the closer ones are family members, they are vulnerable to feelings of overwhelm and

negativity contagion due to high demand and proximity. This kind of arrangement tells us that

familial care-takers may indeed be or become less able to give the appropriate kind of support

the patient needs and this situation could explain why the perception of social support by the

severely ill is lower than the participants with mild symptoms.

Symptom Severity, Social Support, and Loss of Resources: Further considerations. With the

previous section's interrogations in mind, we further explored the interaction of age with

symptom chronicity and severity for predicting social support, which is depicted in Figure 12.

The interaction was significant and accounted for a change in the prediction of social support of

ΔR^2=.019, with an $F(1,165) = 7.784$, p =.006. The overall model accounted for approximately

15% of the variance in social support [$F(8,165) = 5.025$, $p<.0001$] and race, income, work status,

sex, and relationship status were included as covariates.
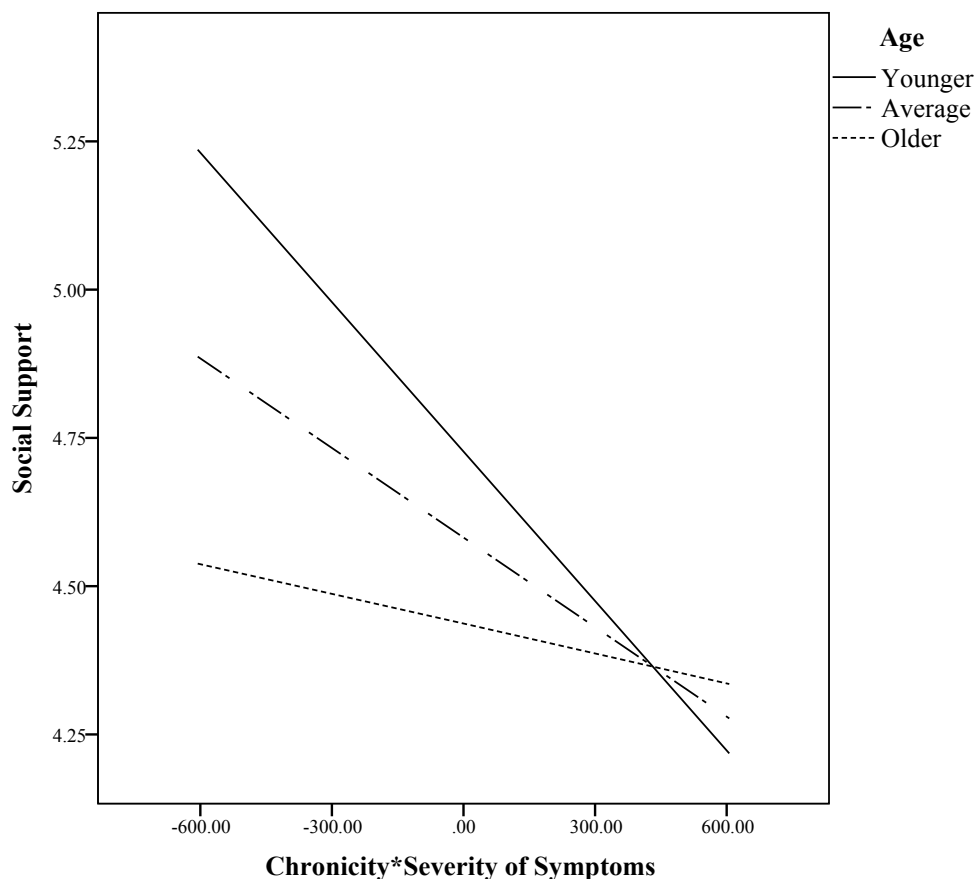
Figure 12. Interaction of Age with Symptom Chronicity and Severity on Predicting Social Support

Through the observation of the lines on graph (Fig. 12), one can identify a pattern: When

symptoms become more chronic and severe, the perception of social support drastically

decreases for participants of all ages. It can also be detected that when symptoms are less chronic

and severe, the average of social support is much higher for younger people. On the other hand,

as symptoms progress into being more severe and chronic, younger people experience an

abysmal loss of social support while older people actually experience milder loss of perceived social support, which could suggest resilience factors in the older population of our sample.

Some aspects of this incidence can be considered. First, it has been shown that becoming suddenly ill has stronger negative effects than being chronically ill, as suggested by Cassileth et al. (1984). Second, older individuals tend to experience less psychosocial impact than younger individuals when battling a chronic disease, as shown by Ganz, Schag, and Heinrich (1985) and Mor, Allen, and Malin (1994). The latter research findings could be justified by the fact that older individuals generally have already fulfilled their life "tasks" (e.g., completed their studies, worked until retirement, raised their children, etc.), which might influence their appraisal of a late-life chronic illness as a congruent timeline event. Additionally, older individuals may already have had their share of lost friends and family members, which could explain the lesser drop in their perceived social support. Conversely, by taking COR theory tenets in consideration (Hobfoll, 1989, 2002), what our younger participants could be experiencing is a typical *loss spiral*, which is well illustrated by the steep plunge in perceived social support. Younger individuals who have been dealing with on-going symptoms might not have had the anticipated and essential milestones for resource gains (e.g., successful attendance to school, making new friends, developing self-esteem, etc.), which are recognized protective factors.

Conclusion

The analysis of our dataset revealed a multitude of both expected and unexpected occurrences. Even though we were able to witness some positive circumstances, such as the buffering action of social support, overall, our sample of participants were markedly assaulted in their lives by the experience of chronic illnesses. Many reported being robbed from their usual self and lacked enjoyment in life. Others stated social isolation, helplessness, negative affect, physical contingencies, guilt, and low self-esteem. It would be naive to assume that the survey employed in the current paper managed to wholly depict participants' life experiences, but all efforts were made in order to capture and voice these individuals' unheard anguishes.

