

A Longitudinal Analysis of Self-Regulation and Well-Being: Avoidance Personal Goals, Avoidance Coping, Stress Generation, and Subjective Well-Being

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ABSTRACT We conducted 2 longitudinal meditational studies to test an integrative model of goals, stress and coping, and well-being. Study 1 documented avoidance personal goals as an antecedent of life stressors and life stressors as a partial mediator of the relation between avoidance goals and longitudinal change in subjective well-being (SWB). Study 2 fully replicated Study 1 and likewise validated avoidance goals as an antecedent of avoidance coping and avoidance coping as a partial mediator of the relation between avoidance goals and longitudinal change in SWB. It also showed that avoidance coping partially mediates the link between avoidance goals and life stressors and validated a sequential meditational model involving both avoidance coping and life stressors. The aforementioned results held when controlling for social desirability, basic traits, and general motivational dispositions. The findings are discussed with regard to the integration of various strands of research on self-regulation.

The scientific study of stress and coping commenced in earnest in the mid 20th century, and has burgeoned over the years to the point that it now represents one of the most extensive areas of inquiry in psychology. The stress and coping literature focuses on the challenges and threats that individuals encounter in daily life, and on people's affective, cognitive, and behavioral responses to these challenges and threats (Lazarus, 1999). Given both the content area and breadth of focus of the stress and coping literature, one would think that the goal construct would hold a prominent place within it. Surprisingly, this is not the case.

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The goal construct is not completely absent from the stress and coping literature. From the publication of Lazarus' (1966) pioneering book, *Psychological Stress and the Coping Process*, goals have been portrayed as part of the appraisal process, whereby situations evoke stress if they impede important goals. However, aside from a generic acknowledgment that goals play a role in appraisal (Lazarus, 1991) and a general recognition that goals are part of a category of person factors that are involved in stress and coping processes (Moos & Schaeffer, 1993), theorists have allocated little attention to goals. In essence, goals represent the ground rather than the figure in the stress and coping literature.

Recently, Carver and Scheier (2008) have argued that goals deserve a more central place in research on stress and coping. They argue that stress and coping should be viewed in the broader context of self-regulation, with goal processes being an integral component of self-regulation. Specifically, they view stress as occurring when people encounter obstacles to their goals, and they view coping as an effort to create conditions that further goal pursuit or disengagement. From this perspective, it would seem that the extensive literature on goals has much to offer the stress and coping literature, and that the lack of integrative work to date represents a missed opportunity.

In accord with Carver and Scheier, we believe that the goal construct carries considerable, largely untapped, promise in illuminating stress and coping processes. Goals represent cognitive foci that establish a framework for how individuals attend to and interpret the world and their place within it (Elliot, 1999). As such, goals likely influence the degree to which people encounter stressful experiences and the way that they cope with the stressors they encounter. Thus, we contend that the types and properties of goals that individuals pursue are in need of investigation as antecedents of stress and coping processes, and that such research promises to yield a deeper and broader understanding of the nature of stress and coping.

In the present research, we examine a basic property of individuals' idiographic goals as an antecedent of important stress and coping processes. Specifically, we examine avoidance (relative to approach) personal goals as a predictor of stress generation (Hammen, 1991) and avoidance coping (Moos, 1993) processes over a period of several months. In addition, we examine stress generation and avoidance coping as mediator variables in the context of the

well-established relation between avoidance goal pursuit and longitudinal change in subjective well-being (SWB). This research is designed to not only enrich and extend our understanding of stress and coping, but also to deepen our knowledge of avoidance regulation, and to establish an integrative model of goals, stress and coping, and well-being that has a generative effect on each relevant literature.

Avoidance Personal Goals and SWB

Prior to focusing on stress generation and avoidance coping, we introduce the context in which we examine these processes—the longitudinal link between avoidance personal goals and SWB. Personal goals are the consciously embraced, personally meaningful objectives that individuals pursue in their daily lives (Emmons, 1986; Little, 1983). A basic distinction relevant to all forms of goals, including personal goals, is the approach-avoidance distinction. Approach goals are framed in terms of a positive possibility that the individual is committed to move toward or maintain (e.g., “Try to do well in school”), whereas avoidance goals are framed in terms of a negative possibility that the individual is committed to move or stay away from (e.g., “Try to avoid doing poorly in school”; Elliot, Sheldon, & Church, 1997). Approach and avoidance personal goals are assessed via an idiographic procedure in which participants list their most important goals for a particular time period, and each goal is subsequently coded as approach or avoidance. The number of avoidance goals that individuals list in this procedure has been shown to predict a variety of important outcomes.

The outcome that has received the most attention in this literature is that of SWB, operationally defined as life satisfaction plus positive affect minus negative affect (Diener, 1984). Several studies have documented a link between avoidance personal goals and SWB. Elliot et al. (1997) showed that avoidance goals negatively predicted both retrospective and longitudinal change in SWB over a 4 month period. Elliot and Sheldon (1997) documented this same pattern for personal goals focused specifically on achievement. Elliot, Chirkov, Sheldon, and Kim (2001) found a concurrent link between avoidance goals for individualistic, but not collectivistic, participants. Elliot and Church (2002) found that avoidance goals for psychotherapy negatively predicted change in SWB from the beginning to the end of therapy. Other studies using a directed idiographic procedure (that

explicitly instructs participants to list approach and avoidance goals), implementing concurrent designs, and focusing on SWB-relevant variables (specifically, depression and anxiety) have obtained comparable results (Coats, Janoff-Bulman, & Alpert, 1996; Dickson, 2006; Dickson & MacLeod (2004a; 2004b; 2006).

Although the deleterious influence of avoidance personal goals on SWB is well-documented, research on mediators that explain this relation is sparse. In the Elliot et al. (1997) and Elliot and Sheldon (1997) studies, perceived goal progress was validated as a mediator variable, and in the Elliot and Church (2002) study, perceived therapist satisfaction and perceived therapy effectiveness were demonstrated as mediators. Clearly, little is known at present as to why avoidance goal pursuit is so inimical for SWB. We believe that the stress generation and avoidance coping processes represent excellent candidates in this regard.

