Journal of Aging and Health
23(1) 158–176

DOI: 10.1177/0898264310382039
http://jah.sagepub.com
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Goal Striving and Maladaptive Coping in Adults Living With Spinal Cord Injury: Associations With Affective Well-Being

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Abstract

Objectives. The current study examined how goal engagement and two coping strategies (self-blame and denial) hypothesized to prevent successful disengagement relate to affective well-being among adults with a functional disability. **Method:** Ninety-nine community-dwelling adults (23 to 76 years old, 66 men) with spinal cord injury participated in structured interviews assessing affective well-being using the Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1988); goal engagement using a modified version of the Optimization, Primary, and Secondary Control Scale (Heckhausen, Schulz, & Wrosch, 1998); and self-blame and denial using items from Carver's (1997) Brief COPE Inventory. **Results:** Greater goal engagement was significantly associated with positive but not negative affect. Greater use of self-blame and denial coping was associated with lower positive affect for older

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adults and higher negative affect across the age range. **Discussion:** Implications for affective well-being among aging and disabled adults are considered.

Keywords

functional disability, well-being, affect, coping

Affective well-being throughout life depends on our ability to navigate change and continue to engage with goals. According to the life-span theory of control (Heckhausen & Schulz, 1995; Heckhausen, Wrosch, & Schulz, 2010), people differentially use strategies of goal engagement (striving) and disengagement (in the event of failures and dwindling resources) to respond to changing opportunities and constraints across the life course. Researchers have applied this theory to explain how older adults adapt to functional losses and maintain affective well-being (Schulz, Heckhausen, & O'Brien, 2000; Wrosch, Schulz, & Heckhausen, 2002). The current study examines how both engagement with attainable goals and two cognitive strategies that prevent successful adaption to loss are related to affective well-being among a sample of adults with spinal cord injury. We further examine how these processes may differ by age among participants ranging from 23 to 76 years old.

The Life-Span Theory of Control

According to the life-span theory of control, people are innately motivated to exert behavioral control over their environments to attain goals (Heckhausen et al., 2010; Heckhausen & Schulz, 1995). Goal engagement strategies are most likely to result in goal attainment and positive mood include investing time, effort, and skill into goal pursuit and enhancing one's goal commitment by imagining positive, successful outcomes. Even when such resources are marshaled, however, success is not guaranteed. In these situations, promptly disengaging from unattainable goals is an essential part of healthy functioning (Wrosch, Scheier, Carver, & Schulz, 2003).

Strategies of goal devaluation, positive reappraisal, and selection of alternate goals are most strongly related to higher levels of affective well-being when failure appears likely (Heckhausen, 2005; Wrosch et al., 2003). In the long years of life following spinal cord injury (SCI), blaming the self for failures (as opposed to blaming oneself for the injury specifically; see Schulz & Decker, 1985) or refusing to accept failure may drain motivational resources to seek attainable goals. According to the life-span theory of control, such a

pattern of self-blame and denial would therefore also influence affective well-being (Heckhausen et al., 2000).

Aging With Functional Disability

Most studies find reduced well-being among SCI survivors compared with uninjured people (e.g., Kannisto & Sintonen, 1997; Kemp, Krause, & Adkins, 1999; Schulz & Decker, 1985). Among SCI survivors, however, long-term affective well-being varies substantially across individuals and across studies (e.g., Weitzenkamp et al., 2000). Control striving may be one reason for this variability. Among adults with SCI, greater goal striving has been associated with better social integration, more autonomy, and better overall productivity in life (Kemp & Vash, 1971), but associations with affective well-being remain relatively understudied. Continued goal engagement and adaptive coping styles have proven to play key roles in affective well-being for aging adults (Heckhausen et al., 2010; Wrosch, Schulz, & Heckhausen, 2004) and may also be related to affective well-being among adults with SCI. Only in very old age do researchers find a reversing trend, where engagement is linked with poorer physical function and decreased perception of health (Chipperfield, Perry, & Menec, 1999). Researchers suggest that the oldest-old may find it more adaptive to employ cognitive reappraisals (such as reducing expectations of success and judgments of capacity) that more accurately reflect functional decline.

Another factor associated with variability in affective well-being is age. For example, increasing time since spinal cord injury is associated with greater fatigue and pain and reduced activity, yet cross-sectional studies find that life satisfaction is higher among those injured for a longer period of time (e.g., Pentland, McColl, & Rosenthal, 1995). In a longitudinal study assessing people with SCI twice across 5 years, Charlifue, Weitzenkamp, and Whiteneck (1999) found that psychological well-being generally increased even though participants required more functional assistance. One explanation for this enhanced well-being may lie in adaptation to injury, but changes associated with normative aging may also play a role.