Limitations of the Study

Some of the weaknesses pertinent to our research are: a) cross-sectional design (causality and directionality reasoning should be used with caution), b) participants' self-report (prone to memory biases and distortions), c) somewhat limited literature, and d) preponderance of white females in our sample (75%). For placating potential threats to validity, we included sex, race, age, marital status, income, and work status as covariates in all the statistical analyses. A replication of the mediation effect in a longitudinal study would be necessary to consolidate the hypothesized directions of the causal relationships. Nevertheless, our results indicate a better fit of the data to the hypothesized model than to the alternative reversed model (the interchange of Y and M, as recommended by Baron and Kenny, 1986) as the ratio of indirect to direct effect of X on Y was substantially higher in our proposed model compared to the reversed one [Effect: 174.463, CI (201.989; 1,322,258.40) vs. Effect: 1.059, CI (0.548; 2.274)].

Taking in consideration Schumm, Doane, and Hobfoll's (2012) loss spirals model (p. 56, Fig. 9), the reverse version of our hypothesized mediation model cannot be precluded, as loss spirals are by definition bidirectional, and, why not, multidirectional, since losses happen in a chain reaction. Still in accordance to Schumm et al. (2012), the current study granted the observation of a process in which the initial trauma of distressing body symptoms erodes one's pool of resources, and, by leaving the individual vulnerable to opportunistic losses, one's resource reserve is further consumed by widespread losses. With such circumstances, retraumatization is omnipresent as protective resources such as social support become scarce. With all of these aspects taken in consideration, a bidirectional relationship between loss of resources and demoralization cannot be excluded, although, the current state of research indicate that the occurrence of demoralization comes as an exacerbation of an existential crisis due to symptom distress, which could be triggered by widespread losses (which was hypothesized and confirmed in the current study).

Strengths of the Study

The uniqueness of our approach resides at the junction of the demoralization syndrome and resource theories (more specifically COR theory). Our proposed conceptual model enlightens the still limited body of knowledge regarding populations with hard-to-diagnose chronic conditions by unveiling, testing, and suggesting a mechanism (loss of resources) that explains the occurrence of demoralization.

Implications of the Study

In cases of demoralization, research has shown that therapeutic approaches with focus on regaining a sense of coherence (or SOC, brought by Antovonosky, 1979) are recommended for

strengthening one's sense of mastery and resourcefulness (as shown by Boscaglia & Clarke, 2007). Another study which employed a Mindfulness-Based Stress Reduction program for treating patients with fibromyalgia revealed that, after the intervention, participants reported lower depression levels and decreased perception of stress which, in turn, resulted in enhanced sense of coherence (Weissbecker, Salmon, Studts, Floyd, Dedert, & Sephton, 2002). When taking the assertion of Charmaz (1983) about losing oneself to feelings of social isolation, discreditation, and being a burden to others when fighting limiting chronic illnesses, we are compelled to associate this experience description to demoralization. With the aforementioned studies in mind, in order to offset one of the core components of demoralization, meaning-based psychotherapeutic interventions should be indicated for patients who need to (re)build their sense of identity and be rescued from a place of helplessness.

Taking in consideration that demoralization is a common feature in chronically ill patients, health practitioners should incorporate the assessment of patients' own health beliefs as a routine procedure in order to properly target and address any cognitive distortion. Assessment of patients' health cognitions should follow the questioning techniques proposed by Griffith and Gaby (2005), which are marked by listening to the patient's existential concerns that come from demoralization in a careful and compassionate way. According to Mehnert and Vehling (2011), the most suitable therapies for cases where demoralization is present are: interpersonal psychotherapy, narrative and dignity conserving therapies, meaning-centered therapies, and existential psychotherapy. One may find inspiration for interventions in the following authors, whose work is seminal to meaning retrieval: Victor Frankl (1985), Irvin Yalom (1980), and Rollo May (1980, 2015), among others. Regarding coping strategies, findings from research

inform us that one's sensitivity to context, arsenal of coping strategies (which vary in quantity, diversity, and in temporal variability), and flexibility to external and internal feedback are key factors to successful coping and emotion regulation (Bonanno & Burton, 2013).

Future Directions

Regarding potential topics for research, there is still limited longitudinal and multi-cultural studies that contemplate both resilience factors and post-traumatic growth in the context of chronic conditions. As additional investigative components, the neglected role of demoralization and loss of resources should also be considered for their major influence on the overall individual and community well-being. Statistical analyses should also explore interactions and effects of age, sex, and condition severity and chronicity. For such, samples with homogeneous distribution is a *sine qua non* condition. Finally, it would be worth examining which sources and kinds of social support are more effective on alleviating the suffering of severely ill patients. With the projected results from the aforementioned research suggestions in mind, the elaboration of effective and context-targeted therapeutic interventions would be more feasible and fruitful endeavors, as intricacies pertaining to human condition are brought to light.

References

Ahn, S., Basu, R., Smith, M. L., Jiang, L., Lorig, K., Whitelaw, N., & Ory, M. G. (2013). The impact of chronic disease self-management programs: healthcare savings through a community-based intervention. *BMC Public Health*, *13*(1), 1.

Angelino, A. F., & Treisman, G. J. (2001). Major depression and demoralization in cancer patients: diagnostic and treatment considerations. *Supportive care in cancer*, *9*(5), 344-349.

Antonovsky, A. (1979). *Health, stress, and coping*. San Francisco: Jossey- Bass.

Appley, M. H., & Trumbull, R. A. (Eds.). (2012). *Dynamics of stress: Physiological, psychological and social perspectives*. Springer Science & Business Media.

Aspinwall, L. G., & Taylor, S. G. (1997). A stitch in time: Self-regulation and proactive coping. *Psychological Bulletin*, *121*, 417-436.