Stress Generation

Stress generation is the notion that individuals actively contribute to the occurrence of their negative life events. Hammen (1991) formulated the stress generation hypothesis in the context of depression, positing that depression impairs an individual's ability to function effectively, which produces negative life events that maintain and exacerbate the individual's depressive tendencies. Over the past two decades, a considerable body of research has emerged in support of this hypothesis, in both clinical samples (Hammen, Davila, Brown, Ellicott, & Gitlin, 1992; Harkness, Monroe, Simons, & Thase, 1999) and non-clinical samples (Hankin, Kassel, & Abela, 2005; Potthoff, Holahan, & Joiner, 1995), and with both adults (Cui & Vallant, 1997; Hammen & Brennan, 2001) and children and adolescents (Patton, Coffey, Posterino, Carlin, & Bowes, 2003; Rudolph & Hammen, 1999; see Hammen, 2006, for a review).

Given the structural nature of avoidance goals and the processes evoked by avoidance goal regulation, we posit that avoidance personal goals positively predict the occurrence of negative life events. Avoidance goals inherently focus on negative possibilities and this use of negative possibilities as the hub of self-regulation produces worry, threat, distraction, pressure, rumination, preoccupation with the self, and reduced cognitive flexibility (Derryberry & Reed, 1994; Elliot & Harackiewicz, 1996). In essence, avoidance goal regulation

taxes one's cognitive capacity and evokes phenomenological and emotional states known to interfere with one's ability to function efficiently and effectively. Over time, this inefficient and ineffective functioning is presumed to create problems and stressors in one's life that would not otherwise emerge. Once avoidance goals produce such stressors, it is straightforward to posit that these stressors undermine SWB. Indeed, a great deal of existing research attests to the notion that stress and stressors produce psychological and physical illness and undermine overall well-being (see Cohen, Evans, Krantz, & Stokols, 1986; Updegraff & Taylor, 2000). Thus, we posit that one reason for the link between avoidance goals and SWB is that avoidance goal pursuit produces life stressors, which in turn undermine SWB.

To date, the stress generation literature has focused nearly exclusively on depression. Some have raised the question of whether the stress generation concept is broader than depression (Hammen, 2006), and have taken steps to show that this is the case (Rudolph, 2008). However, most research on antecedents of stressors either targets preexisting depressive symptoms (Hammen, 1991; Potthoff et al., 1995) or variables integrally connected to depressotypic attributes or behaviors in theoretical models of depression, including demographic variables (e.g., sex; Rudolph, Flynn, Abaied, Groot, & Thompson, 2009), interpersonal styles (e.g., insecure attachment, Hankin et al., 2005), interpersonal competence (e.g., social skills; Davila, Hammen, Burge, Paley, & Daley, 1995), cognitive styles (e.g., hopelessness; Joiner, Wingate, & Otamendi, 2005), and personality traits (e.g., neuroticism; Kendler, Gardner, & Prescott, 2003). Likewise, nearly all research on the consequences of stress generation focuses on depression or other negative outcomes (e.g., anxiety, externalizing disorder; Hankin et al., 2005; Rudolph et al., 2000). Herein, we seek to extend the antecedents of stress generation to avoidance goal pursuit, and we seek to extend the consequences of stress generation to well-being, specifically, SWB. In so doing, we aim to show that the stress generation concept has broader applicability, and may be more generative, than has been acknowledged to date.

Avoidance Coping

Many coping theorists have distinguished between approach and avoidance coping (for reviews, see Moos & Schaeffer, 1993; Roth & Cohen, 1986). Approach coping involves attempting to confront a problem and deal with it directly, whereas avoidance coping involves

attempting to evade a problem and deal with it indirectly (Roth & Cohen, 1986); it is avoidance coping that is of interest herein. The majority of studies on avoidance coping have examined its influence on negative outcomes. Most studies have found avoidance coping to be detrimental to physical (Evers, Kraaimaat, Geenen, Jacobs, & Bljlsma, 2003; Murberg, Furze, & Bru, 2004) and psychological (Billings, Folkman, Acree, & Moskowitz, 2000; Holahan, Moos, & Bonin, 2004) health, although there is some evidence that it may be beneficial in the short run (Heckman et al., 2004) or for some types of problems (Suls & Fletcher, 1985). A smaller, but still substantial, body of research has accumulated on antecedents of avoidance coping. These studies have linked avoidance coping to a variety of demographic (e.g., age; Folkman et al., 1987), intrapersonal (e.g., neuroticism; Kardum & Krapic, 2001), interpersonal (e.g., lack of social support; Manne et al., 2005), and problem-specific (e.g., uncontrollable stressors; Rayburn et al., 2005) factors.

In the present work, we test the hypothesis that avoidance personal goals positively predict avoidance coping. Avoidance orientations have been shown to produce perceptual vigilance and wariness with regard to negative stimuli (Cacioppo, Gardner, & Berntson, 1999; Derryberry & Reed, 1994), and those pursuing avoidance goals have been shown to be particularly reactive to negative information and events (Elliot, Gable, & Mapes, 2006; Idson, Liberman, & Higgins, 2000). Avoidance goals represent a motivational tendency to stay away from negative possibilities that may occur, and it seems likely that this would lead to an analogous tendency to move away from negative events when they do occur. Thus, the use of avoidance goals is posited to foster the use of avoidance coping, a type of valence symmetry observed at other levels of the self-regulatory hierarchy (e.g., temperaments and motives; Elliot & Thrash, 2002; strategies and tactics; Scholer & Higgins, 2008). Above we noted that a considerable body of research has shown that avoidance coping is typically deleterious for physical and psychological health outcomes, thus making it straightforward to posit that the avoidance coping evoked by avoidance goal pursuit would have an inimical influence on SWB.

Data in line with our hypotheses would advance the literature on avoidance coping by establishing a goal construct as an antecedent of avoidance coping, and would represent an integration of anticipatory and reactive forms of avoidance regulation. In addition, supportive data would allow us to examine the possibility that

avoidance coping mediates the link between avoidance goals and negative life events. Holahan, Moos, Holahan, Brennan, and Schutte (2005) have recently established avoidance coping as a positive predictor of life stressors, thereby laying the foundation for a test of the meditational role of avoidance coping in the present research. Finally, documenting avoidance coping as a mediator of the avoidance goals to life stressors relation would allow examination a sequential meditational model (avoidance goals → avoidance coping → life stressors → Δ SWB) that could draw integrative links between the goal, stress and coping, and well-being literatures.

