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Higher Sense of Control Predicts Long-term Well-being After Depression

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by

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ABSTRACT

Excellent outcomes after major depression, including the possibility of optimal well-being (OWB), are understudied. In a previous investigation, nearly 10% of initially depressed adults met OWB criteria 10-years later, yet little is known about factors that explain OWB after depression. This study examined whether sense of control (SOC) beliefs and coping behaviors, specifically, reappraisal and seeking social support, predict OWB after depression. Secondary data analyses were conducted on Waves 1 and 2 of the Midlife Development in the United States (1995–1996; 2004–2006; MIDUS) study, which includes a nationally representative sample of middle-aged adults. Participants in the present analyses met DSM-III depression criteria and completed relevant Wave 1 questionnaires ($N = 418$), of which 23 met criteria for recovery and OWB (exceed cutoffs across nine facets of psychological well-being that characterize the top 25% of U.S. non-depressed adults). Zero-order correlations examined whether SOC beliefs, positive reappraisal, and seeking social support at Wave 1 associated with OWB after depression 10 years later, at Wave 2. Reappraisal, but not advice seeking, correlated with OWB after depression with small effects ($r = .13$, $p < .05$); the reappraisal effect was no longer significant when controlling for SOC beliefs. Meanwhile, SOC beliefs significantly predicted OWB after depression (OR = 2.19, 95% CI: 1.15, 4.19, $p = .046$), even controlling for age, gender, education, depression severity, and overall well-being (ps > .05). As a malleable psychological variable, SOC may be a potential target for interventions that would increase the likelihood of OWB after depression.

INTRODUCTION

Overview

Despite its clinical relevance and recent interest, researchers have a limited understanding of factors that support thriving after depression (Rottenberg, Devendorf, Kashdan, & Disabato, 2018). Abundant research exists on depression onset and recurrence. Relatively few studies have examined factors associated with sustained recovery or positive functioning after depression. Recent work has begun to document the existence of optimal well-being (OWB) after depression (Rottenberg, Devendorf, Panaite, Disabato, & Kashdan, 2019; Rottenberg et al., 2018; Devendorf, Rum, Kashdan, & Rottenberg, under review). This study extends these efforts by examining predictors that may be associated with OWB, specifically whether sense of control (SOC) beliefs and coping behaviors, such as reappraisal and seeking social support, predict attainment of OWB after depression.

Both SOC beliefs and active coping behaviors have theoretical (e.g., cognitive theories for depression) and empirical relevance for well-being and depression (Benassi, Sweeney, & Dufour, 1988; Presson & Benassi, 1996; Struijs, Groenewold, Voshaar, & de Jonge, 2013). SOC beliefs are highly correlated with elements of well-being (e.g., life satisfaction) and SOC beliefs are also an established cognitive vulnerability for depression (Alloy et al., 1999; Alloy & Riskind, 2006; Abramson, Seligman, & Teasdale, 1978). Based on Rotter's (1966) Control Theory, higher SOC beliefs should be associated with less depression because holding such control beliefs encourages active problem solving, including using active coping strategies like reappraisal and seeking social support (Ross & Mirowsky, 1989). This study examines whether

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SOC beliefs (i.e., personal mastery and perceived constraints) and adaptive coping are associated with a higher probability of achieving recovery and thriving after depression.

Defining Depression and Clinical Outcomes

Consistent use of terms is important to building understanding of the course of depression. Depression, also known as major depressive disorder, is a syndrome in which a person endorses at least five of nine symptoms over at least a 2-week period, of which one symptom must be depressed mood or loss of interest or pleasure in daily activities (American Psychiatric Association, 2013). Over the years, varying definitions have been proposed to define depression remission and recovery (e.g., Frank et al., 1991; Rush et al., 2006). In 2006, the American College of Neuropsychopharmacology (ACNP) set up a task force to update consensus guidelines set forth by Frank et al. (1991). The task force recommended that remission be defined by the absence of sad mood and anhedonia (core symptoms) with less than three other symptoms for three consecutive weeks. Importantly, remission can only end with a relapse or recurrence. A relapse is thought to be a return of symptoms of an ongoing episode that was symptomatically suppressed (remission). A recurrence, however, represents an entirely new episode after a patient has recovered. Recovery is designated after at least four continuous months of remission according to the ACNP (Rush et al., 2006). However, many investigators favor a definition that conceptualizes recovery as "8 consecutive weeks with either full asymptomatic recovery or with one or more depressive symptoms beneath the diagnostic threshold for major depressive episode, minor depression, or dysthymia" (e.g., Judd et al., 1998; Judd et al., 2000).

While recovery from episodes of depression is common, so is the recurrence of depression (Solomon et al. 2000; Mueller et al. 1999). Large scale investigations suggest that

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about 50% of people recover within the first 6 months of their episode (Keller et al., 1992; Lewinsohn, Clarke, Seeley, & Rhode, 1994; Eaton et al., 2008), with indications that between 50% to 75% of those who have one major depressive episode will experience subsequent episodes (Solomon et al. 2000; Harkness, Monroe, Simons, & Thase, 1999; Kennedy & Paykel, 2004). Such findings have shaped the perspective that depression is typically a chronic and recurrent condition (see Rottenberg et al., 2018 and Devendorf, Bender, & Rottenberg, 2020 for examples).

Newer readings of the epidemiology literature suggest that recurrence rates drawn from clinically ascertained samples may overstate the risk of recurrence in the general population (Rottenberg et al., 2018; Monroe & Harkness, 2012). Clinical studies may find higher recurrence rates due to the sampling of treatment-seeking patients (i.e., inpatient and outpatient) (Rottenberg et al., 2018), which are likely weighted towards higher severity, longer durations of depression, and more comorbidity, factors which also predict longer and more severe episodes of depression (Wells et al., 1992; Melartin, Rytsala, Leskela, Lestela-Mielonen, Sokero, & Isometsa, 2004; Judd et al. 1998). By contrast, across population-based studies with prospective and longitudinal designs, from 40 to 60% of people who had a first episode of depression never experienced a recurrence, even after decades of follow-up (Eaton et al., 2008; Mattisson, Bogren, Horstmann, Munk-Jörgensen, & Nettelbladt, 2007; Moffit et al., 2010). These community-based studies provide an initial clue that OWB after depression may be more common than previously believed. Although nonrecurrent depression does not equate to OWB after depression, people with nonrecurrent depression almost certainly have better outcomes than people with recurrent depression (Monroe and Harkness, 2012; Monroe, Anderson, & Harkness, 2019).

Why Studying Optimal Well-being After Depression is Important

To date, traditional clinical research on depression has focused on symptom reduction as the primary outcome, with less consideration of positive functioning indices such as psychological well-being (e.g., Ryff, 1989). The focus on symptom reduction rather than wellness in defining of treatment endpoints is reflected in landmark articles in clinical psychology and psychiatry research (Keller, 2003; Rush et al., 1998), and by DSM-5 guidelines for identifying remission and recovery. These guidelines ignore elements of positive functioning, desired by patients, including life satisfaction, positive relationships with others, self-acceptance, and other elements (Zimmerman et al., 2006; Battle et al., 2010; Holtforth, Wyss, Schulte, Trachsel, & Michalak, 2009). This exclusion of positive functioning (e.g., the presence of psychological well-being) endpoints is unfortunate given evidence that positive functioning serves as a protective factor against psychopathology and explains unique variance in predicting treatment outcomes (Wood & Joseph, 2010; Panaite, Devendorf, Kashdan, & Rottenberg, in press). Indeed, a body of evidence demonstrates that positive and negative emotions, thoughts, and experiences are not opposing endpoints of a single continuum, but rather, two separable dimensions that operate relatively independent of one another (e.g., Carver, Sutton, & Scheier, 2000; Watson & Stanton, 2017).

Studying positive functioning may be especially relevant in the context of depression. Cross-sectional evidence illustrates that the *absence of positive characteristics* is associated with both stress and depression (Wood & Joseph, 2010), and preliminary longitudinal evidence shows such an absence predicts future depression (Brissette, Scheier, & Carver, 2002; Wood, Maltby, Gillett, Linley, & Joseph, 2008). Among a cohort of 5,666 adults tracked for 10 years, those lower in tenacity or flexibility evidenced the greatest risk for increased depression symptoms at

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follow-up, controlling for baseline depression symptoms (Kelly, Wood, & Mansell, 2013). In the same cohort, individuals with lower scores on existential measures of well-being (i.e., self-acceptance, autonomy, purpose in life, positive relationships with others, environmental mastery, and personal growth) were more than 7 times more likely to meet the cutoff for clinical depression at follow-up (Wood & Joseph, 2010).

As notable, there are indications that the *presence* of positive functioning is protective against depression. In one 10-year follow-up, individuals who met "flourishing" criteria (scored in the upper tertile on 1 of 2 measures of emotional well-being and 6 of 11 measures of positive functioning) were less likely to develop future major depressive episodes, generalized anxiety disorder, or panic disorder (Keyes, Dhingra, & Simoes, 2010). "Flourishing" criteria even served as a better predictor of future depression status when compared to "languishing" criteria. Further, OWB status may represent a superior endpoint relative to asymptomatic recovery from depression, as those who reach OWB status are more likely to sustain recovery, not recur, and demonstrate resilience and physical health (e.g., Diener, Suh, Lucas, & Smith, 1999; Lyubomirksy, King, & Diener, 2005). These early findings provide support for investigating well-being during and after depression.