August, K. J., & Sorkin, D. H. (2010). Marital status and gender differences in managing a chronic illness: The function of health-related social control. *Social Science & Medicine, 71*(10), 1831-1838.

Baltes, P. B. (1987). Theoretical propositions of life- span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology, 23,* 611–626.

Baltes, P. B., & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. *Successful aging: Perspectives from the behavioral sciences*, *1*(1), 1-34.

Baltes, P. B., Staudinger, U. M., Maercker, A., & Smith, J. (1995). People nominated as wise: a comparative study of wisdom-related knowledge. *Psychology and aging*, *10*(2), 155.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman.

Bella, G. P., Garcia, M. C., & Spadari-Bratfisch, R. C. (2011). Salivary cortisol, stress, and

health in primary caregivers (mothers) of children with cerebral palsy.

Psychoneuroendocrinology, 36(6), 834-842. doi:10.1016/j.psyneuen.2010.11.005

Bolger, N., & Zuckerman, A. (1995). A framework for studying personality in the stress process.

Journal of Personality and Social Psychology, 69, 890–902.

Bolin, R. (1982). *Long-term family recovery from disaster.* Boulder, CO: University of Colorado

Institute of Behavioral Science.

Bonanno, G. A., & Burton, C. L. (2013). Regulatory Flexibility: An Individual Differences

Perspective on Coping and Emotion Regulation. *Perspectives on Psychological Science,*

8(6), 591-612. doi:10.1177/1745691613504116

Boscaglia, N., & M Clarke, D. (2007). Sense of coherence as a protective factor for

demoralization in women with a recent diagnosis of gynaecological cancer. *Psycho-*

Oncology, *16*(3), 189-195.

Brennan, P. L., Holland, J. M., Schutte, K. K., & Moos, R. H. (2012). Coping trajectories in later

life: a 20-year predictive study. *Aging Ment Health, 16*(3), 305-316.

doi:10.1080/13607863.2011.628975

Britton, P. J., Zarski, J. J., & Hobfoll, S. E. (1993). Psychological distress and the role of

significant others in a population of gay/bisexual men in the era of HIV. *AIDS care*, *5*(1),

43-54.

Brown, R. J. (2004). Psychological mechanisms of medically unexplained symptoms: an

integrative conceptual model. *Psychological bulletin*, *130*(5), 793.

Burman, B., & Margolin, G. (1992). Analysis of the association between marital relationships and health problems: An interactional perspective. *Psychological Bulletin, 112*(1), 39-63.

Cacioppo, J. T., & Berntson, G. G. (1994). Relationship between attitudes and evaluative space: A critical review, with emphasis on the separability of positive and negative substrates. *Psychological bulletin*, *115*(3), 401.

Calitz, C., Pollack, K. M., Millard, C., & Yach, D. (2015). National Institutes of Health funding for behavioral interventions to prevent chronic diseases. *American Journal of Preventive Medicine, 48*(4), 462-471. doi:10.1016/j.amepre.2014.10.015

Camelo, L. V., Giatti, L., Chor, D., Griep, R. H., Bensenor, I. M., Santos, I. S., . . . Barreto, S. M. (2015). Associations of life course socioeconomic position and job stress with carotid intima-media thickness. The Brazilian Longitudinal Study of Adult Health (ELSA-Brasil). *Social Science and Medicine, 141*, 91-99. doi:10.1016/j.socscimed.2015.07.032

Cannon, W. B. (1932). *The wisdom of the body* (2nd ed.) New York: Norton.

Carson, A. P., Rose, K. M., Catellier, D. J., Kaufman, J. S., Wyatt, S. B., Diez-Roux, A. V., & Heiss, G. (2007). Cumulative socioeconomic status across the life course and subclinical atherosclerosis. *Annals of Epidemiology, 17*(4), 296-303.

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior.* New York: Cambridge University Press.

Cassileth, B. R., Lusk, E. J., Strouse, T. B., Miller, D. S., Brown, L. L., Cross, P. A., & Tenaglia, A. N. (1984). Psychosocial status in chronic illness: a comparative analysis of six diagnostic groups. *New England Journal of Medicine*, *311*(8), 506-511.

Caplan, G. (1964). *Principles of preventative psychiatry.* New York: Basic Books.

Caplan, G. (1974). *Support systems and community mental health.* New York: Behavioral

    Publications.

Centers for Disease Control and Prevention. (2013). *Chronic diseases and health promotion*.

    Retrieved from:

    http://www.cdc.gov/chronicdisease/resources/publications/aag/nccdphp.htm

Charles, S., & Carstensen, L. L. (2010). Social and emotional aging. *Annual review of*

    psychology, *61*, 383.

Charmaz, K. (1983). Loss of self: a fundamental form of suffering in the chronically ill.

    Sociology of health & illness, *5*(2), 168-195.

Charmaz, K. (2010). Studying the experience of chronic illness through grounded theory. In:

    Scambler, G., & Scambler, S. (2010). *New Directions in the Sociology of Chronic and*

    Disabling Conditions. Assaults on the Lifeworld. Palgrave Macmillan.

Cheek, J. M., & Buss, A. H. (1981). Shyness and sociability. *Journal of personality and social*

psychology, *41*(2), 330.

Christensen, S. S., Frostholm, L., Ornbol, E., & Schroder, A. (2015). Changes in illness

    perceptions mediated the effect of cognitive behavioural therapy in severe functional

    somatic syndromes. *Journal of Psychosomatic Research, 78*(4), 363-370.

Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic medicine*, *38*(5),

    300-314.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis.

    Psychological Bulletin, 98(2), 310-357.

Coyne, J., Wortman, C, & Lehman, D. (1988). The other side of support: Emotional

    overinvolvement and miscarried helping. In B. H. Gottlieb (Ed.), *Social support:*

    Formats, processes, and effects (pp. 305-330). Newbury Park, CA: Sage

de Figueiredo, J. M. (1993). Depression and demoralization: phenomenologic differences and

    research perspectives. *Comprehensive psychiatry*, *34*(5), 308-311.