Overview of the Present Research

The present research is comprised of two studies, each of which was conducted with undergraduates over a 15 week semester-long period. In Study 1, we examined avoidance personal goals assessed at the beginning of the semester as a predictor of life stressors during the semester, and examined these life stressors as a mediator of the longitudinal relation between avoidance goals and SWB. In Study 2, we examined avoidance goals assessed at the beginning of the semester as a predictor of both life stressors and avoidance coping during the semester, and examined both life stressors and avoidance coping as individual mediators of the longitudinal relation between avoidance goals and SWB. In addition, we tested avoidance coping as a mediator of the relation between avoidance goals and life stressors, and also tested a joint meditational model in which avoidance coping and life stressors sequentially mediated the longitudinal relation between avoidance goals and SWB. In each study, we controlled for social desirability, basic traits, or a broad temperamental disposition to ensure that our observed results were not a mere function of these other variables.

STUDY 1

Method

Participants and Procedure

Two hundred and sixty (90 male and 170 female) undergraduates in an introductory level psychology course participated in the study in return for extra course credit. The mean age of participants was 19.54 years old, with a range of 18 to 39. Participant ethnicity was as follows: 6 African American, 28 Asian, 199 Caucasian, 14 Hispanic, and 13 “other.”

The study was conducted over a semester-long period lasting 15 weeks. During the second week of the semester, participants listed their personal goals, completed a Time 1 (T1) SWB measure, and completed social desirability and trait measures in large group sessions and a take-home packet. Two times over the course of the semester (approximately every six weeks), participants completed a life stressors measure, which was provided in a take-home packet and returned at the next class period. During the final week of the semester, participants completed a Time 2 (T2) SWB measure in a large group session.

Measures (See Tables 1 and 2 for Descriptive Statistics and Intercorrelations)

Avoidance personal goals. Personal goals were assessed using Elliot et al.'s (1997) Personal Goals Questionnaire. Personal goals were defined for participants as "what you typically or characteristically are trying to do in your daily life—your 'personal goals'." Participants were instructed to list the eight personal goals that best described what they would be trying to do in their daily life during the semester. Two trained coders independently categorized each goal as approach or avoidance (Elliot et al., 1997; interjudge agreement exceeded 99%). An avoidance personal goals index was created by summing the number of avoidance goals on each participant's list; all participants provided 8 goals and each goal was coded approach or avoidance, so this measure is conceptually equivalent to the number of avoidance goals relative to the number of approach goals.

SWB. The SWB measure was comprised of positive affect, negative affect, and life satisfaction items (see Brunstein, 1993; Diener, 1984; Elliot & Sheldon, 1997; Emmons & Colby, 1995). The Short Positive Affect/

Table 1
Descriptive Statistics for Study 1

Variable	<i>M</i>	<i>SD</i>	Skewness	Range	Reliability
Avoidance personal goals	.80	.97	1.12	0–6	—
T1 Subjective well-being	.00	2.13	–0.632	–6.25–4.07	.77
Life stressors	15.36	7.90	0.726	1–41	.79
T2 Subjective well-being	.01	2.27	–0.659	–8.40–5.09	.82
Impression management	5.17	3.48	0.780	0–16	.76
Neuroticism	5.31	3.52	0.243	0–12	.84
Extraversion	8.10	3.14	–0.509	0–12	.82

Note. Reliabilities (Cronbach's alphas and Kuder Richardson 20s) are based on item level data for all variables. T1 = Time 1; T2 = Time 2.

Table 2
Correlation Matrix of the Primary Variables in Study 1

Variable	1.	2.	3.	4.
1. Avoidance personal goals	—			
2. T1 Subjective well-being	-.20**	—		
3. Life stressors	.18**	-.30**	—	
4. T2 Subjective well-being	-.27**	.55**	-.40**	—

Note. T1 = Time 1; T2 = Time 2.

** $p < .01$.

Negative Affect Scale (5 positive affect items [e.g., enthusiastic] and 5 negative affect items [afraid]; MacKinnon et al., 1999) was used to assess affect (the data from these affect variables were also used in the context of a separate study: Elliot et al., 2006, Study 2). Participants indicated how often they had felt each affect during the past few days on a 1 (*not at all*) to 7 (*very frequently*) scale. The Delighted-Terrible Scale (1 item; Andrews & Withey, 1976) was used to assess life satisfaction. Participants responded to the question “How have you felt about your life as a whole?” in reference to the past few days using a 1 (*terrible*) to 7 (*delighted*) scale. In accord with standard procedure, an SWB index was created by individually summing the positive affect items, the negative affect items, and the life satisfaction items, and then subtracting the standardized negative affect score from the sum of the standardized positive affect and life satisfaction scores (α s = .77 and .82 for T1 and T2 SWB, respectively).

Life stressors. The negative items from Seidlitz and Diener’s (1993) life events checklist were used to assess life stressors (e.g., “Badly embarrassed myself in front of my friends”). Following prior research, we had two individuals separately code each of the events for whether it was clearly independent of the person or at least partially dependent on the person (interjudge agreement = 92.5%). The thirty-eight items coded as at least partially dependent on the person were employed in the study. At each assessment period, participants indicated whether each event had happened since the last assessment. Events were scored 0 if they did not occur, and 1 if they did occur, and the life stressors index was created by summing the scores across the assessments for each item, and then summing the totals ($\alpha = .79$).

Control variables. Social desirability was assessed using the 20 item impression management scale from Paulhus’s (1991) Balanced Inventory of Desirable Responding. Participants respond to each item (e.g., “I always

obey laws, even if I'm unlikely to get caught") using a 1 (not true) to 7 (very true) scale. Half of the items represent desirable statements and half represent undesirable statements; after reverse scoring the undesirable statements, participants received one point for each extreme (6 or 7) response, and their scores were summed to form an impression management index ($\alpha = .76$).

Neuroticism (N) and Extraversion (E) were assessed using the 12 item scales from the Eysenck Personality Questionnaire-Revised (Eysenck, Eysenck, & Barrett, 1985). Participants responded yes (coded 1) or no (coded 0) to each item (N, e.g., "Would you call yourself tense or 'high strung'?" ; E, e.g., "Do others think of you as being very lively?"). After reverse scoring, their responses were summed to form the N and E indexes (α s = .84 and .82, respectively).

Results

Preliminary Analyses

Sex was included as a predictor variable in preliminary analyses. No sex differences were revealed, so sex was not examined further.

