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Health-Related Quality of Life in the Working Uninsured: Conditional Indirect Effects Of Perceived Stigma via Vitality and Interpersonal Needs

Preston Lee Visser
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Health-Related Quality of Life in the Working Uninsured: Conditional Indirect Effects
Of Perceived Stigma via Vitality and Interpersonal Needs

A dissertation
presented to
the faculty of the Department of Psychology
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Doctor of Philosophy in Psychology

by
Preston Lee Visser
August 2012

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Working Uninsured, Belongingness
ABSTRACT

Health-Related Quality of Life in the Working Uninsured: Conditional Indirect Effects Of Perceived Stigma via Vitality and Interpersonal Needs

by

Preston L. Visser

Stigmatization involves the application of labels to individuals in social contexts, leading to impaired access to social, economic, and political power. Although actual stigmatizing beliefs that society holds about particular groups are important, the extent to which individuals themselves perceive stigma from others and internalize stigmatizing beliefs is being increasingly recognized as a cause of psychological and physical distress. Little research has been done on explanatory mechanisms of the relations between perceived stigma and health outcomes, particularly in the area of stigma related to finances. Two important dimensions of overall health include depressive symptoms and health-related quality of life. According to Self-Determination Theory feeling controlled by external forces decreases subjective vitality, a measure of energy that is available to self for engaging in life pursuits. Changes in subjective vitality may, in turn, affect health outcomes. Interpersonal variables including how connected one feels with others and whether or not one feels like a burden may affect the manner in which stigma relates to subjective vitality and health. In the current study a sample of 100 individuals receiving medical treatment from a primary clinic that targets the working uninsured population in a region of Appalachia completed questionnaires assessing for perceived stigma of finances, depressive symptoms, health-related quality of life, subjective vitality, thwarted belongingness, and perceived burdensomeness. Results confirmed that experienced and internalized perceived
stigma were moderately associated with poorer health outcomes and lower subjective vitality. Thwarted belongingness and perceived burdensomeness were, likewise, associated with worse health outcomes. In mediation analyses subjective vitality significantly explained the relations between each dimension of stigma and each outcome. Subsequent conditional indirect effect analyses found that thwarted belongingness moderated the mediation effect for some of the models by impacting the relation between stigma and subjective vitality or by moderating the relation between subjective vitality and the dependent variable. The findings suggest the importance of subjective vitality and feelings of belongingness in understanding how perceived stigma negatively affects health. Results and implications are discussed along with considerations for future research and interventions.
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This dissertation’s emphasis on interpersonal relationships continually reminded me of my greatest blessing, my family. Thank you Mom for teaching me to be a listener and showing me how to love people, perhaps the two most important attributes for being a therapist. Thank you Dad for teaching me to love learning and giving me the confidence to embrace challenge. I thank my brothers and sisters for keeping me connected throughout graduate school to the joys of life including creativeness, adventure, and laughter. I thank Aunt Ester and Uncle Daryl for their remarkable encouragement and generosity. Mr. and Mrs. Vincent, your joy was one of the best rewards of achievement. I am humbled by how my grandparents made my success their priority and how my grandmother modeled courage and selflessness until she finished her race. Lastly, to Krystal, my wife and best friend, thank you for joining me on this journey and for your cheerful sacrifice in shouldering the heavier burden. Pensively, I type the end of this chapter of our lives, yet I prayerfully look ahead to growing together in faith, hope, and love.
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CHAPTER 1
INTRODUCTION

According to the U.S. Census Bureau (2010), approximately 50 million Americans, or over 16% of the population, are living without any health insurance. Between 2008 and 2010 the number of people in the United States working yet lacking medical insurance coverage rose from 18.4% to 19.8% due to diminishing availability of full-time employment (U.S. Census Bureau, 2011). In addition to poor access to insurance, workers in rural areas already face disadvantages in accessing healthcare, including transportation difficulties, and undersupply of physicians, particularly specialists (Lu, Samuels, Kletke, & Whitler, 2010). Such disparities increase risk for physical and mental health problems including more symptoms of depression (Lesser et al., 2005; Weeks et al., 2004) and worse health-related quality of life (HRQL) (Bharmal & Thomas, 2005).

Communities throughout the United States have been responding to the healthcare challenges of the working uninsured by offering reduced-cost or free primary care services through volunteer-supported clinics (Blewett, Ziegenfuss, & Davern, 2008; Gertz, Frank, & Blixen, 2011). Although such efforts are recognized by researchers and policymakers as critical to helping address the current healthcare crisis, uninsured workers enrolled in these clinics continue to face financial and access barriers to receiving appropriate treatment and specialty services (Bharmal & Thomas, 2005; Blewett et al., 2008). Additionally, people receiving reduced-cost medical services may experience stigma from others and feelings of stigma about themselves resulting from their financial situation, which can negatively affect health (Stuber & Schlesinger, 2006). As policymakers and communities attempt to address issues related to healthcare access in the United States, research is needed to understand psychosocial factors that
may worsen or improve health, especially among vulnerable populations (Mazanec, Daly, Douglas, & Lipson, 2010). Although there are many ways to assess health, including traditional methods such as mortality rates and disease prevalence, the Department of Health and Human Services (DHHS) has been increasingly emphasizing the importance of HRQL and depression as markers of health (DHHS, 2009). In the current study I used data collected from a largely rural, working, uninsured sample receiving reduced-cost primary care services to investigate how perceptions of financial stigma might interact with markers of intrapersonal and interpersonal psychological and social functioning to influence HRQL and depression.

Health-Related Quality of Life

Despite the World Health Organization’s (WHO) decree that health incorporates well-being and not “…merely the absence of disease or infirmity” (WHO, 1948, p. 100), health has often been defined in narrow, physical terms and in a negative way (Center for Disease Control and Prevention [CDC], 2000). In response to this imbalanced focus on disease and quantity of life as measures of effectiveness in health care, over the past 4 decades researchers and practitioners have been emphasizing the centrality of helping individuals achieve optimal functioning and well-being (Taillefer, Dupuis, Roberge, & LeMay, 2003; Ware & Sherbourne, 1992). In this patient-centered approach the individual is usually the best judge of his or her own experiences (Ware & Sherbourne, 1992). Health-related quality of life (HRQL) includes areas of subjective assessment in which patients provide feedback regarding their functioning and well-being as related to their health. In both clinical and research applications increasing attention is being given to HRQL as a way to assess health. Indeed, for the first time since the Department of Health and Human Services (DHHS) Healthy People initiative began in 1979, the current
Healthy People 2020 places special emphasis on understanding and improving HRQL, particularly among people suffering from disparities in access to health care (DHHS, 2009).

HRQL is a multidimensional concept that includes facets of quality of life that are demonstrably related to physical, mental, and social health (Hays & Morales, 2001; McHorney, 1999). In general HRQL incorporates two broad but interrelated components: functioning and well-being. The functioning component is the more objective of the two because observational or performance measures could be used to validate reports, and it consists of estimates of how much one’s physical and emotional health impair one’s ability to perform basic self-care, work-related behavior, and social activities (Hays & Morales, 2001; Testa & Simonson, 1996). The well-being component of HRQL depends on individuals’ own subjective assessment of their mood, level of energy, and severity of pain. Given the expansive and complex nature of HRQL, researchers have had difficulty agreeing upon acceptable instruments, leading to a proliferation of questionnaires (CDC, 2000).

An important distinction in available HRQL questionnaires is based upon their intended participants; instruments designed to assess HRQL are either worded to target specific areas of function and well-being related to a particular disease such as cancer (Allison, Guichard, & Gilain, 2000; Gotay, Blaine, Haynes, Holup, & Pagano, 2002) or they are constructed generically to be used with most populations. Disease-specific measures are most appropriate for clinical trials evaluating effectiveness of particular treatments, whereas generic measures are useful for comparing HRQL among people of various disease states (Testa & Simonson, 1996).

In an effort to create a comprehensive, generic assessment of HRQL, Ware and Sherbourne (1992) identified eight aspects of quality of life that were empirically related to health: 1) physical functioning, 2 & 3) physical and emotional problems that interfere with role
obligations at home and work, 4) bodily pain, 5) social functioning, 6) mental health, 7) vitality, and 8) general health perception. Other dimensions of HRQL such as positive social support, coping, existential well-being, health risk behaviors, socioeconomic status, sexuality and interpersonal intimacy have been researched (CDC, 2000, Gotay et al., 2002), but with over 5,000 clinical and research applications documented in the literature, the eight-dimension scale proposed by Ware and Sherbourne has become the most studied and perhaps well-validated measure of HRQL (Kaholokula, 2003, Ware, 2004). To facilitate usefulness and interpretability of their scale, Ware and colleagues developed and found empirical support for a two-factor solution representing summary scores for physical and mental health (Ware, Kosinski, & Dewey, 2000).

One important feature of measures designed to assess HRQL is that they provide respondents an opportunity to give general feedback about their health. This opportunity for general feedback is needed due to two problems in making comparisons of health among individuals: 1) there are nearly endless factors that could be considered a part of someone’s health profile (e.g., blood pressure, body-mass index, genetic markers, disease states, etc.), and 2) individuals with concordant physical health profiles may not experience the same subjective feelings of health (Davies & Ware, 1981). Assessing individuals’ self-reported general health perceptions addresses these issues by enabling participants to rate their own health, conveying 1) objective information that may not be captured with health component scales and 2) feelings about their own health condition. There is still significant uncertainty regarding how people assign general self-reported assessments of health. For instance, general health perceptions can be unduly influenced by mood state and idiosyncratic characteristics, and individuals differ in the extent to which they consider present-state health, past health, or predictions of future health.
when making general assessments (Schnittker, 2005). Additionally, people may base their assessments on how they believe that their health compares with the health of others close to them; therefore, Krause and Jay (1994) argue that general health assessments should not be used to replace other markers of health. Despite these concerns, general health perceptions offer a unique and critical contribution to the overall construct of HRQL (Gold, Franks, & Erickson, 1996).

Accordingly, HRQL is often used in research as an important and distinct marker for population health, and it has been found to contribute additional variance to morbidity and mortality predictions beyond objective health measures (CDC, 2000; Idler & Benyamini, 1997). Self-reported general health in particular has received strong support for being predictive of mortality. For instance, in a review of 27 studies Idler and Benyamini (1997) found that self-reported general health was a significant predictor of mortality even while accounting for diabetes, body-mass index, cardiovascular disease, health behaviors, socioeconomic status, and several other variables related to mortality. Recent evidence has also supported the other dimensions of HRQL as predictive of mortality. For example, in a longitudinal study of over 12,000 Canadian adults HRQL predicted unique variance in mortality estimates, even after accounting for the effects of self-reported general health and objective health measures (Kaplan et al., 2007).

Some demographic characteristics do relate systematically to HRQL. Older age and lower income, for instance, are associated with lower HRQL, and women tend to report lower HRQL than men, but not all studies agree (Cherepanov, Palta, Fryback, & Robert, 2010, Shi, Starfield, Politzer, & Regan, 2002). People without medical insurance report lower levels of HRQL, and losing health insurance appears to negatively impact HRQL (Bharmal & Thomas,
Lacking insurance may also have a direct negative psychological effect on HRQL due to distress of unknown future financial and medical risks (Long, 2008), which may increase the likelihood of developing clinical levels of psychological disorders like depression.

**Depression**

For research and clinical purposes depression is conceptualized as a biobehavioral syndrome that can include problems with affect and mood and disturbances in neurovegetative, cognitive, and psychomotor functioning (Fava & Kendler, 2000). Although depression is strongly associated with lower HRQL, particularly the subjective well-being reports of HRQL (Ruo et al., 2003), it is distinct in its focus on the presence of specific symptoms associated with clinical depressive disorders such as major depressive disorder (MDD) (American Psychiatric Association [APA], 2000). These symptoms include feelings of being down or depressed, loss of energy, agitation, diminished pleasure in previously enjoyable activities, pervasive empty or sad mood, loss of appetite, insomnia, fatigue, inability to concentrate, feelings of worthlessness, and preoccupation with death. Depressive disorders are considered to be the fourth-leading cause of disease burden in the world and the number one cause of nonfatal burden (Üstün, Ayuso-Mateos, Chatterji, Mathers, & Murray, 2004). Not all individuals experiencing elevated depressive symptomatology meet diagnostic criteria for clinical disorders such as MDD. Nonetheless, researchers have found that the causes and consequences of elevated depressive symptoms are similar to those of MDD, and that quantity and severity of depressive symptoms is an important outcome variable for understanding and treating depression (Gotlib, Lewinsohn, & Seeley, 1995; Ozminkowski et al., 2011; Vredenburg, Flett, & Krames, 1993).

Multiple assessments of depressive symptomatology have been created, and the most common methods involve self-reported severity ratings of particular symptoms of depression
over a period of 1 to 4 weeks (Rogers, Adler, Bungay, & Wilson, 2005). Scales can be used to screen for depression and aid in potential diagnosis of depressive disorders, but they are often used in clinical practice and research to estimate the overall severity of depression that a person is experiencing (Rogers et al., 2005). For instance, Radloff (1977) created the Center for Epidemiological Studies – Depression scale (CESD), a generic survey of 20 symptoms commonly experienced during depression, that asks respondents to rate the extent to which they experienced each symptom over the past 1 week. The CESD, which has been used widely as a clinical and research tool, tends to focus more on cognitive and affective symptoms than on somatic problems, which can make it a fitting assessment of symptoms considered more “uniquely” depressive than physical in nature, particularly in samples with medical problems (Hann, Winter, & Jacobsen, 1999).

Depression is a common outcome variable in clinical and epidemiological studies. Research has found several demographic characteristics associated with depression, including age, sex, income, insurance status, and geographic location. Older age and being female are consistently associated with higher levels of depressive symptoms (Beekman et al., 1995; Hankin & Abramson, 2001; Schraedley, Gotlib, & Hayward, 1999). In numerous samples lower income has been associated with greater number of depressive symptoms (Zimmerman & Katon, 2005). Individuals who lack insurance are more likely to experience depression, and their episodes of depression tend to be more severe than for people with insurance (Lesser et al., 2005). There also appears to be a somewhat greater prevalence of depression for people who live in rural areas (Probst et al., 2006). Thus, much like HRQL, depression is a key outcome for determining the health of a population, and more research is needed to understand factors that increase or diminish risk.
Perceived Stigma of Financial Situation

The term *stigma* in original Greek referred to visible signs such as intentional cuts or burns on a person’s body that indicated something negative about a person’s moral status including being a traitor, criminal, or slave (Goffman, 1963). Goffman expanded the concept of stigma to include visible and invisible attributes, behaviors, or reputations that cause a person to be devalued by others in certain social contexts. Link and Phelan (2001) emphasize the importance of context in understanding stigma, noting that perceptions of stigma are contingent upon the expectations or stereotypes others have, and the ability to stigmatize depends on “…access to social, economic, and political power that allows the identification of differentness, the construction of stereotypes, the separations of labeled persons into distinct categories, and the full execution of disapproval, rejection, exclusion, and discrimination” (p. 367). Being the recipient of such treatment can create social barriers, psychological distress, and the development of a negative sense of identity. Being stigmatized creates a discrepancy between the identity others perceive a person to have (i.e., virtual identity) and the identity a person possesses (i.e., actual identity) (Goffman, 1963; Reutter et al., 2009). Decades of research have documented the negative social and psychological effects of stigma and how numerous attributes such as gender, ethnicity, sexuality, mental health, and disease states can be the basis for stigmatization to occur (Frost, 2011; Mulvaney et al., 2011; Roeloffs et al., 2003). Most stigma research has been conclusive about the negative effects of stigma, but to inform clinical interventions more research about potential pathways and protective or risk characteristics in the stigmatization process is needed (Mickelson & Williams, 2008).

Poverty is a common cause of stigma in the US, but despite calls for more research it has been generally neglected in the psychological literature (Williams, 2009). “Outsiders,” or those
not experiencing poverty, often view impoverished individuals as having characterological flaws (Reutter et al., 2009; Williams, 2009). For instance, perceptions of economic mobility in the US—that social class can be improved with intentional effort—can lead to ascribing negative traits such as laziness, moral deficiency, and apathy to individuals who appear to “choose” to remain impoverished (Stuber & Schlesinger, 2006; Williams, 2009). From a sociological perspective understanding how outsiders view impoverished individuals can be important to explain social barriers related to poverty, yet psychological theory regarding the impact of poverty-related stigma must also emphasize how potentially stigmatized individuals themselves experience the stigma related to their situation (Mickelson & Williams, 2008; Williams, 2009).

Social expectations and, therefore, social stigma may change over time, but being associated with a traditionally stigmatized group or characteristic can lead to ongoing perceptions of self-stigma regardless of society’s current beliefs. Perceptions of self-stigma can negatively impact individuals’ behavior and health regardless of whether or not a person is actually treated by others as being stigmatized. For instance, perceiving self-stigma associated with receiving public assistance can undermine well-being and even lead to rejection of needed medical care (Stuber & Schlesinger, 2006). Mickelson and Williams (2008) highlighted two aspects of perceived stigma of financial status that may impact health outcomes. One, *internalized* stigma, refers to the negative views of self-identity that individuals adopt regarding themselves based on their impoverished status. Two, *experienced* stigma, refers to perceptions that individuals have been or may be treated negatively based on their poverty. A number of processes may alter the manner in which these dimensions of stigma relate to depressive symptoms and HRQL. In the following sections I discuss three potential intervening variables that may do so: subjective vitality, thwarted belongingness, and perceived burdensomeness.
Subjective Vitality

Subjective vitality refers to a “…conscious experience of possessing energy and aliveness” and reflects the level of energy available to and emanating from one’s self for life pursuits (Ryan & Frederick, 1997, p. 530; Ryan, Huta, & Deci, 2008). Subjective vitality is an important indicator of physical and psychological health in that it appears to capture unique variance associated with distinct approaches to understanding organismic and psychological well-being. Specifically, subjective vitality reflects hedonia, which includes the experience of comfort, pleasure, and happiness, as well as eudaimonia, which emphasizes meaning and enhanced functioning within the context of one’s values (Huta & Ryan, 2010; Ryan & Deci, 2001; Ryan, Huta, & Deci, 2008). Stated differently, hedonic well-being indicates the experience of physical and psychological gratification and the absence of pain, but the origin of these experiences is not a central consideration, whereas eudaimonic well-being stems from belief that one is living life well and maximizing potential in realization of his or her true nature, or daimon in Aristotelian terminology (Ryan & Deci, 2001). Living life well and experiencing eudaimonia may result in experiences of hedonic pleasure, but most eudaimonia research focuses on other outcomes such as feeling meaning, purpose, connectedness with others, and vitality about life (Ryan & Frederick, 1997).

Levels of subjective vitality can be influenced by physical variables such as pleasurable sensation, arousal, and comfort and by psychosocial variables including the extent to which individuals perceive themselves to possess sufficient autonomy, competence, and relatedness in their social environments (Huta & Ryan, 2010; Ryan & Frederick, 1997; Vlachopoulos & Karavini, 2009). Ryan and Frederick (1997) place special importance on perceiving an internal locus of causality for one’s behavior in order to experience subjective vitality. Individuals who
feel as if others are controlling their behavior report lower subjective vitality than those who feel supported in their autonomy (Vlachpoulos & Karavini, 2009). Ryan and Frederick (1997) also argue that humans have an innate need for interpersonal connectedness with others and that subjective vitality is contingent upon this need being met. Researchers have consistently found that having healthy and supportive relationships with others is strongly predictive of various measures of well-being including subjective vitality (Ryan & Deci, 2001; Ryan & Frederick, 1997; Vlachopoulos & Karavini, 2009).