Demirtepe-Saygili, D., & Bozo, O. (2011). Perceived social support as a moderator of the

    relationship between caregiver well-being indicators and psychological symptoms.

    Journal of Health Psychology, 16(7), 1091-1100. doi:10.1177/1359105311399486

Diener, E., Diener, M., & Diener, C. (1995). Factors predicting the subjective well-being of

    nations. *Journal of Personality and Social Psychology*, *69*(5), 851.

Diener, E., & Fujita, F. (1995). Resources, personal strivings, and subjective well-being: A

    nomothetic and ideographic approach. *Journal of Personality and Social Psychology*, *68*,

    926-935.

Diez-Roux, A. V., Nieto, F. J., Muntaner, C., Tyroler, H. A., Comstock, G. W., Shahr, E., et al.

    (1997). Neighborhood environments and coronary heart disease: A multilevel analysis.

    American Journal of Epidemiology, 146, 48–63.

Dirik, G., & Karanci, A. N. (2010). Psychological distress in rheumatoid arthritis patients: an

    evaluation within the conservation of resources theory. *Psychology and Health*, *25*(5),

    617-632.

Dohrenwend, B. S., & Dohrenwend, B. P. (1981). Socioenvironmental factors, stress, and

    psychopathology. *American Journal of Community Psychology, 9,* 128–159.

Elliott, G. R., & Eisdorfer, C. (1982). *Stress and human health*. New York: Springer.

Engel, G. L. (1967). A psychological setting of somatic disease: the giving up-given up' complex. *Proceedings of the Royal Society of Medicine*, *60*(6), 553.

Fife, B. L., & Wright, E. R. (2000). The dimensionality of stigma: A comparison of its impact on the self of persons with HIV/AIDS and cancer. *Journal of Health and Social Behavior*, 50-67.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21*(3), 219-239.

Frank, J. (1968). The role of hope in psychotherapy. *International journal of psychiatry*, *5*(5), 383-395.

Frankl, V. E. (1985). *Man's search for meaning*. Simon and Schuster.

Freedy, J. R., Saladin, M. E., Kilpatrick, D. G., Resnick, H. S., & Saunders, B. E. (1994). Understanding acute psychological distress following natural disaster. *Journal of Traumatic Stress*, *7*(2), 257-273.

French, J. R., Caplan, R. D., & Van Harrison, R. (1982). *The mechanisms of job stress and strain* (Vol. 7). Chichester [Sussex]; New York: J. Wiley.

Freud, S. (1940). An outline of psycho-analysis. *International Journal of Psychoanalysis, 21*, 27–84.

Gallo, L. C., Matthews, K. A., Kuller, L., Sutton-Tyrrell, K., & Edmundowicz, D. (2001). Educational attainment and coronary and aortic calcification in post-menopausal women. *Psychosomatic Medicine, 63,* 925–935.

Gallo, L. C., & Matthews, K. A. (2003). Understanding the association between socioeconomic status and physical health: do negative emotions play a role?. *Psychological Bulletin*, *129*(1), 10.

Ganz, P. A., Schag, C. C., & Heinrich, R. L. (1985). The psychosocial impact of cancer on the elderly: a comparison with younger patients. *Journal of the American Geriatrics Society*, *33*(6), 429-435.

Gerhart, J. I., Sanchez Varela, V., Burns, J. W., Hobfoll, S. E., & Fung, H. C. (2015). Anger, provider responses, and pain: prospective analysis of stem cell transplant patients. *Health Psychology, 34*(3), 197-206.

Goldman, D. P., Cutler, D., Rowe, J. W., Michaud, P. C., Sullivan, J., Peneva, D., & Olshansky, S. J. (2013). Substantial health and economic returns from delayed aging may warrant a new focus for medical research. *Health affairs*, *32*(10), 1698-1705.

Goodman RA, Posner SF, Huang ES, Parekh AK, Koh HK (2013) Defining and Measuring Chronic Conditions: Imperatives for Research, Policy, Program, and Practice. *Prev Chronic Dis*;10:120239.

Green, B. L. (1995). Long-term consequences of disasters. In: S. E. Hobfoll & M. W. de Vries (Eds), *Extreme stress and communities: impact and intervention* (pp. 307-324). Dordrecht, The Netherlands: Kluwer.

Greenglass, E. R. (1993). Social support and coping of employed women. In B. C. Long & S. E. Kahn (Eds.), *Women, work, and coping: A multidisciplinary approach to workplace stress*. Montreal, Canada: McGill-Queen's University Press.

Hayes, A. F. (2009). Beyond Baron and Kelly: Statistical mediation analysis in the new

millennium. *Communication Monographs*, 76, 408–420.

Hayes, A. F. (2015). An index and test of linear moderated mediation. *Multivariate Behavioral

Research*, *50*(1), 1-22.

Holahan, C. J., Moos, R. H., Holahan, C. K., & Cronkite, R. C. (1999). Resource loss, resource

gain, and depressive symptoms: a 10-year model. *Journal of Personality and Social

Psychology*, *77*(3), 620.

Hobfoll, S. E., & London, P. (1986). The relationship of self-concept and social support to

emotional distress among women during war. *Journal of Social and Clinical Psychology*,

4(2), 189.

Hobfoll, S.E. (1988). *The ecology of stress*. New York: Hemisphere.

Hobfoll, S.E. (1989). Conservation of resources: A new attempt at conceptualizing

stress. *American Psychologist*, 44(3), 513–524.

Hobfoll, S. E., Freedy, J., Lane, C., & Geller, P. (1990). Conservation of social resources: Social

support resource theory. *Journal of Social and Personal Relationships*, *7*(4), 465-478.

Hobfoll, S. E. (1991). Traumatic stress: A theory based on rapid loss of resources. *Anxiety

Research*, *4*(3), 187-197.