Primary Analyses

The full information maximum likelihood (FIML) method of estimation was used in all analyses to avoid loss of information due to missing data (Enders, 2008). To correct for potential statistical biases resulting from the non-normality of variables (all but N exhibited skewness that deviated significantly from the Gaussian value), we calculated standard errors with a bootstrapping method in all analyses (Muthén & Muthén, 2004).

Prediction of longitudinal change in SWB. Simultaneous multiple regression was used to examine avoidance personal goals as a predictor of change in SWB. Avoidance goals and T1 SWB were used as independent variables; T2 SWB served as the dependent measure in the analysis. The regression yielded a significant autoregressive result for T1 SWB ($\beta = .52, p < .01$). More importantly, avoidance goals also attained significance ($\beta = -.20, p < .01$), indicating that participants pursuing a greater number of avoidance goals evidenced a greater decrease in SWB from the beginning to the end of the semester.

Prediction of life stressors. A regression analysis was used to examine avoidance goals as a predictor of life stressors. Avoidance

goals were a significant predictor ($\beta = .20, p < .01$), indicating that participants pursuing a greater number of avoidance goals experienced more negative events during the semester.

Mediation

Baron and Kenny (1986) delineated three requirements for documenting mediation via the popular “causal steps” approach (also label the “measurement-of-mediation” approach; Spencer, Zanna, & Fong, 2005; see also MacKinnon, Fairchild, & Fritz, 2007). First, the independent variable should significantly predict the dependent variable. Second, the independent variable should significantly predict the mediator variable. Third, the mediator variable should significantly predict the dependent variable with the independent variable controlled, and inclusion of the mediator variable in the regression equation should account for a portion of the direct relation between the independent variable and the dependent variable. Full mediation is documented if the direct relation is reduced to 0; partial mediation is documented if the direct relation remains (Baron & Kenny, 1986).

In the preceding analyses, the first requirement for mediation was satisfied in that avoidance goals significantly predicted change in SWB. The second requirement for mediation was also satisfied in that avoidance goals significantly predicted life stressors. To test the final requirement for mediation, the initial SWB analysis was repeated with life stressors included in the equation.

The regression yielded a significant autoregressive result for T1 SWB ($\beta = .45, p < .01$), as in the initial analysis. More importantly, life stressors were a significant predictor of T2 SWB ($\beta = -.23, p < .01$), indicating that participants who experienced a greater number of life stressors during the semester evidenced a greater decrease in SWB from the beginning to the end of the semester. The beta for the direct influence of avoidance goals on T2 SWB was reduced from $-.20 (p < .01)$ to $-.17 (p < .05)$, a drop of 27.8 % in variance accounted for in the direct relation. Furthermore, using PRODCLIN (MacKinnon, Fritz, Williams, & Lockwood, 2007) to generate confidence intervals for the indirect effect revealed upper ($-.0320$) and lower ($-.1948$) limits that did not include 0. This indicates that life stressors were a statistically significant partial mediator of the relation between avoidance goals and longitudinal change in SWB (see Figure 1).

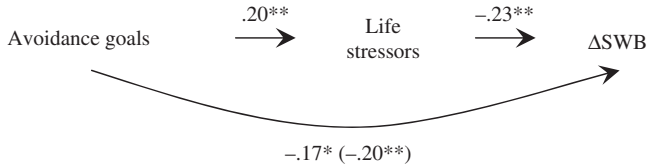


Figure 1

The mediational results based on regression analyses in Study 1. Path values are standardized coefficients. The number in the parentheses represents the regression coefficient before controlling for the corresponding mediator. * $p < .05$. ** $p < .01$.

Ancillary Analyses With Control Variables

To ensure that our results were not a mere function of a social desirability response bias or of basic, valence-based traits, we repeated all the regression analyses controlling for either impression management or N, E, and the $N \times E$ interaction. Each of the significant findings reported above remained significant with these control variables included in the equation, and the betas remained within .04 units of those obtained in the initial analyses. These findings indicate that the observed relations are not reducible to shared variance due to impression-based or valence-based response sets.

Discussion

In sum, the results from this study support our hypotheses. Avoidance personal goals were a positive predictor of life stressors, thereby establishing individuals' idiographic goal pursuits as an antecedent of stress generation. Stress generation was shown to partially mediate the influence of avoidance goals on longitudinal change in SWB. The results were found to be independent of social desirability and basic personality traits.

In Study 2, we sought to conceptually replicate the Study 1 findings using a different measure of stressors, and to also investigate avoidance coping processes. Specifically, we examined avoidance goals as a positive predictor of avoidance coping, and we examined avoidance coping as a mediator of the longitudinal relation between avoidance goals and SWB. We also investigated whether avoidance coping mediated the relation between avoidance goals and life stressors, and tested a joint mediational model involving both avoidance coping and life stressors in sequence. Avoidance coping may be differentiated with regard to whether the method of coping is

cognitive or behavioral: Cognitive avoidance represents denying, minimizing, or passively accepting the problem, whereas behavioral avoidance represents acting and emoting to reduce tension or feel better without addressing the actual problem (Moos & Schaeffer, 1993). We investigated both types of avoidance coping in this study; we had no a priori predictions as to which, if either, would exhibit stronger relations in the context of our research. In ancillary analyses we controlled for behavioral inhibition system (BIS) sensitivity to ensure that any observed results were a function of the focal constructs as opposed to a broad avoidance-based disposition.

STUDY 2

Method

Participants and Procedure

One hundred and fifty nine (56 male and 103 female) undergraduates in an introductory level psychology course participated in the study in return for extra course credit. The mean age of participants was 19.95 years old, with a range of 17 to 40. Participant ethnicity was as follows: 10 African American, 15 Asian, 111 Caucasian, 5 Hispanic, 7 “other,” and 11 unspecified.

The general procedure for Study 2 was similar to that of Study 1. The study was conducted over a semester-long period lasting 15 weeks. During the first week of the semester, BIS sensitivity was assessed in a large group session. During the second week of the semester, participants listed their personal goals and completed a T1 SWB measure in one of several small group sessions. Three times over the course of the semester (approximately every four weeks), participants completed the mediator measures; these measures were provided in a take-home packet and returned at the next class period. During the final week of the semester, participants completed a T2 SWB measure in a large group session.

Measures (See Tables 3 and 4 for Descriptive Statistics and Intercorrelations)

Avoidance personal goals. Personal goals were assessed with the same procedure used in Study 1 (interjudge agreement exceeded 99%; these personal goal data were also used in the context of a separate study: Heimpel, Elliot, & Wood, 2006, Study 2).