Defining Optimal Well-being After Depression

Although well-being as an outcome promises to provide clinical and research utility, there remain challenges and debates to operationalizing this concept. There are, for example, different theoretical frameworks for well-being. Two prominent frameworks are Diener's (1984) tripartite model for subjective well-being (SWB) and Ryff's (1989) model for psychological well-being (PWB). Both models borrow from conceptualizations of happiness from ancient Greek philosophy (e.g., writings of Aristotle). Diener's (1984) SWB model emphasizes the

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concept of hedonia, which represents the maximization of pleasure and minimization of pain (Tatarkiewicz, 1976). SWB is characterized by high levels of positive affect and life satisfaction, and low levels of negative affect. The PWB model contains additional elements drawn from humanistic, existential, and developmental traditions. Specifically, Ryff surveyed the overlap of Maslow's (1971) conception of self-actualization, Rogers's (1961) view of the fully functioning person, Jung's (1973) formulation of individuation, and Allport's (1961) conception of maturity. This analysis led Ryff (1989) to conclude that PWB is comprised of six dimensions: autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life, and self-acceptance (see below for definitions). Both Diener's (1984) and Ryff's (1989) theories have been studied extensively in the social psychology and positive psychology literature, but they, as of yet, have not been widely adopted among clinical scientists and depression researchers (Wood & Tarrier, 2010; Rottenberg et al., 2018).

To better integrate well-being constructs into depression research, our research team proposed a preliminary framework for defining optimal well-being (OWB) after depression. This proposed definition balances theoretical and practical considerations (Rottenberg et al., 2018). OWB after depression criteria required: (1) a documented history of depression, (2) full recovery from depression (e.g., 12 months with ≤ 2 symptoms experienced no more than to a mild degree), (3) a superior profile of psychological well-being, defined as a well-being profile that exceeds cutoffs met by the top 25% of nondepressed adults in the United States (see Rottenberg et al., 2018 for methods on criteria), and (4) low disability (e.g., no more than mild impairment across major life domains, like social and occupational functioning, in the last month). Criteria 3 combines Diener's (1984) measures of SWB and Ryff's (1989) of PWB. This decision was informed by the growing body of research showing that SWB and PWB likely represent one

overarching well-being construct (e.g., Disabato, Goodman, Kashdan, Short, & Jarden, 2016; Goodman, Disabato, Kashdan, & Kaufman, 2018). In a large cross-cultural sample, Disabato et al. (2016) found a latent correlation of .96 between Diener's (1984) and Ryff's (1989) models, suggesting the models are largely interchangeable. Of importance, a composite well-being score may be insufficient to establish a pattern of psychological well-being (i.e., a few inflated scores may hide lower and below average scores). To capture the idea of a well-being profile, our well-being criteria required that a person score above the 50th percentile relative to population mean on at least eight of nine well-being facets and above the 84th percentile relative to population mean on at least three of the following nine well-being facets:

- <u>Satisfaction with life</u>: cognitive evaluation that life is satisfying and close to ideal

- <u>Positive emotions</u>: frequent presence of pleasurable high-energy states, such as cheerfulness, and low-energy states, such as peacefulness

- <u>Negative emotions</u>: infrequent distressing states, such as fear or anger

- <u>Autonomy</u>: acting with a sense of volition or willingness

- <u>Environmental mastery</u>: self-direction and productivity

- <u>Personal growth</u>: continual self-improvement

- <u>Positive relations with others</u>: the capacity to love and be loved

- <u>Purpose in life</u>: an overarching life aim

- <u>Self-acceptance</u>: positive self-regard

This working definition of OWB after depression has informed initial work on the prevalence of OWB and the factors that predict this outcome (Rottenberg et al., 2019).

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How Common is Optimal Well-being After Depression?

Using a systematic approach, our research team used data from the National Survey of Midlife Development in the United States (MIDUS) to provide the first estimate of OWB 10-years after a depression diagnosis. The MIDUS provides a nationally representative sample and collected Diener's (1984) and Ryff's (1989) measures of psychological well-being with three waves, each measured 10-years apart. We used Waves 1 (1995) and 2 (2005) to examine the prevalence of OWB after depression in 502 adults with depression at Wave 1 (Rottenberg et al., 2019). Because of the limitations of this archival data, we could not use all our proposed criteria for OWB after depression. For instance, we were only able to use criteria 1, 2, and 3 of our proposed OWB definition and did not consider levels of disability (see Table 1). Moreover, the MIDUS dataset did not provide a fine-grained assessment of depression symptoms, as participants who answered sad mood and anhedonia screening items negatively were not assessed for the other depressive symptoms.

Of all Wave 1 depressed individuals, we found that 36% reported an episode of depression at Wave 2, 16% had residual symptoms, and 49% recovered (i.e., did not endorse depressed affect and anhedonia for the past 12 months). About one in five recovered persons met OWB criteria. All told, 10% of all Wave 1 depressed participants met OWB criteria. For reference, about 20% of a non-disordered population met these well-being cutoffs. We also identified a predictor of OWB, namely initial psychological well-being at Wave 1 predicted OWB after depression while controlling for demographic (age, gender, education status) and clinical characteristics (depression severity, comorbid anxiety disorder, and mental health treatment use) (Rottenberg et al., 2019).

In a second study, we examined the epidemiology of OWB after depression in a

nationally representative sample of Canadians (Devendorf et al., under review). We used data

from the 2012 Canadian Community Health Survey-Mental Health (CCHS-MH), which provides

a cross-sectional sample of participants with lifetime and 12-month mental health diagnoses.

Table 1. Definition of Optimal Well-being After Depression

Criterion	Definition	Recommended Assessment Tool
Documented history of MDD	Met criteria for past MDD	
Full recovery from MDD	During past year, no more than two depression symptoms experienced to more than a mild degree at any one time	SCID-5 (past MDD module) Modified SCID-5
High levels of reported psychological well-being	In the past month, above the 50th percentile relative to population mean on at least eight of nine well-being facets AND Above the 84th percentile relative to population mena on at least three of nine well-being facets	Scales of Psychological Well-Being, Satisfaction with Life Scale, Positive and Negative Affect Schedule
Unimpaired daily psychosocial function	Zero to mild impairment across major life domains (e.g., social, occupational) in past month	WHODAS 2.0

Adapted from Rottenberg et al. (2018). <u>Note:</u> MDD = Major Depressive Disorder; SCID-5 = Structured Clinical Interview for DSM-5 clinician or research version; WHODAS 2.0 = World Health Organization Disability Assessment Schedule (2nd ed.).

With well-being assessments that included disability measures, 7.1% of participants with a

lifetime history of depression were observed to meet OWB criteria compared to 24.1% of

participants without a lifetime history of any mental health condition. The following variables

predicted attaining OWB after depression: higher education, higher income, fewer lifetime

mental health diagnoses, and shorter illness durations.

These studies demonstrate that OWB after depression occurs for a meaningful proportion of individuals. One critical next step for research is to find malleable factors that predict OWB. In our previous USA investigation, higher overall well-being at intake predicted OWB after depression 10-years later. This analysis used an overall well-being composite score. One logical follow-up question concerns whether there are specific aspects of well-being that are most likely to predict future OWB status. In the current study, we investigate these issues further in the MIDUS sample, focusing on sense of control (SOC) beliefs and adaptive coping, such as strategies like reappraisal and seeking social support. These variables were attractive because they represent individual difference predictors that could be targets of intervention in future work.

Sense of Control

Definition

Sense of control (SOC) beliefs have long been prominent in psychological research. A seminal review found over 100 conceptualizations of the perceived control construct (Skinner, 1996). For this study, the conceptualization of sense of control is perceived control, rather than an objective assessment of control (pertains to objective conditions present in the context of a person) (Skinner, 1996). Perceived control pertains to "beliefs or expectations about the extent to which one's actions can bring about desired outcomes" (Lachman & Firth, 2004, p. 321). Perceived control is comprised of personal mastery and perceived constraints. Personal mastery refers to one's sense of efficacy or effectiveness in carrying out goals. Throughout the years, personal mastery has been referred to as internal locus of control. Perceived constraints indicate the extent that one believes there are obstacles or factors beyond one's control that interfere with

reaching goals. Perceived constraints have been known as external locus of control (Lachman &
Weaver, 1998).

SOC beliefs are often considered a personality trait and cognitive style (expectancies and
beliefs), yet some evidence indicates that these beliefs are malleable and subject to change over
time (Rotter, 1966; Wolfle & List, 2004; Lachman, 2006). SOC change is demonstrated in
longitudinal studies of aging and clinical patients (Page & Hooke, 2003). For instance, a
significant change towards a more internal locus of control was found in middle-aged psychiatric
inpatients with a depressive or anxiety disorder diagnosis after treatment with cognitive behavior
therapy, and this change was maintained over a three-month follow-up (Page & Hooke, 2003).

Sense of Control and Well-being

SOC beliefs are akin to some of the facets of psychological well-being. For example,
Ryff (1989)'s model for PWB includes both autonomy and environmental mastery. High levels
of autonomy suggest a person who is self-determining and independent, able to resist social
pressures, regulates behavior from within, and evaluates self by personal standards (Ryff, 1995).
High levels of environmental mastery suggest a person who has a sense of mastery and
competence in managing the environment, controls complex array of external activities, makes
effective use of surrounding opportunities, and is able to choose or create contexts suitable to
personal needs and values. Given the conceptual overlap, people who are higher in autonomy
and environmental mastery could be expected to be higher in SOC beliefs. In validating the
factor structure for his model of PWB, Ryff (1989) found internal control correlated significantly
with autonomy and environmental mastery, respectively, at .38 and .52. These findings suggest
that, despite some overlap, SOC beliefs are theoretically and empirically distinguishable from
autonomy and environmental mastery (Ryff, 1989).

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SOC beliefs are theorized to increase motivation to cope and act during periods of adversity (Taylor & Brown, 1988; Rotter, 1966). Generally, higher SOC beliefs are linked to positive outcomes, including higher levels of well-being (Lachman & Firth, 2004); meanwhile, higher external control beliefs are linked to lower levels of well-being including higher negative affect, lower positive affect, and lower life satisfaction (Klonowicz, 2001). Findings suggest this relationship may be cyclical, with higher perceived control increasing well-being and a higher well-being increasing sense of control (Lachman & Firth, 2004). Consistent with these notions, a previous investigation using the entire MIDUS sample found that higher SOC was cross-sectionally associated with higher life satisfaction and lower levels of depression symptoms (Lachman & Weaver, 1998). Further, emerging evidence suggests that greater SOC beliefs predicts better future health outcomes (Robinson & Lachman, 2017).