Hobfoll, S. E., & Vaux, A. (1993). Social support: Social resources and social context. In L.

Goldberger & S. Breznitz (Eds.), *Handbook of stress* (pp. 685-705). New York: Free

Press.

Hobfoll, S. E., & Lilly, R. S. (1993). Resource conservation as a strategy for community

psychology. *Journal of Community Psychology*, *21*, 128-148.

Hobfoll, S. E., Banerjee, P., & Britton, P. (1994). Stress resistance resources and health: A

conceptual analysis. *International Review of Health Psychology*, *3*, 37-63.

Hobfoll, S. E., Ritter, C., Lavin, J., Hulsizer, M. R., & Cameron, R. P. (1995). Depression

prevalence and incidence among inner-city pregnant and postpartum women. *Journal of

Consulting and Clinical Psychology*, *63*(3), 445.

Hobfoll, S.E. (1998). Ecology, community, and AIDS prevention. *American Journal

of Community Psychology*, 26(1), 133–144.

Hobfoll, S., Freedy, J., Green, B., & Solomon, S. (1996). Coping in reaction to extreme stress:

The roles of resource loss and resource availability. In M. Zeidner & N. Endler (Eds.),

Handbook of coping: Theory, research, applications (pp. 322–349). New York: Wiley.

Hobfoll, S. E. (2001). The Influence of Culture, Community, and the Nested-Self in the Stress

Process: Advancing Conservation of Resources Theory. *Applied Psychology: an

International Review*, *50*(3), 337-421.

Hobfoll, S.E. (2002). Social and psychological resources and adaptation. *Review of

General Psychology*, 6(4), 307–324.

Hobfoll, S. E. (2004). *Stress, culture, and community: The psychology and philosophy of stress*.

Springer Science & Business Media.

Hobfoll, S. E. (2011). Conservation of resources theory: Its implication for stress, health, and

resilience. *The Oxford handbook of stress, health, and coping*, 127-147.

Hobfoll, S. E., Vinokur, A. D., Pierce, P. F., & Lewandowski-Romps, L. (2012). The combined stress of family life, work, and war in Air Force men and women: A test of conservation of resources theory. *International Journal of Stress Management*, *19*(3), 217.

Holahan, C. J., & Moos, R. H. (1991). Life stressors, personal and social resources and depression: A four-year structural model. *Journal of Abnormal Psychology, 100,* 31–38.

Holahan, C. J., Moos, R. H., Holahan, C. K., & Cronkite, R. C. (1999). Resource loss, resource gain, and depressive symptoms: a 10-year model. *Journal of Personality and Social Psychology*, *77*(3), 620.

Holmes, T. H., & Rahe, R. H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research, 11,* 213–218.

Horowitz, M. J. (1986). Stress-response syndromes: A review of posttraumatic and adjustment disorders. *Psychiatric Services*, *37*(3), 241-249.

House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science* (New York, N.Y.), 241(4865), 540-545.

Insel, T. R., & Young, L. J. (2001). The neurobiology of attachment. *Nature Reviews Neuroscience*, *2*(2), 129-136.

Ito, T. A., Larsen, J. T., Smith, N. K., & Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: the negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology*, *75*(4), 887.

Janoff-Bulman, R., & Brickman, P. (1982). Expectations and what people learn from failure. *Expectations and actions: Expectancy-value models in psychology*, 207-237.

Julien, D., & Markman, H. J. (1991). Social support and social networks as determinants of individual and marital outcomes. *Journal of Social and Personal Relationships*, *8*(4), 549-568.

Johnson, J. H., & Sarason, I. G. (1978). Life stress, depression, and anxiety: Internal-external control as a moderator variable. *Journal of Psychosomatic Research*, *22*, 205–208.

Jones, J. M., Huggins, M. A., Rydall, A. C., & Rodin, G. M. (2003). Symptomatic distress, hopelessness, and the desire for hastened death in hospitalized cancer patients. *Journal of Psychosomatic Research*, *55*(5), 411-418.

Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*, *39*(4), 341.

Kaniasty, K. Z., Norms, F. H., & Murrell, S. A. (1990). Received and Perceived Social Support Following Natural Disaster1. *Journal of Applied Social Psychology*, *20*(2), 85-114.

Kaniasty, K., & Norris, F. H. (1993). A test of the social support deterioration model in the context of natural disaster. *Journal of Personality and Social Psychology*, *64*(3), 395.

Kaniasty, K. (2005). Social support and traumatic stress. *PTSD research Quarterly*, *16*(2), 1-3.

Karadavut, K. I., & Uneri, S. O. (2011). Burnout, depression and anxiety levels in mothers of infants with brachial plexus injury and the effects of recovery on mothers' mental health. *European Journal of Obstetrics, Gynecology, and Reproductive Biology, 157*(1), 43-47.

Katz, R. C., Flasher, L., Cacciapaglia, H., & Nelson, S. (2001). The psychosocial impact of cancer and lupus: A cross validation study that extends the generality of "benefit-finding" in patients with chronic disease. *Journal of behavioral medicine*, *24*(6), 561-571.

Kelly, J. G. (1966). Ecological constraints on mental health services. *American Psychologist, 21,* 535– 539.

King, D. W., Taft, C., King, L. A., Hammond, C. and Stone, E. R. (2006), Directionality of the Association Between Social Support and Posttraumatic Stress Disorder: A Longitudinal Investigation. *Journal of Applied Social Psychology,* 36: 2980–2992.

Kirkwood, C. R., Clure, H. R., Brodsky, R., Gould, G. H., Knaak, R., Metcalf, M., & Romeo, S. (1982). The diagnostic content of family practice: 50 most common diagnoses recorded in the WAMI community practices. *Journal of Family Practice, 15,* 485–492.