SWB. SWB was assessed in the same way that it was assessed in Study 1, except the multiple item Satisfaction with Life Scale (5 items,

Table 3
Descriptive Statistics for Study 2

Variable	<i>M</i>	<i>SD</i>	Skewness	Range	Reliability
Avoidance personal goals	1.42	1.17	0.741	0 – 5	—
T1 Subjective well-being	.00	2.20	–0.366	–8.36 – 4.42	.89
Life stressors	9.60	6.06	0.500	0 – 26	.68
Cognitive avoidance	39.13	9.61	0.398	20 – 65	.83
Emotional discharge	30.79	7.54	0.808	18 – 55	.67
T2 Subjective well-being	.00	2.26	0.139	–6.75 – 6.26	.91
BIS sensitivity	18.46	2.54	–0.106	12 – 25	.84

Note. Reliabilities (Cronbach's Alphas and Kuder Richardson 20s) are based on item level data for all variables. T1 = Time 1; T2 = Time 2; BIS = behavioral inhibition system.

e.g., “At present, I am completely satisfied with my life”; Diener, Emmons, Larsen, & Griffin, 1985) was used to assess life satisfaction ($\alpha = .89$ and .91 for T1 and T2 SWB, respectively).

Life stressors. Zuckerman, Knee, Kieffer, Rawsthorne, and Bruce's (1996) Revised College Students' Activity and Events Form, was used to assess life stressors. This measure contains a list of negative events that can occur in the life of a college student (e.g., “Did you fail or do poorly in an important test?”). As in Study 1, two individuals separately coded each event for whether it was clearly independent of the person or at least partially dependent on the person (interjudge agreement = 92.3%

Table 4
Correlation Matrix for the Primary Variables in Study 2

Variable	1.	2.	3.	4.	5.	6.
1. Avoidance personal goals	—					
2. T1 Subjective well-being	–.18*	—				
3. Life stressors	.23**	–.25**	—			
4. Cognitive avoidance	.21**	–.15	.36**	—		
5. Emotional discharge	.25**	–.21**	.34**	.51**	—	
6. T2 Subjective well-being	–.28**	.54**	–.38**	–.25**	–.32**	—

Note. T1 = Time 1; T2 = Time 2.

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

agreement). Thirty-seven items were coded as at least partially dependent on the person, and were employed in the study. At each assessment, participants reported whether each event had happened since the last assessment. Events were scored 0 if they did not occur, and 1 if they did occur, and the life stressors index was created by summing the scores within each assessment, and then summing the totals across assessments ($\alpha = .68$).

Avoidance coping. The Coping Responses Inventory (Moos, 1993) was used to assess avoidance coping. Participants were asked to identify the most important problem or difficult event they had experienced since the last assessment, and to rate how frequently they engaged in various coping responses on a 1 (*No, not at all*) to 4 (*Yes, fairly often*) scale. Following Holahan, Moos, Holahan, and Brennan (1997), two forms of avoidance coping were assessed, one cognitive and one behavioral (6 items for each subscale). The cognitive avoidance subscale was used as the indicator of cognitive avoidance; it represents attempts to avoid thinking realistically about the problem (e.g., “Did you try to deny how serious the problem really was?”). Emotional discharge was the indicator of behavioral avoidance; it represents attempts to reduce tension by expressing negative feelings rather than directly dealing with the problem (e.g., “Did you yell or shout to let off steam?”). Each index was created by summing the scores within each assessment, and then summing the totals across assessments (α s = .83 and .67, respectively).

Control variable. Carver and White’s (1994) 7-item scale was used to measure BIS sensitivity (e.g., “If I think something unpleasant is going to happen I usually get pretty ‘worked up’”). Participants responded on a 1 (*strongly disagree*) to 4 (*strongly agree*) scale, and after reverse scoring their responses were summed to form the BIS sensitivity index ($\alpha = .84$).

Results and Discussion

Preliminary Analyses

Sex was included as a predictor variable in preliminary analyses. No sex differences were revealed, so sex was not examined further.

Primary Analyses: Conceptual Replication of Study 1

As in Study 1, the FIML method of estimation and the bootstrapping method of calculating standard errors (all but BIS sensitivity exhibited skewness that deviated significantly from the Gaussian value) were used in all analyses.

Prediction of longitudinal change in SWB. Simultaneous multiple regression was used to examine avoidance personal goals as a predictor of change in SWB. Avoidance goals and T1 SWB were used as independent variables; T2 SWB served as the dependent measure in the analysis. The regression yielded a significant autoregressive result for T1 SWB ($\beta = .52, p < .01$). More importantly, avoidance goals also attained significance ($\beta = -.16, p < .01$), indicating that participants pursuing a greater number of avoidance goals evidenced a greater decrease in SWB from the beginning to the end of the semester.

Prediction of life stressors. A regression analysis was used to examine avoidance goals as a predictor of life stressors. Avoidance goals were a significant predictor ($\beta = .23, p < .01$), indicating that participants pursuing a greater number of avoidance goals experienced more negative events during the semester.

Mediation. In the preceding analyses, the first requirement for mediation was satisfied in that avoidance goals significantly predicted change in SWB. The second requirement for mediation was also satisfied in that avoidance goals significantly predicted life stressors. To test the final requirement for mediation, the initial SWB analysis was repeated with life stressors included in the equation.

The regression yielded a significant autoregressive result for T1 SWB ($\beta = .46, p < .01$), as in the initial analysis. More important, life stressors were a significant predictor of T2 SWB ($\beta = -.23, p < .01$), indicating that participants who experienced a greater number of life stressors during the semester evidenced a greater decrease in SWB from the beginning to the end of the semester. The beta for the direct influence of avoidance goals on T2 SWB was reduced from $-.16 (p < .01)$ to $-.12 (p < .05)$, a drop of 43.8% in variance accounted for in the direct relation. PRODCLIN revealed upper ($-.0391$) and lower ($-.1806$) limits that did not include 0, indicating that life stressors were a significant partial mediator of the relation between avoidance goals and longitudinal change in SWB.

Primary Analyses: Avoidance Coping as a Mediator Between Avoidance Goals and Life Stressors

Prediction of avoidance coping. Regression analysis was used to examine avoidance goals as predictors of the avoidance coping

variables. In the cognitive avoidance analysis there was a significant result for avoidance goals ($\beta = .21, p < .01$), indicating that participants pursuing a greater number of avoidance goals used cognitive avoidance more during the semester. Likewise, in the emotional discharge analysis there was a significant result for avoidance goals ($\beta = .25, p < .01$), indicating that participants pursuing a greater number of avoidance goals used emotional discharge more during the semester.

