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## Downward social comparison and subjective well-being in late life: The moderating role of perceived control

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**Objective:** Drawing from Heckhausen and Schulz's Motivational Theory of Life-span Development, this study examined perceived control as a moderator of the protective relationship between downward social comparison and subjective well-being among older adults.

**Methods:** Community-dwelling older adults ( $N=97$ , 63% female, ages 79–97) were interviewed in their own homes at three time-points over a nine-year period. Interviews assessed older adults' perceived control over daily tasks, their use of downward social comparison in response to task restriction, and their subjective well-being.

**Results:** Regression analyses yielded a significant interaction between downward social comparison and perceived control for three subjective well-being outcomes: life satisfaction, perceived stress, and depressive symptoms. Follow-up analyses revealed that downward social comparison was associated with greater subjective well-being at low levels of perceived control; but was unrelated to subjective well-being at high levels of perceived control.

**Conclusion:** These findings corroborate Heckhausen and Schulz's theorized goal-opportunity congruence premise and have implications for quality-of-life interventions to assist community-dwelling older adults.

**Keywords:** downward social comparison; older adults; subjective well-being; secondary control; perceived control

### Introduction

'Eat your broccoli: There are places in the world where children do not have enough food...' At a young age, many of us are taught to recognize that no matter how bad our own situation is; there are others whose situation is worse. This type of downward social comparison enhances appreciation of one's own circumstances and helps sustain motivation and well-being (Taylor & Lobel, 1989; Wood, 1989). Although learned early-on, and utilized throughout the lifespan, downward social comparison seems to become particularly salient during old age (Heckhausen & Kruger, 1993). Older adults who are faced with age-related losses often compare themselves to worse-off others as a way of finding merit in their own circumstances; and in so-doing, are able to sustain or even boost subjective well-being (Heckhausen & Brim, 1997; Heckhausen, Dixon, & Baltes, 1989; Heckhausen & Krueger, 1993; Heckhausen & Schulz, 1995; Heckhausen, Wrosch, & Schulz, 2010; Tobin, 1999).

The purpose of this research was to examine a boundary condition on the protective relationship between downward social comparison and subjective well-being among older adults. Based on the Motivational Theory of Life-Span Development (Heckhausen & Schulz, 1995, 1998; Heckhausen et al., 2010), we investigated the premise that downward social comparison operates as a secondary control strategy: effectively promoting subjective

well-being when perceived control over goal accomplishment is low; and having little effect on subjective well-being when perceived control is high. We examined this issue among community-dwelling older adults (aged 80+) as they face restriction with routine tasks such as housework, yard work, and general mobility.

### *Control striving and subjective well-being in advanced age*

The Motivational Theory of Lifespan Development (Heckhausen et al., 2010) suggests that striving for control is a vital part of human adaptation: it underlies much of our goal-directed behavior and has a direct impact on subjective well-being (Heckhausen et al., 2010; see also Bandura, 1977; Lachman, Neupert, & Agrigoroaei, 2011; Rothbaum, Weisz, & Snyder, 1982; Rotter, 1966; Weiner, 1985). Individuals who effectively exert control in their environment are likely to experience a sense of contentment and positive well-being, whereas individuals who cannot control their circumstances are more prone to psychological distress (Heckhausen, 1999; Heckhausen et al., 2010; Seligman, 1975). Advanced age can pose a fundamental threat to perceived control: routine daily tasks such as housework and yard work can become challenging due to illness, limited mobility, or decline in cognitive function. Increased task restriction and declining control can jeopardize subjective well-being among older

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adults because it suggests an emergent inability to independently care for oneself. It would seem then, that because control can decline dramatically in advanced age, the majority of older adults would display extreme levels of psychological distress (Baltes & Baltes, 1990; Brandstädter & Greve, 1994; Carstensen, Pasupathi, Mayr, & Nesselrode, 2000). This is not the case, however, as older adults report a wide range of positive emotions (Chipperfield, Perry, & Weiner, 2003), and the majority of older adults maintain satisfactory levels of mental health despite task restriction (Baltes, 1993).

One possible explanation for this phenomenon is detailed in the Motivational Theory of Life-Span Development (Heckhausen & Schulz, 1995, 1998; Heckhausen et al., 2010). This theory outlines a general model of goal-striving whereby individuals begin by approaching their goals with *primary control* strategies that involve direct behavioral attempts at goal attainment through the investment of time, effort, and skill. In situations where primary control strategies fail to produce goal attainment, individuals will begin to shift to compensatory *secondary control* strategies that involve the modification or adjustment of internal processes such as expectations, goals, and attributions (Rothbaum et al., 1982). These cognitive modifications help individuals adjust to goal failure and are instrumental to the maintenance of well-being. For example, the use of secondary control strategies among older adults has been associated with lower levels of depression (McQuillen, Licht, & Licht, 2003), less negative emotion (Bauer, Wrosch, & Jobin, 2008), less perceived stress and greater positive emotion (Haynes, Heckhausen, Chipperfield, Perry, & Newall, 2009), and overall life satisfaction/contentment with life (Wrosch, Heckhausen, & Lachman, 2000).