Kirmayer, L. J., & Taillefer, S. (1997). Somatoform disorders. In S. M. Turner & M. Hersen (Eds.), *Adult psychopathology and diagnosis* (3rd ed., pp. 333–383). New York: Wiley.

Kissane, D. W., Clarke, D. M., & Street, A. F. (2001). Demoralization syndrome--a relevant psychiatric diagnosis for palliative care. *Journal of palliative care*, *17*(1), 12.

Kobasa, S. C. (1979). Stressful life events, personality, and health: an inquiry into hardiness. *Journal of Personality and Social Psychology*, *37*(1), 1.

Komaroff, A. L., Fagioli, L. R., Doolittle, T. H., Gandek, B., Gleit, M. A., Guerriero, R. T., ... & Bates, D. W. (1996). Health status in patients with chronic fatigue syndrome and in general population and disease comparison groups. *The American Journal of Medicine*, *101*(3), 281-290.

Jacobsen, J. C., Vanderwerker, L. C., Block, S. D., Friedlander, R. J., Maciejewski, P. K., & Prigerson, H. G. (2006). Depression and demoralization as distinct syndromes: Preliminary data from a cohort of advanced cancer patients. *Indian Journal of Palliative Care*, *12*(1), 8.

Lane, C., & Hobfoll, S. E. (1992). How loss affects anger and alienates potential supporters. *Journal of Consulting and Clinical Psychology*, *60*(6), 935.

Lawton, J., Peel, E., Parry, O., & Douglas, M. (2008). Shifting accountability: a longitudinal qualitative study of diabetes causation accounts. *Social science & medicine*, *67*(1), 47-56.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Lehman, D. R., Wortman, C. B., & Williams, A. F. (1987). Long-term effects of losing a spouse or child in a motor vehicle crash. *Journal of Personality and Social Psychology*, *52*, 218–231.

Lemelin, E. T., Roux, A. V. D., Franklin, T. G., Carnethon, M., Lutsey, P. L., Ni, H., ... & Shrager, S. (2009). Life-course socioeconomic positions and subclinical atherosclerosis in the multi-ethnic study of atherosclerosis. *Social science & medicine*, *68*(3), 444-451.

Lepore, S. J., Evans, G. W., & Schneider, M. L. (1991). Dynamic role of social support in the link between chronic stress and psychological distress. *Journal of Personality and Social Psychology, 61,* 899 –909.

Lindemann, E. (1944). Symptomatology and management of acute grief. *American Journal of Psychiatry*, *101*(2), 141-148.

McAdams, D. (2010) Personal narratives and the life history. In: John, O. P., Robins, R. W., & Pervin, L. A. (Eds.). *Handbook of Personality: Theory and Research*. Guilford Press.

McEwen, B. S. (1998). Stress, adaptation, and disease: Allostasis and allostatic load. *Annals of the New York Academy of Sciences*, *840*(1), 33-44.

McGrath, J. E. (1970). A conceptual formulation for research on stress. In: *Social and psychological factors in stress* (p. 10-21). New York: Holt, Rinehart & Winston.

MacKinnon, David P.; Lockwood, Chondra M.; Williams, Jason (2004). Confidence limits for the indirect effect: distribution of the product and resampling methods. *Multivariate Behavioral Research*; 39:99–128.

May, R. (1980). Value conflicts and anxiety. In I. L. Kutash & L. B. Sehlesinger (Eds.), *Handbook on stress and anxiety* (pp. 241-248). San Francisco: Jossey-Bass.

May, R. (2015). *The discovery of being*. WW Norton & Company.

Nuckolls, K. G., Cassel, J., & Kaplan, B. H. (1972). Psychosocial assets, life crisis, and the prognosis of pregnancy. *American Journal of Epidemiology, 95,* 431–441.

Mohr, D., Dick, L., Russon, D., Pinn, J., Boudewyn, A., Likosky, W., & Goodkin, D. (1999). The psychosocial impact of multiple sclerosis: Exploring the patient's perspective. *Health Psychology*, 18, 376-382.

Mor, V., Allen, S., & Malin, M. (1994). The psychosocial impact of cancer on older versus younger patients and their families. *Cancer*, *74*(7 Suppl), 2118.

Moses, H., Matheson, D. H., Dorsey, E. R., George, B. P., Sadoff, D., & Yoshimura, S. (2013). The anatomy of health care in the United States. *Jama*, *310*(18), 1947-1964.

Nikolich-Žugich, J., Goldman, D. P., Cohen, P. R., Cortese, D., Fontana, L., Kennedy, B. K., ... & Richardson, A. (2015). Preparing for an aging world: Engaging biogerontologists, geriatricians, and the society. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, glv164.

Norris, F. H., & Kaniasty, K. (1996). Received and perceived social support in times of stress: a test of the social support deterioration deterrence model. *Journal of Personality and Social Psychology*, *71*(3), 498.

Pearlin, L., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19,* 2–21.

Peeters, G., & Czapinski, J. (1990). Positive-negative asymmetry in evaluations: The distinction between affective and informational negativity effects. *European Review of Social Psychology*, *1*(1), 33-60.

Prati, G., & Pietrantoni, L. (2010). The relation of perceived and received social support to mental health among first responders: a meta-analytic review. *Journal of Community Psychology*, *38*(3), 403-417.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments & Computers*, 36, 717–731.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891.

Rief, W., & Hiller, W. (2003). A new approach to the assessment of the treatment effects of somatoform disorders. *Psychosomatics*, 44(6), 492-498.

Rokeach, M. (1973). *The nature of human values*. New York: Free Press.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in experimental social psychology*, *25*(1), 1-65.

Schwartz, S. H. (1994). Are There Universal Aspects in the Structure and Contents of Human Values? *Journal of social issues*, *50*(4), 19-45.

Sarason, I. G. (1972). Experimental approaches to test anxiety: Attention and the uses of

    information. *Anxiety: Current trends in theory and research*, *2*, 383-403.