Although subjective vitality refers to a positive energy state, it is distinct from negative states associated with somatic and psychological problems such as depression (Ryan & Frederick, 1997). In other words, the lack of depression does not necessarily signal the presence of subjective vitality, and vice versa (Ryan & Frederick, 1997). The factors that can lead to depression are numerous, but risk for experiencing depressive symptoms is significantly increased when a person fails to have positive physical and psychological experiences (Kashdan, 2004). Therefore, decreases in subjective vitality are likely to relate to increased depressive symptoms (Ryan et al., 2008). Although we were unable to find any studies that examined the prospective changes of subjective vitality on depression, research has found that depression and subjective vitality relate strongly and negatively at the bivariate level in college students and community samples (Kasser & Ryan, 1999; Ryan & Frederick, 1997; Zeldman, 2007). Feelings of vitality are considered an important indicator of HRQL as they have been associated with general mental and physical HRQL scores in a variety of general and clinical samples (CDC, 2000; McIntosh, 2008; Spiegel et al., 2007; Ware, 2004).

Although to my knowledge no research has examined the link between stigma and vitality directly, several studies support the hypothesis that external factors that undermine a
person’s ability to act autonomously also impact subjective vitality (Kasser & Ryan, 1999; Nix, Ryan, Manly, & Deci, 1999; Ryan & Deci, 2008a; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Vlachopoulos & Karavini, 2009). Stigmatization involves differences in power between the stigmatized individual and others in society (Frost, 2011), and it represents an external factor that decreases perceptions of autonomy. Thus, this evidence suggests that those who feel stigmatized, and who thereby experience relatively lower sense of internal causality will likely experience decreases in their subjective vitality and thereby experience increases in depression scores and lower levels of HRQL (Deci & Ryan, 2008).

**Thwarted Belongingness and Perceived Burdensomeness**

Human beings are relational creatures who throughout their history have depended upon social relationships for survival. Many researchers and theorists, including Maslow’s (1968) hierarchy of human needs theory and Bowlby and colleagues’ (e.g., Bowlby & Ainsworth, 1991) attachment theory, emphasize the need that humans have to connect with others (Bretherton, 1992). Yet Baumeister and Leary (1995) provided the first comprehensive review of the extant literature confirming the need to belong as a powerful and fundamental drive that affects a broad variety of both physical and psychological health outcomes. More specifically, Baumeister and Leary summarized extensive evidence detailing how human behaviors, thoughts, and emotions are largely motivated by a need for frequent and stable positive and mutually supportive interactions with others, and that having this need thwarted leads to significant deprivation in health and well-being. Deci and Ryan (2000) likewise put forth a theory of human psychological needs called Self-Determination Theory (SDT). SDT includes belongingness (or relatedness) as one of the three basic human psychological needs that must be satisfied in order to experience psychological well-being, with the other two basic needs being autonomy and competence.
Extensive research from the SDT framework highlights that the satisfaction of one’s need to belong predicts higher well-being and health outcomes, such as engaging in exercise and other health behaviors; thwarting the need to belong, on the other hand, predicts decrements in well-being and poorer motivation to engage in healthy behaviors (Deci & Ryan, 2008; Hofer & Busch, 2011; Ryan & Deci, 2000).

While having the need to belong thwarted leads to feelings of social alienation (Van Orden et al., 2010), a related but distinct interpersonal dynamic that also has strong effects on psychological health is perceived burdensomeness or feeling like a burden on others (Van Orden, Lynam, Hollar, & Joiner, 2006). Individuals may have close interpersonal connections with others, like family members or other caregivers, for instance, but due to some form of limitation (e.g., physical), they may feel a sense of ineptness, consider themselves to be nothing more than a liability (Van Orden et al., 2006), and believe that other people would be “better off if I were gone” (Van Orden, Cukrowicz, Witte, & Joiner Jr, 2011, p. 198). While financial problems and poor physical and psychological health issues often increase perceived burdensomeness (Arnold et al., 2008; King et al., 2012; Pinquart & Duberstein, 2010), Van Orden and colleagues also suggest that having one’s basic need for competence thwarted (Deci & Ryan, 2008) particularly in social aspects of life leads to perceived burdensomeness (Van Orden, Cukrowicz, Witte, & Joiner Jr, 2012). No research has explicitly documented the link between HRQL and thwarted belongingness needs or perceived burdensomeness. However, research does provide evidence that both of these constructs contribute to processes related to HRQL, including feelings of social alienation (Van Orden et al., 2010), depressive symptoms (Davidson, Wingate, Grant, Judah, & Mills, 2011; Merchant, 2010), and desires for suicide. To the extent that individuals suffer financial woes, it is likely they will experience and possibly internalize stigma associated with
these difficulties (Mickelson & Williams, 2008), and evidence suggests that to the extent stigmatization increases depression symptoms and lowers HRQL it may depend on levels of thwarted belongingness needs and perceptions of burdensomeness.

Joiner and his colleagues have conducted extensive investigations of the deleterious effects of thwarted belongingness and perceived burdensomeness in the suicide literature (e.g., Joiner, 2005; Van Orden et al., 2010; 2011; Van Orden, Witte, Gordon, Bender, & Joiner Jr, 2008). Indeed, their empirically supported interpersonal theory of suicide posits that the extent of one’s desire for suicide is a product of thwarted belongingness and cognitive and affective perceptions of burdensomeness (Van Orden et al., 2011). The theory also states that suicidal desire is more likely to translate into serious suicidal attempts as individuals acquire the capability for suicide by exposing and habituating themselves to fear and pain related to self-injury (Van Orden et al., 2008). While their assessment techniques have been primarily used to predict suicidal desire and behavior, studies have found thwarted belongingness and burdensomeness to be positively associated with depressive symptoms (Davidson, Wingate, Grant, Judah, & Mills, 2011; Merchant, 2010), but no known research has applied the constructs to health-related quality of life.

Statement of the Problem

Poor access to healthcare can lead to higher depressive symptoms and lower HRQL (Bharmal & Thomas, 2005). Almost one fifth of the working population in the United States is currently living without any medical insurance (U.S. Census Bureau, 2011). State and federal “safety net” efforts such as Federally Qualified Health Centers and Community Health Centers are unable to fill the gaps inherent to the current healthcare environment fully; therefore, charity-based services continue to play a critical and possibly growing role in providing at least basic
healthcare coverage for those in need (Blewett et al., 2008). Millions of people in the United States who are without health insurance are fortunate to receive free or reduced-cost medical care from clinics that operate using volunteer support (Blewett, Ziegenfuss, & Davern, 2008; Gertz, Frank, & Blixen, 2011; Isaacs & Jellinek, 2007). Unfortunately, individuals needing to seek charity-based services may experience stigma from others and perceived self-stigma related to their financial situation that can impair mood and HRQL (Stuber & Schlesinger, 2006).

Although substantial research has demonstrated the deleterious effects of stigma on depression and well-being, there is a dearth of research on potential mechanisms in these relations (Link & Phelan, 2001; Mickelson & Williams, 2008). Interpersonally, stigma may negatively impact feelings of social support and effectiveness in obtaining social support, which in turn can affect well-being (Mickelson, 2001; Mickelson & Williams, 2008; Williams & Mickelson, 2008). Intrapsychically, perceptions of stigma have been found to increase risk of depression by negatively affecting self-esteem and self-efficacy, but researchers have called for investigation into other potential mechanisms (Corrigan, Watson, & Barr, 2006; Mickelson, 2001; Mickelson & Williams, 2008). In the current study I investigate three potential mechanisms.

Subjective vitality represents one potential mechanism of change between stigma and depression, and between stigma and HRQL. Because feeling controlled by others decreases vitality, and stigmatization requires actual or perceived differences in political, economic, or social power, I expect feelings of perceived stigma to be related to lower subjective vitality (Link & Phelan, 2006; Ryan & Frederick, 1997). In turn, I expect that levels of subjective vitality may be subsequently related to mood and HRQL (Kaholokula & Chang, 2006; Ryan & Deci, 2001). As noted earlier, subjective vitality is not the opposite of depression, but as depression indicates
both the presence of negative, and lack of positive, cognitive, affective, and somatic states, having low vitality may increase risk for depressive symptoms (Ryan & Frederick, 1997). Additionally, building on the evidence that those with low vitality, energy available to the self, are less likely to engage in positive health behaviors, I believed it may contribute to lower levels of HRQL (Moller, Deci, & Ryan, 2006; Niemiec, Ryan, Patrick, Deci, & Williams, 2010).

Feeling stigmatized can have direct negative influences on subjective vitality, but the effects may occur indirectly as well through such problems as impaired social relationships with others (Herek, 2009; Mickelson & Williams, 2008; Varas-Diaz, Serrano-Garcia, & Toro-Alfonso, 2005). Mickelson and Williams (2008) found that perceived stigma can create anxiety and negative expectations about social interactions with others including potential social supports. Feelings of distance between oneself and potential social supports, particularly if individuals feel like a burden on others, may serve to exacerbate the negative effects of internalized stigma from poverty (Lott, 2002; Mickelson, 2001). On the other hand, positive social relationships may protect individuals from the negative effects of financial problems. Selenko and Batinic (2011) found that feelings of belongingness and collective purpose with others mitigated the negative effects of financial distress on mental health. Therefore, I expect that the negative effects of stigma on vitality will be especially deleterious among those who feel like a burden on others, and among those whose need for belongingness is thwarted.

It may also be possible for thwarted belongingness and perceived burdensomeness to interact with subjective vitality to affect depression and HRQL. To my knowledge, however, no research has previously examined this possibility. I believe that the presence of subjective vitality as an indicator of positive energy will account for unique variance in depression and HRQL. Yet, I also believe that additional variance may be explained by assessing factors that
can contribute to negative cognitive and affective states. For instance, feeling like a burden on others and having one’s need for belongingness thwarted may increase the presence of negative experiences like anger, sadness, fear, guilt, and shame that can increase depression and decrease HRQL (Tong et al., 2009). Therefore, in the current study, I examine thwarted belongingness and perceived burdensomeness as potential moderators in the relations between stigma and subjective vitality and between subjective vitality and depression and HRQL.

Although there are several possible dimensions of HRQL, I narrowed the field of dependent variables to include three essential and empirically well-validated HRQL markers: 1) the overall composite score reflecting physical HRQL; 2) the overall composite score reflecting mental HRQL; and 3) the score for general health perceptions, which is considered to be a central indicator of HRQL (Idler & Benyamini, 1997).

**Hypotheses**

In the current study, I analyzed data using internal stigma and experienced stigma as predictor variables, subjective vitality as a mediator variable, thwarted belongingness and perceived burdensomeness as moderators of the mediation relation, and depressive symptoms and HRQL as dependent variables. Using a sample of working uninsured patients receiving care at a local access to care program, I examined the following hypotheses:

1. At the bivariate level, I hypothesize that perceptions of experienced stigma and internal stigma of one’s financial situation will be negatively related to subjective vitality, positively related to reports of thwarted belongingness and perceived burdensomeness, positively related to depressive symptoms, and negatively related to general health perceptions and physical and mental HRQL.
2. I hypothesize that levels of thwarted belongingness and perceived burdensomeness will each be negatively related at the bivariate level to subjective vitality, positively related to depressive symptoms, and negatively related to general health perceptions and mental and physical HRQL.

3. I hypothesize that subjective vitality will be positively related at the bivariate level to general health perceptions and mental and physical HRQL and negatively related to depressive symptoms.

4. I expect that subjective vitality will mediate the relations between each dimension of stigma (i.e., experienced and internalized) and each of our outcomes including depressive symptoms, general health perceptions, physical HRQL, and mental HRQL. I will conduct mediation analyses at the multivariate level controlling for relevant covariates, including age, gender, and income.

5. I hypothesize that the mediation effect of subjective vitality in the relations between stigma and each of the outcomes (i.e., depressive symptoms, general health perceptions, physical HRQL, and mental HRQL) will be moderated by thwarted belongingness and by perceived burdensomeness. I expect a moderation effect to occur in the relations between each dimension of stigma (internal and experienced) and subjective vitality, and in the relations between subjective vitality and our outcomes (i.e., depressive symptoms, general health perceptions, physical and mental HRQL). Please see Figure 1 for an illustration of the conditional indirect effects model used in this study. Specifically, I expect the strength of the negative relation between stigma and subjective vitality to strengthen when coupled with relatively high levels of thwarted belongingness and when coupled with relatively high levels of perceived burdensomeness. Additionally, I expect
that the strength of the relation between subjective vitality and each of the outcomes to vary systematically according to levels of thwarted belongingness and perceived burdensomeness such that the negative relation between subjective vitality and depressive symptoms will be strengthened among those with relatively high levels of thwarted belongingness and perceived burdensomeness, and such that the positive relation between subjective vitality and general health perceptions and physical and mental HRQL will be weakened among those with relative high levels of thwarted belongingness and perceived burdensomeness. These analyses will also include demographic covariates found to be significantly related with outcomes in correlation analyses, including gender, age, and income. Statistical details of moderated mediation models are discussed in the methods section below.
Figure 1. Graphical Illustration of a “Model 5” Conditional Indirect Effects Model


Note: X = independent variable, Y = dependent variable, M = mediator, and W = moderator.
CHAPTER 2

METHODS

The study described herein was conducted using data collected as part of a larger study funded by the Laboratory of Rural Psychological and Physical Health in the Department of Psychology at East Tennessee State University. Personnel involved in conducting the study included graduate students in clinical psychology, the lab director, and primary care clinic staff. This study was approved by the ETSU Institutional Review Board.

Participants and Procedures

All data for this study were collected from a nonprofit primary care clinic in the Southeastern Appalachian region of the United States. Clinic patients \( N = 100 \) completed this study in exchange for $15 compensation. Advertising to recruit for the study included flyers posted in the clinic, recruitment email messages, and postcard solicitation. Participants were given the option to complete either a paper-and-pencil or online survey battery; of those who successfully completed the entire survey battery, 84 (84%) selected the online version.

The clinic was started approximately 20 years ago in the wake of a national trend for community organizations and individual volunteers to help improve access to needed healthcare for local residents. The clinic can be classified as a local access to care program (LACP). LACPs share a number of features and processes including a) focusing on serving primarily low-income and uninsured patients, b) requiring a formal enrollment process, c) providing a limited and defined set of benefits to enrollees, d) depending heavily on community support for staffing and finance, and e) functioning administratively as a nonprofit agency (Blewett et al., 2008). This particular clinic serves a population of adults 18-64 years of age, who come from homes that are considered working (i.e., the patient or at least one adult member in the home must be
currently employed) but uninsured (i.e., patients must have no access to medical insurance through the state or work). Additionally, patients must have demonstrated financial need as determined through a formal review of family size, taxable income from the previous year, and current income. The clinic serves patients in a three-county area that includes a city of approximately 50,000 and a large proportion of rural land. Although information about current geographic location of residence was not collected, 56 (56%) of participants reported that they were raised in a rural area, whereas 42 (42%) reported that they were raised in a suburban or urban area.

Measures

Depressive Symptoms

Depressive symptoms were assessed using the Center for Epidemiological Studies – Depression Scale (CESD), a 20-item questionnaire that can be administered in interview format or, as in the present study, completed by self-report (Radloff, 1977). The CESD is designed to collect information from the general population regarding common cognitive, affective, and behavioral symptoms associated with depressive disorders. Participants report how frequently they experienced each possible symptom during the previous week using a Likert-scale ranging from 0 (“rarely to none of the time”) to 3 (“most or all of the time”). The range of possible scores is 0 to 60, with higher scores indicating greater quantity and frequency of depressive symptoms. Scores equal to or greater than 16 suggest moderate to severe depression in adults (Knight, Williams, McGee, & Olaman, 1997; Radloff, 1977). Although past studies have identified a four-factor structure of CESD items, including depressed affect, positive affect, somatic and retarded activity, and interpersonal difficulties (Knight et al., 1997; Radloff, 1977), recent evidence suggests that the CESD may be comprised of a single factor representing a
continuum from happiness to depression (Wood, Taylor, & Joseph, 2010). The CESD has produced valid and reliable scores in a variety of samples including a low-income primary care sample (Thomas, Jones, Scarinci, Mehan, & Brantley, 2001) demonstrating concurrent validity in strong correlations with other measures of depressive symptoms such as the Beck Depression Inventory ($r = 0.81$) and the Zung measure of depression ($r = 0.90$) and good internal reliability ($\alpha = .88$) (Knight et al., 1997; Wood et al., 2010). In the current study internal consistency was excellent ($\alpha = .93$).

Health-Related Quality of Life

The current study uses the second version of the Short-Form-36 Health Survey (SF-36v2) to assess health-related quality of life (HRQL) (Ware, 2004). To assess the health of patients involved in their Health Insurance Experiment in the 1970s, the RAND Corporation developed a 250-item questionnaire based on the World Health Organization’s conceptualization of health as a multidimensional construct (Lohr et al., 1986). To reduce participant burden the scale was later reduced to 36 items assessing eight dimensions of HRQL empirically related to physical health: physical functioning (HRQL-PF), role function as limited by physical health (HRQL-RP), bodily pain (HRQL-BP), social functioning (HRQL-SF), mental health (HRQL-MH), role function as limited by emotional health (HRQL-RE), vitality (HRQL-VT), self-rated perceptions of general health (HRQL-GH), and one item assessing whether or not participants believe their health improved, worsened, or remained the same in the prior year (Ware & Sherbourne, 1992). After years of research, a second version of the SF-36 was introduced in 1996 to improve the wording of instructions and add 5-point Likert scales in place of the dichotomous and six-point response options (Ware, 2004; Ware, Kosinski, Dewey, & Gandek, 2000). The second version
of the scale can be administered by interview or, as in the present study, self-report, and it generally requires about 5-10 minutes for completion.

The HRQL-PF subscale includes 10 items for which participants rate whether or not they currently experience “a lot,” “a little,” or “no” limitation in several areas, such as “Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports,” and “Lifting or carrying groceries.” The HRQL-RP subscale includes four items on a 5-point Likert scale from “All of the time” to “None of the time” asking participants to rate whether or not they have been limited in work-related activities due to physical problems in the past 4 weeks. The HRQL-BP subscale consists of two 5-point Likert scale items asking participants to rate the intensity of pain they experienced in the past 4 weeks and whether or not their pain interfered with normal work. The HRQL-SF subscale is comprised of two 5-point Likert scale items assessing the frequency and extent to which health problems interfered with normal social activities. The MH subscale asks about the previous 4 weeks and consists of five items scored on a 5-point Likert scale, including assessments of whether or not participants reported feeling “very nervous,” or feeling “calm and peaceful.” The HRQL-RE subscale includes three 5-point Likert scale items asking about how much in the past 4 weeks participants’ emotional problems impaired their functioning, such as having to “Cut down on the amount of time you spent on work or other activities.” The HRQL-VT subscale includes four items scored on a 5-point Likert scale asking about how often during the past four weeks participants did or did not experience vitality, including having “a lot of energy” or feeling “worn out.” The HRQL-GH subscale includes five items also scored using a 5-point Likert scale, and asks participants to rate their perceptions about their own health in general, using items such as, “I am as healthy as anybody I know,” or “I seem to get sick a little easier than other people.”
To further extend ease of use and interpretation, a two-factor solution of the SF-36v2 representing a physical components summary (HRQL-PCS) and mental components summary (HRQL-MCS) was derived (Ware, 2004). Although HRQL research is generally based on the premise that physical and mental health are intertwined, Ware and Kosinski (2001) chose orthogonal rather than oblique rotation of the factors in order to avoid the complicated task of determining the degree of overlap between HRQL-PCS and HRQL-MCS. The two-factor orthogonal solution captures more than 80% of the reliable variance in the eight subscales of the SF-36v2 (Ware & Kosinski, 2001). In order of strength, the HRQL-PF, HRQL-RP, HRQL-BP, and HRQL-GH scores load primarily on the HRQL-PCS; whereas, the HRQL-MH, HRQL-RE, HRQL-SF, and HRQL-VT scores load primarily on the HRQL-MCS. The HRQL-PCS and HRQL-MCS have become common outcome variables in research, including large interventions such as the federal Medicare Health Outcomes Survey, which tracks health outcomes across different health care plans (Ware, 2004; Ware & Kosinski, 2001).