Mediation. In the preceding analyses, the first requirement for mediation was satisfied in that avoidance goals significantly predicted change in SWB. The second requirement for mediation was also satisfied for avoidance goals predicting cognitive avoidance and emotional discharge. To test the final requirement for mediation, the initial SWB regression analysis was repeated with an avoidance coping variable included in the equation.

In the cognitive avoidance analysis, T1 SWB was a significant autoregressive predictor of T2 SWB ($\beta = .50$), as in the initial analysis. More importantly, cognitive avoidance was a significant predictor of T2 SWB ($\beta = -.14, p < .05$), indicating that participants who used cognitive avoidance more during the semester evidenced a greater decrease in SWB from the beginning to the end of the semester. The beta for the direct influence of avoidance goals on T2 SWB was reduced from $-.16 (p < .01)$ to $-.14 (p < .05)$, a drop of 23.4% in variance accounted for in the direct relation. PRODCLIN revealed upper ($-.0028$) and lower ($-.1265$) limits that did not include 0, indicating that cognitive avoidance was a statistically significant partial mediator of the relation between avoidance goals and longitudinal change in SWB.

In the emotional discharge analysis, T1 SWB was a significant autoregressive predictor of T2 SWB ($\beta = .49, p < .01$), as in the initial analysis. More importantly, emotional discharge was a significant predictor of T2 SWB ($\beta = -.19, p < .01$), indicating that participants who used more emotional discharge during the semester evidenced a greater decrease in SWB from the beginning to the end of the semester. The beta for the direct influence of avoidance goals on T2 SWB was reduced from $-.16 (p < .05)$ to $-.12 (p < .07)$, a drop of 43.8% in variance accounted for in the direct relation. PRODCLIN revealed upper ($-.0235$) and lower ($-.1759$) limits that did not include 0, indicating that emotional discharge was a statistically

significant partial mediator of the relation between avoidance goals and longitudinal change in SWB.

Other Meditational Analyses and the Full Sequential Meditational Model

The prior analyses documented life stressors, cognitive avoidance, and emotional discharge as partial mediators of the relation between avoidance goals and longitudinal change in SWB. Next, we examined the avoidance coping variables as mediators of the link between avoidance goals and life stressors. We also tested the full sequential meditational model by examining life stressors as mediators of the relation between the avoidance coping variables and longitudinal change in SWB, and, importantly, life stressors as the proximal predictors of change in SWB.

To examine the mediational role of the avoidance coping variables in the avoidance goals to life stressors relation, we regressed life stressors on avoidance goals with one of the avoidance coping variables included in the equation. In the cognitive avoidance analysis, cognitive avoidance was a significant predictor of life stressors ($\beta = .32, p < .01$), indicating that participants who used cognitive avoidance more experienced more negative events during the semester. The beta for the direct influence of avoidance goals on life stressors was reduced from .21 ($p < .01$) to .16 ($p < .05$), a drop of 42.0% in variance accounted for in the direct relation. PRODCLIN revealed upper (.6685) and lower (.1175) limits that did not include 0, indicating that cognitive avoidance was a statistically significant partial mediator of the relation between avoidance goals and life stressors.

In the emotional discharge analysis, emotional discharge was a significant predictor of life stressors ($\beta = .30, p < .01$), indicating that participants who used emotional discharge more experienced more negative events during the semester. The beta for the direct influence of avoidance goals on life stressors was reduced from .25 ($p < .01$) to .16 ($p < .05$), a drop of 59.0% in variance accounted for in the direct relation. PRODCLIN revealed upper (.7911) and lower (.0973) limits that did not include 0, indicating that emotional discharge was a statistically significant partial mediator of the relation between avoidance goals and life stressors.

To examine both the mediational role of life stressors in the relation between avoidance coping and change in SWB, and the sequential role of the avoidance coping variables and life stressors in

the relation between avoidance goals and change in SWB, we repeated the SWB analysis utilized earlier, but included an avoidance coping variable and life stressors in the equation at the same time. In the analysis focused on cognitive avoidance and life stressors, T1 SWB was a significant autoregressive predictor of T2 SWB ($\beta = .46$, $p < .01$), as in the initial analysis. More importantly, life stressors were a significant predictor of T2 SWB ($\beta = -.21$, $p < .01$), indicating that participants who experienced more life stressors during the semester evidenced a greater decrease in SWB from the beginning to the end of the semester. The beta for the direct influence of cognitive avoidance on T2 SWB was reduced from $-.14$ ($p < .05$) to $-.08$ ($p < .30$), a drop of 67.4% in variance accounted for in the direct relation. PRODCLIN revealed upper ($-.0066$) and lower ($-.02588$) limits that did not include 0, indicating that life stressors were a statistically significant mediator of the relation between cognitive avoidance and T2 SWB. In addition, the beta for the direct influence of avoidance goals on T2 SWB was reduced from $-.16$ ($p < .01$) to $-.11$ ($p < .07$), a drop of 52.7% in variance accounted for in the direct relation). Following Taylor, MacKinnon, and Tein's (2008) recommendation, we used bootstrapping (in Mplus 5.1) to test the posited "three path mediated effect", the sequential mediation of avoidance goals to longitudinal change in SWB via avoidance coping and life stressors. The obtained mediated effect was -0.027 , which was statistically significant ($p < .05$; see Figure 2a).