Normative aging often entails physical declines and reduced reserve capacity (Duke, Leventhal, Brownlee, & Leventhal, 2002), yet even very old people are often as good as, and sometimes better than, younger adults at maintaining affective well-being (Carstensen, Fung, & Charles, 2003). Researchers have explained these findings as the result of age-related changes in the priorities people place in maintaining affective well-being (Carstensen, Isaacowitz,

& Charles, 1999). People place greater importance on more proximal, affect-related goals as they get older (see review by Charles & Carstensen, 2009). These goals include greater reliance on appraisals and behaviors that direct attention and thoughts away from negative experiences (e.g., Charles & Carstensen, 2008). This aging-related emphasis on affect-related goals may explain, in part, why older adults often use cognitive reappraisals, such as viewing the situation in a more positive light, to regulate their emotions more often and sometimes even more effectively than do younger adults (e.g., Blanchard-Fields, Stein, & Watson, 2004; Charles & Piazza, 2009). When older adults cannot use these strategies, however, age-related reductions in other domains (such as decreases in physical health) may leave them even more susceptible to decreases in well-being than are younger adults (Charles & Piazza, 2009). Therefore, we hypothesize that higher goal engagement will contribute to affective well-being across our age range but that self-blame and denial may be more strongly associated with affective well-being among older adults than younger adults.

The Current Study

The current study assesses the extent to which goal engagement remains a potent predictor of affective well-being (conceptualized as higher levels of positive affect and lower levels of negative affect) among individuals with significant functional limitation as a result of an SCI. We also test whether certain cognitive coping strategies—self-blame and denial—will be inversely related to well-being among adults living with functional disability and whether this association is stronger among older than younger adults. Although self-blame and denial are distinct constructs, we consider these coping strategies to be cognitive barriers to successful disengagement and assess their additive effects on affective well-being. To ensure that we are addressing adults *living* with SCI rather than the acute *response* to these circumstances, we only include participants who have been living with the injury for at least 5 years.

In the current study, affective well-being is assessed by measures of negative and positive affect—two independent constructs elicited by different physiological processes and environmental events (Cacioppo & Berntson, 1999; Gray, 1970; Stallings, Dunham, Gatz, Baker, & Bengtson, 1997). These related yet distinct dimensions of affect may be differentially associated with goal engagement and the coping strategies of self-blame and denial among SCI survivors of varying age. We hypothesize that goal engagement will be positively associated with positive affect and inversely associated

with negative affect. The study does not include many people over age 80; had we included a large sample of people in this oldest age range, we would have predicted a curvilinear trend to acknowledge the difficulties of engaging in these strategies in this age group (e.g., Chipperfield et al., 1999). Given the importance of goal engagement across young, middle-aged and older adults who are not yet in the oldest-old range, we do not expect that age will moderate the relationship between goal engagement and affective well-being. In contrast, we predict that higher self-blame and denial will be inversely associated with positive affect and positively associated with negative affect, and we predict that this association will be stronger with age.

We also assess and control for several potential confounds to our hypotheses. Younger age at the time of injury[1] and better subjective physical health, for example, have been associated with better affective well-being (e.g., Dowler, Richards, Putzke, Gordon, & Tate, 2001; Krause, 1998; Weitzenkamp, Jones, Whiteneck, & Young, 2001). Moreover, most studies find limited long-term associations between severity of injury and affective well-being (e.g., Hall, Cohen, Wright, Call, & Werner, 1999; Westgren & Levi, 1998), but we nonetheless assessed severity because of its relationship with functional ability.

Method

Participants

Participants were recruited from a Los Angeles County rehabilitation center. Eligibility for inclusion in the study included being a community-dwelling adult living with SCI for at least 5 years. As this study focused on normative emotional processes, exclusion criteria included diagnosis of (or current pharmacological treatment for) depressive or anxiety disorders. To protect confidentiality of the patients, an employee at the center mailed letters to potential participants, and people interested in participating contacted the research team to set up an interview. Demographic information, including age, education level, and years injured, is included in Table 1. Participants ranged from 23 to 76 years old and consisted of White (n = 41), Mexican American (n = 33), African American (n = 17), and Asian American (n = 2) individuals and those reporting other ethnicities (n = 6). Ninety-five of the participants' reported disabilities due to traumatic injury and four participants were disabled due to disease processes; over half of the participants (n = 55) had complete SCI. More participants were paraplegic (n = 52) than were tetraplegic (n = 47).