On the other hand, under some circumstances, higher perceived control may have negative consequences. In the face of an uncontrollable event (e.g., death in the family), individuals with higher SOC beliefs may experience more distress (Wortman, Sheedy, Gluhoski, & Kessler, 1992). For example, widows with a higher SOC had more difficulty coping with their loss than widows with a lower SOC (Bisconti, Bergeman, and Boker, 2006). One explanation may be that higher perceived control is associated with increased self-blame (Brown & Weiner, 1984; Covington & Omelich, 1979; Weiner, 1985). In one study, participants who viewed themselves as in-control of a negative event were more likely to experience shame and guilt. Conceivably, this self-blaming cognitive style may also characterize individuals with depression (Beck, 1967).

Sense of Control Beliefs and Depression

The relation between SOC beliefs and depression has been a prior focus of depression research. Since Martin Seligman's Learned Helplessness Theory (Seligman, 1975), SOC beliefs have been implicated in depression onset. Extensive work has found that people with an external locus of control fare worse with respect to depression. A meta-analysis of 97 studies found that people with an external locus of control orientation have higher levels of depressive symptoms compared to people with an internal locus of control (Benassi, Sweeney, & Dufour, 1988). This finding was replicated in a meta-analysis of 11 methodologically strong studies (Presson & Benassi, 1996). Updated cognitive theories continue to include sense of control as a core component. For example, the Hopelessness Theory for Depression states:

> "The common-language term *hopelessness* captures the two core elements of this proximal sufficient cause; (a) negative expectations about the occurrence of highly valued outcomes (a negative outcome expectancy), and (b) expectations of helplessness about changing the likelihood of occurrence of these outcomes (a helplessness expectancy)" (Abramson, Metalsky, & Alloy, 1989, p. 359).

While SOC has been examined with respect to the onset of depression, no study, to our knowledge, has examined SOC beliefs in predicting long-term well-being after depression. There are two competing theories with regard to how SOC beliefs may influence the course of depression. According to Rotter (1966)'s Control Theory, if a person believes an outcome is contingent on their own behavior and abilities (higher SOC beliefs/internal locus of control), they learn quickly, and actively seek rewards and avoid punishments. If they think an outcome is instigated by their behavior but ultimately determined by luck, fate, chance, powerful others, or unpredictable, complex forces (lower SOC beliefs/external locus of control), they learn slowly,

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and accept passively rewards and punishments. Rotter's (1966) Control Theory aligns well with the behavioral activation literature for depression (Dimidjian, Barrera, Martell, Muñoz, & Lewinsohn, 2011). Behavioral activation (BA) is aligned with theories that view depression as maintained by a lack of engagement with adaptive activities (often associated with the experience of pleasure or mastery), combined with a higher engagement with maladaptive activities (e.g., avoidance, withdrawal, inactivity), and a lack of problem-solving skills to seek positive events while avoiding aversive events (Dimidjian et al., 2011; Jacobson, Martell, & Dimidjian, 2001). Thus, both theories posit that depressed individuals with higher levels of SOC are more likely to actively cope or seek rewards, avoid punishments, and have better outcomes.

On the other hand, Beck's (1967; Beck & Haigh, 2014) cognitive theory of depression emphasizes potential problems in making attributions of SOC for aversive events. For example, when an aversive event occurs, the depressive attribution may be, "It's my fault" (Beck & Haigh, 2014), which indicates an attribution of control by the individual. This automatic bias stems from an unrealistic and overwhelming tendency to blame oneself for undesirable events and situations, while seeing good events as reflecting luck or the work of others (outside one's own control; Beck, 1967). Responsibility for the bad and inability to bring about the good are ascribed to personal defects and inadequacies. Indeed, while negative thinking is found in other disorders, the content of depressive thinking is distinguished by themes of irreversible loss and failure (as opposed, for example, to themes of impending danger in anxiety; Beck,1985). Thus, Beck's cognitive theory might suggest that depressed individuals with higher SOC may have worse outcomes, at least in the wake of a negative event. Although meta-analytic evidence indicated that higher external locus of control is associated with worse depressive symptomatology (Benassi, Sweeney, & Dufour, 1988; Presson & Benassi, 1996), the reviewed studies largely

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focused on non-diagnostic samples. It may be viable to generating competing hypotheses regarding the role of SOC beliefs and depression course.

Active Coping and Depression

Cognitive theories for depression have spawned numerous treatments that seek to change maladaptive thoughts and behaviors in individuals with depression. Cognitive behavioral therapy (CBT), for instance, aims to provide clients with adaptive coping skills to bolster problem solving skills and autonomy (Beck, 1991; Beck, 2014; Dobson & Dozois, 2019). Given the support for CBT's effectiveness in treating depression (Butler, Chapman, Forman, & Beck, 2006), it is plausible that depressed individuals who utilize active coping strategies will have better outcomes and be more likely to reach OWB after depression. For instance, core components of CBT include teaching clients active coping strategies, such as positive reappraisal, and utilizing environmental resources, such as seeking social support.

Positive Reappraisal

Positive reappraisal involves reinterpreting an event to see the positive side of a bad situation. Generally, reappraisal is viewed as an adaptive, antecedent-focused emotion regulation strategy (Gross, 1998). For example, when given putatively bad news ("You failed an exam."), someone may reframe the news to be more neutral or positive ("Now I know my weaknesses to study for the next exam."). The function of positive reappraisal is to protect individuals' motivational and emotional resources after experiencing failure or developmental losses (Wrosch, Heckhausen, & Lachman, 2000). A meta-analysis found more regular self-reports of reappraisal use were associated with lower depression and anxiety symptoms, with a small-to-medium effect (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Further, use of reappraisal may be implicated in the process of recovering from depression. Previously depressed individuals

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endorsed higher use of reappraisal, and other metacognitive coping strategies, in comparison to currently depressed and never depressed individuals (Halvorsen et al., 2015). Habitual use of reappraisal is also associated with higher levels of positive affect, self-esteem, interpersonal functioning, and lower levels of negative affect (Gross & John, 2003). Thus, depressed individuals who endorse using positive reappraisal may be more likely to achieve OWB after depression.

Seeking Social Support

Another potentially useful coping strategy is seeking social support. Social support is a multidimensional construct and is measured differently across studies. Definitions include emotional support (receiving empathy, caring, love, trust, listening), informational support (receiving advice, suggestions, directives, and information for in coping with personal and environmental problems), instrumental support (receiving aid in kind, money, labor time), and appraisal support (receiving affirmation, feedback, and evaluation; Ross & Mirowsky, 1989; Cooke, Rossmann, McCubbin, & Patterson, 1988; Walen & Lachman, 2000). For this study, we will examine advice seeking, a form of informational social support that entails receiving facts, opinions, and feedback from others (Cohen and Wills, 1985; Thoits, 2011), and receiving emotional support.

Among individuals with depression, seeking advice and emotional support has costs and benefits, leading to two primary hypotheses for how social support may relate to OWB after depression. According to the *facilitation perspective* (Mirowsky & Ross, 1989), seeking social support may be beneficial for people with depression. In depression, lacking supportive relationships, as well as loneliness, are strong risk factors for the onset and maintenance of depression (Anderson, 1999; Green *et al*., 1992). Meanwhile, seeking social support and advice

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implies the presence of supportive relationships, which is a component of psychological well-being (Ryff, 1989). Receiving emotional support and advice may facilitate further coping strategies to help overcome depression and facilitate well-being (Cohen & Willis, 1985). Individuals who report receiving instrumental and emotional resources from others when needed experience lower levels of distress and depressive symptoms in response to stress than those who do not (Cohen & Wills, 1985; Lin, Dean, & Ensel, 1986; Thoits, 1995)..

On the other hand, according to the displacement perspective (Mirowsky & Ross, 1989), seeking emotional support and advice may displace active problem solving with interpersonal dependency, which confers a risk factor for the onset and maintenance of depression (Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982). This accords with Coyne's (1976) interpersonal theory of depression, which posits that individuals with depression may engage in a vicious cycle of excessive reassurance seeking. Specifically, depressed individuals may seek and receive social support from others. However, depressed individuals may doubt the sincerity of this social support and proceed to continue seeking social support. Over time, excessive support seeking results in the rejection of the reassurance seekers. This theory has garnered a fair amount of support (see for review, Zuroff, Mongrain, & Santor, 2004), Given these two competing perspectives, it will be useful to clarify how social support seeking tendencies in the aggregate, relate to OWB after depression.

Summary: Control Beliefs, Reappraisal, and Seeking Social Support

Theory and evidence suggest that higher SOC beliefs among depressed individuals will facilitate OWB after depression. There is evidence to support that higher SOC predicts symptomatic improvement from depression (Reynaert, Janne, Vause, Zdanowicz, & Lejeune, 1995; Brown, Schulberg, & Orugersibm 2000), and that higher SOC is associated with higher

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levels of well-being (Lachman & Weaver, 1989), although this relationship may be less clear in individuals with depression. Additionally, active coping strategies like reappraisal and seeking social support have been found to predict symptom improvement in depression (Cohen & Wills, 1985; Halvorsen et al., 2015). Given Rotter's (1966) Control Theory, which posits that higher control beliefs increase motivation to cope and act, it is likely that individuals with higher SOC beliefs will also endorse higher adaptive coping strategies like reappraisal and seeking social support.

Aims of the Current Study

The current study aimed to examine predictors of OWB after depression in the MIDUS sample. Specifically, this study investigates the predictive relationship between individual differences in SOC beliefs and adaptive coping behaviors (like reappraisal and seeking social support) and OWB after depression. In our previous investigation, overall baseline well-being predicted OWB status while controlling for baseline depression severity, gender, education, age, anxiety comorbidity, and mental health use. To establish that our study variables make an independent contribution to OWB after depression, our statistical models included baseline well-being and depression severity as covariates.

Hypothesis 1. SOC correlates with variables indexing health at Wave 1. Based on Rotter (1966)'s Control Theory, higher SOC beliefs will be significantly associated with coping strategies and composite well-being at Wave 1.

