Compensating for Losses in Perceived Personal Control Over Health: A Role for Collective Self-Esteem in Healthy Aging

Daniel S. Bailis and Judith G. Chipperfield

Health, Leisure and Human Performance Research Institute, University of Manitoba, Winnipeg, Canada.

Collective self-esteem (CSE) refers to an individual's self-evaluation of his or her social identity. We speculate that a positive social identity, or high CSE, facilitates accommodation to negative health-related circumstances in later life, especially when one feels unable to alter these circumstances directly. Accordingly, we hypothesized that CSE would be associated with fewer chronic conditions and greater perceived health for those with low perceived control. Hierarchical regression analyses of data from 1,267 respondents (60% women, aged 69–101) in the 1996 Aging in Manitoba survey confirmed the predicted CSE x Perceived Control interaction on both measures of health status. These findings persisted when respondents' self-rated loneliness was controlled. CSE may compensate to protect the health of older adults whose perceived personal control over health is low. Secondary control and alternative mechanisms for this protective effect are discussed.

ONE secret to a long life, according to much research in psychology and aging, is to maintain the perception of control over the important events in one’s life. This increasingly open secret is scientifically well founded on survey research showing a reliable association between perceived control and subjective health, chronic conditions, and longevity (Rodin, Timko, & Harris, 1985; Schulz & Heckhausen, 1999; Skinner, 1996). Prospective and experimental studies have also supported the claim that perceived control is a cause, and not merely a consequence, of enhanced health in later life (Chipperfield, 1993; Chipperfield & Greenslade, 1999; Krause & Shaw, 2000; Langer & Rodin, 1976; Rodin & Langer, 1977). The positive effects of perceived control on health and longevity are likely to be mediated through several pathways, including the use of adaptive behavioral strategies, performance of important social roles, and blunting of negative affect (Krause & Shaw, 2000; Menec & Chipperfield, 1997; Rodin et al., 1985). Perceived control itself is also an important conduit through which more distal variables, such as socioeconomic status, influence health (Bailis, Segall, Mahon, Chipperfield, & Dunn, 2001; Lachman & Weaver, 1998).

The secret may sound simple, but it is not. As researchers have turned their attention to people's ways of coping with objectively low-control situations, such as the changes in appearance that unavoidably accompany aging (Thompson et al., 1998), studies have revealed complex and even counterintuitive strategies of maintaining control. In particular, primary control strategies, which refer to people's efforts to shape their environment so as to suit their needs and wants, are complemented by secondary control strategies. The latter refer to the various ways in which people reinterpret themselves or their situation so as not to become overwhelmed when the environment will not yield to their influence (Heckhausen & Schulz, 1995; Rothbaum, Weisz, & Snyder, 1982). For example, people may seek to find the good in an undesired outcome they could not avoid, or they may adjust their standard of reference in determining how well off they are, now that this outcome is an accomplished fact. As these examples suggest, the defining characteristic of a secondary control strategy is that the user maintains control not by striving against negative life events, but by accommodating to them.

In this article, we propose that a positive social identity—that is, the favorable evaluation of oneself as a member of social groups or relationships—provides a means of accommodation to negative health-related circumstances in later life. Thus, we hypothesize that when older adults perceive themselves as unable to exercise direct control over their health, having recourse to a positive social identity may enhance their coping ability and thereby foster good health. To test this hypothesis, we use the construct and measure of collective self-esteem (CSE; Crocker & Luhitanen, 1990; Luhitanen & Crocker, 1992). CSE refers to an individual's self-evaluation as a member of the social groups or categories to which he or she belongs. It is one’s own attitude toward the part of one’s self-concept that comes from being a member of social groups (see Appendix, Note 1).