In order to have a positive impact on subjective well-being, however, primary- and secondary-control strategies must be congruent with available opportunities for goal attainment. When opportunities for goal attainment are favorable, well-being will be maximized by using primary control strategies to accomplish goals; when opportunities for goal attainment are restricted, well-being will be maximized by using secondary control strategies to adjust to goal failure. This *goal-opportunity congruence* premise is a central assumption of The Motivational Theory of Life-Span Development (Heckhausen et al., 2010), and implies that secondary control strategies (such as downward social comparison) can effectively protect subjective well-being; but are only likely to do so when perceived control is low (Heckhausen & Schulz, 1998; Kohn & Smith, 2003; Testa & Major, 1990).

#### ***Downward social comparison as a secondary control strategy***

Downward social comparison is an internal, cognitive process (i.e., secondary control process) whereby one compares oneself with worse-off others (Wills, 1981).

This strategic social comparison favors the comparer, and has been associated with subjective benefits such as the maintenance of self-esteem and general ego-enhancement (for reviews, see Suls, Martin, & Wheeler, 2002; Suls & Wills, 1991; Taylor & Lobel, 1989; Wood, 1989). There is growing evidence, however, that the benefits of social comparison may be moderated by aspects of the specific situation in which they take place (Brakel, Dijkstra, & Buunk, 2012; Brakel, Dijkstra, Buunk, & Siero, 2012; Buunk et al., 2012; Buunk, Collins, Taylor, VanYperen, & Dakof, 1990; Suls et al., 2002). In particular, downward social comparison appears to produce maximal benefit under conditions of high threat or risk of loss (Frieswijk, Buunk, Steverink, & Slaets, 2004; Gibbons & Gerrard, 1991; Taylor & Lobel, 1989; Testa & Major, 1990; Wills, 1981). This is consistent with Heckhausen et al.'s (2010) goal-opportunity congruence premise, and suggests that downward social comparison may not have equal benefits for all older adults.<sup>1</sup>

Indeed, recent empirical work by Bauer and colleagues (Bauer & Wrosch, 2011; Bauer et al., 2008) has examined the role of downward social comparison in coping with severe life regrets; and has demonstrated that the use of downward social comparison is associated with improved positive affect over time, but only among people whose reported life-regret was immutable (as opposed to rectifiable). Similarly, a study by Bailis, Chipperfield, and Perry (2005) demonstrated that downward social comparison was associated with better physical health outcomes but only among older adults with low (as opposed to high) perceived influence over their health. As such, recent empirical work suggests that downward social comparison does not have equal benefits for all older adults in terms of coping with life-regrets and physical health issues.

#### ***The current study***

Our study examines this issue in the context of daily task restriction among older adults. Task restriction is a widespread, relatively common experience that affects many older adults at some point during advanced age (Lawton, 1990). Empirical research corroborates the assumption that downward social comparison is used by older adults in response to aging-related problems (e.g., O'Gorman, 1980); and that, in the context of task restriction, downward social comparison is associated with positive subjective well-being outcomes such as life satisfaction (Bailis, Chipperfield, Perry, Newall, & Haynes, 2008) and reduced depressive symptoms (Heidrich & Ryff, 1993; Kohn & Smith, 2003). Our study extends this past research by examining the role of perceived control as a moderator of the relationship between downward social comparison and subjective well-being; and, by examining a sample of individuals whose age ( $M = 85$ ,  $Range = 79-97$  years) exceeds that of previous

samples (e.g., Bailis et al., 2005; Heidrich & Ryff, 1993; Kohn & Smith, 2003).

Based on the goal-opportunity congruence premise of the Motivational Theory of Lifespan Development (Heckhausen et al., 2010), we tested the hypothesis that the use of downward social comparison in response to task restriction would be related to subjective well-being among task-restricted older adults; but that this relationship would be moderated by participants' perceived control over task completion. We measured subjective well-being with three indicators: Life satisfaction was included as a well-established and widely-used measure of older adults' well-being (Neugarten, Havighurst, & Tobin, 1961; cf. Ryff & Keyes, 1995); Perceived stress was included as an indicator of daily strain that can be particularly detrimental to quality of life in advanced age (Mroczek & Almeida, 2004); and depressive symptoms were included because depression is the single-most common mental health problem among older adults (U.S. Department of Health and Human Services, 1999). These three distinct indicators allowed for the assessment of several aspects of subjective well-being including positive versus negative states, cross-sectional versus time-delayed outcomes, and global versus daily reactions.