Sarason, S. B. (1974). *The psychological sense of community: Prospects for a community*

    psychology. San Francisco: Jossey-Bass.

Sarason, I. G. (1975). Test anxiety, attention, and the general problem of anxiety. *Stress and*

    Anxiety, *1*, 165-187.

Scheier, M. F., & Carver, C. S. (1992). Effects of optimism on psychological and physical well-

    being: Theoretical overview and empirical update. *Cognitive Therapy and Research*,

    16(2), 201-228.

Seligman, M. E. (1975). *Helplessness.* San Francisco: Freeman.

Selye, H. (1950). *The physiology and pathology of exposure to stress*. Montreal: Acta.

Schönpflug, W. (1985). Goal-directed behavior as a source of stress: Psychological origins and

    consequences of inefficiency. In M. Frese & J. Sabini (Eds.), *The concept of action in*

    psychology (pp. 172–188). Hillsdale, NJ: Erlbaum.

Schumm, J. A., Doane, L. S., & Hobfoll, S. E. (2012). Conservation of resources theory. The

    central role of resource loss and gain in understanding retraumatization.

    Retraumatization. Assessment, treatment, and prevention, 111-128.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation

    models. *Sociological Methodology*, 13, 290–312.

Spielberger, C. D. (Ed.). (2013). *Anxiety and behavior*. Academic Press.

Staudinger, U. M., Marsiske, M., & Baltes, P. B. (1993). Resilience and levels of reserve capacity in later adulthood: Perspectives from life-span theory. *Development and Psychopathology, 5*(04), 541-566.

Tak, L. M., & Rosmalen, J. G. (2010). Dysfunction of stress responsive systems as a risk factor for functional somatic syndromes. *Journal of Psychosomatic Research*, *68*(5), 461-468.

Tan, S., Tillisch, K., & Mayer, E. (2004). Functional somatic syndromes: emerging biomedical models and traditional Chinese medicine. *Evidence-Based Complementary and Alternative Medicine*, *1*(1), 35-40.

Tran, V. T., Barnes, C., Montori, V. M., Falissard, B., & Ravaud, P. (2015). Taxonomy of the burden of treatment: a multi-country web-based qualitative study of patients with chronic conditions. *BMC medicine*, *13*(1), 1.

Taylor, S. E. (1991). Asymmetrical effects of positive and negative events: the mobilization-minimization hypothesis. *Psychological Bulletin*, *110*(1), 67.

Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A. R., & Updegraff, J. A. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review,* 107, 411-429

Thoits, P. A. (1986). Social support as coping assistance. *Journal of Consulting and Clinical Psychology, 54*(4), 416-423.

Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, *5*(4), 297-323.

Uchino, B. N., Cacioppo, J. T., & Kiecolt-Glaser, J. K. (1996). The relationship between social support and physiological processes: a review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin*, *119*(3), 488.

Uchino, B. N. (2009). Understanding the links between social support and physical health: A life-span perspective with emphasis on the separability of perceived and received support. *Perspectives on Psychological Science, 4*(3), 236-255.

Vaillant, G. E. (1977). *Adaptation to life.* Harvard University Press.

Vehling, S., & Mehnert, A. (2013). Symptom burden, loss of dignity, and demoralization in patients with cancer: a mediation model. *Psycho-Oncology*, *23*(3), 283-290.

Ward, B. W., Schiller, J. S., & Goodman, R. A. (2014). Peer Reviewed: Multiple Chronic Conditions Among US Adults: A 2012 Update. *Preventing chronic disease*, *11*.

Walitt, B., Nahin, R. L., Katz, R. S., Bergman, M. J., & Wolfe, F. (2015). The Prevalence and Characteristics of Fibromyalgia in the 2012 National Health Interview Survey. *PloS One*, *10*(9), e0138024.

Weissbecker, I., Salmon, P., Studts, J. L., Floyd, A. R., Dedert, E. A., & Sephton, S. E. (2002). Mindfulness-based stress reduction and sense of coherence among women with fibromyalgia. *Journal of Clinical Psychology in Medical Settings*, *9*(4), 297-307.

Wells, J. D., Hobfoll, S. E., & Lavin, J. (1999). When it rains, it pours: The greater impact of resource loss compared to gain on psychological distress. *Personality and Social Psychology Bulletin*, *25*(9), 1172-1182.

Westermann, R., Stahl, G., & Hesse, F. (1996). Relative effectiveness and validity of mood induction procedures: analysis. *European Journal of Social Psychology*, *26*, 557-580.

Wheaton, B. (1997). The nature of chronic stress. In *Coping with chronic stress. The Plenum Series on stress and coping* (p. 43-73). New York: Plenum Press.

Worden, W. J., & Sobel, H. J. (1978). Ego strength and psychosocial adaptation to cancer. *Psychosomatic Medicine, 40*(8), 585-592.

World Health Organization. (1946). Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference. [Official Records of the World Health Organization, no. 2, p. 100].

World Health Organization (2016). International Statistical Classification of Diseases and Related Health Problems(ICD-10). Geneva: WHO, Vol. 1: Tabular List, 1243 pages. Retrieved from http://www.who.int/classifications/icd/en/

Zeidner, M., Ben-Zur, H., & Reshef-Weil, S. (2011). Vicarious life threat: An experimental test of Conservation of Resources (COR) theory. *Personality and Individual Differences, 50*(5), 641-645.

Appendix A: Symptom Severity

During the past 4 weeks, how much have you been bothered by any of the following problem?