Table 1. Zero-Order Correlations Among the Study Variables

Variable	*M* (*SD*)	Gender	Educ	Age SCI	SF-36	Age	Engage	CBSD	PANAS-P	PANAS-N
Gender	66 [male]	—	−.11	.23	−.14	.26***	.12	−.11	−.02	.00
Educ	13.56 (2.43)		—	−.10	.00	.06	−.28***	−.05	.07	−.12
Age SCI	24.79 (7.84)			—	−.23**	.41****	−.03	−.02	.10	.03
SF-36	32.76 (6.60)				—	−.25***	.30***	−.08	.30***	−.30***
Age	45.46 (12.69)					—	−.09	−.19**	−.14	−.17**
Engage	21.50 (2.38)						—	−.04	.32***	−.04
CBSD	7.05 (2.54)							—	−.17**	.49****
PANAS-P	35.55 (6.89)								—	−.16
PANAS-N	16.51 (5.45)									—

Note: PANAS = Positive and negative affect schedule (P = positive affect; N = negative affect); Educ = Years of education; SF-36 Phys = Short form 36 Health Survey, Physical health component; Age SCI = Age at the time of spinal cord injury; Engage = Goal Engagement Scale; CBSD = Cognitive Barriers to Successful Disengagement Scale.
**$p < .05$. ***$p < .01$. ****$p < .001$.

Procedure and Materials

Participants were interviewed at home or at the rehabilitation center, depending on their preference. Interviews took approximately 90 min to complete and consisted of informed consent followed by a battery of questionnaires including demographic indices, general health, goal engagement, self-blame and denial, and past week levels of positive and negative affect. All questionnaires were orally administered by trained graduate student researchers. Participants were compensated US$50.00 for their time.

Positive and negative affect. Positive and negative affect were assessed with the 20-item Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). The scale includes 10 positive affect terms (*attentive, interested, alert, excited, enthusiastic, inspired, proud, determined, strong,* and *active*) and 10 negative affect terms (*distressed, upset, hostile, irritable, scared, afraid*, *ashamed, guilty, nervous,* and *jittery*) and participants rated how much they felt each affect term applied to them in the past week (1 = *very slightly or not at all*, 2 = *a little*, 3 = *moderately*, 4 = *quite a bit*, 5 = *always*). Positive (range = 20-49, $\alpha = .81$) and negative (range = 10-34, $\alpha = .78$) affect scores were calculated for each participant as summations of scores on all positive and negative affect terms, respectively. Average positive affect ($M = 35.55$, $SD = 6.93$) and negative affect ($M = 16.51$, $SD = 5.37$) were near (but slightly better than) established norms of the instrument (PANAS; Watson et al., 1988) indicating average affective well-being similar to larger uninjured samples. The relatively good affective well-being in the sample likely reflects the study's exclusion of clinically depressed or anxious adults.

Goal engagement. The Optimization, Primary, and Secondary Control Scale (OPS; Heckhausen et al., 1998) was used, although questions were modified to refer to the disability when discussing goals or goal strivings. For example, the question, "When I encounter difficulties in doing a task, it makes me try even harder to get that task done" was modified to read, "When I encounter difficulties in doing a task because of my disability, it makes me try even harder to get that task done." Goal engagement was assessed by a six-item subscale ($\alpha = .79$) presented in Table 2. For each statement, participants indicated how much of the time they thought the statement was true for them (1 = *never true*, 2 = *seldom true*, 3 = *sometimes true*, 4 = *always true*). Scale responses were summed for each participant with higher values representing greater goal engagement (range = 15-24). We had intended to use a subscale of goal disengagement also drawn from the modified OPS scale but coefficient alpha was only in the .30 to .35 range depending on items included and factor analysis did not suggest a single-factor solution. The language of the

Table 2. Goal Engagement Scale Questions

1. I do whatever I can to continue my everyday activities as I did before I had a disability.
2. If I invest enough time and energy, I can continue my everyday activities despite my disability.
3. When I encounter difficulties in doing a task because of my disability, it makes me try even harder to get the task done.
4. Even though I cannot do everything like I used to, I am learning some new ways to do things.
5. When a task is difficult because of my disability, I focus on how proud I will feel when I have accomplished it.
6. I am confident I will be able to learn new ways of doing things that make up for my disability.

disengagement items may have led to reactivity on the part of some participants. For that reason, we constructed an alternative scale related to disengagement as described next.

Cognitive Barriers to Successful Disengagement (CBSD). The CBSD Scale was composed of three items drawn from the Brief Cope Inventory (BCI; Carver, 1997). These three statements were selected to represent the cognitive coping strategies (viz., self-blame and denial) that we propose hamper motivation and thus may prevent individuals from successfully disengaging from failures and moving on to achievable goals. The three items are (a) I say to myself, "this isn't real", (b) I refuse to believe what has happened, (c) I blame myself for things that happened. Participants indicated how much of the time they have been coping with problems in those manners (1 = *I haven't been doing this at all*; 2 = *I've been doing this a little bit*; 3 = *I've been doing this a medium amount*; 4 = *I've been doing this a lot*). Of note, alpha for this scale ($\alpha = .56$) did not approach the .70 standard (Nunnally, 1978) because the scale has only three items and is composed of two distinct strategies that comprise our unified construct of cognitive barriers to successful disengagement. Items 1 and 2 reflect denial whereas Item 3 reflects self-blame. The three scale items were summed so that a higher score meant more self-blame and denial (range = 2-8).