## Method

### Participants and procedure

The Aging in Manitoba (AIM) study is one of the largest and longest-running population-based studies of aging in Canada (Chipperfield, Havens, & Doig, 1997; Chipperfield, Campbell, & Perry, 2004). AIM began in 1971 with a stratified sample of older adults aged 60+, and new cohorts were added in 1976 and 1983. Follow-up interviews were conducted in 1983, 1990, 1996, 2002, 2005, and 2006. Data for this study are drawn from a satellite study of AIM, known as the Successful Aging Study (SAS). The SAS study involved in-home interviews of selected AIM participants in 2002 and 2005. The criteria for inclusion in SAS involved: (a) residing in one of the province's major cities; (b) living in the community (versus a personal care home); (c) having a satisfactory level of comprehension, and; (d) responding to the interview in English. This resulted in a sample of  $N=232$  participants for SAS 2002. One additional selection criterion was adopted for the present study: Participants were asked 'Is there any task that is currently difficult to perform as a result of aging?'  $N=42$  participants reported no task restriction;  $N=93$  participants indicated they had experienced some task restriction in the past, but that they were not coping with a *current* or on-going task restriction. This left a final sample of  $N=97$  participants (63% female, ages 79–97) who reported a current task restriction and were able to respond to the remaining follow-up questions in 2002. Of these 97 participants,  $N=60$  (62%) were available for re-interview in 2005.<sup>2</sup>

Among the  $N=97$  participants interviewed in 2002, thirty-three distinct tasks were reported as difficult. For the purposes of summary, these 33 tasks were classified into five broad categories. The most commonly reported task restriction was in the category of *housework* (35%; e.g., cleaning, washing floors). The next most frequent restriction was *walking* (23%), followed by *yard work* (12%; e.g., mowing the lawn, raking leaves), *mobility concerns* such as bending, lifting, or reaching (12%), and *activities outside the house* (9%, e.g., physical activity classes, attending church, or shopping). Seven responses were not classifiable in the preceding categories and were classified as *other* (9%; e.g., reading, ability to study, driving, doing up buttons). A Chi-Square test revealed a difference in the male-to-female ratio of the six restriction categories  $\chi^2(5)=21.46, p < 0.01$ . In particular, men were more likely to report tasks categorized as 'yard work' or 'activities outside of the house'; whereas women were more likely to report tasks categorized as 'housework' or 'mobility concerns'. Approximately equal numbers of men and women reported 'walking' and 'other'. No differences emerged between the task-restriction categories with regard to any other covariates or predictor variables.

### Measures

#### Perceived control

A single item was used to assess older adults' perceived control over daily tasks. Participants' were read the following: 'I'd like to ask the extent to which you feel you can personally influence things by what you say or do. Please select the number that corresponds to how much influence you feel you have over the usual tasks that need to be done (e.g., housework, yard work, shopping, laundry, etc.)'. Responses were recorded on a scale with anchors 1=*almost no influence*, 10=*total influence* (Range = 4–10,  $M=8.00$ ,  $SD=2.04$ ).<sup>3</sup> This measure of perceived control served as a proxy for goal opportunity: The more influence a participant reported, the more favorable the opportunity for goal attainment (Heckhausen et al., 2010).

#### Downward social comparison

Participants' use of downward social comparison was assessed with four items from the *Task-Specific Control Strategies* inventory (Chipperfield & Perry, 2006; Chipperfield, Perry, Bailis, Ruthig, & Chuchmach, 2007; Haynes et al., 2009). In reference to their reported task restriction, participants were asked 'When you have difficulty with (*insert reported task*), how often do you...tell yourself that despite this problem, you are better off than many others; tell yourself that you can do many other things that people your age can't do; try to think of how many more problems other people have, compared to you; and, tell

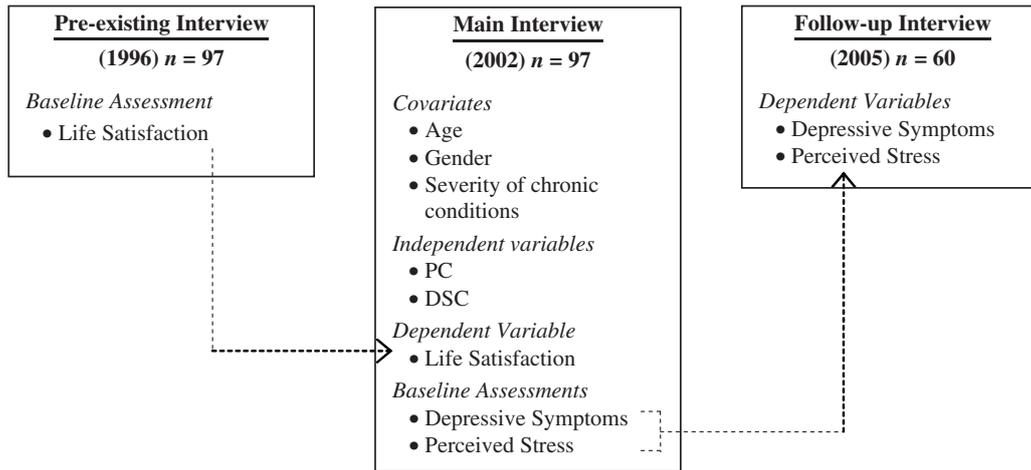


Figure 1. Data collection timeline.

yourself others have worse problems' (0 = *never*, 4 = *always*). Responses to the four items were summed and a mean was calculated for each participant ( $\alpha = 0.84$ ,  $Range = 1.75\text{--}4.00$ ,  $M = 2.83$ ,  $SD = 0.59$ ) (see endnote 3).