In the analysis focused on emotional discharge and life stressors, T1 SWB was a significant autoregressive predictor of T2 SWB ($\beta = .45$, $p < .01$), as in the initial analysis. More importantly, life stressors were a significant predictor of T2 SWB ($\beta = -.19$, $p < .01$), indicating that participants who experienced more life stressors during the semester evidenced a greater decrease in SWB from the beginning to the end of the semester. The beta for the direct influence of emotional discharge on T2 SWB was reduced from $-.19$ ($p < .01$) to $-.14$ ($p < .05$), a drop of 45.7% in variance accounted for in the direct relation. PRODCLIN revealed upper ($-.0068$) and lower ($-.0290$) limits that did not include 0, indicating that life stressors were statistically significant partial mediator of the relation between emotional discharge and T2 SWB. In addition, the beta for the direct influence of avoidance goals on T2 SWB was reduced from $-.16$ ($p < .01$) to $-.10$ ($p < .12$), a drop of 60.9% in variance accounted for in the direct relation. A bootstrap analysis revealed that the

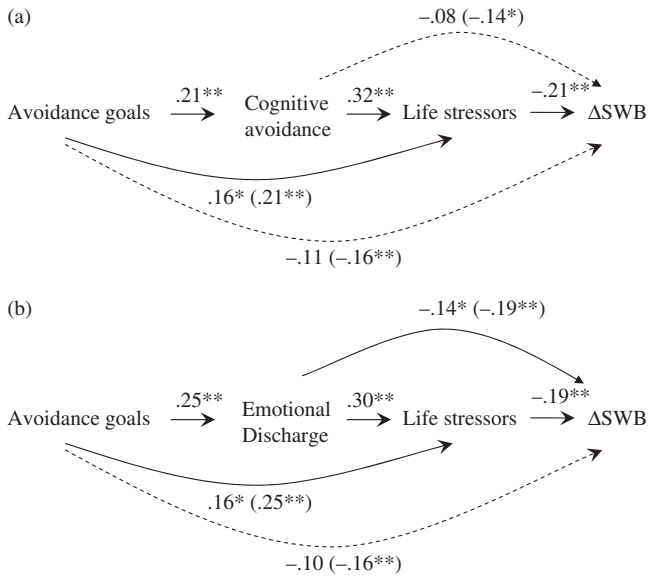


Figure 2

The sequential mediational results based on regression analyses in Study 2 for the models including a) cognitive avoidance and b) emotional discharge. Path values are standardized coefficients. Dashed arrow indicates a non-significant path. Numbers in parentheses represent the regression coefficient before controlling for the corresponding mediator(s). * $p < .05$ ** $p < .01$.

posited sequential mediation of avoidance goals to longitudinal change in SWB via emotional discharge and life stressors was -0.022 , which was statistically significant ($p < .05$; see Figure 2b).

Ancillary Analyses Controlling for BIS Sensitivity

To ensure that our results were not a mere function of a general avoidance disposition, we repeated all of the regression analyses controlling for BIS sensitivity. Each of the significant findings reported above remained significant with these control variables included in the equation, and the betas remained within .04 units of those obtained in the initial analyses. These findings indicate that the observed relations are not reducible to shared variance due to general avoidance motivation.

Discussion

In sum, the results from this study support our hypotheses. First, the results from Study 1 were fully replicated. Second, avoidance goals were found to be a positive predictor of avoidance coping, in both cognitive and behavioral forms, thereby establishing individuals' idiographic goal pursuits as an antecedent of avoidance coping. Third, avoidance coping, again in both cognitive and behavioral forms, was shown to partially mediate the relation between avoidance goals and life stressors. Fourth, the joint meditational model moving from avoidance goals to avoidance coping (both cognitive and behavioral) to life stressors to longitudinal change in SWB was validated.

GENERAL DISCUSSION

The present research provided support for our hypothesized integrative model of goals, stress and coping, and well-being. In a first study, avoidance personal goals were established as an antecedent of life stressors, and life stressors were shown to partially mediate the longitudinal relation between avoidance goals and SWB. In a second study, these results were perfectly replicated. In addition, this second study established avoidance goals as an antecedent of avoidance coping (both cognitive avoidance and emotional discharge), documented the meditational role of avoidance coping in the longitudinal relation between avoidance goals and SWB, showed that avoidance coping partially mediates the link between avoidance goals and life stressors, and validated a sequential meditational model in which avoidance coping and life stressors serve as joint mediators of the longitudinal relation between avoidance goals and SWB. Ancillary analyses in each study indicated that the aforementioned results held when controlling for alternative predictor variables, including impression management, *N* and *E*, *N* × *E*, and *BIS* sensitivity.

Our research links three independent lines of research, that on stress generation, that on avoidance coping, and that on the relation between avoidance goals and SWB. Our findings not only highlight the utility of a broad, integrative model of self-regulation and well-being, but also contribute directly to each individual line of work. We describe the nature of these individual contributions in the following.

The stress generation hypothesis remains closely tethered to its initial focus on depression-based processes (Hammen, 2006), but the

present research clearly demonstrates that it can be fruitfully applied beyond the domain of depression. Our findings extend the antecedents of stress generation to avoidance goal pursuit and extend the consequences of stress generation to SWB. In so doing, we join Rudolph (2008) in showing that stress generation may be considered a broad phenomenon, relevant to psychological functioning in general, and the implications therein for health as well as illness. In addition to expanding the scope of the stress generation hypothesis, our research answers the call for research on the psychological mechanisms involved in stress generation (see Hammen, 2006). We documented the use of avoidance coping strategies, both cognitive and behavioral, as partial mediators of the link between avoidance goals and life stressors. The specific mediators responsible for stress generation effects are likely to vary as a function of both the antecedents and consequences in question, and we encourage other researchers to include a meditational component in their subsequent work in this area.

With regard to avoidance coping, our findings extend existing work by not only establishing avoidance goals as an antecedent of avoidance coping, but also by documenting the way in which anticipatory and reactive forms of avoidance regulation combine to undermine SWB. The avoidance goals that people use to guide their behavior prompt the selection and use of avoidance strategies to cope with the difficulties they encounter, and this use of avoidance strategies, in turn, has a negative impact on their well-being. In focusing on future-oriented regulation and coping, our work dovetails nicely with that of Aspinwall and Taylor (1997) on proactive coping. It is important to note, however, that avoidance goal regulation and proactive coping are by no means isomorphic, and that the two are presumed to have quite different influences on outcomes. Avoidance goal regulation represents an ongoing commitment to moving or staying away from well-defined negative possibilities and is presumed to usually (although not always) have negative implications (Elliot, 2006), whereas proactive coping represents an accumulation of resources and acquisition of skills in preparation for “nonexistent or nebulous stressors,” and is presumed to usually (although not always) have positive implications (Aspinwall & Taylor, 1997, p. 417). Certainly an important task for future research is to further the process of integration commenced herein by studying personal goals, proactive coping, and reactive coping together within the same model.