Subjective health. Subjective health was assessed with the physical health composite of the SF-36 Health Survey (Medical Outcomes Trust, Boston, MA) but modified such that the items asking about ambulation were removed (e.g., items about stair climbing or walking). Participants thus responded to items about general health, health impacts on activities, and pain impacts on activities. The final scale was composed of 11 items, reverse coded where

appropriate, and summed so that a higher scale value meant better physical health ($\alpha = .77$, range = 18-44).

Results

Preliminary Correlations

Zero-order correlations of the variables assessed for the study are found in Table 1. Age at disability was significantly related only to subjective health (inversely) and, as expected, to current age. Associations between predictors and outcomes were significant and in expected directions with the exception that goal engagement and negative affect were not significantly related. Of note, positive and negative affect were not significantly associated with one another which supports their treatment as distinct constructs and outcomes. Although these affective domains are often significantly correlated (see Russell & Carroll, 1999), positive and negative affect are often less related in situations that are not particularly emotional (Diener & Emmons, 1984), such as our interviews. In addition, goal engagement and CBSD were not significantly related to one another, providing evidence that they too are distinct constructs.

Statistical Design

Hierarchical multiple linear regressions examined predictors of positive and negative affect separately. The same set of variables was included in our regressions of both positive and negative affect to allow easier comparison across the two final models. The final models for both affect variables include age, age at disability, and subjective health as covariates. Gender and severity of injury (incomplete vs. complete SCI and location on the vertebral column) did not reach significance and were dropped. Our hypotheses focused on the relationships between goal engagement and CBSD with positive and negative affect. We centered age, goal engagement, and CBSD on their means because we examined interactions between age and each of these variables. Variables were entered such that covariates and age were included first, followed by the engagement and disengagement strategies, and finally interactions between age and disengagement strategies. The interaction between goal engagement and age was not significant in either models and not presented in the article. Regression assumptions were tested for all analyses and revealed no evidence of departures among residuals and variance inflation factors that were well within accepted levels (for positive affect, variance inflation factors were 1.10 to 1.34; for negative affect, 1.10 to 1.36). Note

Table 3. Hierarchical Linear Regression of Predictors of Positive Affect Among Adults With Spinal Cord Injury ($N = 99$)

	Step 1			Step 2			Step 3		
Variable	*b*	*SE* (*b*)	β	*b*	*SE* (*b*)	β	*b*	*SE* (*b*)	β
SF-36 physical	0.33	0.11	.30***	0.22	0.11	.20**	0.25	0.11	.23**
Age when injured	0.19	0.09	.22**	0.19	0.09	.21**	0.20	0.09	.23**
Age	−0.08	0.06	−.14	−0.10	0.06	−.18*	−0.11	0.06	−.20*
Goal engagement				0.75	0.28	.26***	0.73	0.27	.25***
CBSD				−0.66	0.35	−.18*	−1.11	0.38	−.30***
CBSD × Age							−0.07	0.03	−.26**
F(*df*, *df*)	4.50 (3, 95)***			5.20 (5, 93)****			5.70 (6, 92)****		
R^2	.12			.22			.27		
Adjusted R^2	.10			.18			.22		

Note: CBSD = Cognitive Barriers to Successful Disengagement Scale. SF-36 Physical refers to the SF-36 physical health measure. Age, CBSD, and Goal engagement were mean centered.
*$p < .10$. **$p < .05$. ***$p < .01$. ****$p < .001$.

that the regression predicting negative affect is one participant fewer because of missing data.

Positive Affect, Goal Engagement, and CBSD

Results are summarized in Table 3. Findings were consistent with hypotheses: as goal engagement increased, positive affect likewise increased; greater CBSD was associated with lower positive affect, but the significant interaction between age and CBSD revealed that this effect was much stronger for older than younger adults. The age by CBSD interaction, controlling for all covariates, is shown in Figure 1, with participants divided equally into younger adults (ages 23-45) and older adults (ages 46-76) for illustrative purposes. In addition, the covariates of subjective physical health and age at disability were significant in the final model. The relationship between age and positive affect trended toward significance ($p = .051$) suggesting lower positive affect with increasing age. Age at disability evidenced the opposite relationship, with positive affect significantly increasing with older age at disability in this sample. Similar to existing findings in the literature (e.g., Dowler et al., 2001), better subjective health was associated with higher positive affect. Approximately,