Hypothesis 2. SOC beliefs, positive reappraisal, and seeking social support will correlate significantly with OWB status at Wave 2. Overall, it is expected that SOC beliefs will significantly correlate with OWB status at Wave 2. However, there are competing hypotheses regarding the directionality of the expected association between SOC beliefs and OWB. On one

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hand, we can expect a positive association between Wave 1 SOC beliefs and OWB status at Wave 2, which is based on Rotter's (1966) view that individuals who perceive greater mastery over their environment will act and adapt. On the other hand, we can also expect a negative association between Wave 1 SOC beliefs and OWB status at Wave 2, given that individuals with depression have a tendency to self-blame themselves for negative events. Although we cannot definitively evaluate all elements of this hypothesis because the MIDUS does not provide measures related to self-blame or negative events, finding a significant negative relationship between SOC beliefs and OWB after depression would still be consistent with the hypothesis, and would warrant further study.

Based on the utility of CBT and behavioral activation in the context of depression, we hypothesize a positive association of self-reported positive reappraisal and seeking social support (advice seeking and receiving emotional support) and achieving OWB-status at Wave 2.

Hypothesis 3. SOC beliefs and higher endorsement of active coping strategies will provide incremental prediction of OWB after depression. If we observe a significant relationship between SOC beliefs and coping strategies with OWB status, we expect these variables will add unique predictive validity to OWB after depression status at Wave 2, while controlling for relevant demographic variables, depression severity, and well-being at Wave 1. If this hypothesis is supported, it will have potential implications for interventions that focus on SOC beliefs and cognitive coping.

METHOD

Participants

Data for the current study was extracted from Wave 1 and Wave 2 of the Midlife Development in the United States (1995–1996; 2004–2006; MIDUS: http://midus.wisc.edu/scopeofstudy.php) study, a nationally representative sample of middle-aged (between 25 and 74), noninstitutionalized, English-speaking adults, recruited via a random-digit-dialing (RDD) procedure (Brim, Ryff, & Kessler, 2004). At Wave 1, all respondents participated in a 30-minute phone interview ($N = 3,487$) and most completed the self-administered questionnaires ($n = 3,043$). This investigation focused on those participants who both met major depression criteria ($N = 502$) and who completed Wave 1 questionnaires ($n = 418$), including a well-being battery.

Analyses of OWB concerned depressed persons from Wave 1 who were retained in the Wave 2 sample ten years later ($n = 309$; 38.5% attrition), and who had follow-up well-being data ($n = 239$). Attrition analyses in our first investigation found no association between non-retention and Wave 1 age, sex, education level, household income, depression severity or anxiety severity. Of the 239 depressed individuals with appropriate data at Wave 1, 23 (9.6%) met OWB criteria at Wave 2.

Materials

Depression Diagnosis

At both Waves, mental health disorders were assessed with the Composite International Diagnostic Interview Short Form (CIDI-SF), which was based on *Diagnostic and Statistical Manual of Mental Disorders 3rd edition, revised.* The CIDI-SF assessed 12-month major

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depression, generalized anxiety disorder (GAD), panic disorder (PD), alcohol abuse and dependence, and drug abuse and dependence. The CIDI-SF for major depression, GAD, and PD assessments have good classification accuracy relative to the full CIDI instrument (93%, 99% and 98%, respectively) (Kessler et al., 1998). Participants met depression criteria if they reported having a period of at least two weeks (in the past 12 months) of either depressed mood or anhedonia most of the day or nearly every day, and endorsed sufficient additional symptom criteria to qualify for a major depressive episode. The sensitivity of CIDI-SF classification for major depression is 89.6%, with a specificity 93.9% (Kessler et al., 1998). Depression symptom severity at both waves was calculated for those with a depression diagnosis by totaling positive responses to CIDI-SF items (0 = no depression; 7 = most severe depression).

Well-being Assessment

The MIDUS battery of well-being measures has established reliability and predictive validity (Keyes & Simoes, 2012) and possesses adequate normative data from a nationally representative sample of adults on which to base decisions (Rottenberg et al., 2019). A battery of well-being was administered at Wave 1 and Wave 2 to assess nine well-being facets. Six of the nine facets of well-being were assessed using an 18-item instrument (3 items per facet) at Wave 1 and a longer 42-item instrument (7 items per facet) at Wave 2 (Ryff & Keyes, 1995).

The well-being facets included (1) autonomy (acting with a sense of volition or willingness); (2) environmental mastery (self-direction and productivity); (3) personal growth (continual self-improvement); (4) positive relations with others (the capacity to love and be loved); (5) purpose in life (an overarching life aim); and (6) self-acceptance (positive self-regard). All items were rated on 1 (strongly agree) to 7 (strongly disagree) scales. Scale responses will be averaged to determine each facet score. The remaining well-being facets were:

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life satisfaction (7), assessed with 5 items (scored 0 to 10) that addressed satisfaction with life overall, work, health, relationship with spouse/partner, and relationship with children, and the frequency of past month positive affect (8) and negative affect (9), each assessed with 6 items, scored on 1-5 scales, respectively. At Wave 2, the reliability of the well-being scales ranged from acceptable to excellent (αs = .70 - .90).

To characterize well-being at Wave 1, each of the nine facet scores was standardized to z-scores and averaged together to create composite scores, with higher composite scores indicating higher well-being (α = .90).

Optimal Well-being After Depression

At Wave 2, participants were classified as OWB after depression if they: (a) had a depression diagnosis at Wave 1, (b) screened negative for the two major symptoms of depression at Wave 2 (depressed affect and anhedonia), and (c) at Wave 2, both scored > 50th percentile on at least eight of the nine well-being facets, relative to age and gender-matched sample means from the full national probability MIDUS sample at Wave 2 (N = 1,805), and additionally scored > 84th percentile (i.e., at least one standard deviation above the age and sex-matched population means) on at least three of the nine wellbeing facets (Rottenberg et al., 2019). The eight of nine and three of nine thresholds reflect levels of well-being met by the top 25% of nondepressed persons in the MIDUS sample. As noted above and in our previous investigation (Rottenberg et al., 2018), 23 (9.6%) out of 239 participants with appropriate data met these OWB criteria.

Sense of Control

The MIDUS included a 12-item general SOC measure at Wave 1. This measure is based on Lachman and Weaver's (1998) expansion of Pearlin and Schooler's (1978) original measure of sense of mastery (i.e., control). Two subscales exist: personal mastery (4-items) and perceived

constraints (8-items). All items were rated on 1 (strongly agree) to 7 (strongly disagree) scales. When there are no theoretically driven or empirically driven predictions about differential results for these subscales, it is possible to combine them for one general measure of perceived control (Lachman, 2006; Prenda & Lachman, 2001). The combined scale includes 4 positively worded items (e.g., "I can do just about anything I really set my mind to do," and "Whether or not I am able to get what I want is in my own hands.") and 8 negatively worded items (e.g., "I often feel helpless in dealing with problems of life," and "Sometimes I feel I am being pushed around in my life."). Negatively worded items were reversed scored, and items were summed so higher scores indicated higher SOC. The combined scale demonstrated good reliability ($\alpha = .85$) in the random digit sample of the MIDUS.

Adaptive Coping Strategies

The MIDUS study included scales tapping "Positive Reappraisals," "Advice Seeking," and "Receiving Emotional Support" at Wave 1. These scales will be used as proxies for adaptive coping strategies based on prior theory and evidence (as discussed above).

Positive Reappraisal

Positive reappraisal was assessed with a 4-item scale developed by Wrosch, Heckhausen, and Lachman (2000). All items are rated on a 1 (A lot) to 4 (Not at all) scale. Examples include "I find I usually learn something meaningful from a difficult situation" and "When I am faced with a bad situation, it helps to find a different way of looking at things." Items will be coded and summed so that higher scores reflect higher usage of positive reappraisal. The Reappraisal measure demonstrated acceptable reliability in the MIDUS random digit dialing sample ($\alpha = .78$).

Seeking Social Support

Two measures assessed seeking social support. The first measure used 3 items on Advice Seeking. The items on the Advice Seeking measure were rated on a 1 (A lot) to 4 (Not at all) scale ("I like to get advice from others before making a decision," "When I'm upset about something, I feel better after I talk it over with others," and "I prefer to make decisions without input from others). The first two items were reverse scored and summed so higher scores reflect more advice seeking. The Advice Seeking measure demonstrated modest reliability (α = .61) in the MIDUS random digit sample.

The second social support measure assessed Receiving Emotional Support. Participants reported the number hours per month they received informal emotional support (e.g., getting comfort, having someone listen, getting advice) from their spouse/partner, parents, in-laws, children/grandchildren, other family, and "anyone else" (e.g., neighbor). Total Received Emotional Support was computed by the sum of these six items, and the scale's internal consistency was assessed using Cronbach's alpha (α = .69).

Data Analytic Plan

Cleaning Data

Prior to analyses, data was examined for normal distribution of variables and multivariate outliers. Distribution of variables was evaluated with skewness, kurtosis, and visual inspection of histograms. Data were considered non-normal with absolute skew greater than or equal to two or absolute kurtosis greater than or equal to seven (West et al., 1996). Multivariate outliers were tested with Mahalanobis Distance on the main predictor variables (i.e., SOC, positive reappraisal, advice seeking, and well-being), with a cutoff of χ^2 df = p; α < .001, where p = number of independent variables (Cohen, Cohen, West, & Aiken, 2003).

Missing Data

Patterns and amounts of missing data were examined. To account for missing data and improve statistical power (Schlomer, Bauman, & Card, 2010), missing data was accounted for with full information maximum likelihood (FIML) using MPlus Version 7.0 (Muthén & Muthén, 2018).

Correlation Analyses

Zero-order correlations were conducted among Wave 1 study (depression severity, sense of control, reappraisal, advice seeking, receiving emotional support, and composite well-being) and demographic (e.g., age, gender, education) variables.