The authors of the SF-36v2 have published algorithms to create norm-based scores (NBS) that allow each of the eight subscales, as well as the HRQL-PCS and HRQL-MCS, to be standardized based on the 1998 general US population 18 years and older (Ware et al., 2000). I used the techniques described by Ware et al. (2000) to transform raw scores on the SF-36v2 into NBS for each subscale and for the HRQL-PCS and HRQL-MCS. The NBS are based solely on participants’ responses to SF-36v2 items; in other words, age and other demographic characteristics are not factored into the scoring. The NBS are standardized to a mean of 50 and standard deviation of 10, which facilitates cross-study comparisons (Ware et al., 2000).

In one epidemiological study of the 18-64 year olds in the US, uninsured individuals were found to have HRQL-PCS (50.6) and HRQL-MCS (52.1) means that were 5.8 and 1.1
points lower than the means of their insured counterparts (both ps < .01), respectively, after adjusting values based on demographic characteristics (Bharmal & Thomas, 2005). A study of low-income mothers found that those without insurance reported a HRQL-PCS mean of 51.81 and HRQL-MCS mean of 41.89 (Salsberry et al., 1999). Among patients with the Veterans Affairs hospitals, rural as compared with urban individuals reported lower HRQL-PCS (M = 33.53 and 37.00, respectively, p < .001) and HRQL-MCS (M = 44.53 and 45.62, respectively, p < .001) means (Weeks et al., 2004).

The reliability and validity of the SF-36v2 subscales have been supported in multiple studies (Ware et al., 2004). Validity has been supported by the fact that each subscale accounts for between 80%-90% of the variance in the longer scale from which it was derived, and each subscale relates to other markers of physical and emotional health in expected directions. For example, current health related most strongly with the HRQL-GH subscale (r = .88), sleep problems correlate strongly and negatively with the HRQL-VT subscale (r = -.60), pain scales relate positively and most strongly to the HRQL-BP subscale (r = .85-.93), and cognitive dysfunction relates strongly with lower HRQL-MH scores (r = -.70) (Ware et al, 2004). The HRQL-PCS and HRQL-MCS also relate in expected directions and magnitudes with other markers of physical and mental health such as feelings of belongingness relating positively and relatively stronger with HRQL-MCS than HRQL-PCS and physical mobility correlating positively and relatively stronger with HRQL-PCS than HRQL-MCS (Ware et al., 2004).

Internal consistency of each scale has also been supported in general and primary care samples, with alpha coefficients of at least .70 or higher and usually greater than .80 for each subscale, and typically exceeding .90 for the HRQL-PCS and HRQL-MCS (Hann & Reeves, 2008; Razvi, Ingoe, McMillan, & Weaver, 2005; Ware et al., 2004). One method of assessing
overall internal consistency of the SF-36v2 described by Ware et al. (2000) involves computing a Response Consistency Index (RCI) as an index of the congruence in responses between 15 relevant pairs of similar items. Responses that are considered unrealistically different for a particular pair (e.g., person reports being very limited in walking around 100 yards for item 3i, but reports no limitations in climbing several flights of stairs for item 3d), are assigned a score of 1; congruent scores among pairs are assigned a 0. Ware et al. (2000) recommend reporting the percentage of participants with a total RCI of 0. In the current sample 89% of participants had an RCI of 0, indicating zero inconsistencies, and no participant had an RCI higher than 4/15.

**Perceived Stigma of Financial Situation**

To assess stigma related to participants’ financial situation, the current study uses the Perceived Stigma of Financial Situation scale (PSFS) (Mickelson, 2001; Mickelson & Williams, 2008). The PSFS is an 8-item questionnaire that asks respondents to indicate on a 5-point Likert scale the extent to which they agree or disagree, from 1 (Definitely Disagree) to 5 (Definitely Agree), with statements about potential stigma experienced during the past 6 months. The PSFS has a possible range of 8-40, with higher scores indicating stronger perceptions of stigma. The two dimensions of the PSFS include four questions assessing internalized stigma and four questions addressing experienced stigma. Internalized stigma questions include the following: “I have felt that I am odd or abnormal because of my financial situation,” “There have been times when I have felt ashamed because of my financial situation,” “I never felt self-conscious about my financial situation,” and “I never feel embarrassed about my financial situation.” Experienced stigma questions include the following: “I feel that others look down on me because of my financial situation,” “People treat me differently because of my financial situation,” “I have found that people say negative or unkind things about me behind my back because of my
financial situation,” and “I have been excluded from work, school, and/or family functions because of my financial situation.”

The PSFS subscales produced scores with adequate internal consistency in two samples of low-income females (internalized α = .59 and .70; experienced α = .82 and .70) (Mickelson & Williams, 2008; Williams & Mickelson, 2008). The original 8-item scale from which the PSFS was adapted assesses perceived stigma associated with having a special needs child, and it has also produced reliable scores among 109 parents for the entire scale (α = .76) and 4-month test-retest reliability of .78 (Mickelson, 2001). Supporting the convergent validity of the PSFS, internalized and experienced stigma correlated negatively with self-esteem (r = -.51 and -.34, respectively, both ps<.001) and positively with depressive symptoms (r = .48 and .37, respectively, both ps<.001) (Mickelson & Williams, 2008). In the current study internal consistency was good for both subscales (internalized stigma α = .81; experienced stigma α = .82)

**Subjective Vitality**

Vitality was assessed using the Subjective Vitality Scale (SVS) that was designed to assess the physical and psychological sensation of feeling energetic and alive (Ryan & Frederick, 1997). The original version of the scale contains six positively worded items and one negatively worded item comprising a single factor, but Bostic, McGartland Rubio, and Hood (2000) found better fit for a single-factor model omitting the negatively worded item. The current study uses the 6-item version. The SVS asks participants to rate, on a 7-point Likert scale from 1 (Not at all true) to 7 (Very True), the extent to which they believe that certain statements describe them “in general.” Sample items include, “I feel alive and vital” and “I nearly always feel alert and
awake.” The 6-item version of the scale is scored with a range of 7-42, with higher scores indicating greater vitality.

The 6-item SVS produced scores with excellent internal consistency among college students (α = .88-.93) (Huta & Ryan, 2010; Rouse, Ntoumanis, Duda, Jolly, & Williams, 2011; Ryan, LaGuardia, & Rawsthorne, 2005). Although much of the research using the 6-item version of the SVS has been conducted with college students and adolescents or young adults participating in exercise programs, Ryan and Frederick (1997) employed two adult samples that supported the 7-item version of the scale’s reliability (α = .84, .86) and validity (r> .44 with self-actualization and self-esteem; r <-.37 for anxiety and depression). To support the 6-item version of the scale’s validity, in samples of undergraduates and one convenience sample of 376 hospital employees, the SVS was positively related to markers of psychological health such as self-actualization (r = .45 - .50, ps<.01) and self-esteem (r = .52 - .60, ps<.01) and was negatively related to markers of psychological distress including depression (r = -.44 - -.60, ps<.01) and anxiety (r = -.29, p<.01) (Huta & Ryan, 2010; Ryan & Frederick, 1997). A recent study of 347 British adult primary care patients identified as being overweight or obese provided validity support for the SVS 6-item version with a strong negative relation with depressive symptoms (r = -.62, p<.001), and reliability support with the scale’s excellent internal consistency (α = .92) (Rouse, Ntoumanis, Duda, Jolly, & Williams, 2011). In the current study, the SVS produced scores with excellent internal consistency (α = .93).

**Thwarted Belongingness and Perceived Burdensomeness**

Participants’ beliefs about their interpersonal relationships with others were assessed using the Interpersonal Needs Questionnaire (INQ) (Van Orden, Cukrowicz, Witte, & Joiner, 2012; Van Orden, Witte, Gordon, Bender, & Joiner, 2008). The INQ asks respondents to
indicate on a 7-point Likert scale, with 1 meaning “Not at all true for me” to 7 meaning “Very true for me,” the extent to which they agree or disagree with statements reflecting two distinct subscales: feelings of connectedness or lacking connectedness with others (i.e., thwarted belongingness) and feeling like a burden on others (i.e., perceived burdensomeness). There have been multiple versions of the INQ scale used in the literature including the original 25-item unpublished version, a 10-item version (Bryan, Morrow, Anestis, & Joiner, 2010), a 12-item version first described by Van Orden et al. (2008), a 15-item version described by Van Orden et al. (2012), and an 18-item version (Davidson, Wingate, Grant, Judah, & Mills, 2011). In this research the 18-item version was administered, which is publicly available online through the senior author’s research laboratory website (see www.psy.fsu.edu~joinerlab/). The 18-item INQ includes nine items assessing thwarted belongingness (INQ-TB) and nine items assessing perceived burdensomeness (INQ-PB), and factor analytic evidence supports the independence of these subscales (Van Orden et al., 2012).

The INQ-PB scale includes items such as “These days, the people in my life would be better off if I were gone” and “These days I feel like a burden on the people in my life.” The INQ-PB scale has a possible range of 9-63, with higher scores indicating greater perceived burdensomeness. The INQ-PB scale has received psychometric support from multiple college student samples, including internal consistency estimates of α=.74-.92, and validity support in its relations with depressive symptoms (r = .52-.57), suicide ideation (r = .35-.38), and optimism (r = -.43) (Davidson, Wingate, Slish, & Rasmus, 2010; Rasmussen & Wingate, 2011; Wong, Koo, Tran, Chiu, & Mok, 2011). In the current sample internal consistency of the INQ-PB was excellent (α = .91).
The INQ-TB scale includes items such as “These days, I rarely interact with people who care about me,” and “These days I am close to other people.” Consistent with Van Orden et al. (2012), we reverse-scored items assessing feelings of belongingness so that higher scores on the subscale reflect a higher degree of thwarted belongingness, with a possible range of 9-63. Like the INQ-PB, most of the psychometric support for the INQ-TB scale comes from college student samples, with internal consistency estimates of $\alpha=.74-.90$, and validity supported in the scale’s relations with depressive symptoms ($r = .52 - .56$), suicide ideation ($r = .31$), and optimism ($r = - .51$) (Davidson, Wingate, Slish, & Rasmus, 2010; Freedenthal, Lamis, Osman, Kahlo, & Gutierrez, 2011; Rasmussen & Wingate, 2011; Wong, Koo, Tran, Chiu, & Mok, 2011). Van Orden et al. (2012) recently conducted a study using the 9-item version of the INQ-TB scale, finding factor analytic support for the scale in an older adult sample, an outpatient mental health adult sample, and three undergraduate samples. The authors found each of the nine belongingness items to load onto the thwarted belongingness latent factor ($\beta$ range = .32-.88), and they found convergent validity support for the INQ-TB scale in that it correlated strongly with loneliness, social support, and relatedness. Internal consistency in the current sample was excellent ($\alpha = .93$).

Covariates

Depressive symptoms and HRQL have been shown to vary by gender with females endorsing higher levels of depression and worse physical and mental HRQL than males (Cherepanov, Palta, Fryback, & Robert, 2010; Hankin & Abramson, 2001; Schraedley, Gotlib, & Hayward, 1999). In the current study gender related significantly in expected directions at the bivariate level with depressive symptoms, HRQL-PCS, and HRQL-MCS; therefore, I controlled for gender in all regression analyses. Some research also suggests that higher age is predictive of
more depression and lower HRQL (Hasin, Goodwin, Stinson, & Grant, 2005; Lefante, Harmon, Ashby, Barnard, & Webber, 2005). At the bivariate level age related to HRQL-PCS, therefore, I included age as a covariate in regressions with HRQL-PCS as an outcome, but because age did not relate to HRQL-MCS or depressive symptoms, I did not control for it in regressions with these variables as outcomes (Consonni, Bertazzi, & Zocchetti, 1997). Consistent with research that has found depressive symptoms and HRQL to vary based upon socioeconomic status (SES), income correlated significantly with depressive symptoms and HRQL-MCS; therefore, I included age as a covariate in HRQL-MCS regression analyses. Age, gender, and income were not significantly related to HRQL-GH at the bivariate level, so they were not included as covariates in regression analyses.

**Statistical Analyses**

Before beginning primary analyses, I conducted a statistical and visual review of the data to determine the presence of any outliers, missing data, or erroneous data. For missing data, person-mean imputation was used if no more than 20% of the items for a particular scale were missing (Bono, Ried, Kimberlin, & Vogel, 2007). I used Pearson’s product-moment correlation coefficient (r) to determine the independence of the study variables. Using a conservative coefficient of $r = .70$ (Field, 2005), any relations between variables beyond this threshold were tested for acceptable variance inflation factors. One of the relations tested for independence was that between the mediator (i.e., SVS) and the outcome of SF-MCS ($r = .77$, $p<.001$), which is partially comprised of a 4-item vitality scale. I was unable to find any published research comparing the SVS with the vitality scale of the SF-36. Despite the correlation, they differ in at least two ways. One, these scales differ in terms of time period assessed; the SVS asks about life “in general” while the SF-36 vitality scale prompts respondents to use the “previous 4 weeks” as
the basis for their answers. Two, these scales differ in that the SF-36 vitality scale focuses on somatic states (e.g., having energy, feeling worn out, feeling tired), whereas the SVS assesses cognitive aspects of vitality (e.g., having spirit, looking forward to each day) (Ryan & Frederick, 1997). Some researchers recommend VIFs below 10.0 as a cutoff for multicollinearity, and in the current study no relations (including the SVS and SF-36 vitality scale scores) surpassed a conservative VIF value of 3.0 (Field, 2005; O’Brien, 2007). Based on this evidence, and the noted item differences of the SVS and SF-36 vitality scale, we retained these variables in subsequent analyses. To assess bivariate relations among variables I used Pearson’s correlation \( r \). Prior to conducting moderation analyses, I mean centered predictor and moderator variables, which are all continuous, by adjusting each scale’s mean to zero (Aiken & West, 1991). Hayes, Glynn, and Huge (2012) argue that, despite conventional understanding, mean centering is rarely necessary and has little effect on multicollinearity except in complex models involving multiple interactions. However, they state that mean centering has the advantage of ensuring that the coefficients for the two variables that comprise the interaction term can be interpreted within the range of the data (for discussion, see Hayes et al., 2012).

**Mediation**

To test for mediation, I examined four simple mediation pathways in which the potential mediator (subjective vitality) was analyzed for its effect on the individual relations between the predictors (internalized financial stigma and experienced financial stigma) and the outcome variables (depressive symptoms and the respective HRQL variables). Despite the popularity of the “causal steps approach” described by Baron and Kenny (1986), Hayes (2009) criticizes its appropriateness for most mediation studies on multiple grounds including its relatively low power for detecting an effect and unrealistic assumptions about normality of data. Therefore, to
assess mediation I used the indirect effect bootstrap resampling technique described by Preacher and Hayes (2008). This method tests for indirect effects without making the assumption of normally distributed data, and it does not rely on statistically significant direct effects between independent and dependent variables (like Baron & Kenny’s [1986] approach). Also, because it uses bootstrapping, Preacher and Hayes’s (2008) technique is sensitive enough to detect effects, even in relatively small sample sizes. Bootstrapping involves computing estimations of effects (direct and indirect) in an iterative process whereby an empirical approximation of the sampling distribution is created by sampling and resampling the data for a set number of iterations. Using the “INDIRECT” SPSS syntax made publicly available by Andrew Hayes (see www.afhayes.com), I generated the 95% bias-corrected and accelerated bootstrap confidence intervals (CIs) of the indirect effect of each predictor on each outcome through our potential mediator (i.e., subjective vitality) using 5,000 bootstrap resamples. As a point of comparison, the syntax also creates a Sobel (1982) test estimation of the indirect effect; although it is recommended to refer to the bootstrapping results due to the Sobel test’s often unrealistic assumption the indirect effect is normally distributed.

**Moderated Mediation (Conditional Indirect Effects)**

I assessed for the possibility that subjective vitality mediated the relations between the predictors and outcomes, and that these relations are conditional upon (or moderated by) either thwarted belongingness or perceived burdensomeness. In other words, I assessed thwarted belongingness and perceived burdensomeness as moderators of each mediation relation of subjective vitality between stigma (internalized and experienced) and the outcomes of depressive symptoms and HRQL scores. In addition to describing how an effect occurs (i.e., mediation), models of moderated mediation, or, more accurately, conditional indirect effects, also describe
when an effect occurs (i.e., moderation) (Preacher, Rucker, & Hayes, 2007). Preacher et al. (2007) describe multiple ways in which a moderator can influence the magnitude of an indirect effect. For the current study, I employed their “Model 5” that tests the possibility that a single moderator (e.g., thwarted belongingness) affects the relation between an independent variable (e.g., internalized financial stigma) and the mediator (i.e., subjective vitality) and between the mediator and the dependent variable (e.g., depressive symptoms). Please see Figure 1 for a graphical illustration of Model 5. The “MODMED” syntax file, which also is made publicly available by Andrew Hayes (see www.afhayes.com), probes for significant interaction effects in the mediation relations using traditional ordinary least squares regression methods of moderation testing described by Aiken, West, and Reno (1991). Additionally, it uses bootstrap resampling to estimate asymmetric confidence intervals (CIs) of conditional indirect effects at particular values of the moderator and thereby it avoids assumptions of normality in the sampling distribution (Preacher et al., 2007). Moderator values were set to ±1 standard deviation from the mean, although other values that the researcher sets based on the particular measure (e.g., predetermined cutoff scores). When regression analyses indicate that a statistically significant interaction exists, the bootstrapping results testing for indirect effects at particular values of the moderator should be interpreted. CIs that do not contain 0 indicate that the indirect effect at the particular value of the moderator is statistically significant (Preacher et al., 2007).
CHAPTER 3
Results

Descriptive Results

Demographics

The sample of 100 primary care patients ranged in age from 18-64 years old ($M= 42.04; SD=12.81$) (See Table 1). The majority of our sample identified their sex as female [$n = 71 (71\%)$], and the rest identified as male [$n = 29 (29\%)$]. Concerning relationship status, 42 (42%) participants stated that they were currently married, 25 (25%) reported that they were divorced, 28 (28%) reported being single and never married, 3 (3%) stated that they were widowed, and 2 (2%) did not answer. Regarding living situation, 50 (50%) reported living with a spouse or significant other, 22 (22%) reported living alone, and the remainder [$n = 38 (38\%)$] reported living with family or friends. When asked about “race and ethnicity,” the majority [$n = 93 (93\%)$] of our sample reported being White, although 3 (3%) described themselves as Black, 1 (1%) Asian, 1 (1%) “Other,” and the remainder [$n = 3 (3\%)$] did not respond. Most [$n = 62 (62\%)$] of the participants reported having at least one child. Six participants (6%) reported having less than a high school education, 39 (39%) reported that they had completed high school/GED, 31 (31%) stated that they had completed at least some college, and 24 (24%) reported that they had obtained a college degree. Most of the sample described their religious affiliation as Protestant [$n = 64 (64\%)$], while 8 selected Catholic, 21 (21%) selected “other,” 6 (6%) selected “none,” and 1 (1%) did not respond; however, 40 (40%) participants stated that they do not currently practice a particular religion. Regarding employment status, 43 (43%) of the participants reported that they were employed full-time and 31 (31%) acknowledged part-time employment. Twenty-four participants (24%) were unemployed which, based on clinic
<table>
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<th>Variable</th>
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<th>Female</th>
<th>Total Sample</th>
</tr>
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<td>SD</td>
<td>M</td>
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<td>47.19</td>
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<td>43.72b</td>
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<td>2.01</td>
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<td>3.73b</td>
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<td>Income</td>
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<td>2.02</td>
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</table>

Note: a and b are significantly different at p<.05.