#### Covariates

We co-varied for participants' self-reported *age* ( $Range = 79\text{--}97$  years,  $M = 85.04$ ,  $SD = 4.24$ ) and *gender* (36 men, 61 women). Additionally, to account for potential baseline differences in physical health, we co-varied for *severity of chronic conditions* (i.e., comorbidity). The procedure for assessing severity of chronic conditions was adapted from the Seriousness of Illness Rating Scale – Revised (SIRS-R; Wyler, Masuda, & Holmes, 1968; Rosenberg, Hayes, & Peterson, 1987). Based on past research (Chipperfield et al., 2007), a list of 22 health conditions was presented and participants were asked to indicate whether or not they suffered from each condition (e.g., arthritis, cancer, diabetes, etc.). Each of the 22 health conditions was assigned a severity rank based on correspondence with the SIRS-R. A weighted severity score was computed for each participant by summing across the rank values associated with each reported health condition. Thus, higher scores indicated greater severity of chronic conditions (i.e., poorer health;  $Range = 1\text{--}126$ ,  $M = 53.63$ ,  $SD = 27.78$ ).

#### Subjective well-being

We examined three indicators of subjective well-being: life satisfaction (cross-sectional in 2002), perceived stress, and depressive symptoms (at three-year follow-up in 2005). Participants' *life satisfaction* was assessed with Neugarten et al.'s (1961) 20-item Life Satisfaction scale, e.g., 'I am just as happy as when I was younger' (0 = *disagree*, 1 = *agree*). Responses to the 20 items were summed and a mean was calculated for each

participant:  $\alpha = 0.70$ ,  $Range = 0.15\text{--}1.00$ ,  $M = 0.68$ ,  $SD = 0.17$ .

Three years after the initial SAS 2002 interview,  $n = 60$  participants (62%) were available for a follow-up interview (2005) that included assessments of perceived stress and depressive symptoms. *Perceived stress* was assessed with a single item: 'Thinking about the amount of stress in your life, would you say that most days are ...' 1 = *not at all stressful*, 5 = *extremely stressful* ( $Range = 1\text{--}4$ ,  $M = 2.27$ ,  $SD = 0.84$ ). In addition, participants responded to a 10-item measure of *depressive symptoms* adapted from the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Items were prefaced by the question 'How often have you felt this way during the past week ...' e.g., I felt depressed; I felt hopeless about the future; etc. (0 = *rarely*, 3 = *most of the time*). Items were summed and a mean was calculated for each participant:  $\alpha = 0.67$ ,  $Range = 0.00\text{--}2.00$ ,  $M = 0.68$ ,  $SD = 0.45$ .

#### Baseline assessments

As outlined earlier, participants were part of the larger AIM study and had been interviewed a number of times over the past two decades. This meant that it was possible to reach back to previous interviews for baseline assessments of the three indicators of subjective well-being: life satisfaction, perceived stress, and depressive symptoms. However, because the contents of AIM interviews differ from year-to-year, the timing of the baseline and outcome assessments is not consistent across the three indicators of subjective well-being. Figure 1 outlines the interview year for each baseline assessment and outcome measure of life satisfaction, perceived stress, and depressive symptoms. For each subjective well-being outcome, its associated baseline assessment was used as a covariate in all analyses.

## Results

### *Rationale for analysis*

A two-step multiple regression analysis (covarying for gender, age, severity of chronic conditions, and baseline subjective well-being) was used to test the effects of downward social comparison (DSC), perceived control (PC), and the DSC  $\times$  PC interaction on the three separate indicators of subjective well-being (life satisfaction, perceived stress, and depressive symptoms). Step 1 examined the extent to which the predictor variables (downward social comparison and perceived control) were directly related to each of the subjective well-being outcomes. To test the hypothesis that the direct relationship between downward social comparison and subjective well-being is moderated by level of perceived control, Step 2 added the two-way interaction of downward social comparison  $\times$  perceived control. Based on the recommendations of Aiken and West (1991) and Jaccard and Turrissi (2003), all covariates and predictor variables were mean-centered; and the DSC  $\times$  PC interaction term was created by multiplying the mean-centered downward social comparison variable by the mean-centered perceived control variable.