Collinearity

Collinearity between predictors was investigated. Given expected correlations between well-being and SOC (Ryff, 1989), collinearity among predictors is possible. Collinearity has the effect of increasing the standard error of a regression coefficient, which increases the width of the confidence interval and decreases the *t* value for that coefficient, which may lead to unstable estimates (Howell, 2009). Collinearity was addressed through exploring large variance inflation factors (VIF) ≥ 2.5 and tolerance values (of less than 0.1) (Midi, Sakar, & Rana, 2010). If collinearity is identified, some predictors contributing to the collinearity will be dropped if there is no theoretical grounding for combining them with another predictor. This approach, unfortunately, would lead to a more cautious interpretation of the results.

Primary Analyses

Several correlational and logistic regression analyses were conducted. An alpha value of .05 was used as a criterion for statistical significance.

Hypothesis 1: *Do sense of control beliefs correlate with well-being and coping?* Zero-order correlations were conducted to test whether Wave 1 SOC beliefs are associated with well-being and coping strategies at Wave 1.

Hypothesis 2: Do sense of control beliefs, positive reappraisal, and advice seeking correlate with optimal well-being after depression 10-years later? Zero-order correlations were conducted to examine whether Wave 1 SOC beliefs, positive reappraisal, and advice seeking significantly correlated with depressed participants OWB status at Wave 2. To examine whether these coping strategies and SOC beliefs added unique variance to predicting OWB at Wave 2, a logistic regression with SOC beliefs, positive reappraisal, and advice seeking as covariates was conducted.

Hypothesis 3: *Do sense of control beliefs add a unique contribution to predicting optimal well-being after depression 10-years later, controlling for demographic and clinical covariates?* To examine whether SOC beliefs added a unique contribution to our knowledge about long-term well-being after depression, a logistic regression examined the effects of SOC beliefs on the probability that participants achieve OWB after depression at Wave 2, while controlling for age, sex, education, depression severity, and composite well-being at Wave 1. It is important to clarify the role of these covariates (Spector & Brannick, 2011).

These specific covariates were chosen based on theoretical and empirical considerations from previous work on depression. Age, for instance, may impact the risk and clinical presentation of depressive symptoms (Christensen et al., 1999; Gallo et al., 1994); relatedly, different age groups may endorse varying levels of SOC (Mirowsky, 2013). Sex differences may play a large role in the course of depression, as the prevalence, incidence, and morbidity of depression is higher among females than in males (Piccinelli & Wilkinson, 2000; Parker &

Brotchie, 2010). Education status has been a dependable proxy for access to resources and socioeconomic status in previous resource; meta-analyses find there is consistently a moderate to strong correlation between education status and depression (Lorant et al., 2003). It is important to ascertain whether SOC beliefs add unique predictive validity over and above clinical indicators, like depression severity, which is a robust predictor for the course of depression (Richards, 2011; Judd et al., 2000). Lastly, given the stated theoretical overlap in well-being and SOC beliefs (e.g., Ryff, 1989), composite well-being was controlled for in the model.

RESULTS

Descriptive Statistics

Cleaning Data

When investigating multivariate outliers using the predictor variables (i.e., SOC, well-being, positive reappraisal, and advice seeking) and applying the exclusion criteria of α < .001, one participant bordered on meeting this criterion (α = .001). Analyses with and without this participant resulted in an identical pattern of findings, and thus all participants were retained for the current analyses.

Skewness for Wave 1 variables ranged from -.039 to -.789, and skewness for Wave 2 variables ranged from -1.327 to .483. Kurtosis for Wave 1 variables ranged from -.046 to -.929, and kurtosis for Wave 2 variables ranged from -.625 to 1.433. The exception for these values was the Receiving Emotional Support variable (M = 54.71; SD = 146.65; range = 0 to 1,704), which showed considerable evidence of non-normality. The skewness (skew = 7.76; SE = .121) and kurtosis (kurtosis = 73.11; SE = .241) for the Receiving Emotional Support variable far exceeded the prespecified cutoffs (skew ≥ 2; kurtosis ≥ 7; West et al., 1996). An inspection of the histogram (see Figure 1) clarifies this lack of normality.

Log transformations, a common method to address non-normality (Feng et al., 2014), were considered. However, many researchers have cautioned against the use of log transformations as a universal remedy (Feng et al., 2014; Higgins, White, & Anzures-Cabrera, 2008; Tabachnick & Fidell, 2012, p. 86). Simulation studies have shown that log transformations can, at times, increase the skewness of the original data (Feng et al., 2014). Upon applying a

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transformation, interpretability becomes more challenging and may result in inaccurate estimates (Feng, Wang, Lu, & Tu, 2012; Tabachnick & Fidell, 2013, p. 86).

The Receiving Emotional Support variable was ultimately dropped from the analysis plan. This decision was informed by the following: 1) the variable illustrated severe normality violations that exceeded the pre-specified cutoffs for skewness, kurtosis, and visual inspection of the histogram; 2) although the variable would offer insight into emotional support seeking processes, the measurement for this variable is not validated; 3) including this variable would yield a significant percentage (about 11%) of multivariate outliers and decreases statistical power for other variables of interest; 4) log-transformation solutions would potentially result in inaccurate or unreliable estimates with difficulties in interpretability; and 5) another validated proxy of seeking social support, Advice Seeking, was available, which has been used in prior studies (e.g., Delaney, Turiano, & Strough, 2018).
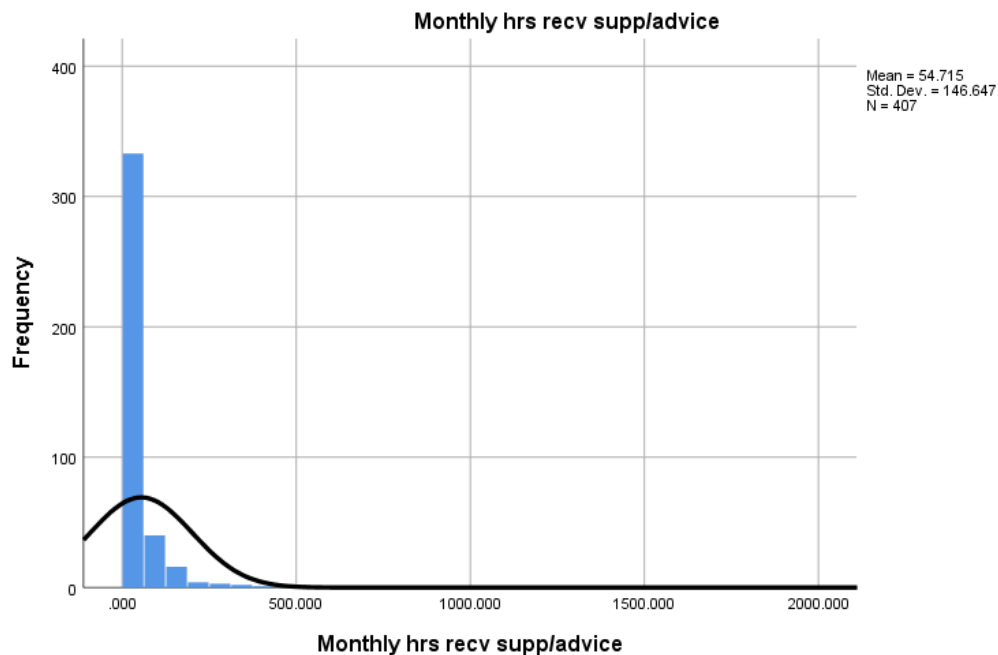
Figure 1. Histogram for Hours Receiving Emotional Support Over Last Month (N = 407)

Missing Data

Missing data for each variable ranged from 0 to 53.8%. Table 2 provides the percentage of missingness for each variable. The Wave 2 well-being variables had the highest amount of missing data; this is because of the MIDUS study's sampling procedure, in which the well-being variables were administered separately from the mental health diagnostic measures. This also helps explain why the SOC and well-being variables at Wave 1 had missingness rates of 21.5% and 24.9%, respectively. Importantly, there is currently no consensus about when the amount of missingness becomes problematic. Rather, current guidelines recommend considering the pattern of missingness (i.e., is the pattern likely to result in sample bias) and the statistical power remaining after accounting for missingness (Schlomer et al., 2010).

Table 2. Missing Data Across Waves 1 and 2 for 502 Depressed Participants at Wave 1

	Missing		Not Missing
	N	Percent	Valid N
W2 Composite Well-being	270	53.8%	232
W2 Negative affect	270	53.8%	232
W2 Optimal well-being	266	53.0%	236
W2 Positive reappraisal	263	52.4%	239
W2 Sense of control	262	52.2%	240
W2 Perceived constraints	262	52.2%	240
W2 Personal mastery	262	52.2%	240
W2 Self-acceptance	262	52.2%	240
W2 Purpose in life	262	52.2%	240
W2 Positive relations	262	52.2%	240
W2 Personal growth	262	52.2%	240
W2 Environmental mastery	262	52.2%	240
W2 Autonomy	262	52.2%	240
W2 Life satisfaction	261	52.0%	241
W2 Positive affect	260	51.8%	242
W2 Depression Severity	193	38.4%	309
W2 Depression Diagnosis	193	38.4%	309
W1 Composite well-being	125	24.9%	377
W1 Sense of control	108	21.5%	394
W1 Perceived constraints	104	20.7%	398
W1 Personal mastery	101	20.1%	401
W1 Race	100	19.9%	402

Table 2. (Continued)

W1 Negative affect mean	99	19.7%	403
W1 Purpose in life mean	95	18.9%	407

Note: OWB = Meets Optimal Well-being Criteria at Wave 2. W1 = Wave 1; W2 = Wave 2.

Analyses of missing data patterns indicated that missingness was not monotone (meaning that missingness on one variable did not guarantee missingness on another variables), as some participants who failed to complete the questionnaire at Wave 1 completed the phone interview at Wave 2. Point biserial correlations found no significant associations of missing phone and questionnaire data at Wave 2 with Wave 1 age, gender, education level, household income, depression severity, anxiety severity, panic attack severity, or conscientiousness, ps > .05. Given the large amount of missingness, full information maximum likelihood (FIML) was used to increase statistical power (Graham, 2009; Schlomer et al., 2010).