    0 = Not bothered at all

    1 = Bothered a little

    2 = Bothered a lot

1. Sore Eyes

2. Hallucinations

3. Double vision or problems with vision

4. Deafness or problems with hearing

5. Ear pain

6. Tinnitus (ringing in one or both ears)

7. Nosebleeds

8. Noise sensitivity

9. Sensitivity to odors

10. Neck pain

11. Sore Throat

12. Swollen or tender glands

13. Frequent thirst

14. Regurgitating or vomiting (excluding pregnancy)

15. Food intolerance

16. Loss of appetite

17. Bad taste in mouth or excessively coated tongue

18. Dry mouth

19 Difficulty swallowing or lump in the throat

20. Aphonia (loss of voice)

21. Blotchiness or discoloration of the skin

22. Itching

23. Rashes

24. Fever

25. Sweating or flushing

26. Night sweats

27. Feeling cold often or cold extremities

28. Unpleasant numbness or tingling sensations

29. Loss of touch or pain sensations

30. Headaches

31. Dizziness

32. Fainting spells

33. Chest pain

34. Feeling your heart pound or race

35. Shortness of breath

36. Wheeziness

37. Painful breathing or hyperventilation

38. Abdominal pain

39. Discomfort in and around the precordium

40. Muscle pain

41. Back pain

42. Pain in your arms, legs, or joints (knees, hips, etc.)

43. Stomach pain

44. Nausea, gas or indigestion

45. Constipation, loose bowels, or diarrhea

46. Bloating

47. Anal pain

48. Frequent urination or pain during urination

49. Erectile or ejaculatory dysfunction (men only)

50. Pain or problems during sexual intercourse

51. Menstrual cramps or other problems with your periods (women only)

52. Feeling tired or having low energy

53. Loss of Strength

54. Trouble sleeping

55. Unrefreshing or nonrestorative sleep

56. Memory disturbance

57. Concentration problems

58. Mental Fatigue

59. Amnesia (loss of memory)

60. Loss of consciousness

61. Impaired coordination or balance

62. Paralysis or localized weakness

63. Seizures

Appendix B: Loss of Resources List

Have you experienced loss as a result of your illness? Please check all losses that apply.

1. No loss

2. Lost job or employment

3. Lowered status

4. Failures in meeting responsibilities

5. Reduced participation in activities

6. Fewer pleasures

7. Poorer appearance

8. Losing friends

9. Lost financial security

10. Failed marriage or committed relationship

11. Lowered confidence

12. Reduced pride

13. Lowered self-respect

14. Lowered hope

15. Reduced self-esteem

16. Poorer sense of self and identity

17. Lowered intimacy

18. Reduced traveling or going on holiday

19. Lack of participation in activities I enjoy

Appendix C: Multidimensional Scale of Perceived Social Support Items

Rated: 7-point *Likert*-scale (1 = *very strongly disagree* to 7 = *very strongly agree*)

1. There is a special person who is around when I am in need.

2. There is a special person with whom I can share joys and sorrows.

3. My family really tries to help me.

4. I get the emotional help and support I need from my family.

5. I have a special person who is a real source of comfort to me.

6. My friends really try to help me.

7. I can count on my friends when things go wrong.

8. I can talk about my problems with my family.

9. I have friends with whom I can share my joys and sorrows.

10. There is a special person in my life who cares about my feelings.

11. My family is willing to help me make decisions.

12. I can talk about my problems with my friends.

Appendix D: Demoralization

1. My health condition has made me more dependent on others.

2. My health condition has made me more cynical.

3. I've become much more defensive since I've had my health condition.

4. I worry that I bring people down because of my health condition.

5. I feel like my family is just waiting for me to die or go away.

6. I am more embarrassed about my being seen by friends because of my health condition.

7. Since having my health condition I think less of myself.

8. I am less happy since I have had my health condition.

9. I feel worthless since having my health condition.

10. My health condition has made me learn to rely more on people.

11. I've lost my confidence in being a man/woman.

12. I am more anxious since having my health condition.

13. I have become more depressed since having my health condition.

14. My health condition has made me much more irritable with others.

15. I worry I am not a good friend because of my health condition.

16. I worry I have become a burden on others.

17. I am embarrassed to be seen in public because of my health condition.

18. Since having my health condition I have become moodier.

19. My health condition has made relationships with friends more distant.

20. I feel nobody cares about me since I've had my health condition.

21. I feel more useless since having my health condition.

22. My health condition has made me more uncertain about the future.

Vita

Maria Ines Torri Dischinger is a Brazilian licensed psychologist. She holds a master's degree in psychology by the University of North Florida (UNF), a specialist's degree in family and marriage psychotherapy by the Pontifical Catholic University of Minas Gerais (PUC-MG), as well as a bachelor's degree in psychology by the Pontifical Catholic University of Rio Grande do Sul (PUC-RS). Her professional experiences, prior to becoming a graduate student in the United States, included working in 2010 as a clinical psychologist at Bairro das Indústrias Public Health Center in Belo Horizonte. She also worked during the same year as a research assistant for a statewide research project, jointly funded by the Urban Health Observatory of Belo Horizonte and by the Rio Grande do Sul Federal University, on the effectiveness of the anti-tobacco program offered by the Health Department. Between 2009 and 2010, she was appointed Forensic Psychologist Expert by the Federal Justice Department of Rio Grande do Sul, and worked as a clinical psychologist consultant at Psicobreve Clinic, both in the city of Porto Alegre. She has nearly 3,000 hours of supervised internship experience that includes clinical work at PUC-MG's Mental Health Clinic, and in Porto Alegre at Mario Martins Foundation, at PUC-RS Saint Luke's Hospital, at Maria Tereza da Silveira Public School, as well as at the Mood Disorder's Ward of Santa Casa de Misericordia Hospital. At the same hospital, she was also an intern with the Selection, Recruitment and Training Department. The implications of chronic and terminal conditions have always figured within her primary research interests. While at PUC-MG, her research focused on the impact of cancer diagnosis in a couple's familial subsystem. At UNF, she

researched the psychosocial impact of chronic conditions, with a unique emphasis on

resource losses and demoralization.