Note: The first 10 variables listed = Short-Form 36, Version 2. Depressive symptoms = Center for Epidemiologic Studies-Depression Scale Total Score. Thwarted Belongingness and Perceived Burdensomeness = Interpersonal Needs Questionnaire average subscale scores. Internalized Stigma and Experienced Stigma = Perceived Stigma of Financial Situation Scale average subscale scores.

Note: Income is based on 1 = “$0 - 9,999,” 2 = “$10,000 – 19,999,” 3 = “$20,000 – 29,999,” etc.
policy of only serving those coming from working homes, indicates that the patient either had a spouse or direct relative in the home who was employed at the time, or that the patient’s job status had changed within the past year (the clinic conducts yearly reviews). Of the remainder, one individual (1.0%) reported being retired, and another individual (1.0%) reported being of disability status. Most of the sample \([n = 73 (73\%)]\) reported an annual income level of less than $20,000 with a third of those \([n = 23 (23\%)]\) reporting income of less than $10,000, and 19 (19\%) reported income of $20,000 – 29,999, 5 (5\%) earned $30,000 – 39,000, 1 (1\%) selected an income of $70,000 – 79,999, and 2 (2\%) did not answer the question.

**Preliminary Analyses of Sample Scores on Outcome Variables**

*Depressive Symptoms.* Total score on the CESD ranged from 0-49, and the mean score for the sample was 15.56 \((SD = 11.74)\), which is approximately equal to the cutoff of 16 that indicates moderate to severe depression (Radloff, 1977). In the sample, 41 (41\%) scored 16 or higher, indicating that they were suffering from moderate to severe depressive symptoms (Radloff, 1977). The average CESD score for females \((M = 17.48, SD = 11.70)\) was about six points higher than that for males \((M = 11.42, SD = 10.90)\), which was a statistically significant difference \((t = -.2.35, p<.05)\).

*Health-Related Quality of Life.* Using the norm-based scoring procedure described in the SF-36v2 manual (Ware et al., 2000), a score of 50 \((SD = 10)\) represents the 1998 population mean for adults in the United States. Thus, compared to national norms, participants in the present sample scored lower on each of SF-36v2 scales, including the main dependent variables of the Physical Components Summary score (HRQL-PCS) \((M = 44.82, SD = 19.29)\), the Mental Components Summary score (HRQL-MCS) \((M = 42.27, SD = 19.90)\), and the general health perceptions score (HRQL-GHP)\((M = 45.38, SD = 10.57)\). Table 1 provides further details of the
individual subcomponents of the SF-36v2 measure. Converging with the CESD sex differences, males reported better mental health and higher vitality and had a better overall MCS than females on the SF-36 (ps<.05, see Table 1).

**Associations Among Study Variables**

Pearson’s Product Moment Correlation analyses supported the first hypothesis, demonstrating that both experienced and internalized financial stigma significantly and negatively related to subjective vitality (both rs = -.44, p<.001), positively related to TB (r = .36 and .43, respectively, both ps<.001), positively related to PB (r = .28 and .27, respectively, both ps<.01), positively related to depressive symptoms (r = .40 and .42, respectively, both ps<.001), and negatively related to HRQL-PCS (r = -.38 and -.40, respectively, both ps<.001), HRQL-MCS (r = -.50 and -.45, respectively, both ps<.001), and HRQL-GH (r = -.31 and -.39, respectively, both ps<.01). Subsequent partial correlation analyses controlling for experienced financial stigma revealed that internalized financial stigma maintained significant associations with SVS (r = -.29, p<.01), CESD (r = .23, p<.05), PCS (r = -.20, p =.05), and MCS (r = -.32, p<.01), but the relations were no longer statistically significant with TB (r = .18, p =.09), PB (r = .18, p =.09), or HRQL-GH (r = -.13, p =.21). Partial correlation analyses controlling for internalized financial stigma revealed that experienced financial stigma maintained significant associations with TB (r = .29, p<.01), SVS (r = -.25, p<.05), CESD (r = .26, p<.05), PCS (r = -.24, p =.05), and MCS (r = -.26, p<.05), and HRQL-GH (r = -.26, p<.05), but the relation with PB was no longer statistically significant (r = .16, p =.13).

Correlation analyses also supported the second hypothesis, demonstrating that TB and PB significantly and negatively related to subjective vitality (r = -.71 and -.52, respectively, both ps<.001), positively related to depressive symptoms (r = .75 and .63, respectively, both ps<.001).
and negatively related to HRQL-PCS (r = -.26 and -.23, respectively, both ps<.05), HRQL-MCS (r = -.58 and -.46, respectively, both ps<.001), and HRQL-GH (r = -.31 and -.21, respectively, both ps<.05). Subsequent partial correlations controlling for PB showed that TB remained significantly related to SVS (r = -.51, p<.001), CESD (r = .56, p<.001), and HRQL-MCS (r = -.39, p<.001), but not HRQL-PCS (r = -.10, p = .34) or HRQL-GH (r = -.17, p = .10). When controlling for TB, however, PB no longer significantly related to SVS (r = -.07, p = .51), CESD (r = .18, p = .09), HRQL-PCS (r = -.10, p = .33), HRQL-MCS (r = -.09, p = .37), or HRQL-GH (r = -.04, p = .71).

Finally, correlation analyses also supported the third hypothesis in demonstrating that subjective vitality significantly and positively related to physical HRQL (r = .62, p<.001), mental HRQL (r = .79, p<.001), and general health perceptions (r = .59, p<.001). See Table 2 for bivariate correlation results.

**Mediation Analyses**

To test the fourth hypothesis, I examined whether subjective vitality mediated the relations between each dimension of financial stigma and each of the outcome measures. I used the indirect mediation steps described by Preacher and Hayes (2008). In each model stigma (internalized or experienced) significantly related to subjective vitality (the a path) as well as the outcome variables (the c path) in expected directions; that is, each dimension of stigma significantly and positively related to depressive symptoms and negatively related to physical HRQL, mental HRQL, and general health perceptions. In each model subjective vitality significantly influenced the outcome variable (the b path) in expected directions; that is, SVS scores significantly and negatively related to depressive symptoms and positively related to physical and mental HRQL and general health perceptions. Additionally, the direct effect of
Table 2
Bivariate Correlations of Study Variables, with Demographics Included

<table>
<thead>
<tr>
<th></th>
<th>Experienced Stigma</th>
<th>Subjective Vitality</th>
<th>Thwarted Belonging</th>
<th>Perceived Burden</th>
<th>Depressive Symptoms</th>
<th>Physical HRQL</th>
<th>Mental HRQL</th>
<th>General Health</th>
<th>Gender</th>
<th>Age</th>
<th>Income</th>
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<td>- .44(^\d)</td>
<td>.36(^\d)</td>
<td>.28(^\d)</td>
<td>.40(^\d)</td>
<td>-.38(^\d)</td>
<td>-.50(^\d)</td>
<td>-.31(^\d)</td>
<td>.23(^*)</td>
<td>-.04</td>
<td>-.30(^\d)</td>
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<td>-</td>
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<td>.43(^\d)</td>
<td>.27(^\d)</td>
<td>.42(^\d)</td>
<td>-.40(^\d)</td>
<td>-.45(^\d)</td>
<td>-.39(^\d)</td>
<td>.10</td>
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<td>-</td>
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<td>-.75(^\d)</td>
<td>-.39(^\d)</td>
<td>.24(^*)</td>
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<td>-</td>
<td>-</td>
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<td>.77(^\d)</td>
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Note: Internalized Stigma and Experienced Stigma = Perceived Stigma of Financial Situation Scale; Thwarted Belonging and Perceived Burden = Interpersonal Needs Questionnaire; Depressive Symptoms = Center for Epidemiologic Studies Depression Scale; Physical and Mental Components Summaries and General Health = Short Form – 36, Version 2. \(*p<.05, ^\d p<.01, ^\dd p<.001.\)
stigma on the outcome variable \((c')\) became statistically non-significant when accounting for the mediating variable, indicating full mediation. Tests of the statistical significance of this mediation using both Sobel tests and bias-corrected and accelerated (BCa) 95% confidence intervals (CIs), as outlined by Preacher et al. (2007), also supported mediation via indirect effects for each model.

For instance, in the model in which internalized stigma affects depressive symptoms via subjective vitality, internalized stigma significantly and negatively related to subjective vitality \((a = -0.66, SE = 0.17, p < 0.001)\) and positively related to depressive symptoms \((c = 3.79, SE = 1.26, p < 0.01)\). Subjective vitality, in turn, significantly and negatively related to depressive symptoms \((c = -5.07, SE = 0.56, p < 0.001)\). However, the direct effect of internalized stigma on depressive symptoms was statistically non-significant \((c' = 0.45, SE = 0.78, p = 0.65)\) when partialling out the variance accounted for by the indirect effect (and the covariates of gender and income). Note that statistically significant indirect effects can occur even if the \(c'\) path is not reduced to the level of statistical non-significance; however, such a situation supports that the mediator plays a necessary role in explaining the effect of the independent variable on the dependent variable when estimates of the indirect effect are statistically significant (Preacher et al., 2007). Normal-theory results (Sobel \(z = 3.89, SE = 0.91, p < 0.001)\) and BCa 95% CIs \([1.87, 5.20]\) likewise supported the presence of a statistically significant indirect effect. Throughout the rest of this section, I provide relatively brief summaries of each remaining mediation model; however, Tables 3 and 4 provide full details regarding all mediation analyses conducted.

Experienced financial stigma significantly and negatively related to subjective vitality \((a)\) and positively related to depressive symptoms \((c)\), and subjective vitality was significantly and negatively related to depressive symptoms \((b)\). The direct positive relation between experienced
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<th>Normal Theory Results (Sobel)</th>
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<tr>
<td><strong>Depressive Symptoms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( c ) (Stigma_Int \rightarrow \text{Depressive Symptoms})</td>
<td>3.79 (1.26)‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( a ) (Stigma_Int \rightarrow \text{Vitality})</td>
<td>-.66 (.17)‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( b ) (Vitality \rightarrow \text{Depressive Symptoms})</td>
<td>-5.07 (.56)†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( c' )</td>
<td>.45 (.98)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( ab )</td>
<td>3.34 (.85)</td>
<td>3.89 (.91)‡</td>
<td>[1.87, 5.20]</td>
</tr>
<tr>
<td><strong>Physical Components Summary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( c ) (Stigma_Int \rightarrow \text{Physical Components})</td>
<td>-7.53 (1.87)‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( a ) (Stigma_Int \rightarrow \text{Vitality})</td>
<td>-.73 (.16)‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( b ) (Vitality \rightarrow \text{Depressive Symptoms})</td>
<td>6.53 (.98)†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( c' )</td>
<td>-2.78 (1.70)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( ab )</td>
<td>-4.75 (1.22)</td>
<td>-5.00 (1.29)‡</td>
<td>[-7.57, -2.68]</td>
</tr>
<tr>
<td><strong>Mental Components Summary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( c ) (Stigma_Int \rightarrow \text{Mental Components})</td>
<td>-8.22 (1.93)‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( a ) (Stigma_Int \rightarrow \text{Vitality})</td>
<td>-.65 (.17)‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( b ) (Vitality \rightarrow \text{Depressive Symptoms})</td>
<td>8.39 (.81)†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( c' )</td>
<td>-2.73 (1.42)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( ab )</td>
<td>-5.49 (1.42)</td>
<td>-6.59 (1.49)‡</td>
<td>[-8.49, -2.88]</td>
</tr>
<tr>
<td><strong>General Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( c ) (Stigma_Int \rightarrow \text{General Health})</td>
<td>-3.52 (1.08)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( a ) (Stigma_Int \rightarrow \text{Vitality})</td>
<td>-.75 (.16)‡</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( b ) (Vitality \rightarrow \text{Depressive Symptoms})</td>
<td>3.68 (.59)†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( c' )</td>
<td>-.74 (1.02)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( ab )</td>
<td>-2.78 (.64)</td>
<td>-2.78 (.72)‡</td>
<td>[-4.19, -1.68]</td>
</tr>
</tbody>
</table>

*Note. Depressive symptoms = Center for Epidemiologic Studies Depression Scale, Physical and Mental Components Summaries = Short-Form 36, Version 2, Vitality = Subjective Vitality Scale, Stigma\_Int = Internal Stigma from Perceived Stigma of Financial Situation Scale. Models with depressive symptoms and mental components control income and gender, and the model with physical components controls age and gender. Normal-theory results have no covariates.

\* \( p < .05 \), † \( p < .01 \), ‡ \( p < .001 \).
Table 4
Direct and Indirect Associations Between Experienced Financial Stigma and Each Dependent Variable

<table>
<thead>
<tr>
<th>Path</th>
<th>Estimate (SE)</th>
<th>Normal Theory Results (Sobel)</th>
<th>Bias corrected and accelerated 95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Depressive Symptoms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$c$ (Stigma_Exp $\rightarrow$ Depressive Symptoms)</td>
<td>4.37 (1.11)$^\dagger$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$a$ (Stigma_Exp $\rightarrow$ Vitality)</td>
<td>-.63 (.16)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$b$ (Vitality $\rightarrow$ Depressive Symptoms)</td>
<td>-4.84 (.56)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$c'$</td>
<td>1.30 (.98)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$ab$</td>
<td>3.07 (.80)</td>
<td>3.58 (.86)$^{\dagger}$</td>
<td>[1.65, 4.78]</td>
</tr>
<tr>
<td><strong>Physical Components Summary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$c$ (Stigma_Exp $\rightarrow$ Physical Components)</td>
<td>-7.91 (1.73)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$a$ (Stigma_Exp $\rightarrow$ Vitality)</td>
<td>-.71 (.15)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$b$ (Vitality $\rightarrow$ Depressive Symptoms)</td>
<td>6.30 (.98)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$c'$</td>
<td>-3.41 (1.61)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$ab$</td>
<td>-4.50 (1.10)</td>
<td>-4.79 (1.24)$^{\dagger}$</td>
<td>[-7.00, -2.64]</td>
</tr>
<tr>
<td><strong>Mental Components Summary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$c$ (Stigma_Exp $\rightarrow$ Mental Components)</td>
<td>-7.80 (1.76)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$a$ (Stigma_Exp $\rightarrow$ Vitality)</td>
<td>-.66 (.15)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$b$ (Vitality $\rightarrow$ Depressive Symptoms)</td>
<td>8.39 (.82)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$c'$</td>
<td>-2.30 (1.33)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$ab$</td>
<td>-5.50 (1.41)</td>
<td>-6.63 (1.48)$^{\dagger}$</td>
<td>[-8.52, -2.95]</td>
</tr>
<tr>
<td><strong>General Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$c$ (Stigma_Exp $\rightarrow$ General Health)</td>
<td>-4.23 (1.01)$^\dagger$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$a$ (Stigma_Exp $\rightarrow$ Vitality)</td>
<td>-.73 (.15)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$b$ (Vitality $\rightarrow$ Depressive Symptoms)</td>
<td>3.41 (.59)$^{\dagger}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$c'$</td>
<td>-1.73 (.97)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$ab$</td>
<td>-2.50 (.63)</td>
<td>-2.50 (.67)$^{\dagger}$</td>
<td>[-3.93, -1.44]</td>
</tr>
</tbody>
</table>

*Note.* Depressive symptoms = Center for Epidemiologic Studies Depression Scale, Physical and Mental Components Summaries = Short-Form 36, Version 2, Vitality = Subjective Vitality Scale, Stigma\_Exp = Experienced Stigma from Perceived Stigma of Financial Situation Scale.

*Note.* Models with depressive symptoms and mental components control income and gender, and the model with physical components controls age and gender. Normal-theory results have no covariates.

*p <.05, $^\dagger$ p <.01, $^{\dagger\dagger}$ p <.001.
stigma and depressive symptoms ($c'$) was reduced to non-significant when accounting for the $ab$ pathway, and normal-theory results ($Sobel \ z = 3.58, SE = .86, p < .001$) and BCa 95% CIs [1.65, 4.78] supported the presence of an indirect effect.

Internalized financial stigma was significantly negatively related to subjective vitality ($a$) and PCS ($c$), and subjective vitality was positively related to PCS ($b$). The direct negative relation between internalized stigma and PCS ($c'$) was reduced to non-significant when accounting for the effect of the $ab$ pathway, and normal-theory results ($Sobel \ z = -5.00, SE = 1.29, p < .001$) and BCa 95% CIs [-7.57, -2.68] supported the presence of an indirect effect.

Experienced stigma was significantly negatively related to subjective vitality ($a$) and PCS ($c$), and subjective vitality was positively related to PCS ($b$). The direct negative relation between experienced stigma and PCS ($c'$) was reduced to non-significant when accounting for the effect of the $ab$ pathway, and normal-theory results ($Sobel \ z = -4.79, SE = 1.24, p < .001$) and BCa 95% CIs [-7.00, -2.64] supported the presence of an indirect effect.

Internalized stigma was significantly negatively related to subjective vitality ($a$) and MCS ($c$), and subjective vitality was positively related to MCS ($b$). The direct negative relation between internalized stigma and MCS ($c'$) was reduced to non-significant when accounting for the effect of the $ab$ pathway, and normal-theory results ($Sobel \ z = -6.59, SE = 1.49, p < .001$) and BCa 95% CIs [-8.49, -2.88] supported the presence of an indirect effect.

Experienced stigma was significantly negatively related to subjective vitality ($a$) and MCS ($c$), and subjective vitality was positively related to MCS ($b$). The direct negative relation between experienced stigma and MCS ($c'$) was reduced to non-significant when accounting for the effect of the $ab$ pathway, and normal-theory results ($Sobel \ z = -6.63, SE = 1.48, p < .001$) and BCa 95% CIs [-8.52, -2.95] supported the presence of an indirect effect.
Internalized stigma was significantly negatively related to subjective vitality \((a)\) and GH \((c)\), and subjective vitality was positively related to GH \((b)\). The direct negative relation between internalized stigma and GH \((c')\) was reduced to non-significant when accounting for the effect of the \(ab\) pathway, and normal-theory results (Sobel \(z = -.2.78\), SE = .72, \(p < .001\)) and BCa 95% CIs \([-4.19, -1.68]\) supported the presence of an indirect effect.

Experienced stigma was significantly negatively related to subjective vitality \((a)\) and GH \((c)\), and subjective vitality was positively related to GH \((b)\). The direct negative relation between experienced stigma and GH \((c')\) was reduced to non-significant when accounting for the effect of the \(ab\) pathway, and normal-theory results (Sobel \(z = -2.50\), SE = .67, \(p < .001\)) and BCa 95% CIs \([-3.93, -1.44]\) supported the presence of an indirect effect.

**Conditional Indirect Effect Analyses**

To test the final hypothesis that perceptions of thwarted belongingness (TB) and perceived burdensomeness (PB) would moderate the mediation effect of subjective vitality between stigma (internal and experienced) and each of the outcome variables, I used the conditional indirect effects testing described earlier (Preacher et al., 2007). Because I examined two independent variables (i.e., internalized financial stigma and experienced financial stigma), two moderating variables (i.e., TB and PB), and four outcome variables (i.e., depressive symptoms, physical HRQL, mental HRQL, and general health perceptions), I analyzed 16 conditional indirect effects models. Results for the eight models for which internalized stigma was the predictor are presented first, followed by the eight models for which experienced stigma was the predictor.
Internalized Stigma as Predictor

I found a significant interaction effect of TB in the model in which internalized stigma influences depressive symptoms via subjective vitality. Specifically, results indicate that TB interacted with subjective vitality in the $b$ path (i.e., mediator to dependent variable) of the mediation effect ($B = -1.17$, $t = -3.05$, $p < .01$), but it did not interact with internalized stigma in the $a$ path (i.e., independent variable to mediator) ($B = -1.14$, $t = .13$, $p = .19$). To fully support the hypothesis, the form of the interaction must conform to a pattern in which the mediation effect differs as a function of scores on the moderator variable. In this case, I expected the role of SVS to be especially strong for individuals reporting high levels of TB. To probe for the statistical significance of the indirect effects at various levels of the moderator (i.e., “range of significance”), I conducted Preacher and Hayes’s (2007) “Model 3” post-hoc analysis in which the moderation effect of TB was only tested for the $b$ path of the mediation effect. This step allowed for the use of Johnson-Neyman (JN) technique that generates probability ($p$) values for the conditional indirect effects at each level of the moderator (Preacher & Hayes, 2007).