Demographics

In the raw non-imputed data, at Wave 1, the sample contained 502 depressed individuals with a mean age of 42.95 years (SD =11.92), of which 13.9% met criteria for generalized anxiety disorder, 21.9% for panic disorder, and 4.8% for alcohol or drug problems. This sample was 37.5% male, 69.9% White, and 47.4% married.

In the raw non-imputed data, the sample contained 23 participants who were depressed at Wave 1 and who met OWB criteria at Wave 2; the sample also contained 213 participants who were depressed at Wave 1 and who did not meet OWB criteria at Wave 2. Of these participants, about half reported no major symptoms of depression over the past year (n = 116 / 236; 49.2%); the other half met criteria for a major depressive episode in the past year (n = 82 / 236; 34.7%) or reported residual symptoms of depression (n = 38 / 236; 15.9%). Table 3 provides demographic

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characteristics of participants classified as OWB or not OWB at Wave 2 with variables at both waves.

Table 3. Descriptive Statistics for Participants with Wave 2 Depression Status in the MIDUS (N=236)

	OWB (N=23) M (SD)	Non-OWB (N=213) M (SD)	Full Sample (N=236) M (SD)
W1 Age	41.35 (9.19)	44.09 (11.14)	43.82 (10.97)
	N (%)	N (%)	N (%)
W1 Gender			
Male	9 (39.1)	63 (29.6)	72 (30.5)
Female	14 (60.9)	150 (70.4)	164 (69.5)
W1 Race			
White	21 (95.5)	182 (91.5)	203 (91.9)
Black/African American	1 (4.5)	6 (3.0)	7 (3.2)
Other	0	11 (5.5)	11 (4.9)
W1 Marital status			
Married	11 (47.8)	108 (50.7)	119 (50.4)
Separated	3 (13.0)	13 (6.1)	16 (6.8)
Divorced	6 (26.1)	55 (25.8)	61 (25.8)
Widowed	1 (4.3)	11 (5.2)	12 (5.1)
Never married	2 (8.7)	26 (12.2)	28 (11.9)
W1 Education			
High school/GED or less	6 (26.1)	79 (37.1)	85 (36.0)
Some college	7 (30.4)	74 (34.7)	81 (34.3)
College or professional degree	10 (43.5)	60 (28.2)	70 (29.7)
	M (SD)	M (SD)	
W1 Advice seeking	7.48 (1.20)	7.36 (1.49)	7.38 (1.46)
W1 Sense of control	**6.06 (.71)**	**4.85 (1.18)**	4.89 (1.20)
W2 Sense of control	**6.49 (5.17)**	**5.02 (1.07)**	5.17 (1.11)
W1 Positive reappraisal	**3.22 (.63)**	**2.93 (.60)**	2.95 (.65)
W2 Positive reappraisal	*3.37 (.62)	*2.97 (.62)	2.97 (.62)
W1 Depression severity	**5.09 (1.08)**	**5.68 (1.01)**	5.62 (1.03)
W2 Depression severity	**0 (0)**	**2.27 (2.80)**	2.05 (2.74)

Note: OWB = Meets Optimal Well-being Criteria at Wave 2. W1 = Wave 1; W2 = Wave 2. * = $p < .05$ two-tailed test comparing across columns; **Bold** = $p < .01$ two-tailed test comparing across columns.

Participants who attained OWB had a mean age at Wave 1 of 41.35 years (SD = 9.19), of which 39.1% were male, 95.5% were white, 47.8% were married, and 43.5% had a college or professional degree. Participants who did not attain OWB had a mean age of 44.09 years (SD =

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11.14), of which 29.6% were male, 91.5% were white, 50.7% were married, and 28.2% had a college or professional degree. Participants with and without OWB did not significantly differ on Wave 1 age ($p = .256$), gender ($p = .348$), race ($p = .845$), marital status ($p = .781$), or education ($p = .294$).

Correlations of Wave 1 Variables

Table 4 provides correlations of all variables using the imputed data. At Wave 1, well-being was significantly and negatively associated with depression severity ($r = -.327$), and significantly and positively associated with reappraisal ($r = .506$) and sense of control ($r = .742$), $ps < .01$. Relatedly, at Wave 1, sense of control correlated significantly and positively with age ($r = .134$, $p < .05$), education ($r = .228$, $p < .01$), depression severity ($r = -.208$, $p < .01$), well-being ($r = .742$, $p < .01$), and reappraisal ($r = .495$, $p < .01$).

Primary Analyses

Results presented from this point forward represent the analyses conducted on the imputed data using FIML. Prior to conducting logistic regression analyses, collinearity was examined through exploring large variance inflation factors (VIF) ≥ 2.5 and tolerance values (of less than 0.1) (Midi, Sakar, & Rana, 2010). No VIF or tolerance values exceeded these predetermined cutoffs (e.g., see Table 5).

Hypothesis 1. Do sense of control beliefs correlate with well-being and coping? In partial support of hypothesis 1, SOC beliefs positively correlated with Wave 1 well-being ($r = .742$), Wave 2 well-being ($r = .485$), Wave 1 reappraisal ($r = .495$), and Wave 2 reappraisal ($r = .358$), $ps < .01$, with medium to large relationships. However, SOC was not significantly correlated with advice seeking ($r = .012$), $p > .05$.

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Table 4. Correlations of Variables using Imputed Data (N = 502)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14
1. W1 age	1													
2. Race	-0.067	1												
3. Sex	0.049	-0.044	1											
4. Education	-0.025	-0.093	-0.074	1										
5. W1 depression severity	-0.055	-0.048	0.081	-0.176	1									
6. W1 well-being	0.001	-0.04	<.001	0.209	**-0.327**	1								
7. W1 sense of control	-0.134*	0.067	-0.06	**0.228**	**-0.208**	**0.742**	1							
8. W1 advice seeking	-0.058	-0.019	-0.038	0.016	0.014	-0.085	0.012	1						
9. W1 reappraisal	0.011	0.011	-0.02	0.039	-0.086	**0.506**	**0.495**	**-0.142**	1					
10. W2 depression severity	-0.057	-0.004	**0.165**	**-0.149**	**0.222**	**-0.363**	**-0.24**	-0.05	**-0.182**	1				
11. W2 well-being	-0.033	-0.028	-0.003	0.168*	-0.162*	**0.603**	**0.485**	-0.011	**0.358**	**-0.521**	1			
12. W2 sense of control	-0.191	-0.053	-0.06	0.191*	-0.1	**0.43**	**0.475**	0.018	**0.301**	**-0.414**	**0.742**	1		
13. W2 reappraisal	-0.128	-0.024	0.108	0.043	-0.059	**0.398**	**0.358**	-0.115	0.54	**-0.226**	**0.551**	**0.439**	1	
14. W2 optimal well-being	-0.092	-0.075	-0.034	0.12	**-0.168**	**0.302**	**0.305**	<.001	0.125*	**-0.247**	**0.493**	**0.397**	0.216	1

Note: W1 = Wave 1; W2 = Wave 2; * = p < .05 two-tailed test; **Bold** = p < .01 two-tailed test

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Hypothesis 2: Do SOC beliefs, positive reappraisal, and advice seeking correlate with optimal well-being (OWB) after depression 10-years later? Zero-order correlations revealed significant positive relationships of Wave 2 OWB with Wave 1 SOC beliefs ($r = .305$, $p < .01$) and positive reappraisal ($r = .126$, $p < .05$), but not advice seeking ($r \leq .001$, $p > .05$). This finding provides partial support for the hypothesized relationships of OWB with SOC beliefs and coping strategies. However, when using a logistic regression to examine how SOC beliefs, positive reappraisal, and advice seeking relate to Wave 2 OWB, positive reappraisal was no longer significantly related to OWB ($\beta = -.131$, SE $= .332$; OR $= .877$, 95% CI .428, 1.339), while SOC beliefs remained a significant correlate ($\beta = 1.318$, SE $= .332$; OR $= 3.736$, 95% CI 2.163, 6.454), $p < .001$.

Table 5. Logistic Regression Predicting Wave 2 Optimal Well-being (OWB) with Wave 1 Sense of Control Beliefs and Coping Strategies (N = 413)

	β	SE	p	OR	95% CI, Low	95% CI, High
Sense of control	1.318	.332	< .001	3.736	2.163	6.454
Advice seeking	.004	.175	.981	1.004	.753	1.339
Positive reappraisal	-.131	.332	.764	.877	.428	1.339

Note: Numbers represent imputed values from MPlus, which uses Full Information Maximum Likelihood (FIML)

Hypothesis 3. Do SOC beliefs add a unique contribution to predicting OWB after depression 10-years later, controlling for demographic and clinical correlates? A logistic regression examined the effects of SOC beliefs on the probability that participants achieve OWB after depression at Wave 2, while controlling for age, sex, education, depression severity, and composite well-being at Wave 1. Consistent with prediction, SOC beliefs were associated with

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OWB status 10-years later (β = .786, *SE* = .393; OR = 2.194, 95% CI: 1.149, 4.191), *p* = .046, controlling for age, sex, education, depression severity, and composite well-being. A 1-unit increase in SOC beliefs was associated with 2.194 increased log odds of OWB.

Table 6. Logistic Regression Predicting Wave 2 Optimal Well-being with Wave 1 Variables (N = 502)

	β	SE	P	OR	95% CI, Low	95% CI, High	Tolerance	VIF
Age	-.030	.025	.233	.971	.932	1.011	.961	1.041
Female (1)	-.464	.509	.362	.629	.272	1.452	.969	1.032
Education	.052	.111	.641	1.053	.877	1.265	.906	1.104
Depression severity	-.356	.256	.164	.700	.460	1.067	.879	1.138
Composite well-being	1.111	.607	.067	3.038	1.120	8.242	.429	2.332
Sense of control	.786	.393	.046	2.194	1.149	4.191	.446	2.240

Note: All values represent imputed values from MPlus, which uses Full Information Maximum Likelihood, with the exception of the Tolerance and Variance Inflation Factor (VIF) values, which were obtained using SPSS.