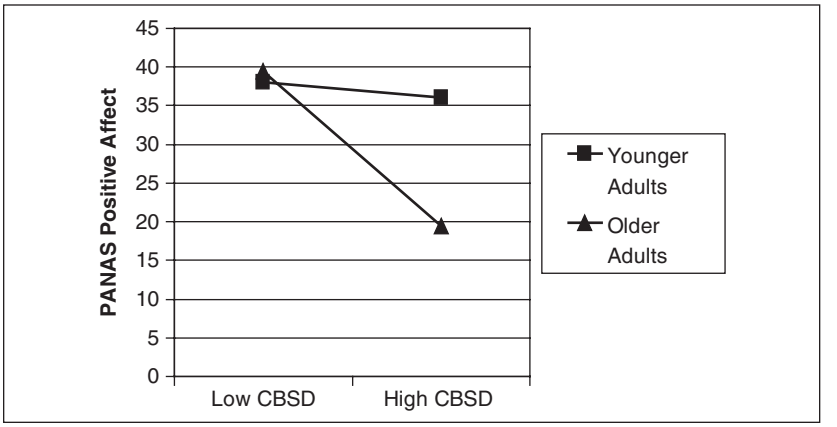

Figure 1. The interaction of age by Cognitive Barriers to Successful Disengagement on Positive and Negative Affect Schedule–Positive Affect
Note: To illustrate the associations with age, a median split of the sample was used to divide people into younger adults (ranging from 23 to 45 years old) and older adults (ranging from 46 to 76 years old).

27% of the variability in positive affect was accounted for by the final regression model. Goal engagement, CBSD, and the interaction between CBSD and age accounted for a total of approximately two thirds of this variance.

Negative Affect, Goal Engagement, and CBSD

We hypothesized that greater goal engagement would be associated with lower negative affect and that greater CBSD would be associated with higher negative affect. Results are presented in Table 4. Consistent with our hypothesis, higher levels of CBSD were associated with higher levels of negative affect; contrary to our prediction, the relationship was not moderated by age. In addition, goal engagement was not significantly related to negative affect. Higher rates of subjective health was significantly related to lower levels of negative affect, consistent with prior research (e.g., Dowler et al., 2001). Age at disability was not significantly associated with negative affect. Approximately, 35% of the variability in negative affect was accounted for by the final regression model, and CBSD uniquely explained nearly one third of this variance.

Discussion

Like uninjured people, individuals with SCI vary significantly in their levels of affective well-being. The current study used the life-span theory of control

Table 4. Hierarchical Linear Regression of Predictors of Negative Affect Among Adults With Spinal Cord Injury ($N = 98$)

	Step 1			Step 2			Step 3		
Variable	*b*	*SE* (*b*)	β	*b*	*SE* (*b*)	β	*b*	*SE* (*b*)	β
SF-36 physical	−0.30	0.08	−.36***	−0.26	0.08	−.32***	−0.26	0.08	−.31***
Age when injured	0.04	0.07	.06	0.03	0.06	.04	0.03	0.06	.04
Age	−0.12	0.05	−.29***	−0.08	0.04	−.18*	−0.08	0.04	−.19*
Goal engagement				0.13	0.20	.06	0.13	0.20	.06
CBSD				1.24	0.25	.44****	1.11	0.28	.39****
CBSD × Age							−0.02	0.02	−.10
F(*df*, *df*)	5.77 (3, 94)***			9.41 (5, 92)****			7.99 (6, 91)****		
R^2	.16			.34			.35		
Adjusted R^2	.13			.30			.30		

Note: CBSD = Cognitive Barriers to Successful Disengagement scale. SF-36 physical refers to the SF-36 physical health measure. Age, CBSD, and Goal Engagement were mean centered.
*$p < .10$. ***$p < .01$. ****$p < .001$.

to predict why some people do better than others. Consistent with this theory, goal engagement was significantly associated with positive affect regardless of age. These findings persist when controlling for the known confounds of age at disability and subjective health. Results from this sample provide compelling support for the life-span theory of control's assertion that goal engagement is critical for maintaining affective well-being across the age range and even concomitant with functional disability (Heckhausen et al., 2010; Wrosch et al., 2002). In addition, refraining from self-blame and denial when goals appear unattainable was related to affective well-being. As predicted, higher levels of self-blame and denial were associated with lower levels of positive affect for all participants, and the relationship was stronger for older compared with younger participants.

We were puzzled that our Goal Engagement scale was not significantly associated with negative affect, but that prediction was somewhat speculative due to the paucity of research addressing goal engagement with positive and negative affect independently. The finding does bolster the well-supported assertion that positive and negative affect are distinct dimensions rather than poles of one affective spectrum. When one considers that positive affect is associated with approach behaviors (Cacioppo & Berntson, 1999; Davidson et al., 1994), our results come as less of a surprise. Our goal engagement

construct taps tenacity in goal striving and action orientation similar to conceptions of approach behavior. If our scale had tapped more into people's perceptions of the extent to which their efforts bring about successful outcomes (rather than simply how much they strive), we may have also seen an association with negative affect as in a learned helplessness paradigm (Hiroto & Seligman, 1975).