Normal-theory testing indicated that the mediation effect was significant across all levels of the moderator (all $ps < .05$); however, and consistent with the fifth hypothesis, the strength of the indirect effect gradually increased from $B = 1.27$ ($p < .05$) at the lowest value of TB to $B = 5.14$ ($p < .01$) at the highest value of TB. In other words, subjective vitality was a significant mediator of internalized stigma and depressive symptoms regardless of the effect of TB in the relation between subjective vitality and depressive symptoms, but the magnitude of the mediation effect was relatively greater for individuals reporting higher TB versus those reporting lower TB.

The JN test is informative, but as it may unrealistically assume that the sampling distribution of the indirect effect is normal, bootstrapping analyses are necessary. Thus, I
conducted a series of bootstrapping analyses to examine the impact of TB on the overall mediation effect by focusing on changes in the relation between subjective vitality and depressive symptoms as a function of specific values of the moderator beginning with the 10\textsuperscript{th} percentile (TB = -1.58) and increasing by intervals of 10 percentiles until reaching the 90\textsuperscript{th} percentile (TB = 1.86). The BCa 95\% CI for the 10\textsuperscript{th} percentile value of the moderator [-0.06, 2.27] contained zero, indicating that the mediation effect is not statistically different from zero for those who reported extremely low TB. However, BCa 95\% CIs for every other level of the moderator did not contain zero (see Table 5), indicating that the mediation effect remained significant for those above the 10\% threshold despite the impact of TB in the subjective vitality-depressive symptoms relation. Consistent with the normal-theory testing, the magnitude of the indirect effect gradually increased from $B = .86$ [-.06, 2.27] for those reporting TB in the 10\textsuperscript{th} percentile up to $B = 3.53$ [1.65, 6.21] for those reporting a TB level in the 90\textsuperscript{th} percentile. Figure 2 illustrates this upward trend in showing the conditional indirect effect of internalized stigma on depressive symptoms via subjective vitality plotted along with the 95\% confidence interval band.

The remaining models with internalized stigma as the predictor were tested using the same techniques described above, except that post-hoc analyses were not conducted when no interaction effect was found in the initial analysis. Results demonstrated a significant TB x SVS interaction for the model in which subjective vitality mediated the relation from internalized stigma to HRQL-MCS ($B = 1.55$, $t = 2.31$, $p<.01$). Post-hoc analyses (described above) using the JN technique revealed that, although the indirect effect was significant at every level of the moderator (all $p$s < .05), the absolute magnitude of the indirect effect gradually increased with higher levels of TB (for TB = -1.58, $B = -4.14$, $p<.01$; for TB = 3.42, $B = -8.35$, $p<.01$). In other words, subjective vitality was a significant mediator of the association between internalized
Table 5
Regression and Bootstrapping Results with Internalized Financial Stigma as Predictor and Thwarted Belongingness as Moderator Including Post-hoc Analyses for Models with Significant Interactions

<table>
<thead>
<tr>
<th></th>
<th>Depressive Symptoms</th>
<th>Physical Components Sum</th>
<th>Mental Components Sum</th>
<th>General Health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (SE) t</td>
<td>B (SE) t</td>
<td>B (SE) t</td>
<td>B (SE) t</td>
</tr>
<tr>
<td><strong>Mediator Variable Model (predicting subjective vitality)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4.17 (.14) 29.71†</td>
<td>4.15 (.13) 31.10†</td>
<td>4.18 (.14) 30.56†</td>
<td>4.07 (.12) 34.60†</td>
</tr>
<tr>
<td>Internalized Stigma</td>
<td>-.24 (.14) -1.71</td>
<td>-.26 (.13) -2.04*</td>
<td>-.26 (.13) -1.97</td>
<td>-.31 (.13) -2.38*</td>
</tr>
<tr>
<td>Thwarted Belongingness</td>
<td>-.82 (.10) -8.53†</td>
<td>-.85 (.09) -9.27†</td>
<td>-.82 (.09) -8.74†</td>
<td>-.82 (.09) -8.90†</td>
</tr>
<tr>
<td>Stigma_Int x Thw_Belong</td>
<td>.14 (.11) .13</td>
<td>.14 (.10) 1.33</td>
<td>.11 (.10) -1.0</td>
<td>.15 (.10) 1.56</td>
</tr>
</tbody>
</table>

| **Dependent Variable Model (predicting the outcome variable)** |                     |                         |                      |               |
| Constant                 | 26.42 (2.72) 9.72†  | 6.64 (5.79) 1.15        | 10.98 (4.76) 2.30*   | 24.18 (3.31) 7.31† |
| Internalized Stigma      | .17 (.82) .21       | -3.20 (1.70) -1.89      | -2.67 (1.42) -1.89   | -9.3 (1.01) -9.2 |
| Thwarted Belongingness   | 8.08 (1.62) 5.00†   | 5.84 (3.41) 1.71        | -6.23 (2.82) -2.22*  | 4.96 (2.05) 2.42* |
| Subjective Vitality      | -3.17 (.62) -5.11†  | 9.17 (1.35) 6.81†       | 8.30 (1.09) 7.61†    | 4.89 (.79) 6.21† |
| Thw_Belong x Sub_Vitality| -1.17 (.38) -3.05†  | -.36 (.83) -.43         | 1.55 (.67) 2.31*     | -.75 (.49) -1.52 |

<table>
<thead>
<tr>
<th></th>
<th>Indirect Effect 95% BCa CI</th>
<th>Indirect Effect 95% BCa CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thwarted Belongingness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1.58</td>
<td>.86 [-.06, 2.27]</td>
<td>-4.14 [-7.55, -1.86]</td>
</tr>
<tr>
<td>-1.36</td>
<td>1.03 [.12, 2.50]</td>
<td>-4.33 [-7.69, -2.15]</td>
</tr>
<tr>
<td>-1.03</td>
<td>1.29 [.39, 2.75]</td>
<td>-4.60 [-7.76, -2.62]</td>
</tr>
<tr>
<td>-.81</td>
<td>1.46 [.53, 3.00]</td>
<td>-4.79 [-8.15, -2.51]</td>
</tr>
<tr>
<td>-.47</td>
<td>1.72 [.72, 3.27]</td>
<td>-5.08 [-8.34, -2.58]</td>
</tr>
<tr>
<td>.30</td>
<td>2.32 [1.05, 3.99]</td>
<td>-5.72 [-9.21, -3.05]</td>
</tr>
<tr>
<td>.75</td>
<td>2.67 [1.22, 4.68]</td>
<td>-6.1 [-9.77, -3.08]</td>
</tr>
<tr>
<td>1.30</td>
<td>3.09 [1.43, 5.46]</td>
<td>-6.57 [-10.63, -3.38]</td>
</tr>
</tbody>
</table>

*Note. Unstandardized regression coefficients are reported. Bootstrap sample size = 5,000. BCa CI = Bias-corrected and accelerated confidence interval. Note that CI values not containing 0 are considered to be significant. For Depressive Symptoms n = 93, for PCS n = 99, for MCS n = 97, and for GH n = 99.

* p<.05, † p<.01, ‡ p<.001.
Figure 2. Indirect Effect of Internalized Stigma via Vitality on Depressive Symptoms, Moderated by Thwarted Belongingness Influencing \( bc \) Pathway (95% Confidence Band)

A plot of thwarted belongingness as a moderator conditioning the standardized significant indirect effect of internalized stigma on depressive symptoms via subjective vitality by influencing the pathway from subjective vitality to depressive symptoms. The \( y \) axis is the indirect effect or mediation pathway from internalized stigma to depressive symptoms via subjective vitality. The \( x \) axis is the range of reported thwarted belongingness levels (averaged and centered). Dashed lines represent the lower and upper 95% confidence intervals estimated with 5,000 bootstrap samples in the MODMED program (see www.afhayes.com and Preacher, Rucker, & Hayes, 2007). Horizontal line denotes an indirect effect of 0. Vertical line denotes region of significance or lower boundary for thwarted belongingness conditioning effect.

Note. Measures include Internalized Stigma subscale from Perceived Stigma of Financial Situation (independent variable), Subjective Vitality Scale (mediator), Thwarted Belongingness subscale of the Interpersonal Needs Questionnaire (moderator), and Center for Epidemiologic Studies Depression Scale (dependent variable). Gender and income were controlled in this model. \( n = 93 \).

Note. LCI = Lower confidence interval, UCI = Upper confidence interval.
stigma and depressive symptoms regardless of the impact of one’s TB level in the relation between subjective vitality and depressive symptoms, but the magnitude of the mediation effect was relatively greater for individuals reporting higher TB versus those reporting lower TB. Results from bootstrapping analyses closely mirrored those of the JN analysis and are presented in Table 5, and Figure 3 illustrates the 95% CI band for the effect.

With internalized financial stigma as the predictor and PB as the moderator, none of the potential interactions reached significance; therefore, no bootstrapping analyses were performed. All of the results for models with internalized stigma as the predictor can be found in Tables 5 and 6.

**Experienced Stigma as Predictor**

Next, I examined whether the mediation by subjective vitality for the relation between experienced financial stigma and depressive symptoms was conditional upon (i.e., moderated by) TB. Initial analyses showed that TB interacted with experienced stigma in its relation with subjective vitality (i.e., the $a$ path) ($B = .24$, $t = 2.44$, $p<.05$), and it interacted with subjective vitality in its relation with depressive symptoms (i.e., the $b$ path) ($B = -.91$, $t = -2.34$, $p<.05$). Therefore, separate sets of follow-up bootstrapping analyses were conducted to probe the nature of these interactions. Regarding the interaction for pathway $a$, the JN technique suggested that the indirect effect on depressive symptoms due to the influence of TB in the relation between experienced stigma and subjective vitality is only significant for values of TB = -.83 and lower (all $ps<.05$), which represents 37.4% of respondents. In other words, subjective vitality was a significant mediator of the relationship between experienced stigma and depressive symptoms overall; however, when the effect of TB in the relation between experienced stigma and subjective vitality was accounted for, the mediation effect was significant only for those
A plot of thwarted belongingness as a moderator conditioning the standardized significant indirect effect of internalized stigma on mental health-related quality of life (HRQL) via subjective vitality by influencing the pathway from subjective vitality to mental HRQL. The $y$ axis is the indirect effect or mediation pathway from internalized stigma to depressive symptoms via subjective vitality. The $x$ axis is the range of reported thwarted belongingness levels (averaged and centered). Dashed lines represent the lower and upper 95% confidence intervals estimated with 5,000 bootstrap samples in the MODMED program (see www.afhayes.com and Preacher, Rucker, & Hayes, 2007). Note that the indirect effect is significant at every level of the moderator, but that the absolute magnitude of the indirect effect increases significantly with higher levels of thwarted belongingness.

Note. Measures include Internalized Stigma subscale from Perceived Stigma of Financial Situation (independent variable), Subjective Vitality Scale (mediator), Thwarted Belongingness subscale of the Interpersonal Needs Questionnaire (moderator), and Short-form 36, Version 2 Mental Components Summary (Mental health-related quality of life, dependent variable). Gender and income were controlled in this model. $n = 97$.

Note. LCI = Lower confidence interval, UCI = Upper confidence interval.
Table 6
Regression and Bootstrapping Results with Internalized Financial Stigma as Predictor and Perceived Burdensomeness as Moderator

<table>
<thead>
<tr>
<th></th>
<th>Depressive Symptoms</th>
<th>Physical Components Sum</th>
<th>Mental Components Sum</th>
<th>General Health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (SE)</td>
<td>t</td>
<td>B (SE)</td>
<td>t</td>
</tr>
<tr>
<td><strong>Mediator Variable Model (predicting subjective vitality)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4.31 (.16)</td>
<td>26.80‡</td>
<td>4.24 (.15)</td>
<td>27.52‡</td>
</tr>
<tr>
<td>Internalized Stigma</td>
<td>-.51 (.16)</td>
<td>-3.21†</td>
<td>-.55 (.15)</td>
<td>-3.62†</td>
</tr>
<tr>
<td>Perceived Burdensomeness</td>
<td>-.54 (.12)</td>
<td>-4.17†</td>
<td>-.59 (.12)</td>
<td>-4.85†</td>
</tr>
<tr>
<td>Stigma_Int x Perc_Burden</td>
<td>-.18 (.14)</td>
<td>-1.32</td>
<td>-.13 (.14)</td>
<td>-.95</td>
</tr>
<tr>
<td><strong>Dependent Variable Model (predicting the outcome variable)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>31.07 (2.94)</td>
<td>11.78‡</td>
<td>16.01 (5.18)</td>
<td>3.09†</td>
</tr>
<tr>
<td>Internalized Stigma</td>
<td>.12 (.91)</td>
<td>.14</td>
<td>-2.92 (1.79)</td>
<td>-1.64</td>
</tr>
<tr>
<td>Perceived Burdensomeness</td>
<td>5.33 (1.60)</td>
<td>3.32†</td>
<td>3.34 (3.17)</td>
<td>1.06</td>
</tr>
<tr>
<td>Subjective Vitality</td>
<td>-3.95 (.57)</td>
<td>-6.90†</td>
<td>6.96 (1.14)</td>
<td>6.09‡</td>
</tr>
<tr>
<td>Perc_Burden x Sub_Vitality</td>
<td>-.63 (.36)</td>
<td>-1.75</td>
<td>-.69 (.73)</td>
<td>-.94</td>
</tr>
</tbody>
</table>

No Post-hoc analyses were run because none of the interactions was significant

*Note. Unstandardized regression coefficients are reported. Bootstrap sample size = 5,000. BCa CI = Bias-corrected and accelerated confidence interval. For Depressive Symptoms n = 93, for PCS n = 99, for MCS n = 97, and for GH n = 99.
*p<.05, †p<.01, ‡p<.001.
reporting relatively low levels of TB. Regarding the interaction for pathway b, the JN technique indicated that the indirect effect due to the influence of TB in the relation between subjective vitality and depressive symptoms is significant for every value of the moderator at TB = -1.08 and higher (all ps<.05), or about 75% of respondents. Stated differently, when the effect of TB in the relation between subjective vitality and depressive symptoms was accounted for, the mediation effect of subjective vitality in the relation between experienced stigma and depressive symptoms was significant for most individuals, except for those reporting very low levels of TB. Follow-up bootstrapping analyses corroborated the results of the JN technique, and details are presented in Table 7. Figures 4 and 5 illustrate the 95% CI bands for the effects.

Subsequent analyses utilizing experienced stigma as the independent variable and TB as the moderator revealed a significant interaction between experienced stigma and TB in its relation to subjective vitality. Using the JN technique for the models in which the HRQL-PCS and HRQL-GH were outcomes, the indirect effect was statistically significant for values of the moderator at TB = -.58 and lower, or about 47.5% of the sample (all ps<.05). When the HRQL-MCS was the outcome, the indirect effect was statistically significant for values of TB = -.83 and lower (all ps<.05), or about 37.4% of respondents. Again, bootstrapping analyses corroborated results of normal-theory testing. Details are reported in Tables 7 and 8. Figures 4 through 8 illustrate the confidence bands for the conditional indirect effects.
Table 7
Regression and Bootstrapping Results with Experienced Financial Stigma as Predictor and Thwarted Belongingness as Moderator Including Post-hoc Analyses for Models with Significant Interactions

<table>
<thead>
<tr>
<th></th>
<th>Depressive Symptoms</th>
<th>Physical Components Sum</th>
<th>Mental Components Sum</th>
<th>General Health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (SE)</td>
<td>t</td>
<td>B (SE)</td>
<td>t</td>
</tr>
<tr>
<td><strong>Mediator Variable Model (predicting subjective vitality)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>4.12 (.14)</td>
<td>30.01†</td>
<td>4.10 (.13)</td>
<td>31.20†</td>
</tr>
<tr>
<td>Experienced Stigma</td>
<td>-0.09 (.14)</td>
<td>-70.0</td>
<td>-1.13 (.13)</td>
<td>-99</td>
</tr>
<tr>
<td>Thwarted Belongingness</td>
<td>-0.88 (.10)</td>
<td>-8.64†</td>
<td>-0.90 (.10)</td>
<td>-9.35†</td>
</tr>
<tr>
<td>Stigma_Exp x Thw_Belong</td>
<td>.24 (.10)</td>
<td>2.44*</td>
<td>.24 (.10)</td>
<td>2.47*</td>
</tr>
<tr>
<td><strong>Dependent Variable Model (predicting the outcome variable)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>26.89 (2.68)</td>
<td>10.04‡</td>
<td>6.39 (5.70)</td>
<td>1.12</td>
</tr>
<tr>
<td>Experienced Stigma</td>
<td>1.23 (.77)</td>
<td>1.59</td>
<td>-4.68 (1.67)</td>
<td>-2.81†</td>
</tr>
<tr>
<td>Thwarted Belongingness</td>
<td>6.37 (1.70)</td>
<td>3.75†</td>
<td>7.28 (3.34)</td>
<td>2.00*</td>
</tr>
<tr>
<td>Subjective Vitality</td>
<td>-3.34 (.61)</td>
<td>-5.46†</td>
<td>9.40 (1.32)</td>
<td>7.11†</td>
</tr>
<tr>
<td>Thw_Belong x Sub_Vitality</td>
<td>-.91 (.39)</td>
<td>-.234*</td>
<td>-.44 (.85)</td>
<td>-.51</td>
</tr>
<tr>
<td><strong>Thwarted Belongingness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1.58</td>
<td>a (IV → Med)</td>
<td>1.59</td>
<td>-4.80</td>
<td>-7.65, -2.19</td>
</tr>
<tr>
<td></td>
<td>b (Med → DV)</td>
<td>.73</td>
<td>[.073, 2.03]</td>
<td></td>
</tr>
<tr>
<td>-1.36</td>
<td>a (IV → Med)</td>
<td>1.41</td>
<td>-4.30</td>
<td>-6.85, -1.98</td>
</tr>
<tr>
<td></td>
<td>b (Med → DV)</td>
<td>.91</td>
<td>[.91, 2.21]</td>
<td></td>
</tr>
<tr>
<td>-1.03</td>
<td>a (IV → Med)</td>
<td>1.15</td>
<td>-3.55</td>
<td>-5.79, -1.42</td>
</tr>
<tr>
<td></td>
<td>b (Med → DV)</td>
<td>1.17</td>
<td>[1.17, 2.46]</td>
<td></td>
</tr>
<tr>
<td>-.81</td>
<td>a (IV → Med)</td>
<td>.97</td>
<td>-3.05</td>
<td>-5.11, -1.05</td>
</tr>
<tr>
<td></td>
<td>b (Med → DV)</td>
<td>1.34</td>
<td>[1.34, 2.65]</td>
<td></td>
</tr>
<tr>
<td>-.47</td>
<td>a (IV → Med)</td>
<td>.69</td>
<td>-2.28</td>
<td>-4.31, -2.27</td>
</tr>
<tr>
<td></td>
<td>b (Med → DV)</td>
<td>1.61</td>
<td>[1.61, 2.93]</td>
<td></td>
</tr>
<tr>
<td>.30</td>
<td>a (IV → Med)</td>
<td>.07</td>
<td>-5.3</td>
<td>-3.01, 2.06</td>
</tr>
<tr>
<td></td>
<td>b (Med → DV)</td>
<td>2.22</td>
<td>[2.22, 3.75]</td>
<td></td>
</tr>
<tr>
<td>.75</td>
<td>a (IV → Med)</td>
<td>-.29</td>
<td>.49</td>
<td>-2.33, 3.87</td>
</tr>
<tr>
<td></td>
<td>b (Med → DV)</td>
<td>2.57</td>
<td>[2.57, 4.13]</td>
<td></td>
</tr>
<tr>
<td>1.30</td>
<td>a (IV → Med)</td>
<td>-.74</td>
<td>1.73</td>
<td>-1.65, 6.09</td>
</tr>
<tr>
<td></td>
<td>b (Med → DV)</td>
<td>3.01</td>
<td>[3.01, 4.97]</td>
<td></td>
</tr>
<tr>
<td>1.86</td>
<td>a (IV → Med)</td>
<td>-1.19</td>
<td>3.01</td>
<td>-1.16, 8.47</td>
</tr>
<tr>
<td></td>
<td>b (Med → DV)</td>
<td>3.45</td>
<td>[3.45, 5.67]</td>
<td></td>
</tr>
</tbody>
</table>