The idea that a positive social identity can compensate in some ways for a threatened personal identity is well established both theoretically and empirically (Brewer, 1991; Cialdini & Richardson, 1980; Crocker & Major, 1989; Hogg & Abrams, 1990). However, past research on this compensatory function has focused primarily on the maintenance of self-esteem or public image, whereas surprisingly little research has examined how one’s social identity may affect perceived control (cf. Krause, 1987; Krause & Borawski-Clark, 1994; Krause & Shaw, 2000; Smith et al., 2000). A framework for doing so may be found in the literature on secondary control.
Secondary Control

Rothbaum and associates (1982) introduced the concept of secondary control, which they described as people’s efforts to accommodate themselves to the surrounding environment. These authors further distinguished among four ways of striving for secondary control, which involved making attributions to limited ability, chance, powerful others, or other factors that essentially allow one to find meaning in the unbidden events of one’s life (see Appendix, Note 2). As with primary control strategies, secondary control strategies have adaptive consequences, such as the effective buffering of stressful life events and maintenance of positive health (Affleck, Tennen, Croog, & Levine, 1987; Chipperfield, Perry, & Menec, 1999; Weisz, McCabe, & Dennig, 1994). Substantial research has suggested, however, that secondary control functions as a backup to primary control. Thus, secondary control strategies are typically beneficial only when perceptions of primary control are low (Heckhausen & Schulz, 1995; Rothbaum et al., 1982; Thompson, Collins, Newcomb, & Hunt, 1996; Thompson et al., 1998; Thompson, Nanni, & Levine, 1994).

Schulz and Heckhausen (1996; Heckhausen & Schulz, 1995) have provided a life-span developmental theory that describes control striving in the context of late adulthood. The theory illustrates how optimal development over the life span depends on two processes: selection, or the choice of life pursuits, and compensation, or methods of persistence in the face of failure. Secondary control striving is relevant to both of these processes, but especially to compensation. In late adulthood, many people find it increasingly difficult to exercise their accustomed level of personal agency in self-relevant domains. As the availability of primary control declines, the need for selective investment of primary control resources is theorized to grow, with the result that people draw more on secondary control as a means of coping with the loss of previously selected domains in which this investment cannot continue. Chipperfield and her colleagues (Chipperfield et al., 1999; Menec, Chipperfield, & Perry, 1999) have reported evidence consistent with both of these propositions in the domain of health, among older adult samples.

Using this conceptual framework, we can describe CSE as a coping resource that contributes to healthy aging by providing a source of compensatory secondary control. More exactly, we expect older adults’ social identities to be a resource for them in accommodating to, and thus compensating for, negative health-related circumstances. We further expect older adults to draw on this resource when their perceived ability to confront those circumstances directly is weak or uncertain.

CSE as a Source of Secondary Control

The defining characteristic of secondary control is that it is gained by adjusting the self to a given situation. Therefore, to characterize CSE as a potential source of secondary control, it is necessary to show that high CSE could enhance people’s willingness or ability to adjust.

Evidence suggesting that higher CSE may be associated with greater willingness to pursue secondary control has come from cross-cultural research on perceived control (Morling, 2000; Morling & Fiske, 1999; Morris, Menon, & Ames, 2001; Thompson et al., 1996; Weisz, Rothbaum, & Blackburn, 1984). Specifically, this research has suggested that people in collectivist cultures place greater value on aligning themselves with forces in their environment (i.e., secondary control) compared with people in individualist cultures, who seek more to align the environment with themselves (i.e., primary control). A collectivist culture is one in which the needs of salient in-groups take precedence over individual needs; high CSE similarly implies a strong personal concern with the welfare of one’s social groups.

High CSE may also enhance people’s ability to enact secondary control by moderating several aspects of social judgment that could be linked to perceived control and successful self-regulation. CSE may determine whether people assimilate or contrast themselves with upward targets of social comparison (McFarland & Buehler, 1995; Stapel & Koomen, 2001; Taylor & Lobel, 1989), which in turn are directly involved in older adults’ psychological adaptation to illness (Heidrich & Ryff, 1993a, 1993b). Whereas people with low CSE interpret upward comparisons as reflecting negatively on the self (i.e., contrast), people with high CSE can interpret such comparisons, at least with fellow ingroup members, as reflecting positively on the self (i.e., assimilation). Thus, when illness strikes, an individual with high CSE may experience a slower progression of illness, faster recovery, or less distress than would an individual with low CSE, because of the relatively favorable influence of social comparisons on the former individual’s adaptation.