Although goal engagement was significantly associated only with positive affect, self-blame and denial was linked to both affective dimensions. Higher levels of self-blame and denial were associated with lower overall levels in affective well-being. Many recent studies highlight the salutary effects of adaptive coping with failure such as acceptance and self-protecting attributions (e.g., Aspinwall & Richter, 1999; Heckhausen, 1999; Wrosch, Bauer, & Scheier, 2005). People with SCI typically experience lower levels of affective well-being than uninjured people (e.g., Duggan & Dijkers, 1999; Kannisto & Sintonen, 1997), and self-blame and denial may play a major role in this deficit. This finding suggests that, at least among adults with SCI, interventions aimed at reducing the use of these coping strategies may substantially improve both dimensions of affective well-being.

Older age was associated with lower average self-blame and denial for the sample, but when older participants did report using these strategies, they indicated even lower positive affect than younger adults who used these strategies to the same degree. According to the model of strength and vulnerability integration (Charles & Piazza, 2009), older adults maintain high levels of emotional well-being because they rely on positive reappraisals as well as other thoughts and behaviors that circumvent the experience of distress. These strategies arguably become even more important with age, particularly among people who face multiple chronic health problems that make using other emotion regulation strategies difficult as a result of diminishing energy and functional limitations. This is why older severely disabled adults who, for whatever reason, do not use these strategies are worse off than younger or nondisabled adults.

Another possible explanation related to that above stems from discrepancy theory. In a different line of investigation (Ryff, 1991), young, middle-aged, and older adults were asked to rate their actual and ideal levels on six dimensions of psychological well-being (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance; Ryff, 1989). Ryff (1991) found that on all six dimensions, the discrepancy between actual and ideal selves was smallest among older adults and that the effect owed mainly to lowered ratings of the ideal self in older age. If older adults see themselves as closer to their idealized selves, they

may not be as motivated to pursue future-oriented and horizon-expanding goals, an assumption put forward by socioemotional selectivity theory (Carstensen et al., 1999). Higher levels of self-blame and denial might stand in the way of older adults' better reconciliation of how they are with how they would like themselves to be. Findings from Higgins' discrepancy theory (1987) suggest that large gaps in actual versus ideal self-appraisals lead to increases in negative affectivity, whereas small gaps are associated with happiness and feelings of satisfaction. Higher levels of self-blame and denial were linked to increases in negative affect and decreases in positive affect (the latter particularly among older participants), findings which might reflect larger actual-ideal self-discrepancy.

Future Directions and Conclusion

The current study illuminates some of the behavioral and cognitive factors that contribute to affective well-being in the daily lives of adults with SCI. We also provide additional empirical support for the life-span theory of control among this unique group of people. Future studies may address additional factors to expand on our findings. First, the single time point assessment of individuals of varying ages does not allow us to make strong inferences about directions of causality; we cannot be certain whether goal engagement and self-blame and denial directly contribute to observed levels of positive and negative affect. It is possible that positive or negative affect was responsible for changes in engagement and self-blame and denial or that the relationship was confounded by a variable we have not considered. Also, we are unable to determine with certainty whether the significant relationship of self-blame and denial with lower positive affect observed primarily among older adults is due to aging, per se, or a cohort effect. For example, depressed or less satisfied individuals with SCI tend to die earlier, such that the older adults are a more select group of individuals aging with such a disability than are the younger adults (Kemp & Krause, 1999; Krause & Crewe, 1991). Longitudinal designs yield developmental trajectories that cannot be strongly inferred from cross-sectional designs, but our age range of more than 50 years would be difficult to match.

Given that our CBSD scale had few items, we did not separate the individual effects of self-blame and denial. Putting the two types of coping strategies together resulted in a low alpha. This CBSD scale, however, was strongly associated with our outcome variables in expected directions in the current study, and low alpha is likely to attenuate rather than enhance those observed relationships (Schmidt, 1996). If the scale were expanded for future studies,

a greater number of items could yield increased power to parse distinct effects of self-blame and denial as well as generate a more inclusive set of cognitive barriers to successful disengagement. We suspect that self-blame alone may be worse for older compared to younger injured adults but that the effect of denial alone may not be moderated by age. For example, older adults typically engage in self-blame to a lesser extent than younger adults (Irion & Blanchard-Fields, 1987), and self-blame may help younger adults maintain a sense of control by accepting responsibility for negative outcomes and to try harder to achieve goals in future. Externalizing blame may prevent younger adults from modifying their behaviors even though they have greater capacity to do so. Self-blame may be more noxious for older adults; they see their time left to live as shorter and tend to prefer striving for affective well-being in the present rather than for future goals that they may not have the time or vitality to attain (Carstensen et al., 1999).