### *Main analyses*

Step 1 revealed a direct relationship between downward social comparison and the subjective well-being outcomes in the expected direction: Life satisfaction  $\beta = 0.17$ ,  $t(96) = 1.94$ ,  $p < 0.05$ ; perceived stress  $\beta = -0.14$ ,  $t(59) = 1.07$ , *ns.*; depressive symptoms  $\beta = -0.26$ ,  $t(59) = 2.19$ ,  $p < 0.05$  (Table 1). It was hypothesized that these direct relationships would be moderated by perceived control such that the association between downward social comparison and subjective well-being would be stronger at low (versus high) levels of perceived control. As outlined in Step 2, the DSC  $\times$  PC interaction contributed significantly to the prediction of life satisfaction  $\beta = -0.20$ ,  $t(96) = 2.02$ ,  $p < 0.05$ ; perceived stress  $\beta = 0.27$ ,  $t(59) = 2.23$ ,  $p < 0.05$ ; and depressive symptoms  $\beta = 0.26$ ,  $t(59) = 2.29$ ,  $p < 0.05$ . Thus, as expected, the influence of downward social comparison on subjective well-being was not distributed equally across levels of perceived control.

Following recommendations of Aiken & West (1991), Holmbeck (2002), and Jaccard & Turrissi (2003), the pattern of interaction was examined with analyses of the simple slopes of subjective well-being on downward social comparison at low ( $-1SD$ ) and high ( $+1SD$ ) values of perceived control. The simple slope of each dependent variable on downward social comparison was significant at low levels of perceived control, and non-significant at high levels of perceived control: life satisfaction  $\beta = 0.34$ ,  $t(88) = 3.09$ ,  $p < 0.01$  versus  $\beta = -0.07$ ,  $t(88) = 0.53$ , *ns.*, respectively; perceived stress  $\beta = -0.33$ ,  $t(52) = 2.06$ ,  $p < 0.05$  versus  $\beta = 0.15$ ,  $t(52) = 0.77$ , *ns.*; and depressive symptoms

$\beta = -0.47$ ,  $t(52) = 3.28$ ,  $p < 0.01$  versus  $\beta = 0.06$ ,  $t(52) = 0.33$ , *ns.* Figure 2 highlights the pattern of interaction for each well-being outcome. The use of downward social comparison (secondary control) was more strongly related to subjective well-being at low (versus high) levels of perceived control. Moreover, when perceived control was low, the use of downward social comparison was associated with levels of subjective well-being that were comparable to (or even surpassed) the high level of well-being associated with high perceived control.<sup>4</sup>

## Discussion

As expected, task-restricted older adults who compared themselves to a worse-off other reported better subjective well-being than those who did not engage in downward social comparison; however, this was only the case among older adults with low (as opposed to high) control over their task restriction. These findings suggest a boundary on the relationship between downward social comparison and subjective well-being that is consistent with the goal-opportunity congruence premise of the Motivational Theory of Lifespan Development (Heckhausen et al., 2010): downward social comparison effectively protects psychological resources, but only when the possibility of goal attainment is low (Heckhausen & Schulz, 1998). Given the likelihood of experiencing task restriction at some point during advanced age, these findings have implications for enhancing well-being among community-dwelling older adults.

### *Downward social comparison: Beneficial when goals are blocked*

Task restriction represents a major threat to older adults' subjective well-being because the opportunity to stay in one's own home and maintain independence is often predicated on the capacity to complete daily tasks such as making meals, getting around the house, and managing finances (Lawton, 1990; Willis, 1996). Despite the obvious disadvantages associated with loss of control over tasks, some low-control older adults were able to maintain a high level of subjective well-being. In particular, low-control older adults who engaged in downward social comparison (i.e., comparing oneself to a worse-off other) felt that life circumstances were still favorable, reported less stress, and indicated fewer depressive symptoms. In fact, their use of downward social comparison predicted a level of subjective well-being that was comparable to the well-being of high-control older adults who were less task-restricted and were more physically healthy.

In its capacity to protect subjective well-being, downward social comparison (and other secondary control strategies) serves a critical function for older adults. The importance of subjective well-being in

Table 1. Two-step regression predicting life satisfaction, perceived stress, and depressive symptoms.