DISCUSSION

A previous investigation found that 9.6% of initially depressed adults attained OWB 10-years later, with higher overall well-being predicting OWB (Rottenberg et al., 2019). The current investigation homed in on more specific, and possibly malleable, factors that might predict long-term well-being after depression, specifically on the role of SOC beliefs and coping behaviors, like positive reappraisal and seeking social support. We hypothesized that SOC beliefs might have a role in benefiting or hindering long-term OWB among people with depression, since SOC beliefs might initiate action to solve a problem (e.g., Rotter, 1954, 1966), or to fall trap to self-blame (e.g., "It's my fault for being depressed."; Beck, 1967). We also hypothesized that higher endorsements of positive reappraisal and seeking social support would positively predict OWB after depression, given the success of these coping strategies in cognitive-behavioral treatments (Denny & Oschner, 2014; Gross & Munoz, 1995; Samoilov & Goldfried, 2000).

Our main findings among a sample of depressed adults across two waves, 10-years apart, were as follows: 1) SOC beliefs significantly and positively correlated with depression symptoms, overall well-being, and positive reappraisal, although SOC was not correlated with advice seeking; 2) higher SOC beliefs significantly correlated with OWB 10-years later; 3) higher reports of positive reappraisal, but not seeking advice, significantly correlated with OWB 10-years later; 4) when controlling for SOC beliefs, positive reappraisal was no longer a significant predictor of OWB 10-years later; and 5) when controlling for baseline demographic (i.e., age, sex, education) and clinical variables (i.e., depression symptoms, overall well-being), SOC beliefs significantly predicted OWB 10-years later.

Our cross-sectional findings on the association between SOC beliefs, well-being, and depression is consistent with prior research and theory. The observed negative relationship between SOC beliefs and depression replicates prior cross-sectional research on non-clinical samples (Benassi et al., 1988; Presson & Benassi, 1996), and highlights that SOC may be a risk or maintaining factor for depression (Alloy et al., 1984; Seligman et al., 1977). The observed positive relationship between SOC beliefs and overall well-being also replicates prior cross-sectional studies (Lachman & Weaver, 1989; Klonowicz, 2001; Ng et al., 2006; Kraus & Stryker, 1984), providing support for Rotter's Control Theory, which posits that SOC beliefs are linked to coping behaviors and well-being (Rotter, 1954, 1966).

This study contributes to knowledge about the correlates of long-term well-being after depression. Longitudinal analyses demonstrated that endorsements of positive reappraisal predicted OWB after depression 10-years later. This finding indicates that use of positive reappraisal could be one form of emotion regulation that can increase long-term well-being. However, the relationship between positive reappraisal and OWB was no longer significant when accounting for SOC beliefs.

That SOC beliefs were more robust than positive reappraisal may be understood through Rotter's (1966) Control Theory. According to this theory, SOC represents a higher-order construct, which subsumes a number of strategies to cope with distress across a variety of situations. Individuals with higher SOC may respond to situations more flexibly, perhaps through experimenting and implementing a variety of coping strategies, including reappraisal. Greater flexibility of coping strategies (Kashdan & Rottenberg, 2010; Bonnano & Burton, 2013) and accessing more coping strategies (Lam & McBride-Chang, 2007; Orcutt, Bonanno, Hannan, & Miron, 2014) is linked with better effectiveness to downregulate distressful emotions over the

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long-term. Positive reappraisal, meanwhile, is just one of many strategies to help cope with distress (Gross, 1998), and its effectiveness may be situation dependent (Shiota & Levenson, 2012; Aldao, 2013; van't Wout & Sanfey, 2010). In fact, inflexible use of positive reappraisal may have deleterious effects depending on the situation (e.g., Bonnano & Burton, 2013; Sheepes, Catran, & Meiran, 2009). In light of the current findings and theory, SOC beliefs may be a more efficient intervention target for one's long-term functioning compared to positive reappraisal, alone, as it may have more long-term benefits for people with depression.

This same interpretation may apply to the lack of an observed relationship between advice seeking and OWB. Advice seeking is just one strategy that can help people with depression in the short-term (Mirowsky & Ross, 1989; Anderson, 1999; Cohen & Willis, 1985). However, overreliance on this strategy may be detrimental in the long-term (Coyne, 1976). Overuse of advice seeking may be perceived as excessive reassurance seeking, which may hurt one's interpersonal relationships, which over time can exacerbate depression (Coyne, 1976; see for review, Zuroff, et al., 2004; Haeffel, Voelz, & Joiner, 2007). Unfortunately, this study's two-wave, spaced 10-years apart, design precluded a test of these hypotheses.

In our previous investigation, we found that overall well-being was a greater predictor of OWB than depression symptoms (Rottenberg et al., 2018). In this study, we found that SOC beliefs was more predictive of OWB than an index of depression severity and a composite measure of overall well-being. These data add to prior indication that components of well-being, like SOC, may provide incremental prediction of depression (Keyes & Simoes, 2012; Keyes, Dhingra, &, Simoes, 2010; Wood & Joseph, 2010). These results indicate that SOC beliefs represent an important consideration for decreasing depression and optimizing long-term well-being. Although many CBT approaches recognize the importance of a client's sense of control,

CBT guidelines traditionally emphasize cognitive reappraisal as a primary coping strategy, while potentially overlooking SOC beliefs as a core target for long-term functioning.

Consistent with this idea, evidence exists that general SOC beliefs, as well as specific domains of SOC beliefs (e.g., sense of control over health), can change over time (Wolfle & List, 2004; Lachman, 2006; Page & Hook, 2003) or be modified with interventions (Lachman et al., 2011). Experimental studies have manipulated SOC beliefs through presenting participants with scenarios in which they do or do not have control over an outcome (Laurin et al., Laurin, Kay, & Moscovitch, 2008).), or by asking participants to recall events that were or were not in their control (Kay, Gaucher, Napier, Callan, & Laurin, 2008). However, clinical interventions with the primary goal of modifying SOC are relatively rare; most studies do not directly measure SOC beliefs as an outcome or explicitly target SOC in treatment (Backenstrass et al., 2006). One single-blind, randomized controlled trial used cognitive restructuring techniques to instill greater SOC beliefs (Tennstedt et al., 1998) in older adults who were at risk of falling. Participants who completed the SOC treatment increased their falls self-efficacy, SOC over falls, level of intended activity, and physical mobility functioning significantly more than the comparison group (Tennstedt et al., 1998). In mental health research, there appears to be a lack of documented evidence for interventions that directly modify SOC beliefs. This is unfortunate because SOC has been recognized as an important individual difference variable in the onset and maintenance of depression, with implications for the course of depression (Mirowsky & Ross, 1989; Abrahamson et al., 1989; Beck, 1967). Indeed, the current study highlights that significant variation in SOC beliefs existed in this depressed sample which had relevance in the long-term.

Meanwhile, an abundance of experimental and therapeutic research documents the potential benefits of cognitive reappraisal in the short-term (Troy, Wilhelm, Shallcross, &

Mauss, 2010; Troy, Shallcross, Davis, & Mauss, 2013; Andreotti et al., 2013), yet, few investigations have examined the long-term relationships of these coping strategies among diagnostically depressed samples. Relatedly, future research could examine how changes in usage of strategies like reappraisal coincides with SOC beliefs. The current findings of this 10-year follow-up study with a diagnostic sample suggests that SOC is a worthy candidate for further study of long-term well-being.

Strengths, Limitations, and Future Directions

This study's results and interpretations should be considered in the context of several limitations. First, our study consisted of secondary analyses of an archival dataset, which limited the availability of measurement instruments. Ideally, this project would have collected data throughout a 3-wave study with assessments across 6-years, which could allow for analysis of the covariation of SOC beliefs, coping strategies, well-being, and depression over time. Assessments at each time point would include a complete interview of recent (i.e., 2-weeks) and 12-month depression, a comprehensive well-being battery (i.e., based on the well-being models by Ryff, 1989 and Diener, 1984), validated SOC instruments, validated measures that capture different ways of seeking social support, validated measures of active coping strategies (e.g., a battery of emotion regulation strategy use), and validated measures of self-blame. These assessments would allow for a comprehensive assessment of OWB and allow a test of competing hypotheses for the positive and negative role of SOC beliefs in depression.

However, the current study was limited us to a post-hoc assessment of OWB after depression. Due to the skip out logic of the CIDI-SF used in the MIDUS study, a comprehensive follow up of depression symptoms was not available; we can only confirm that individuals were not experiencing the two cardinal symptoms of depression in the past 12-months, which may

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impact our observed estimates of OWB. Relatedly, our population-based approach was just one method to operationalizing OWB; future studies should consider and compare alternative approaches (e.g., latent profile analysis) to investigate OWB. Additionally, the 3-item measure of Advice Seeking demonstrated relatively modest internal consistency ($\alpha = .61$), which increases the chance of unreliable estimates, which tempers out interpretation of the null relationship between advice seeking and OWB. Relatedly, the receiving emotional support variable was determined to be unusable in the current analyses, given that it did not meet a priori criteria for skewness, kurtosis, and normality. Future designs should consider how different goals related to social support (e.g., instrumental support; appraisal support) relate to short-term and long-term well-being among people with depression. Relatedly, the absence of some measures in the MIDUS limited our ability to assess varying theories about the role of SOC beliefs in depression, including the possible relationship between self-blame, SOC, and depression.

Second, there was substantial participant attrition and missing data in the MIDUS study over 10-years, which decreased our usable sample size of participants with complete data, including on the Wave 2 variables of interest to operationalize OWB. The attrition rate of 54%, based on the current study's variables of interest, is comparable to other reported attrition rates in longitudinal epidemiological studies (range 30-70%; Gustavson, von Soest, Karevold, & Røysamb, 2012). Analyses suggested that attrition was not due to demographic and clinical variables, and imputation methods addressed this limitation to increase statistical power. Lastly, the two-wave, spaced 10-years a part, design precluded a test of the causal relationships across variables. Future designs might examine how SOC beliefs and specific coping strategies operate in the short-term (e.g., daily diary studies; shorter follow-ups) and across contexts for people with depression.