Conclusion. Findings from this study reveal that goal engagement and the aggregate effect of self-blame and denial are differentially associated with the positive and negative dimensions of affective well-being. We demonstrated these significant findings among individuals with spinal cord injury, and we supported predictions about how self-blame and denial is more deleterious for older adults. Findings were significant after controlling for age, age at disablement, and subjective health, all of which have been shown to relate to affective well-being in this population. Also, the fact that results from regression models did not meaningfully change when we included variables known to relate to affective well-being in life long after SCI suggests robust effects of goal engagement and self-blame and denial. The functional loss resultant from SCI does not, in the long years living with the injury, overshadow the benefits of goal engagement or the detriments of self-blame and denial.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors disclosed that they received the following support for their research and/or authorship of this article: The National Institutes of Health, National Institute of Aging, AG-23845, provided funding for the current article.

Note

1. Age and years since injury were highly correlated with one another ($r = .80$) and could not be included together as a result of this collinearity. Primary results were

the same, however, whether years since injury was included; all analyses presented include the covariate age at injury, which, when entered with age, provides statistical control for years since injury.

References

Aspinwall, L. G., & Richter, L. (1999). Optimism and self-mastery predict more rapid disengagement from unsolvable tasks in the presence of alternatives. *Motivation and Emotion, 23*, 221-245.

Blanchard-Fields, F., Stein, R., & Watson, T. L. (2004). Age differences in emotion-regulation strategies in handling everyday problems. *Journals of Gerontology: Series B: Psychological Sciences and Social Sciences, 59*, 261-269.

Cacioppo, J. T., & Berntson, G. G. (1999). The affect system: architecture and operating characteristics. *Current Directions in Psychological Science, 8*, 133-137.

Carstensen, L. L., Fung, H. H., & Charles, S. T. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion, 27*, 103-123.

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist, 54*, 165-181.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioral Medicine, 4*, 92-100.

Charles, S. T., & Carstensen, L. L. (2008). Unpleasant situations elicit different emotional responses in younger and older adults. *Psychology & Aging, 23*, 495-504.

Charles, S. T., & Carstensen, L. L. (2009). Social and emotional aspects of aging. *Annual Review of Psychology, 61*, 383-409.

Charles, S. T., & Piazza, J. R. (2009). Age differences in affective well-being: Context matters. *Social & Personality Psychology Compass, 3*, 711-724.

Charlifue, S. W., Weitzenkamp, D. A., & Whiteneck, G. G. (1999). Longitudinal outcomes in spinal cord injury: Aging, secondary conditions, and well-being. *Archives of Physical Medicine and Rehabilitation, 80*, 1429-1434.

Chipperfield, J. G., Perry, R. P., & Menec, V. H. (1999). Primary and secondary control-enhancing strategies: Implications for health in later life. *Journal of Health and Aging, 11*, 517-539.

Davidson, R. J., Gray, J. A., LeDoux, J. E., Levenson, R. W., Panksepp, J., & Ekman, P. (1994). Is there emotion-specific physiology? In P. Ekman & R. J. Davidson (Eds.), *The nature of emotion: Fundamental questions* (pp. 235-262). New York: Oxford University Press.

Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology, 47*, 1105-1117.

Dowler, R., Richards, J. S., Putzke, J. D., Gordon, W., & Tate, D. (2001). Impact of demographic and medical factors on satisfaction with life after spinal cord injury: A normative study. *Journal of Spinal Cord Medicine, 24*, 87-91.

Duggan, C. H., & Dijkers, M. (1999). Quality of life—Peaks and valleys: A qualitative analysis of the narratives of persons with spinal cord injuries. *Canadian Journal of Rehabilitation, 12*, 179-189.

Duke, J., Leventhal, H., Brownlee, S., & Leventhal, E. A. (2002). Giving up and replacing activities in response to illness. *Journals of Gerontology: Psychological Sciences, 57B*, 367-376.

Gray, J. A. (1970). The psychophysiological basis of introversion-extroversion. *Behavior Research and Therapy, 8*, 249-266.

Hall, K. M., Cohen, M. E., Wright, J., Call, M., & Werner, P. (1999). Characteristics of the functional independence measure in traumatic spinal cord injury. *Archives of Physical Medicine and Rehabilitation, 80*, 1471-1476.

Heckhausen, J. (2005). Competence and motivation in adulthood and old age: Making the most of changing capacities and resources. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 240-256). New York: Guilford.