**Note.** Unstandardized regression coefficients are reported. Bootstrap sample size = 5,000. BCa CI = Bias-corrected and accelerated confidence interval. For Depressive Symptoms n = 93, for PCS n = 99, for MCS n = 97, and for GH n = 99. * p<.05, †p<.01, ‡p<.001.
Table 8
Regression and Bootstrapping Results with Experienced Financial Stigma as Predictor and Perceived Burdensomeness as Moderator

<table>
<thead>
<tr>
<th></th>
<th>Depressive Symptoms</th>
<th>Physical Components Sum</th>
<th>Mental Components Sum</th>
<th>General Health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (SE)</td>
<td>t</td>
<td>B (SE)</td>
<td>t</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>4.19 (.16)</td>
<td>26.82†</td>
<td>4.14 (.15)</td>
<td>27.84†</td>
</tr>
<tr>
<td>Experienced Stigma</td>
<td>-.41 (.15)</td>
<td>-2.80†</td>
<td>-.46 (.14)</td>
<td>-3.22†</td>
</tr>
<tr>
<td>Perceived Burdensomeness</td>
<td>-.65 (.13)</td>
<td>-5.00†</td>
<td>-.70 (.13)</td>
<td>-5.54†</td>
</tr>
<tr>
<td><strong>Stigma_Exp x Perc_Burden</strong></td>
<td>.17 (.13)</td>
<td>1.31</td>
<td>.20 (.13)</td>
<td>1.56</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mediator Variable Model (predicting subjective vitality)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>30.32 (2.66)</td>
<td>11.39‡</td>
<td>17.23 (5.28)</td>
<td>3.26†</td>
</tr>
<tr>
<td>Experienced Stigma</td>
<td>1.29 (.81)</td>
<td>1.59</td>
<td>-3.17 (1.68)</td>
<td>-1.89</td>
</tr>
<tr>
<td>Perceived Burdensomeness</td>
<td>4.50 (.58)</td>
<td>2.84†</td>
<td>1.97 (3.19)</td>
<td>.52</td>
</tr>
<tr>
<td>Subjective Vitality</td>
<td>-3.81 (.58)</td>
<td>-6.53‡</td>
<td>6.72 (1.18)</td>
<td>5.71‡</td>
</tr>
<tr>
<td><strong>Perc_Burden x Sub_Vitality</strong></td>
<td>-.52 (.33)</td>
<td>-1.54</td>
<td>-.38 (.70)</td>
<td>-.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dependent Variable Model (predicting the outcome variable)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experienced Stigma</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Burdensomeness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjective Vitality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perc_Burden x Sub_Vitality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No Post-hoc analyses were run because none of the interactions was significant

Note. Unstandardized regression coefficients are reported. Bootstrap sample size = 5,000. BCa CI = Bias-corrected and accelerated confidence interval. For Depressive Symptoms n = 93, for PCS n = 99, for MCS n = 97, and for GH n = 99.
* p<.05, †p<.01, ‡p<.001.
Figure 4. Indirect Effect of Experienced Stigma via Vitality on Depressive Symptoms, Moderated by Thwarted Belongingness Influencing $ab$ Pathway (95% Confidence Band)

A plot of thwarted belongingness as a moderator conditioning the standardized significant indirect effect of experienced stigma on depressive symptoms via subjective vitality by influencing the pathway from experienced stigma to subjective vitality. The y axis is the indirect effect or mediation pathway from internalized stigma to depressive symptoms via subjective vitality. The x axis is the range of reported thwarted belongingness levels (averaged and centered). Dashed lines represent the lower and upper 95% confidence intervals estimated with 5,000 bootstrap samples in the MODMED program (see www.afhayes.com and Preacher, Rucker, & Hayes, 2007). Horizontal line denotes an indirect effect of 0. Vertical line denotes region of significance or lower boundary for thwarted belongingness conditioning effect.

Note. Measures include Experienced Stigma subscale from Perceived Stigma of Financial Situation (independent variable), Subjective Vitality Scale (mediator), Thwarted Belongingness subscale of the Interpersonal Needs Questionnaire (moderator), and Center for Epidemiologic Studies Depression Scale (dependent variable). Gender and income were controlled in this model. n = 93.

Note. LCI = Lower confidence interval, UCI = Upper confidence interval.
A plot of thwarted belongingness as a moderator conditioning the standardized significant indirect effect of experienced stigma on depressive symptoms via subjective vitality by influencing the pathway from subjective vitality to depressive symptoms. The y axis is the indirect effect or mediation pathway from internalized stigma to depressive symptoms via subjective vitality. The x axis is the range of reported thwarted belongingness levels (averaged and centered). Dashed lines represent the lower and upper 95% confidence intervals estimated with 5,000 bootstrap samples in the MODMED program (see www.afhayes.com and Preacher, Rucker, & Hayes, 2007). Horizontal line denotes an indirect effect of 0. Vertical line denotes region of significance or lower boundary for thwarted belongingness conditioning effect. 

Note. Measures include Experienced Stigma subscale from Perceived Stigma of Financial Situation (independent variable), Subjective Vitality Scale (mediator), Thwarted Belongingness subscale of the Interpersonal Needs Questionnaire (moderator), and Center for Epidemiologic Studies Depression Scale (dependent variable). Gender and income were controlled in this model. n = 93.

Note. LCI = Lower confidence interval, UCI = Upper confidence interval.
Figure 6. Indirect Effect of Experienced Stigma via Vitality on Physical Health-Related Quality of Life, Moderated by Thwarted Belongingness Influencing ab Pathway (95% Confidence Band)

A plot of thwarted belongingness as a moderator conditioning the standardized significant indirect effect of experienced stigma on physical health-related quality of life (HRQL) via subjective vitality by influencing the pathway from experienced stigma to subjective vitality. The y axis is the indirect effect or mediation pathway from internalized stigma to physical HRQL via subjective vitality. The x axis is the range of reported thwarted belongingness levels (averaged and centered). Dashed lines represent the lower and upper 95% confidence intervals estimated with 5,000 bootstrap samples in the MODMED program (see www.afhayes.com and Preacher, Rucker, & Hayes, 2007). Horizontal line denotes an indirect effect of 0. Vertical line denotes region of significance or upper boundary for thwarted belongingness conditioning effect.

Note. Measures include Experienced Stigma subscale from Perceived Stigma of Financial Situation (independent variable), Subjective Vitality Scale (mediator), Thwarted Belongingness subscale of the Interpersonal Needs Questionnaire (moderator), and Short-form 36, Version 2 Physical Components Summary (Physical health-related quality of life, dependent variable). Age and gender were controlled in this model. n = 99.

Note. LCI = Lower confidence interval, UCI = Upper confidence interval.
A plot of thwarted belongingness as a moderator conditioning the standardized significant indirect effect of experienced stigma on mental health-related quality of life (HRQL) via subjective vitality by influencing the pathway from experienced stigma to subjective vitality. The y axis is the indirect effect or mediation pathway from internalized stigma to mental HRQL via subjective vitality. The x axis is the range of reported thwarted belongingness levels (averaged and centered). Dashed lines represent the lower and upper 95% confidence intervals estimated with 5,000 bootstrap samples in the MODMED program (see www.afhayes.com and Preacher, Rucker, & Hayes, 2007). Horizontal line denotes an indirect effect of 0. Vertical line denotes region of significance or upper boundary for thwarted belongingness conditioning effect.

Note. Measures include Experienced Stigma subscale from Perceived Stigma of Financial Situation Scale (independent variable), Subjective Vitality Scale (mediator), Thwarted Belongingness subscale of the Interpersonal Needs Questionnaire (moderator), and Short-form 36, Version 2 Mental Components Summary (Mental health-related quality of life, dependent variable). Age and gender were controlled in this model. n = 97.

Note. LCI = Lower confidence interval, UCI = Upper confidence interval.
Figure 8. Indirect Effect of Experienced Stigma via Vitality on General Health Perceptions, Moderated by Thwarted Belongingness Influencing $ab$ Pathway (95% Confidence Band)

A plot of thwarted belongingness as a moderator conditioning the standardized significant indirect effect of experienced stigma on general health perceptions via subjective vitality by influencing the pathway from experienced stigma to subjective vitality. The y axis is the indirect effect or mediation pathway from internalized stigma to general health perceptions via subjective vitality. The x axis is the range of reported thwarted belongingness levels (averaged and centered). Dashed lines represent the lower and upper 95% confidence intervals estimated with 5,000 bootstrap samples in the MODMED program (see www.afhayes.com and Preacher, Rucker, & Hayes, 2007). Horizontal line denotes an indirect effect of 0. Vertical line denotes region of significance or upper boundary for thwarted belongingness conditioning effect.

Note. Measures include Experienced Stigma subscale from Perceived Stigma of Financial Situation (independent variable), Subjective Vitality Scale (mediator), Thwarted Belongingness subscale of the Interpersonal Needs Questionnaire (moderator), and Short-form 36, Version 2 General Health Perceptions Scale (dependent variable). n = 99.

Note. LCI = Lower confidence interval, UCI = Upper confidence interval.
CHAPTER 4
DISCUSSION

Stigma, whether experienced firsthand or simply internalized from social or cultural values, can bear negative consequences for those who, for one reason or another, fall into a stigmatized category. For instance, one type of stigma in the U.S. involves individuals’ financial standing, and this “financial stigma” hits hard among those who are impoverished and who rely on charity-based help for survival. However, the specific mechanisms by which stigma, and most particularly financial stigma, might adversely affect people’s physical or psychological well-being and perceptions of quality of life have been relatively ignored in the psychological literature (Williams, 2009). In this research I sampled working and uninsured primary care patients who were receiving healthcare services at a reduced-cost local access to care program, and I investigated the relations between perceptions of internalized or experienced financial stigma and various health outcomes including physical and mental health-related quality of life (HRQL), general health perceptions, and depressive symptoms. HRQL is unique in its potential to capture various facets of quality of life stemming from such a broad swath of health variables, including physical, mental, and social aspects of health (Hays & Morales, 2001; McHorney, 1999). Examining depressive symptoms provided a means of focusing on a relatively discrete aspect of psychological health that, in the form of clinical diagnosis, often is treated by biological or medicinal as well as psychological forms of therapy (Fava & Kendler, 2000). I also sought evidence to support the theory that stigma may negatively affect the health outcomes via alterations in subjective vitality, that is, the physical and psychological experience of personal energy and aliveness that reflects the satisfaction of hedonic and eudaimonic aspects of well-being. Finally, I examined if the extent to which vitality accounts for the relations between
stigma and these health outcomes varied as a function of (or were moderated by) the extent to which participant needs for belongingness were being thwarted or the extent to which they perceived themselves to be burdens on others. Results were interesting and, overall, supportive of hypotheses.

Overall, the sample was in relatively poor health. Compared with 1998 general adult population norms, participants in this sample reported lower physical (44.82<50) and mental HRQL (42.27<50), and the ideas they held about their general health were more negative (45.38<50) (Ware et al., 2000). The sample also reported a particularly high level of depressive symptoms as assessed by a well-validated measure of depressive symptomology, Radloff’s (1977) Center for Epidemiologic Studied Depression (CESD) Scale. In fact, the mean score of this sample was not only higher (CESD = 15.56>14.28) than those reported by a sample of low-income, primary care women (Thomas et al., 2001), but it was about 70%-95% higher than the general population means [range from 7.94 (SD = 7.53) to 9.25 (SD = 8.58)] used in the scale’s original psychometric analysis (Radloff, 1977). These mean differences in depression symptoms and quality of life scores provide preliminary evidence of the difficulties faced by those with limited financial resources, and the outcomes they may experience. Not only does this group share financial difficulties in life (i.e., as patients seeking treatment from a clinic where treatment eligibility is based on income and other financial resources), they are less well than other samples, overall. Statistically, mean differences such as these may cause concern, as they suggest that the range of possible scores will be restricted and the sample’s variance will be truncated, which, as a result, would increase the difficulty of finding systematic and statistically significant relations among study variables. On the other hand, statistically significant relations that emerge among this group would provide strong evidence of the relations among study
variables. In most cases, hypotheses were supported. I discuss relevant findings below, using
the numerical list of hypotheses as the framework for discussion. Where applicable, I also
discuss broader implications of the findings, including potential means to improve health
outcomes for individuals, particularly those who are stigmatized.

Hypotheses

Hypothesis 1: Bivariate Relations between Stigma and Other Study Variables

As hypothesized, perceptions of experienced and internalized stigma of one’s financial
situation were positively associated with depressive symptoms, thwarted belongingness (TB),
and perceived burdensomeness (PB) and negatively associated with subjective vitality and
dimensions of HRQL including overall physical HRQL, mental HRQL, and general health
perceptions. The absolute values of the correlation coefficients were generally in the moderate
range (Rice & Harris, 2005). Thus, these findings suggest that experiencing stigmatization from
others based on one’s financial status and internalizing negative stigmatizing beliefs and attitudes
about poverty may lead to feelings of depression and impair overall health. These results concur
with decades of research about the generally deleterious effects of stigma on mood, and, more
specifically, with recent research demonstrating a positive association of perceptions of
internalized and experienced financial stigma on depressive symptoms (Mickelson & Williams,
2008). Likewise, these findings are congruent with prior research that found stigma about a
medical disease to be negatively associated with HRQL and general health perceptions (Spiegel
et al., 2007), and by including perceptions of financial stigma as playing an important role in
HRQL and general health perceptions, they offer an important extension.

The relative strengths of the correlation coefficients between the two dimensions of
stigma and the outcome variables were highly congruent. This finding suggests that the
magnitude of the negative effects of internalization of stigma and experiencing actual stigmatization from others may be similar. Thus, not only do experienced and internalized stigma scores correlate strongly with one another, they manifest convergent relations with outcome variables, at least at the bivariate level. The results of subsequent partial correlation analyses were less clear. For instance, when controlling for experienced stigma, internalized stigma was no longer significantly associated with general health perceptions, but experienced stigma remained significantly and negatively associated with general health perceptions even while controlling for internalized stigma. The factors that contribute to individuals’ general evaluations of their health are numerous. Krause and Jay (1994) found that the majority of participants reported identifying specific health issues (e.g., having a particular disease) as influencing their general self-reported health assessments. Possibly, in comparison with general, negative self-evaluations (e.g., “I am shameful”), particular episodes of experienced stigma are more salient and, therefore, more likely than to function as referents in assessing self-reported health. From this perspective, it may simply be the case that of the two stigma variables, the experience of stigma is more important than the internalization of values, or that, to the extent internalization affects health outcomes it does so via experience. Qualitative research among those reporting experienced and perceived stigma may help to identify how negative interpersonal interactions function differently from self-stigma in affecting one’s perceptions of health.

Other findings link both dimensions of stigma to thwarted belongingness. These results are consistent with research on the negative associations between stigma and social support (e.g., Roeloffs et al., 2003), and they also shed light on Lott’s (2002) theoretical argument that society’s dominant response to the poor and impoverished is to discriminate against them by
creating cognitive and institutional “distance,” that is, separation, exclusion, and disconnectedness. Perceived burdensomeness also significantly related to each dimension of stigma. These findings support Mickelson’s (2001) argument that people experiencing elevated stigma may have restricted social networks. The ensuing sense of isolation may stem from either real experiences or further internalization of stigma relevant values that leads them to relatively heavy dependence on those closest to them for social support and thereby increases their perceptions of burdensomeness. Moreover, when controlling for either internalized or experienced stigma in partial correlation analyses, both dimensions of stigma fell below statistical significance in their relations with PB, but they both demonstrated meaningful trends and continued to show a positive association with PB. This suggests overlap among PB, experienced and internalized financial stigma with such concordance that it limits the unique variance that can be attributable to either type of stigma in isolation. In other partial correlation analyses controlling for other covariates, only experienced financial stigma remained significantly associated with TB, but internalized financial stigma continued to show a meaningful trend toward significance. It may be the case that a larger sample size would confirm significant associations between each dimension of stigma and TB and PB, even with covariates in analyses. The fact that experienced rather than internalized stigma remains significantly associated with TB in controlled analyses may result from the fact that TB is a sign of interpersonal distress and experienced stigma directly reflects interpersonal stressors; internalized stigma, on the other hand, is a sign of intrapsychic distress. Future research should examine these relations more closely. Nonetheless, to my knowledge, this is the first study to demonstrate significant relations between perceptions of financial stigma and TB and PB.
Although prior empirical evidence does not exist linking stigma to subjective vitality, I found evidence of a robust inverse association between these variables. These results are consistent with Ryan and Frederick’s (1997) claim that feeling subjectively vital is contingent upon one being, “…free of conflicts, unburdened by external controls, and feeling capable of effecting action” (p. 530). In other words, from a SDT perspective, the experience or internalization of financial stigma reflects perceptions of feeling controlled by external forces, which reduces individuals’ ability to engage in volitional activity from a perceived internal locus of causality (Link & Phelan, 2001). Ryan and Frederick (1997) explain that volitional activity can either be energy-draining or invigorating, depending largely on whether or not one feels that his or her choices derive from internal motives and align with relevant values and interests. Although previous research has found perceptions of stigma to be negatively associated with psychological well-being variables, such as mood dysfunction (Frost, 2001), our results contribute to the literature by confirming a robust relation between stigma and subjective vitality.

**Implications for Reducing Stigma.** To the extent that stigma adversely affects important health outcomes, one important question arising from the current findings concerns how to best reduce levels of perceived stigma. Little is currently known about the effectiveness of the efforts used to reduce stigma due the general paucity of research on the strategies employed for those who are stigmatized. To my knowledge, empirical evidence regarding methods to reduce stigma related to poverty simply do not exist; however, Heijinders and van der Meij (2006) reviewed the extant literature on stigma-reduction strategies that have been used to target stigma related to health conditions such as HIV/AIDS, tuberculosis, leprosy, and mental illness. They describe how these approaches fall into five categories: intrapersonal (e.g., therapy, self-help, support-groups), interpersonal (e.g., home care teams, community-based rehabilitation), organizational or
institutional (e.g., training programs, patient-centered policies), community (e.g., public education, contact between stigmatized and public, protests), and government levels (e.g., legal and policy interventions).

The latter three strategies are primarily intended to reduce the amount and severity of actual stigma in society. Governmental or structural level strategies may have the obvious benefit of reducing the level of physical, political, or legal inequality between stigmatized and nonstigmatized individuals. Although such strategies may not directly target change in society’s stigmatizing beliefs, they seek to reduce power inequalities and, thereby, reduce the negative impact of stigma. For example, the Americans with Disabilities Act (ADA) is used to ensure that individuals with disabilities can physically access public areas and businesses and to provide legal recourse in the case of discrimination. I am unaware of any research on the effectiveness of such efforts in reducing actual stigma, and it is possible that governmental efforts could have negative unintended consequences. For instance, although the ADA intended to increase access to employment for disabled individuals, a sharp increase in unemployment among the disabled followed the act’s enactment; economists suggest this rise may reflect employers’ fears of hiring individuals with special governmental protections (DeLeire, 1999).