Despite these limitations, our study has notable strengths. Our study offers novel insights into the long-term psychological correlates (i.e., sense of control) of OWB after depression. Most research on the interplay between depression, well-being, and coping strategies rely on cross-sectional reports in non-diagnostic samples (Benassi, Sweeney, & Dufour, 1988; Presson & Benassi, 1996). Another strength is this study operationalized OWB using rigorous cutoffs on a well-validated battery of psychological well-being measures. Lastly, we estimated long-term depression outcomes in a probability sample representative of United States adults.

Conclusion

Before this study, uncertainty existed over the roles of SOC beliefs, positive reappraisal, and seeking social support in the long-term course of depression. This study provides evidence that higher SOC beliefs and use of positive reappraisal can benefit the long-term well-being of people with depression, as much as 10-years later. While more research is needed to clarify the mechanisms by which SOC beliefs facilitate long-term well-being, this preliminary evidence suggests that targeting SOC beliefs can provide benefits in a therapeutic context.

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APPENDICES

Appendix A: Major Depressive Disorder Interview

Participants were asked, "DURING THE PAST 12 MONTHS, was there ever a time when you felt sad, blue, or depressed for two weeks or more in a row?"

If participants reported having a period of at least 2 weeks (in the previous 12 months) of either depressed mood or anhedonia most of the day or nearly every day, they were asked follow-up questions.

During two weeks in past 12 months, when you felt sad, blue, or depressed, did you:

   a. lose interest in most things?

   b. feel more tired out or low on energy than is usual?

   c. lose your appetite?

   d. have more trouble falling asleep than usual?

   e. have a lot more trouble concentrating than usual?

   f. feel down on yourself, no good, or worthless?

   g. think a lot about death?

Coding: 1 = Yes; 2 = No

Appendix B: Well-being Measures at Wave 1

Diener's (1984) Model for Hedonic Well-being Wave 1

Life Satisfaction

For each item, respondents were asked to rate their life overall, work, health, relationship with spouse/partner, and relationship with children on an 11-point scale (0 = the worst possible; 10 = the best possible). The scores for relationship with spouse/partner and relationship with children were averaged to create one "item". Then, this score was used along with the remaining three items to calculate an overall mean score. Higher scores reflect higher levels of overall life satisfaction.

Positive Affect

During the past 30 days, how much of the time did you feel…

    a. Cheerful?
    b. In good spirits?
    c. Extremely happy?
    d. Calm and peaceful?
    e. Satisfied?
    f. Full of life?

Coding: 1 All of the time; 2 Most of the time; 3 Some of the time; 4 A little of the time; 5 none of the time.

Negative Affect

During the past 30 days, how much of the time did you feel…

    a. So sad nothing could cheer you up?
    b. Nervous?
    c. Restless or fidgety?
    d. Hopeless?
    e. That everything was an effort?
    f. Worthless?

Coding: 1 All of the time; 2 Most of the time; 3 Some of the time; 4 A little of the time; 5 none of the time.

Ryff's (1989) Psychological Well-being Wave 1

The following scales are comprised of 3-items rated on 7-point Likert scale.

Coding: 1 Strongly agree; 2 Somewhat agree; 3 A little Agree; 4 Don't know; 5 A little disagree; 6 Somewhat disagree; 7 Strongly disagree.

Autonomy

1. I tend to be influenced by people with strong opinions.
2. I have confidence in my own opinions, even if they are different from the way most other people think." (R)
3. I judge myself by what I think is important, not by the values of what others think is important." (R)

Environmental Mastery

1. The demands of everyday life often get me down.
2. In general, I feel I am in charge of the situation in which I live. (R)
3. I am good at managing the responsibilities of daily life. (R)

Positive Relationships with Others

1. Maintaining close relationships has been difficult and frustrating for me."
2. People would describe me as a giving person, willing to share my time with others. (R)
3. I have not experienced many warm and trusting relationships with others.

Self-Acceptance

1. I like most parts of my personality." (R)
2. When I look at the story of my life, I am pleased with how things have turned out so far. (R)
3. In many ways I feel disappointed about my achievements in life.

Purpose in Life

1. Some people wander aimlessly through life, but I am not one of them. (R)
2. I live life one day at a time and don't really think about the future.
3. I sometimes feel as if I've done all there is to do in life.

Personal Growth

1. For me, life has been a continuous process of learning, changing, and growth. (R)
2. I think it is important to have new experiences that challenge how I think about myself and the world. (R)
3. I gave up trying to make big improvements or changes in my life a long time ago.

Appendix C: Sense of Control (SOC) Beliefs Questionnaire

Personal Mastery

1. I can do just about anything I really set my mind to.
2. When I really want to do something, I usually find a way to succeed at it.
3. Whether or not I am able to get what I want is in my own hands.
4. What happens to me in the future mostly depends on me.

Perceived Constraints

1. There is little I can do to change the important things in my life.
2. I often feel helpless in dealing with the problems of life.
3. Other people determine most of what I can and cannot do.
4. What happens in my life is often beyond my control.
5. There are many things that interfere with what I want to do.
6. I have little control over the things that happen to me.
7. There is really no way I can solve the problems I have.
8. I sometimes feel I am being pushed around in my life.

Coding: 1 Strongly agree; 2 Somewhat agree; 3 A little agree; 4 Don't know; 5 A little disagree; 6 Somewhat disagree; 7 Strongly disagree.

Appendix D: Positive Reappraisal Questionnaire

1. I find I usually learn something meaningful from a difficult situation.
2. When I am faced with a bad situation, it helps to find a different way of looking at things.
3. Even when everything seems to be going wrong, I can usually find a bright side to the situation.
4. I can find something positive, even in the worst situations.

<u>Coding</u>: 1 A lot; 2 Some; 3 A little; 4 Not at all.

Appendix E: Advice Seeking Questionnaire

1. I like to get advice from others before making a decision.
2. When I'm upset about something, I feel better after I talk it over with others.
3. I prefer to make decisions without input from others.

<u>Coding</u>: 1 A lot; 2 Some; 3 A little; 4 Not at all.

Appendix F: Receiving Emotional Support Questionnaire

"On average, how many hours per month do you receives informal emotional support, such as getting comfort, having someone listen to you, or getting advice, from each of the following people?"

    a.   Your spouse or partner
    b.   Your parents or the people who raised you
    c.   Your in-laws
    d.   Your children or grandchildren
    e.   Any other family members or close friends
    f.   Anyone else (such as neighbors or people at church)

Appendix G: Well-being Measures at Wave 2

Diener's (1984) Hedonic Well-being Wave 2

Life Satisfaction

Same measure as Wave 1.

Positive Affect

Same measure as Wave 1.

Negative Affect

Same measure as Wave 1.

Ryff's (1989) Psychological Well-being Wave 2

The following scales are comprised of 7-items rated on 7-point Likert scale.

Coding: 1 Strongly agree; 2 Somewhat agree; 3 A little Agree; 4 Don't know; 5 A little disagree; 6 Somewhat disagree; 7 Strongly disagree.

Autonomy

1. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people." (R)
2. My decisions are not usually influenced by what everyone else is doing. (R)
3. I tend to be influenced by people with strong opinions.
4. *I have confidence in my opinions, even if they are contrary to the general consensus. (R)
5. It's difficult for me to voice my own opinions on controversial matters.
6. I tend to worry about what other people think of me.
7. I judge myself by what I think is important, not by the values of what others think is important. (R)

* In MIDUS-I, the wording of this item is slightly different, "I have confidence in my *own* opinions, even if they are *different from the way most other people think*."

Environmental Mastery

1. In general, I feel I am in charge of the situation in which I live. (R)
2. The demands of everyday life often get me down.
3. I do not fit very well with the people and the community around me.
4. I am quite good at managing the many responsibilities of my daily life. (R)
5. I often feel overwhelmed by my responsibilities.
6. I have difficulty arranging my life in a way that is satisfying to me.
7. I have been able to build a living environment and a lifestyle for myself that is much to my liking. (R)

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Positive Relationships with Others

1. Most people see me as loving and affectionate. (R)
2. Maintaining close relationships has been difficult and frustrating for me.
3. I often feel lonely because I have few close friends with whom to share my concerns.
4. I enjoy personal and mutual conversations with family members and friends. (R)
5. People would describe me as a giving person, willing to share my time with others. (R)
6. I have not experienced many warm and trusting relationships with others.
7. I know that I can trust my friends, and they know they can trust me. (R)

Self-acceptance

1. When I look at the story of my life, I am pleased with how things have turned out. (R)
2. In general, I feel confident and positive about myself. (R)
3. I feel like many of the people I know have gotten more out of life than I have.
4. I like most parts of my personality. (R)
5. In many ways I feel disappointed about my achievements in life.
6. My attitude about myself is probably not as positive as most people feel about themselves.
7. When I compare myself to friends and acquaintances, it makes me feel good about who I am. (R)

Purpose in Life

1. I live life one day at a time and don't really think about the future.
2. I have a sense of direction and purpose in life. (R)
3. I don't have a good sense of what it is I'm trying to accomplish in life.
4. My daily activities often seem trivial and unimportant to me.
5. I enjoy making plans for the future and working to make them a reality. (R)
6. Some people wander aimlessly through life, but I am not one of them. (R)
7. I sometimes feel as if I've done all there is to do in life.

Personal Growth

1. I am not interested in activities that will expand my horizons.
2. I think it is important to have new experiences that challenge how you think about yourself and the world. (R)
3. When I think about it, I haven't really improved much as a person over the years.
4. I have the sense that I have developed a lot as a person over time. (R)
5. For me, life has been a continuous process of learning, changing, and growth. (R)
6. I gave up trying to make big improvements or changes in my life a long time ago.
7. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.