	Life Satisfaction (2002)				Perceived Stress (2005)				Depressive Symptoms (2005)			
	Step 1		Step 2		Step 1		Step 2		Step 1		Step 2	
	<i>B</i> ( <i>SE</i> )	$\beta$	<i>B</i> ( <i>SE</i> )	$\beta$	<i>B</i> ( <i>SE</i> )	$\beta$	<i>B</i> ( <i>SE</i> )	$\beta$	<i>B</i> ( <i>SE</i> )	$\beta$	<i>B</i> ( <i>SE</i> )	$\beta$
Age	-0.001 (0.004)	-0.01	0.000 (0.003)	0.01	-0.071 (0.028)	-0.32*	-0.078 (0.027)	-0.36*	-0.001 (0.014)	-0.00	-0.005 (0.014)	-0.04
Gender	0.027 (0.030)	0.07	0.032 (0.029)	0.08	0.371 (0.211)	0.21	0.358 (0.204)	0.20	0.100 (0.106)	0.10	0.091 (0.103)	0.09
SCCS <sup>a</sup>	0.000 (0.001)	-0.03	0.000 (0.001)	-0.04	0.007 (0.005)	0.23	0.007 (0.004)	0.23	0.004 (0.002)	0.25	0.004 (0.002)	0.25
Baseline well-being <sup>b</sup>	0.540 (0.091)	0.51***	0.543 (0.089)	0.51***	0.162 (0.101)	0.22	0.150 (0.098)	0.20	0.277 (0.150)	0.22	0.267 (0.144)	0.21
DSC <sup>a</sup>	0.050 (0.026)	0.17*	0.037 (0.026)	0.12	-0.204 (0.190)	-0.14	-0.119 (0.188)	-0.08	-0.201 (0.092)	-0.26*	-0.152 (0.091)	-0.20
PC <sup>a</sup>	0.007 (0.008)	0.07	0.004 (0.008)	0.05	0.056 (0.065)	0.13	0.055 (0.063)	0.13	-0.031 (0.029)	-0.14	-0.030 (0.028)	-0.13
DSC $\times$ PC	-	-	-0.028 (0.011)	-0.21*	-	-	0.165 (0.076)	0.27*	-	-	0.086 (0.038)	0.26*
Model <i>R</i> <sup>2</sup>	-	0.34	-	0.38	-	0.14	-	0.20	-	0.24	-	0.30
$\Delta R^2$	-	-	-	0.04*	-	-	-	0.06*	-	-	-	0.06*

Notes: <sup>a</sup>SCCS = Severity of Chronic Conditions; DSC = Downward Social Comparison; PC = Perceived control.

<sup>b</sup>For each separate regression model, the baseline well-being covariate corresponded to an earlier assessment of the relevant dependent outcome (i.e., life satisfaction assessed in 1996; perceived stress assessed in 2001; and depressive symptoms assessed in 2001). See Measures for a detailed description.

\* $p < 0.05$ , \*\*\*  $p < 0.01$ .

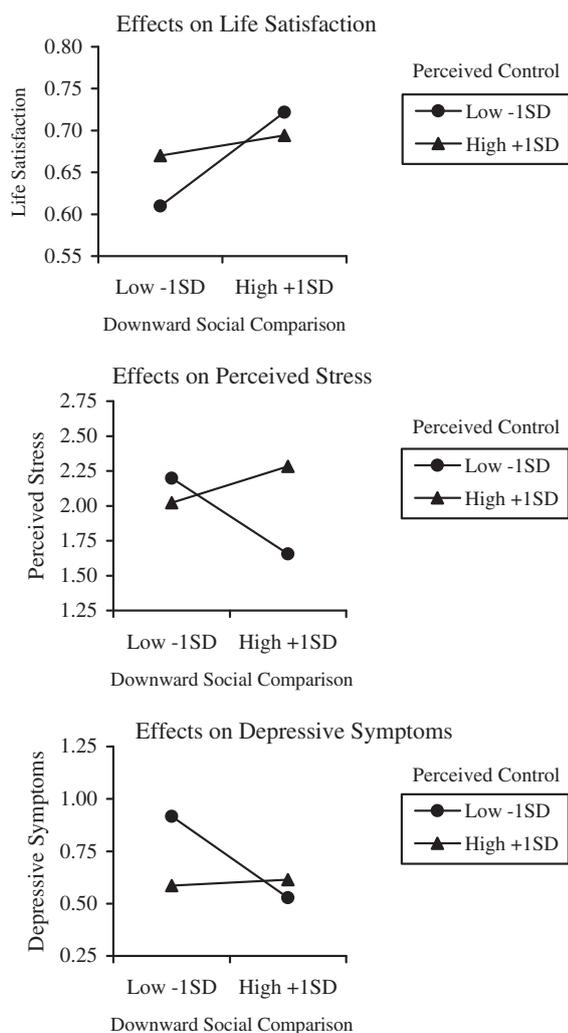


Figure 2. The relationship between downward social comparison and subjective well-being as moderated by the level of perceived control: effects on life satisfaction, perceived stress, and depressive symptoms.

advanced age is best demonstrated by considering that a *lack* of subjective well-being is associated with numerous detrimental outcomes including the onset and progression of cardiovascular disease (Hemingway & Marmot, 1999), increased frequency of physician visits and hospital stays (U.S. Department of Health and Human Services, 1999), low levels of social engagement (Carver, Lehman, & Antoni, 2003), and even mortality (Chida & Steptoe, 2008; Diener & Chan, 2011). In our study, secondary control (i.e., downward social comparison) protected subjective well-being after goal failure had occurred, thereby helping older adults to maintain an overall positive motivational state. This maintenance of a positive motivational state is key because it can help prompt engagement with new goals, and ameliorate a demotivated state of inaction. For example, an older adult who has maintained a positive state of well-being despite task restriction may be more likely to engage in an alternative goal such as making plans with a friend (social goal), going for a walk (health goal), or beginning a crossword puzzle (cognitive goal). In

contrast, an older adult who does not use secondary control has a reduced level of subjective well-being and may be less likely to engage in a new goal given their negative emotional and motivational state (Heckhausen et al., 2010).