Heckhausen, J., & Schulz, R. (1995). A life-span theory of control. *Psychological Review, 102*, 284-304.

Heckhausen, J., Schulz, R., & Wrosch, C. (1998). *Developmental regulation in adulthood: Optimization in primary and secondary control—A multiscale questionnaire (OPS-Scales)* [Technical report]. Berlin, Germany: Max Planck Institute for Human Development.

Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. *Psychological Review, 117*, 32-60.

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 94*, 319-340.

Hiroto, D. S., & Seligman, M. E. (1975). Generality of learned helplessness in man. *Journal of Personality and Social Psychology, 31*, 311-327.

Irion, J. C., & Blanchard-Fields, F. (1987). A cross-sectional comparison of adaptive coping in adulthood. *Journal of Gerontology, Series B: Psychological Sciences and Social Sciences, 42*, 502-504.

Kannisto, M., & Sintonen, H. (1997). Later health-related quality of life in adults who have sustained spinal cord injury in childhood. *Spinal Cord, 35*, 747-751.

Kemp, B., & Krause, J. S. (1999). Depression and life satisfaction among persons aging with post-polio and spinal cord injury. *Disability and Rehabilitation, 21*, 241-249.

Kemp, B., Krause, J. S., & Adkins, R. (1999). Depression among African Americans, Latinos, and Caucasians with spinal cord injury: An exploratory study. *Rehabilitation Psychology, 44*, 235-247.

Kemp, B., & Vash, C. (1971). Productivity after injury in a sample of spinal cord injured persons: A pilot study. *Journal of Chronic Disease, 24*, 259-275.

Krause, J. S. (1998). Dimensions of subjective well being after spinal cord injury. *Archives of Physical Medicine and Rehabilitation, 79*, 900-909.

Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill.

Pentland, W., McColl, M. A., & Rosenthal, C. (1995). The effect of aging and duration of disability on long term health outcomes following spinal cord injury. *Paraplegia, 33*, 367-373.

Russell, J. A., & Carroll, J. A. (1999). On the bipolarity of positive and negative affect. *Psychological Bulletin, 125*, 3-30.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*, 1069-1081.

Ryff, C. D. (1991). Possible selves in adulthood and old age: A tale of shifting horizons. *Psychology and Aging, 6*, 286-295.

Schmidt, N. (1996). Uses and abuses of coefficient alpha. *Psychological Assessment, 8*, 350-353.

Schulz, R., & Decker, S. (1985). Long-term adjustment to physical disability: The role of social support, perceived control, and self-blame. *Journal of Personality and Social Psychology, 48*, 1162-1172.

Schulz, R., Heckhausen, J., & O'Brien, A. (2000). Negative affect and the disablement process in late life: A life-span control theory approach. In S. B. Manuck, R. Jennings, B. S. Rabin, & A. Baum (Eds.), *Behavior, health, and aging* (pp. 119-133). Mahwah, NJ: Lawrence Erlbaum.

Stallings, M. C., Dunham, C. C., Gatz, M., Baker, L. A., & Bengtson, V. L. (1997). Relationships among life events and psychological well-being: More evidence for a two-factor theory of well-being. *Journal of Applied Gerontology, 16*, 104-119.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.

Weitzenkamp, D. A., Gerhart, K. A., Charlifue, S. W., Whiteneck, G. G., Glass, C. A., & Kennedy, P. (2000). Ranking the criteria for assessing quality of life after disability: Evidence for priority shifting among long-term spinal cord injury survivors. *British Journal of Health Psychology, 5*, 57-69.

Weitzenkamp, D. A., Jones, R. H., Whiteneck, G. G., & Young, D. A. (2001). Ageing with spinal cord injury: Cross-sectional and longitudinal effects. *Spinal Cord, 39*, 301-309.

Westgren, N., & Levi, R. (1998). Quality of life and traumatic spinal cord injury. *Archives of Physical Medicine and Rehabilitation, 79*, 1433-1439.

Wrosch, C., Bauer, I., & Scheier, M. F. (2005). Regret and quality of life across the adult life-span: The influence of disengagement and available future goals. *Psychology and Aging, 20*, 657-670.

Wrosch, C., Scheier, M. F., Carver, C. S., & Schulz, R. (2003). The importance of goal disengagement in adaptive self-regulation: When giving up is beneficial. *Self and Identity, 2*, 1-20.

Wrosch, C., Schulz, R., & Heckhausen, J. (2002). Health stresses and depressive symptomatology in the elderly: The importance of health engagement control strategies. *Health Psychology, 21*, 340-348.

Wrosch, C., Schulz, R., & Heckhausen, J. (2004). Health stresses and depressive symptomatology in the elderly: A control-process approach. *Current Directions in Psychological Science, 13*, 17-20.