A common starting point for efforts to reduce stigma is public education about the actual causes and implications of a stigmatizing condition, such as HIV/AIDS. Herek et al. (2002) reported mixed results for the effectiveness of education strategies in reducing stigma, noting that while knowledge can be easily improved, attitudes towards the stigmatized are quite enduring. For example, officials in the United Kingdom instituted a controlled public health intervention in neighborhoods in London aimed at reducing public stigma of mental illness. While a significant reduction in stigmatizing attitudes in the neighborhood occurred, other
researchers have suggested that public contact with mentally ill individuals explained the improvements, and later studies have failed to replicate the beneficial effect of public education campaigns (Heijinders & van der Meij, 2006; Wolff, Pathare, Craig, & Leff, 1996).

Organized protests often target businesses and organizations that perpetuate stigmatizing beliefs exist, such as the National Alliance for the Mentally Ill’s (NAMI) protests against various media outlets. While such efforts may lead to some reduction of stigmatizing beliefs, gains are generally short-lived and efforts may result in a rebound effect wherein beliefs are suppressed only temporarily while failing to replace the stigmatizing belief with an alternative belief (Corrigan & Penn, 1999). Little research has been conducted concerning the effectiveness of strategies at the institutional level, but qualitative recommendations in the literature focus on creating patient-centered, autonomy-supportive environments in order to empower potentially stigmatized individuals (Benbow & Tamiru; Crawford & Brown, 2002; Macq, Solis, Martinez, & Dujardin, 2005). In summary, interventions to reduce society’s stigmatizing beliefs have not yet been supported empirically.

Even if efforts to reduce stigma at the societal level were effective, internalized stigma and fear of stigma may endure after society’s views have changed (Frost, 2011). Therefore, intrapersonal and interpersonal strategies for targeting stigma focus on helping individuals cope with stigma, adopt helpful beliefs, and change their environments and relationships in adaptive ways. Interpersonal interventions, such as those that provide interpersonal care and support to stigma victims, have not yet been empirically supported, although some authors provide qualitative descriptions of the benefit of such interventions (e.g., Nyblade et al., 2003). Intrapersonally, boosting coping skills among the stigmatized may help them manage life distress; however, some ways to cope with stigma such as secrecy, avoidance, and withdrawal
may cause more harm than benefit (Heijinders & van der Meij, 2005). Currently, the most empirically supported intervention for improving self-stigma related to mental illness is cognitive-behavioral therapy (CBT) (Corrigan & Calabrese, 2005). CBT is a structured treatment approach that trains patients to identify and modify distorted cognitions. CBT involves education, symptom and stress coping skills, desensitization to anxiety-provoking stimuli and cognitions, and systematic challenging of distorted and unhelpful thoughts and beliefs (Heijinders & van der Meij, 2005). For example, Macinnes and Lewis (2008) engaged stigmatized patients in a 6-week course of cognitive therapy coupled with psychoeducation that targeted internalized stigma beliefs and attitudes related to mental illness. Participants experienced significant reductions in internalized stigma and some meaningful but statistically non-significant improvements in self-esteem and self-acceptance (Macinnes & Lewis, 2008). Larson and Corrigan (2010) likewise describe special treatment considerations for addressing self-stigma of mental illness for patients in rural settings including sensitivity to the role of family in potentially mitigating or exacerbating the negative effects of self-stigma and awareness of the particularly strong effect of self-stigma in rural communities due to the more interconnected social groups. Direct evidence using CBT for financial stigma does not exist, however.

Some recent research has also found beneficial effects on stigma related to mental illness using Motivational Interviewing, a brief, patient-centered method for augmenting intrinsic motivation by helping a patient explore and resolve ambivalence about changing behavior or, in the case of stigma, attitudes (Luty, Okon, & Nuamah, 2009). As a therapeutic style, Motivational Interviewing is especially supportive of patient’s basic psychological needs of autonomy, competence, and relatedness (Markland, Ryan, Tobin, & Rollnick, 2005). Therefore,
if stigma impairs psychological needs, Motivational Interviewing treatment approaches may help to counteract the negative effects of thwarted basic psychological needs.

**Hypothesis 2: Bivariate Relations of Thwarted Belongingness, Perceived Burdensomeness, and Other Study Variables**

As expected, TB and PB significantly and negatively associated with subjective vitality, physical and mental HRQL, and general health perceptions and positively associated with depressive symptoms. The strengths of association of TB and PB with subjective vitality, depressive symptoms, and mental HRQL were strong, and there were weak to moderate associations of TB and PB with physical HRQL and general health perceptions (Rice & Harris, 2005). The relatively strong correlation between TB and subjective vitality corroborates a central premise of SDT, which posits that having one’s basic need for belongingness met is a precursor to experiencing feelings of vitality (Ryan & Frederick, 1997). When belongingness is thwarted, one is at risk of seeking compensatory need fulfillment by engaging in defensive, energy-draining and often maladaptive activities that reduce vitality (Vlachopoulos & Karavini, 2009). The negative association between PB and subjective vitality is consistent with Van Orden et al.’s (2012) claim that feeling like a burden indicates that one’s basic need for social competence is thwarted, which may consequently impair subjective vitality (Ryan & Deci, 2000).

Consistent with past research, significant associations emerged between TB and PB and depressive symptoms, mental and physical HRQL, and general health perceptions (Davidson et al., 2011). The utility of both TB and PB have also been supported in research on suicide, but the current results help broaden the scope of their importance to other health outcomes. Collectively, these findings highlight the central importance of social relationships in physical
and mental well-being, and the negative health effects of poor or inadequate interpersonal relationships (Berkman et al., 2000). Due to the adaptive role that social connectedness plays in human species survival and reproduction, the need for stable and supportive relationships has become ingrained in the human psyche; perhaps it is not surprising then that the deprivation of belongingness needs often result in psychological distress and physical health problems (Baumeister & Leary, 2005). Some theorists even go so far as to describe prisons’ use of solitary confinement as “cruel and unusual punishment”, owing to the deprivation of social contact for extended periods of time that it entails (Arrigo & Bullock, 2008).

The current results also speak to the nature of the relations between TB and PB. To the extent that these variables are distinct, it is nonetheless likely the case that these variables could exert reciprocal relations on one another. As noted by Van Orden et al. (2012), feeling like a burden may impair belongingness, and lacking a sense of belongingness may increase feelings of burdensomeness. Yet despite factor analytic evidence of the uniqueness of TB and PB (e.g., Van Orden et al., 2012), strong positive bivariate correlations found in the current results, as well as other theoretical perspectives, suggest that TB and PB are interconnected both theoretically and statistically. Furthermore, the results of partial correlation analyses, wherein I controlled for either TB or PB, suggest that, of the two, TB may be primarily responsible for the effects on subjective vitality, depressive symptoms, and mental HRQL. SDT provides a theoretical and empirical basis for understanding these findings (Deci & Ryan, 2000), holding that alterations in PB should reflect a lack of the belongingness need satisfaction. From this perspective, TB should explain (i.e., mediate) relations between PB and relevant outcomes. However, these findings contrast somewhat with research by Van Orden et al. (2006), who found that both TB and PB contribute unique variance to suicidal symptoms. This difference may be explained by
the fact that thoughts of suicide involve an essential calculation in determining whether or not, “…my death will be worth more to loved ones than will my life” (Joiner et al., 2007, p. 357). Perceptions of burdensomeness play a unique role in affecting such a calculation, but when suicide is not at issue, it may not contribute unique variance to depression and HRQL beyond its impact on TB. Further research is needed to determine if a mediation effect exists in which TB explains the effect of PB on other health outcomes.

**Implications for Improving Belongingness and Reducing Perceived Burdensomeness**

Given the apparently negative impact of TB and PB on health outcomes, it is important to consider how to alleviate the problems associated with them. Some researchers have argued that TB may result, in part, from lack of available social support, which is a construct that, similar to TB and PB, addresses interpersonal relationships (Van Orden et al., 2012). A substantial body of research exists on the relations between health and social support, demonstrating, for example, that perceptions of social support, rather than actual amount of social support received, are more strongly tied to health outcomes, and moreover that objective increases in levels of received social support are only moderately related to subsequent increases in perceived social support (Haber, Cohen, Lucas, & Baltes, 2007). Haber et al.’s findings highlight the importance of the social-cognitive processes that determine how an individual evaluates the quality of his or her social relationships (see also Kaul & Lakey, 2003). In other words, rather than reflecting the extent to which one actually has available social supports, perceptions of social support may primarily reflect the extent to which one feels fulfilled in terms of the need to belong. Accordingly, merely providing or helping individuals locate or even utilize additional social supports will not diminish TB and PB; sustained improvements to TB and PB likely require concordant changes in cognitive beliefs and attitudes as well.
Research from SDT has found that when individuals are able to act from an autonomous causality orientation—that is, with a full sense of willingness and volition, and endorsement of their actions—they are better able to structure their lives to support adequate need satisfaction (Deci & Ryan, 2008). As I discussed above, Motivational Interviewing is a therapeutic approach that supports the adoption of an autonomous causality orientation by emphasizing the individuals’ autonomy and helping them to draw connections between their behavior and values (Markland et al., 2005). However, TB and PB reflect the inhibition of autonomous functioning, which, by their very nature, may impede therapeutic progress. Therefore, successful therapy likely must use techniques that directly enhance feelings of connectedness and reduce perceptions of burdensomeness. In support of this belief, Pavey, Greitemeyer, and Sparks (2011) provide evidence that eliciting discussion of participants’ close and supportive relationships generated increased feelings of connectedness, leading to greater motivation to engage in prosocial behaviors. Thus, simply promoting individuals’ conscious awareness of existent connectedness may foster the increases in feelings of belongingness necessary for lasting therapeutic change.

Ryan and Deci (2008b) similarly argue that boosting mindfulness, that is, awareness of and attention to the present moment, promotes inner exploration, interested attention, and reflective examination of one’s fulfillment of the belongingness need. Mindful processing involves conscious awareness of one’s immediate experience from the standpoint of objective curiosity, openness, and acceptance relative to these experiences (Brown & Ryan, 2003). Brown, Ryan, Creswell, and Niemiec (2008) argue that mindfulness may be especially helpful in promoting satisfaction of the need to belong by easing excessive self-identification, which they refer to as “ego quieting” (p. 75). In other words, by reducing the tendency to quickly make
negative evaluations about stimuli and situations, particularly as related to one’s self, mindful processing decreases negative defensive responses to what could be perceived as social threats (Lakey, Kernis, Heppner, & Lance, 2008). Individuals with a history of experiencing actual stigma often develop expectations of experiencing more stigma, which impairs social relationships by creating a chronic cycle of expecting stigma and experiencing stigma-related distress (Frost, 2011); mindful processing may help to interrupt this negative cycle.

To reduce perceptions of burdensomeness therapists might target the expansion of individuals’ awareness of the interpersonal connections that exist beyond their interpersonal, one-on-one relationships, namely by prompting them to recognize their contributions to society and the broader culture (Cukrowicz et al. 2011). Toward this end, cognitive-behavioral strategies for identifying and testing negative beliefs and assumptions may be helpful. Additionally, the ego-quieting and more accepting stance promoted by mindful processing may help to reduce perceptions of being a burden on others by decreasing the emphasis of self-evaluations and diminished focus on negative thoughts.

Meditative practice as well as state-level mindfulness interventions have demonstrated effectiveness in increasing individuals’ trait mindfulness and various cognitive abilities related to mindfulness, they retain these benefits retain for extended periods post-intervention, and they also experience positive changes in their psychological health (Brown et al., 2007). Mindfulness interventions may also have the added benefit of reducing the negative impact of stigma, particularly internalized stigma by decreasing individuals’ tendency to make global negative evaluations in the face of discomforting and personally relevant information, and it may thereby forestall the ruminatory processes often associated with various forms of psychological pathology, like depression (Lillis, Hayes, Bunting, & Masuda, 2009). Larson and Corrigan
(2010) recently recommended promoting mindfulness for working with those who experience stigma, and most particularly rural patients who experience self-stigma related to their mental health diagnosis. Still, more empirical evidence is needed in this area to confirm the beneficial effects of mindfulness interventions, particularly as a means of promoting feelings of belongingness and reducing perceptions of burdensomeness (Brenner et al., 2008).

**Hypothesis 3: Bivariate Relations of Subjective Vitality and Outcome Variables**

As hypothesized, subjective vitality was significantly and negatively related to depressive symptoms, and it positively related to physical HRQL, mental HRQL, and general health perceptions. Subjective vitality likewise strongly correlated with each of the outcome variables (Rice & Harris, 2005). In fact, the current sample reported a significantly stronger correlation coefficient between the SVS and CESD than the coefficients that Ryan and Frederick (1997) reported in a sample of university students ($r = -.44$, Fisher’s $Z = -4.00$, $p < .001$) and a convenience sample of hospital employees ($r = -.60$, Fisher’s $Z = -2.45$, $p < .05$). Thus, despite the inherent restriction of range among the current sample, this finding contributes to the literature by highlighting the particularly strong influence of subjective vitality for depressive symptoms among working uninsured adults.

The strong correlations between subjective vitality and health-related quality of life (HRQL) scores are consistent with previous research that has described vitality as an important aspect of HRQL (e.g., Ware et al., 2004). As opposed to scales that primarily focus on physical feelings of vitality, the SVS questionnaire used in the current study was specifically designed to assess both cognitive/psychological and physical aspects of subjective vitality. Therefore, our results contribute to the literature on subjective vitality, as conceptualized by SDT, demonstrating robust relations between subjective vitality and important HRQL variables. Ryan
and Deci (2008a) provided arguments for how subjective vitality may relate to physical and mental HRQL, suggesting that subjective vitality may protect against the negative effects of stress by increasing individuals’ propensity for engaging in active, productive, and generally healthy activities. Because of the numerous strategies individuals use in the assessment of their global health status, several plausible means exist by which subjective vitality might influence general health perceptions. Nonetheless, in qualitative research, Krause and Jay (1994) found that many participants based their general health status partially on their engagement in healthy behaviors. To the extent that feelings of subjective vitality translate into healthy and stress-reducing behaviors, one would expect subsequent improvements in general health perceptions. It is also possible that perceiving oneself to possess the energy needed for engaging in life pursuits is, in and of itself, a basis for determining how generally healthy one feels.

**Increasing Subjective Vitality.** Given the apparent benefits of subjective vitality for mental and physical health, efforts to increase subjective vitality may have broad-reaching positive health effects. Many psychological models of vitality, including early theories (e.g., Freud, 1923) and more recent descriptions (e.g., Baumeister & Vohs, 2007) focus on processes that decrease energy available to self such as intrapsychic conflict or behavioral inhibition. Baumeister and Vohs depict these energies as a limited resource that may help individuals temporarily engage in certain positive or healthy activities that reflect self-control but that often lead to many negative or unhealthy behaviors when they are depleted.

Other theories provide a counterpoint by emphasizing the cognitive and behavioral factors that serve to increase subjective vitality. For instance, social and psychological factors that provide for the satisfaction of one’s basic needs of autonomy, competence, and belongingness provide subsequent increases in subjective vitality. Experimental trials have
demonstrated that even those “forced” to participate in monotonous or extremely difficult tasks can experience increases in subjective vitality when participation is framed in a way that promotes autonomous, self-directed action; when these tasks are framed in ways that are perceived as controlling and externally directed, participants experience diminished subjective vitality (Nix et al., 1999). Natural observations also have revealed that people experience more vitality on nonwork days than work days due to increased sense of autonomy and belongingness fulfillment made possible by more opportunity for self-directed action (Ryan, Bernstein, & Brown, 2010). Ryan and Deci (2008a) also note that subjective vitality can be increased by efforts that improve physical health, such as appropriate diet, exercise, and sleep. One method for improving physical health behaviors occurs by way of behavioral activation, an evidence-based treatment for depression that emphasizes client-therapist collaboration in developing behavioral treatment goals sensitive to contextual considerations (Jacobson, Martell, & Dimidjian, 2001). According to behavioral activation theory, as individuals experience the reinforcing and vitalizing effects of healthy behaviors, they experience increased energy for continuing to engage in such healthy behaviors (Lejuez, Hopko, & Hopko, 2001); presumably, these benefits occur not simply as a function of increases in physical activity, but because they experience concurrent satisfaction of autonomy and competence need satisfaction by way of the activity (Ryan & Deci, 2008a).

Interventions to promote autonomy causality orientations such as increasing frequency of autonomy-supportive statements and providing more opportunities for choicefulness have shown promise in the areas of sports, education, health care, and occupational settings (Ryan & Deci, 2009; Ryan, Patrick, Deci, & Williams, 2009; Tessier, Sarrazin, & Ntoumanis, 2010). Additionally, Ryan and Deci (2008b) describe applications of SDT to psychotherapy for
promoting basic need satisfaction and increased feelings of subjective vitality. As I noted above, Motivational Interviewing shows particular promise in improving vitality by promoting patients’ sense of autonomy (Markland et al., 2005). Strong rapport between the patient and provider also helps to satisfy patients’ needs for belongingness, which promotes the internalization of goals set in therapy; in other words, in belongingness-supportive environments, patients are more likely to pursue and fully endorse goals set in therapy compared to environments that are not supportive of belongingness need satisfaction (Ryan & Deci, 2008b). Similar processes also help therapists support patients’ competence needs. Establishing appropriate structure and predictability to the therapy sessions, for instance, and providing positive verbal reflections and summaries that highlight patients’ effective actions, increase their perceptions of belongingness and competence within the therapeutic setting. Indeed, when people endorse using their strengths (e.g., “I am regularly able to do what I do best”), they can experience marked increases in their subjective vitality (Wood, Linley, Maltby, Kashdan, & Hurling, 2011); helping patients in therapy to identify and develop their strengths should prove similarly beneficial for their subjective vitality (Govindji & Linley, 2007). One means toward this end comes in the form of fostering mindful attention and awareness. Mindfulness training as a part of therapy could help patients recognize the source of negative intrapersonal and interpersonal pressures that create conditional self-worth and thwart satisfaction of needs, and it might facilitate a more nuanced but coherent sense of self, rooted in understanding of how their own immediate feelings and situations stem from and reflect behavioral choices that either were adaptive (or maladaptive) and aligned with their personal values and beliefs (or were motivated by feelings of pressure or coercion) (Ryan & Deci, 2008b). Some recent research supported mindfulness as a contributor to subjective vitality (Allen & Kiburz, 2012), but more research is needed to confirm that changes in mindfulness lead
to subsequent changes in vitality, and to determine whether or not such improvements result from promotion of basic need satisfaction or other process, such as cognitive restructuring (Beck, 1991).