In addition, future work would do well to include a focus on the type of stressors with which individuals are coping, as it is possible that coping processes vary as a function of the type of stressor encountered. Such work would do well to utilize interview-based methods of stressor assessment (e.g., Brown Harris's, 1989, Life Events and Difficulties Schedule) to complement the exclusively self-report approach used herein. Interview-based methods are more rigorous and attend to some weaknesses of exclusively self-report approaches, and sometimes yield different results (McQuaid, Monroe, Roberts, Kupfer, & Frank, 2000; Monroe, 2008).

In addition to extending research on stress generation and avoidance coping, the present findings deepen our understanding of the nature of avoidance goal pursuit. Although much speculation has been offered regarding the reasons that (i.e., the processes through which) avoidance personal goals undermine well-being, a dearth of empirical research has been conducted on this issue. Our research fills this gap by documenting well-established psychological processes from the stress and coping literature as mediator variables. Avoidance goals are deleterious for well-being because they prompt the use of coping strategies that are not only ineffective in dealing with current stressors but actually create new stressors as well. Of course, additional mediational mechanisms are undoubtedly operative in the link between idiographic avoidance goals and SWB, and subsequent research would do well to examine such candidates as rumination and worry (Elliot & McGregor, 1999), imprecise direction and guidance (Carver, 2006), and emotional or physical fatigue (Schonpflug, 1986).

An important question raised by our research is whether avoidance goal pursuit and avoidance coping *always* have negative consequences. In the present work we have emphasized the problematic implications of avoidance regulation, because we think this emphasis is warranted on both conceptual and empirical grounds, but we hasten to add that we do think there are instances in which an avoidance focus can be beneficial. For example, avoidance goals may be optimally suited for certain types of tasks (e.g., those in which success is defined in terms of the absence of negative outcomes [e.g., air traffic controlling]) or certain types of situations (e.g., those in which danger is clearly present [e.g., when relating to an untrustworthy friend or relative]) or for certain types of individuals (e.g., older, resource-challenged, adults), and may primarily prove beneficial in the short

run (Elliot, 1999; Freund, 2006). Likewise, avoidance coping may be most suitable when one's emotional or cognitive resources are limited (e.g., when completely overwhelmed or "out of gas") and, again, may primarily prove beneficial in the short run (Heckman et al., 2004; Suls & Fletcher, 1985). Avoidance regulation is designed to facilitate surviving, rather than thriving, and the problem is that individuals dramatically overuse avoidance goals and avoidance coping strategies, operating in survival mode far more than is needed. As a result, opportunities for thriving are missed, and the process of engaging in aversive, avoidance-based regulation takes its toll on well-being. A question in need of future research attention is the extent to which individuals pursuing avoidance goals and utilizing avoidance strategies are able to see their deleterious effects and shift to more effective forms of self-regulation accordingly. On one hand, personal goal pursuit and the use of coping strategies seem quite intentional and, therefore, relatively easy to change; on the other hand, both forms of regulation may emerge from deeper, more enduring aspects of personality and/or may become habitual means of engaging daily life, making change quite difficult (Elliot et al., 1997; Lazarus, 1991).

A strength of the present research is that we not only focused on mediation, but focused on two distinct types of mediational variables. Furthermore, we not only focused on two types of mediators, but also examined a sequential mediational model. An associated limitation of our research is that "causal steps" mediation (Baron & Kenny, 1986) cannot document causality of a mediational process. Furthermore, the designs used in our studies did not afford a test of change in the mediator variables predicting change in the outcome variables. Accordingly, unequivocal causal statements about our data are not warranted (see Kazdin & Nock, 2003).

An additional strength of our research is the use of both idiographic and nomothetic methods to assess avoidance regulation. Furthermore, our avoidance goal measure was derived on the basis of coding; participants did not categorize their own goals in terms of valence, rather the valence of goals was objectively coded. However, a limitation of our research is that we used retrospective self-reports to assess the mediator and outcome variables. The use of retrospective measures has been critiqued on the grounds that such measures may be subject to various memorial biases and distortions (Parker & Endler, 1992; Stone et al., 1996). However, empirical work indicates

that certain types of retrospective assessments can produce data that are “adequate though imperfect” (Todd et al., 2004, p. 317), such as time limited assessments and multiple assessments aggregated over time (both of which are features of the assessments used in the present work). The use of self-report measures has also been critiqued on several grounds, most notably the possibility of content overlap that inflates associations among variables, and the susceptibility of self-report data to various response biases (Coyne & Racioppo, 2000; Stanton, Danoff-burg, Cameron, & Ellis, 1994; but see also Lazarus, 2000). Importantly, our research attended to these issues directly through the longitudinal assessment of the outcome variable and the use of several different control variables designed to address alternative explanations based on possible confounds and responses biases. Finally, it should be noted that our use of university undergraduates as participants and our use of a coping assessment in which individuals self-select the focal problem raises the question of the generalizability of our findings to other populations and procedures.

The present research highlights the value of moving the goal construct from the ground to the figure in conceptual analyses of stress and coping. To date, theorizing in the stress and coping literature has primarily construed goals in generic fashion as a component of the appraisal process (Lazarus, 1991, 1999), but our research suggests that goals warrant a central place at the conceptual table. More specifically, we think that the specific types and properties of the goals that individuals pursue in their daily lives are of critical importance in understanding the why and the what of stress and coping. This more elaborate consideration of individuals’ goal pursuits helps focus attention on the purposeful, intentional aspect of psychological functioning in a literature that can tend to be preoccupied with reactive processes (Aspinwall & Taylor, 1997). With Carver and Scheier (2008), we believe that stress and coping processes are best conceptualized and examined in the broader context of self-regulation, including goal regulation.

In linking goal regulation to stress and coping herein, we focused on a basic (if not the most basic) property of goals—their valence. Subsequent research would do well to examine other important properties of goals in this regard, such as their level of abstraction (Emmons, 1992), their link to broader hopes and fears (King, Richards, and Stemmerich, 1998), their importance and likelihood of attainment (Affleck et al., 2001), and their temporal distance (Trope

& Liberman, 2000). Additional work would also be welcomed on goal processes, such as goal conflict (Emmons & King, 1988), goal shielding (Shah, Friedman, & Kruglanski, 2002), and goal persistence/disengagement (Miller & Wrosch, 2007). It is likely that each of these goal properties and processes influence the degree to which persons encounter stress and the way that they deal with stressors that emerge in their daily lives. The goal literature is vast and rich, and we suspect that as research integrating the goal literature with the stress and coping literature progresses, it will become more and more apparent that stress and coping is inextricably intertwined with goal regulation.

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