#### *Downward social comparison: Ineffective when goals are attainable*

The salutary relationship between downward social comparison and subjective well-being was not present at high levels of perceived control. When tasks were perceived as controllable, comparing oneself to a worse-off other did not have a significant impact on older adults' life satisfaction, perceived stress, or depressive symptoms.

In cases where perceived control is high and tasks are still accomplishable, older adults have less need to protect their well-being via secondary control strategies like downward social comparison. In fact, subjective well-being among task-capable older adults is more likely to be dependent upon the continued use of primary control strategies (e.g., persistence, task modification, and effort expenditure), rather than secondary control strategies such as downward social comparison (Heckhausen & Schulz, 1995, 1998). Furthermore, although our study did not empirically demonstrate this, it is plausible that the inappropriate use of downward social comparison could begin to undermine proactive attempts at goal striving among currently-capable older adults (Heckhausen, 1999), and could contribute to self-directed age stereotypes that over-emphasize the unavoidable nature of loss and decline in advanced age (Kohn & Smith, 2003).

#### *Implications for intervention*

Findings have implications for practitioners whose aim is to enhance subjective well-being among older adults. Encouraging an evaluation of one's circumstances as comparatively favorable may be a useful technique for boosting subjective well-being among older adults with significant task restriction. The issue becomes: How can practitioners create appropriate opportunities for older adults to engage in downward social comparison?

In a series of studies, Buunk and colleagues have surreptitiously provided older adults with information that prompts social comparison (Brakel, Dijkstra, & Buunk, 2012; Brakel, Dijkstra, Buunk, & Siero, 2012; Buunk et al., 2012; Frieswijk et al., 2004). Participants were cancer-survivors who listened to (or watched) an interview of two other cancer survivors (actually trained actors) that focused on negative emotions and coping with illness. Although participants were not specifically instructed to compare themselves to the interviewees, social comparison was anticipated and did indeed occur: Participants who believed they were better-off than the interviewees reported increased

quality of life two months after hearing/watching the interview (Brakel, Dijkstra, Buunk, & Siero, 2012). A similar method was used to induce downward social comparison in a sample of community-dwelling older adults (Frieswijk et al., 2004). Participants were asked to read a sample interview from a respondent in a prior study (bogus). The sample interview portrayed a very frail older adult with poor quality of life, and successfully-produced downward social comparison among participants in the study.

Although it is possible to surreptitiously induce downward social comparison, researchers have emphasized the need for caution when providing this type of intervention (Brakel, Dijkstra, Buunk, & Siero, 2012; Buunk et al., 2012). In particular, downward social comparison interventions must be designed to produce contrast (not assimilation) with the worse-off target; otherwise the intervention could have unintended negative effects on subjective well-being (Brakel, Dijkstra, & Buunk, 2012). Furthermore, our findings indicate that downward social comparison is not a universally-beneficial strategy to be encouraged among all older adults. Because downward social comparison had little benefit for older adults who still have control over tasks, and because it has theoretical potential to undermine further goal striving and/or promote self-directed age stereotypes, this strategy is not well-suited for currently-capable older adults. In contemplating a downward social comparison induction then, it would seem advisable to consider Pinquart and Sorensen's (2001) advice to utilize a tailored-intervention approach that matches intervention content to specific characteristics of the participants (i.e., contrast versus assimilation; low versus high perceived control).

### Limitations

The findings of this study should be interpreted with the following limitations in mind. First, participants were older adults who were living in the community (versus a personal care home), and as such, the generalizability of these findings to less independent older adults remains unclear. A second limitation involves the use of cross-sectional data to examine the association of downward social comparisons with life satisfaction. This limitation is somewhat offset by the other dependent measures, perceived stress and depressive symptoms, which were assessed at a three-year follow-up; and by the inclusion of participants' baseline life satisfaction as measured five years earlier. A final limitation involves the assessment of both perceived control and perceived stress with single item indicators having unknown reliability. Although the use of single-item indicators is generally not recommended, there are notable instances when such measures are able to accurately capture a phenomenon (e.g., self-ratings of health among older adults; Idler & Benyamini, 1997; Makenbach, Simon, Looman, & Joung, 2002).