**Hypothesis 4: Subjective Vitality as a Mediator of Stigma and Outcome Variables**

Consistent with expectations, subjective vitality significantly mediated the link between each dimension of stigma and each health outcome. Specifically, I tested eight models using two dimensions of perceived financial stigma (internalized and experienced) as independent variables and four outcomes including depressive symptoms, physical HRQL, mental HRQL, and general health perceptions. In each case the independent variable significantly predicted the outcome variable before the inclusion of subjective vitality, but when subjective vitality was included in the model, the direct relation between the IV and outcome became statistically non-significant, suggesting full mediation. Subsequent bootstrapping analyses confirmed the significance of the indirect effect wherein the effect of stigma on health outcomes occurs through changes in subjective vitality. Thus, these results contribute to both the stigma and subjective vitality literature, particularly by demonstrating that vitality offers explanatory utility for the process by which stigma negatively affects various health outcomes, like health-related quality of life. Subjective vitality has often been used as an outcome measure and marker of psychological health, but rarely has it been investigated as an explanatory mechanism affecting health outcomes (Allen & Kiburz, 2012; Tremblay, Blanchard, Pelletier, & Vallerand, 2006). Despite the fact that I used subjective vitality as a trait-level variable, vitality levels reflect alterations in physical health status, psychological functioning, and life circumstances and thus, the use of vitality as a mediator is an appropriate use of the variable (Ryan & Deci, 2008a).
The current results suggest that the experience or internalization of stigma drains the positive energy that vitality entails, which impairs physical HRQL, mental HRQL, and general health perceptions. Lower subjective vitality may directly diminish mental HRQL, which is a multi-faceted construct that includes general mental health and indicators of the extent to which emotional health interferes with social functioning, work, and other areas. Having low energy available to self may lead to poor mood that impairs one’s ability to accomplish desired tasks in work and to engage in social obligations. Likewise, regarding physical HRQL, lower vitality can impair one’s capacity for engaging in “vigorous activities,” “climbing stairs,” and “walking several hundred yards,” and lead to cutting “down on the amount of time spent on work,” and experiencing “difficulty performing work,” which are examples of items comprising physical HRQL. For general health perceptions, subjective vitality also bears important influence on how individuals evaluate their own general health, where reductions in vitality from financial stigma may translate into feeling less healthy overall. In the case of depression, the negative effects of low vitality appear to precipitate increases in negative mood states, likely diminish behaviors that could result in positive mood, and lead to other symptoms of depression. The relation between subjective vitality and depression could be direct in that lower positive energy may equate to poorer mood and feelings of health, and effects may be indirect in that lower vitality may inhibit engagement in behavior that could otherwise promote positive mood, such as enjoyable activities or health behaviors.

Collectively, these findings have strong implications for research among individuals who experience financially-related stigma. Mickelson and Williams (2008) investigated mechanisms of influence between perceived financially-related stigma and depressive symptoms. These authors found that self-esteem and fear of rejection mediated the effect of internalized stigma
while only fear of rejection mediated the effect of experienced stigma on depressive symptoms. Although data on self-esteem and fear of rejection were not available in the current study, subjective vitality shares overlap with both self-esteem, which entails the positive or negative attitudes about the self that reflect self-acceptance and self-competence across life’s pursuits, and the fear of rejection, which in contrast to vitality, entails a type of negative affective arousal predicated on suboptimal standing across interpersonal relationships (Ryan & Deci, 2008a; Ryan & Frederick, 1997). More research is needed to assess the unique mediational utility of these three variables in links between stigma and health outcomes.

**Implications for Treatment Interventions.** The results of our study highlight the potential importance of the role of subjective vitality in explaining how stigma affects health. As such, these results suggest that efforts to reduce the negative outcomes associated with stigma might be meaningfully altered by targeting interventions towards cognitive and behavioral processes that would enhance subjective vitality. As I described earlier, Motivational Interviewing and mindfulness-based therapies represent two treatment approaches that may be beneficial for reducing perceptions of internalized stigma by improving subjective vitality (Luty et al., 2005; Markland et al., 2005; Ryan & Deci, 2008b). Research is needed to determine how Motivational Interviewing or mindfulness interventions affect stigma and vitality simultaneously.

**Hypothesis 5: Thwarted Belongingness and Perceived Burdensomeness as Moderators of the Mediation Models**

Conditional indirect effect (i.e., moderated mediation) analyses were employed to examine variables that may impact the relations inherent to the mediation models tested. Specifically, I examined whether feelings of thwarted belongingness and perceived burdensomeness impacted the connections between stigma and health outcomes either by
altering the nature of the relation between stigma and vitality or by altering the relation between vitality and the health outcome. Results partially supported Hypothesis 5. TB, but not PB, significantly moderated the mediation effect of subjective vitality in the link between internalized financial stigma and depressive symptoms. Stated differently, TB interacted with subjective vitality in the pathway from the mediator (i.e., subjective vitality) to the outcome (i.e., depressive symptoms) such that the positive association of internalized stigma and depressive symptoms via reductions in subjective vitality was especially strong for individuals reporting relatively high levels of TB. Thus, subjective vitality was an especially strong mediator of the internalized stigma-to-depressive symptoms relation for individuals with unmet belongingness fulfillment, and this effect was, in part, due to the interaction of TB with subjective vitality.

A nearly identical pattern was found for the model in which experienced, rather than internalized, stigma affected depressive symptoms. In this analysis, subjective vitality was an especially strong mediator of experienced stigma and depressive symptoms for individuals with unmet belongingness fulfillment. TB also significantly moderated the subjective vitality mediation of the internalized stigma and mental HRQL relation. While the mediation effect was statistically significant across levels of TB, the effect became significantly more powerful for individuals reporting relatively high levels of thwarted belongingness. Collectively, these results convey that the effects of stigma for health outcomes occur via alterations in vitality, but that the strength of vitality’s mediation effect depends on reported levels of TB.

In the mediation models in which subjective vitality explained the association between experienced stigma and the various outcomes used in the study (i.e., depressive symptoms, physical and mental HRQL, general health perceptions), TB interacted in the pathway from the experienced stigma to subjective vitality to significantly alter the mediation effect. For
depressive symptoms the mediation effect became less significant for individuals reporting relatively low levels of TB; in other words, the indirect effect of subjective vitality in the relation between experienced stigma and depressive symptoms was significantly less powerful for individuals who reported lower TB (i.e., their belongingness need was more fulfilled). The mediation models in which physical HRQL, mental HRQL, and general health perceptions were the outcomes showed the opposite pattern as the one with depressive symptoms as the outcome, which was to be expected since the three former variables possess a negative valence in relation to experienced stigma while the relation between experienced stigma and depressive symptoms is positive. In each case relatively low levels of TB (i.e., belongingness needs are more fulfilled) mitigated the overall mediation effect by impacting the effect of experienced stigma on subjective vitality.

It is not entirely clear why TB functioned as a significant moderator of some mediation relations, but not others. An examination of the Table 1 reveals that, at least to some extent, the results may depend on the relative strengths of bivariate correlations, as the probability of detecting a moderation effect increases as the magnitude of the relations among study variables increases (Ganzach, 1997). In this case TB and subjective vitality were both more strongly associated with depressive symptoms and mental HRQL than the other two outcomes (physical HRQL and general health perceptions), and TB was slightly more strongly associated with experienced stigma than internalized stigma, which may partially explain why the pathway from the independent variable to the mediator was only significantly moderated with experienced but not internalized stigma.

One pattern that can be extrapolated from the results is that TB appears to play a larger role in models predicting mental rather than physical health, which is not surprising given that
perceptions of belongingness reflect cognitive and affective processes (Baumeister & Leary, 1995). The relation between subjective vitality and depression or mental HRQL may be relatively direct, making it easier to identify the influence of interpersonal variables like TB in this relation. However, the connection between subjective vitality and physical aspects of health are likely more nuanced than those with mental aspects; multiple intervening variables such as sleep quality, health behaviors, and illness development (Ryan & Deci, 2008a) likely affect this relation, which makes identification of a single moderator more difficult.

It is interesting that TB moderated the mediation models that employed experienced stigma as the independent variable by influencing the pathway from experienced stigma to subjective vitality, but it did not moderate the same pathways when internalized stigma was the independent variable. Perhaps this divergence reflects the fact that experienced stigma taps more strongly than internalized stigma into interpersonal processes, whereas internalized stigma reflects the internalization and self-identification of stigma, perhaps even in the absence of direct experience. Decrements to vitality as a function of experiencing stigma depends, at least to some extent, on individuals’ belongingness need fulfillment, which, by definition, is influenced by perceived interpersonal relationships. These findings should not diminish the importance of thwarted belongingness for understanding the link between internalized stigma and negative health outcomes. Indeed, TB significantly moderated the mediation effect of vitality when depressive symptoms and mental HRQL were outcomes, but this was due to the influence of TB in the relation between the mediator and the outcome. In other words, TB may still moderate the impact of internalized financial stigma on depression and mental HRQL, but this appears to be due to the way in which TB interacts with subjective vitality, and not stigma.
The fact that PB did not emerge as a significant moderator in any tested model was surprising, but does not negate the potential importance of the construct in affecting health outcomes. Moderation effects may have emerged with a larger sample size, particularly for the models with experienced stigma as the independent variable and depressive symptoms and mental HRQL as dependent variables. Moreover, robust bivariate associations emerged between PB and the various health outcomes and, PB remained a significant predictor of subjective vitality even with stigma (internal or experienced) included in multivariate analyses, and PB remained a significant predictor of depressive symptoms even with stigma and subjective vitality included. In this research I investigated PB as a potential moderator variable, but it is also possible that PB functions in a different, perhaps more distal, role. For instance, Joiner’s line of research (e.g., Joiner, 2005) on suicidal behavior demonstrates that PB serves as a causal factor that interacts with TB to predict suicidal desire and ideation. Those high in both PB and TB report especially high levels of suicidal desire and ideation, and this pairing often translates into suicidal behavior when these individuals acquire the capability to follow through with suicide (Van Orden et al., 2006). From this line of evidence, the dysfunctional and unhelpful thinking that leads to negative self-evaluations and beliefs such as, “These days the people in my life would be better off if I were gone” may initially affect feelings of burdensomeness and the negativity associated with perceptions of stigma by increasing anxiety about burdening others financially (Stellrecht et al., 2006), but it may not affect depression or HRQL variables until TB passes some sort of threshold. Of course, because dysfunctional thinking is characteristic of depression (Beck, 1991) it is also possible that elevated depression contributes to increased feelings of burdensomeness (Davidson et al., 2011). Longitudinal or prospective research in
which reciprocal changes in levels of PB, TB, and stigma could be investigated would help answer questions of causality.

**Implications for Treatment.** The current results suggest that among individuals at risk for experiencing financially-related stigma, such as the impoverished and those receiving charity-based health services, special attention should be given to their perceptions of belongingness. For instance, in doctor-patient or therapeutic relationships, strong rapport may be especially important in treating mood-related problems for people suffering from perceptions of stigma. Healthcare providers could also help individuals increase conscious awareness of the positive relationships in their lives (Pavey et al., 2011). In addition to the treatment considerations discussed in earlier sections, other treatment approaches may be especially beneficial in targeting a person’s sense of belongingness. For example, Interpersonal Psychotherapy is an evidence-based treatment approach for several psychological disorders including major depression and bipolar disorder, and it targets the improvement in the quality of a client’s relationships by augmenting interpersonal skills and helping clients effectively navigate interpersonal challenges, such as grief and role transitions (Markowitz & Weissman, 2012).

Cukrowicz and Joiner (2005) incorporated principles of Interpersonal Psychotherapy along with SDT to develop the *self-control regulation/interpersonal psychotherapy* (SCRIPT) model aimed to improve interpersonal functioning for individuals with chronic interpersonal deficits. SCRIPT increases clients’ awareness of both their maladaptive cognitions regarding their interpersonal relationships and the manner in which these cognitions negatively impact interpersonal functioning. Moreover, SCRIPT emphasizes patients’ autonomy as they discover and choose behaviors that promote harmony with others (Stellrecht, Joiner, & Rudd, 2006). Research is needed on the effectiveness of interpersonal therapies among individuals with
elevated perceptions and internalization of stigma, particularly when experienced along with TB and PB.

Limitations and Future Research

The current study has several strengths including the use of a primary care sample of working uninsured adults and psychometrically supported instrumentation, but results must also be viewed in the context of limitations. For example, the use of cross-sectional data precludes the examination of causal inferences that would be available with longitudinal or prospective data. The hypotheses involving mediation are derived from an empirically and theoretically supported model in which dimensions of stigma cause changes in subjective vitality, which then cause changes in depressive symptoms and HRQL; while we did not test causality directly, extant research and theory support the plausibility of the directional nature of these relations. It is possible, however, that reciprocal relations exist among several of the study variables. For instance, elevated depressive symptoms often lead to greater attunement to negative stimuli that may increase participants’ attention to negative interpersonal events and, therefore, increase perceptions of stigma. Changes in vitality may lead to changes in depressive symptoms, but the reverse may also be true (Ryan & Frederick, 1997). Additional intervention-based or longitudinal research investigating how changes in stigma affect vitality, depression, and HRQL is needed to strengthen hypotheses.

Although several of the conditional indirect effect models we tested were not statistically significant, the relatively small sample size employed may have reduced the potential to find statistically significant results. If these effects were moderately weak to weak, a sample size of 200-500 participants would be needed to obtain statistical power to detect effects at an 80% likelihood threshold (Preacher et al., 2007). The low number of male participants also precluded
analyses of any moderating effects of gender, yet females in our sample reported significantly higher internalized stigma than males. In addition to financially-related stigma, women may experience and internalize stigma reflecting violations of traditional workplace gender roles more than men, which contributes to the impact of stigma-related stress (Frost, 2011). It would be interesting to investigate gender differences in the conditional indirect effects analyses, and examine if the relations among stigma, subjective vitality, and relevant health outcomes differ for men and women.

The current findings also are consistent with prior research that has confirmed that perceived stigma contributes to negative health consequences (Link & Phelan, 2001), but a potentially important control variable not assessed in our study is that of financial distress (Selenko & Batinic, 2011). Income was used as a control variable when appropriate, but salary is not a comprehensive reflection of the level of financial distress as it fails to consider level of debt, financial obligations, and other potentially important areas. Subjectively assessing perceived financial distress may more adequately and accurately capture the influence of such objective influences on financial pressure (Selenko & Batinic, 2011). Simultaneous assessment of financial stigma and financial distress is needed to confirm that perceived stigma is not a proxy for how distressed a person feels about his or her financial situation.

The healthcare environment in the United States is continually evolving due partially to the ongoing political discourse related to healthcare funding issues. The healthcare legislation recently signed into law by President Obama (i.e., the “Patient Protection and Affordable Care Act”) is intended to ensure that everyone in the United States has access to health insurance, and it is being implemented in stages. By 2014 most people are supposed to be able to purchase affordable healthcare plans (U.S. Census Bureau, 2011). Therefore, it is possible that the
number of working uninsured individuals in the United States could drastically decline in the coming years. If newly implemented systems decrease the financial stigma-related distress individuals experience (Bharmal & Thomas, 2000), individuals such as those in this sample may experience improvement in their symptoms upon obtaining health insurance; however, longitudinal research would address this most precisely, as people may certainly still experience stigma related to their financial situations regardless of their health insurance status. In fact, future research should, if possible, include uninsured individuals as well as insured low-income individuals to help clarify the role of insurance status on financial stigma. It would also be helpful to include in the sample individuals receiving Medicaid given the known stigmatizing effects of receiving public aid (Stuber & Schlesinger, 2006). In addition to including participants with varying levels of health insurance, the inclusion of greater diversity in other demographic variables will facilitate the generalization beyond Caucasian individuals living in a relatively rural environment.

I assessed only one possible explanatory mechanism in the relation between stigma and health outcomes. Some other possible explanatory mechanisms from the literature on perceived stigma include perceived social support availability (Mickelson, 2001), self-esteem (Mickelson & Williams, 2008), self-efficacy (Corrigan, Watson, & Barr, 2006), fear of rejection (Williams & Mickelson, 2008), negative evaluative beliefs about oneself (Dagnan & Waring, 2004), and hope (Yanos, Roe, Markus & Lysaker, 2004). Although I assessed thwarted belongingness—conceptually the opposite of the basic psychological need of relatedness—as a moderator, it could also be considered a possible mediator in the relation between stigma and subjective vitality because perceiving stigma may negatively impact the extent to which one feels connected with others. In fact, in line with SDT, it would be interesting to assess all three basic
psychological needs as explanatory mechanisms in the relation between stigma and subjective vitality. Feeling stigmatized implies that others have some control over a person’s life, which would impair autonomy and may make it difficult to freely engage in activities that support a person’s sense of competence. Future research could also include trait mindfulness as a factor that protects from the negative effects of stigma. Mindful processing, by increasing awareness of environmental stimuli and decreasing the tendency to make negative evaluations, particularly about the self, may diminish levels of internalized stigma and protect from the negative effects of stigmatizing interactions with others.

It will also be important to conduct further research on other types of stigma, to strengthen generalizability of our findings. Any label that conveys a social identity that is somehow devalued in social contexts, and that could lead to economic, social, or political disparities or barriers can be considered stigmatizing (Goffman, 1963; Link & Phelan, 2001). Examples of types of stigma that have received empirical attention include mental health, age, sexuality, ethnic background, gender, IQ, and skin color (Frost, 2011; Link & Phelan, 2001). Experienced or internalized stigma, regardless of the source, may diminish subjective vitality and lead to poorer health, and this sequence may be altered by one’s feelings of connectedness with others.

Conclusions

The current study extends research on dimensions (i.e., internalized and experienced) of perceived stigma of financial situation by examining their associations with depressive symptoms, physical and mental health-related quality of life, and general health perceptions in a sample of uninsured, working adult primary care patients. I tested subjective vitality as a
mediator of these associations, and I examined thwarted belongingness and perceived burdensomeness as moderators of the mediation effects.

Results supported internalized and experienced perceived stigma as being moderately associated with poor health outcomes including higher depressive symptoms, perceived burdensomeness, and thwarted belongingness, and lower subjective vitality, physical and mental HRQL, and general health perceptions. The associations between perceived stigma and the outcome variables were each mediated by subjective vitality such that perceived stigma was related to lower subjective vitality, which was, in turn, related to poorer health. Self-Determination Theory guided the theoretical understanding of the nature of these relations, including how perceived stigma may be related proximally to subjective vitality, with particular emphasis on the fact that perceived stigma implies that one is, to some extent, controlled by external forces, which likely undermines the basic psychological need satisfaction required for the experience of vitality. The results represent a contribution to the literature by describing a possible model by which perceived financial stigma may negatively impact health outcomes.

Hypotheses related to conditional indirect effects were partially supported when thwarted belongingness was investigated as a moderator of the mediation effects, but hypotheses were not supported for perceived burdensomeness as a moderator. Specifically, thwarted belongingness levels significantly impacted the mediation effects of subjective vitality in the models in which internalized and experienced stigma were related to depressive symptoms and the model in which internalized stigma was related to mental HRQL by moderating the strength of the effect from subjective vitality to the dependent variable. Additionally, in all of the mediation models in which experienced stigma was the independent variable, thwarted belongingness levels
moderated the mediation effect by influencing the strength of the relation between experienced stigma and subjective vitality.

Although with a larger sample size perceived burdensomeness may have been a significant moderating variable, the current results emphasize the role of thwarted belongingness in affecting the model proposed in this paper whereby financially-related stigma affects health outcomes. In general, the present study’s results from bivariate associations, mediation analyses, and conditional indirect effects testing are consistent with the principles of SDT that describe influences on subjective vitality and health, and that place special importance on feeling a sense of interpersonal connection and belongingness with others.

While some research has investigated potential mediating variables in the relations between perceived stigma and health outcomes, this is the first study to test subjective vitality as an explanatory mechanism. Furthermore, this is the first study of which we are aware to investigate the influence of the fulfillment (or lack thereof) of one’s need for belongingness on the extent to which subjective vitality functions as a mediating variable, particularly for relations involving stigma. The current findings are, at least, a first step toward gaining a more comprehensive understanding of the roles that subjective vitality and interpersonal variables play in the association between stigma and health. It is hoped that our findings will inform future research and interventions in the areas of stigma and health. Although this study does not provide a definitive analysis of the topic, it does support the potential utility of enhancement of subjective vitality and fulfillment of the need to belong in the treatment of individuals that are experiencing elevated depressive symptoms and low HRQL because of distress from experienced and internalized stigma.
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