### Conclusion

This research examined the protective relationship between downward social comparison and subjective well-being among very old adults (aged 80+) as they face restriction with routine daily tasks such as housework, yard work, and general mobility. Findings demonstrated that downward social comparison promotes subjective well-being, but only at relatively low levels of perceived control (i.e., high levels of task restriction). This has implications for the design of interventions aimed at enhancing subjective well-being and quality of life among community-dwelling older adults: Interventions designed to help older adults cope with task restriction will be most effective if they are tailored to participants' level of perceived control. To the extent that downward social comparison represents a compensatory secondary control strategy, only those older adults with relatively low control over daily tasks are likely to benefit from it.

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### Notes

1. It is important to note that past research has demonstrated both positive and negative effects of downward social comparison on subjective well-being (for detailed discussion, see Taylor & Lobel, 1989). Whether downward social comparison is beneficial or detrimental seems to depend upon whether the comparer feels a sense of assimilation or contrast to the target. Assimilation occurs when the comparer believes 'I could end up in the same circumstances' as the target; contrast occurs when the comparer believes 'I am very different' from the target. Thus, another person's poor-standing may increase the comparer's well-being (contrast), but it could also reduce well-being if it suggests that the comparer's own status could deteriorate to the same low level (assimilation). Whether assimilation or contrast occurs depends upon: (1) The comparer's psychological connection or sense of identification with the target. Contrast is more likely when the comparer *does not* feel close to, or does not identify with, the target; and (2) Relevance of the comparison dimension: Contrast is more likely when the comparison dimension has personal relevance to the comparer. Our measure of downward social comparison was designed to produce contrast (not assimilation), and thereby promote subjective well-being among the comparer. We phrased our items as a comparison with a general or vague comparison target ('others your age') to promote low identification with the target; and, we ensured that the comparison was made in a relevant domain by selecting only those participants who were struggling with task restriction (see Section 'Method').
2. Group comparisons revealed no significant differences between the  $N=97$  participants in our study and the excluded  $N=135$  participants in terms of age ( $M=85.04$ ,  $SD=4.24$ ;  $M=85.01$ ,  $SD=4.36$

respectively;  $t_{230} = 0.04$ ,  $p > 0.05$ ), gender (37.1% male; 37.0% female respectively;  $\chi^2 = 0.001$ ,  $df = 1$ , ns.), or education ( $M = 10.18$ ,  $SD = 2.51$ ;  $M = 10.65$ ,  $SD = 2.69$  respectively;  $t_{230} = 1.35$ ,  $p > 0.05$ ). In addition, attrition analyses revealed no differences between those who did ( $n = 60$ ) and those who did not ( $n = 37$ ) participate in 2005 in terms of all study variables, with one exception: The groups differed in terms of chronological age. The  $n = 37$  participants who did not participate in the 2005 follow-up interview were significantly older than the  $n = 60$  who did complete the follow-up ( $M = 87$  years old,  $SD = 4.2$  versus  $M = 84$  years old,  $SD = 3.8$ , respectively;  $t_{95} = 3.51$ ,  $p < 0.001$ ). This age difference may have contributed to the reasons for participant unavailability in 2005, which included movement from the community to personal care home, general unwillingness, scheduling conflicts, inability to contact, and death.

- The distributions of both predictor variables (perceived control and downward social comparison) were negatively skewed (skew =  $-1.02$ ,  $SE = 0.246$ ; skew =  $-1.14$ ,  $SE = 0.245$  respectively). Non-normality among predictor variables is particularly problematic when the variables will be used to create a multiplicative interaction term: Non-normality can result in high correlation values between the centered predictor variables and the multiplicative interaction term (Aiken & West, 1991; Jaccard & Turrisi, 2003). To reduce the negative skew and normalize the distributions, we conducted square root variable transformations (reflected) for both predictor variables (Osborne, 2002). Unfortunately, the variable transformations did very little to reduce the skew of the predictor variables (perceived control skew reduced from  $-1.02$  to  $-1.00$ ; downward social comparison skew reduced from  $-1.14$  to  $-1.12$ ); and did not significantly reduce the correlation between the centered predictor variables and the multiplicative interaction term. As such, we chose to trim extreme values at the tail-end of the distribution (Osborne & Overbay, 2004). Rather than exclude participants with extreme low values (and incur a loss of power) we opted for truncation: The extreme values (i.e., those beyond two standard deviations below the mean) were re-coded into the nearest 'acceptable' value. For perceived control this meant that six scores ranging from 1 to 3 were re-coded into a value of '4'; for downward social comparison this meant that four scores ranging from 0.00 to 1.25 were re-coded into a value of '1.75'. This truncation procedure reduced the distribution skew from  $-1.01$  to  $-0.65$  for perceived control, and  $-1.14$  to  $-0.03$  for downward social comparison, and reduced the correlation between the centered predictor variables and the multiplicative interaction term.
- A degree of inconsistency in the appearance of the interaction for perceived stress is worth noting: Participants with high perceived control reported somewhat greater levels of stress than we would have expected; relative to their low perceived control counterparts. That said, the direct effect of perceived control on perceived stress was not significant; nor was the slope of perceived stress on downward social comparison statistically significant at high levels of perceived control.

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