Consistent with our proposition that CSE functions as a source of compensatory secondary control in later life, some previous research has found that CSE relates positively to health and, more commonly, subjective well-being (Bettancourt & Dorr, 1997; Blaine & Crocker, 1995; Crocker, Luhtanen, Blaine, & Broadnax, 1994; James, 1997). Here it is also important to note some potentially confounding factors on which CSE does not depend. CSE is surprisingly independent from its source in particular social identities (cf. Crocker et al., 1994), as suggested by robust support for the CSE scale across instruction sets focusing on one or many groups, as well as groups in which membership is achieved or ascribed (Bettancourt & Dorr, 1997; Ether & Deaux, 1990; Luhtanen & Crocker, 1992). CSE is also distinct from personal self-esteem, or the self-evaluation of one’s specific attributes and abilities, as assessed using global or domain-specific measures (Luhtanen & Crocker, 1992).

The Present Research

Our research builds on the theoretical premise that CSE functions as a source of secondary control and thereby enhances the health of older adults. At this preliminary stage, we cannot test the implied mechanism directly (i.e., specific secondary control strategies), but we attempt to show whether, and under what conditions, the anticipated health benefits of CSE occur. Specifically, we test the hypothesis that CSE will be positively related to the health status of older adults but that this relationship will be conditional on their perceived personal control over health. For those high in control, the relationship between CSE and health should be weak or absent; for those low in control, this relationship
should, by comparison, be stronger. Using data from a representative sample of older adults, we evaluate these predictions in terms of respondents’ chronic conditions and self-rated health.

Previous research has shown that constructs closely related to CSE, such as having and being able to enact personally important social roles, are positively related to both physical and mental health in older adults (Heidrich & Ryff, 1993a; Krause & Shaw, 2000). Undoubtedly, any health benefits associated with CSE will reflect, in part, the satisfaction of a fundamental need for interpersonal attachments (Baumeister & Leary, 1995). However, the functional analogy we have drawn to secondary control suggests that CSE may have adaptive value beyond that of helping one to overcome loneliness or isolation. In the present research, we test this independence by statistically controlling for the effect of loneliness on health.

METHODS

Sample

The present sample includes a subset among 1,868 individuals, aged 69 and older, who participated in the Aging in Manitoba (AIM) Longitudinal Study during 1996. The AIM project is one of the largest (N ≈ 9,000) and longest (30 years) studies of aging in existence. These 1,868 individuals had previously participated in an initial cross-sectional wave of the AIM study during 1971, 1976, or 1983–1984, and most had participated in a follow-up wave during 1990. The present research used data from 1996 only, however, because this wave of the study was the first to include measures of respondents’ valued social identities and CSE. Because descriptions of the AIM study can be found elsewhere (e.g., Chipperfield, Havens, & Doig, 1997), only a brief summary is provided here. The initial cross-sectional surveys used the provincial government’s health registry as a sampling frame. The registry included a listing for all Manitoba residents from which probability samples, stratified by age, sex, and region, were drawn. Ninety-five percent of eligible respondents took part in the 1996 follow-up, after accounting for those from 1990 who had since died (36%) or left the province (2%). Nonresponse was primarily due to refusal, followed by incapacity and failure to locate respondents. Compared with contemporary estimates of the Manitoba population, segmented similarly by age, the 1996 AIM sample somewhat overrepresented those in the oldest groups and underrepresented those in the youngest groups (Hall et al., 1997).

For purposes of this research, the AIM 1996 sample was further reduced to 1,267 respondents who provided complete data on CSE. The use of proxy respondents, who were not asked the relevant questions, was the most common reason for missing data on CSE, followed by refusal or inability to answer these questions. In the reduced sample, as in the whole, nearly 60% of respondents were female, and the median age was near 80 on a range from 69 to older than 100 years. Respondents in the reduced sample reported significantly fewer chronic conditions (M = 3.95 vs 4.21), however, and a significantly higher proportion of instrumental and basic activities of daily living they could perform without assistance (M = .86 vs .80), compared with respondents on the whole (both ps < .001; see Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963, and Lawton & Brody, 1969, for the relevant activities). Thus, the use of nonproxy data may have selectively eliminated those in the poorest health from the sample, and the present findings may not generalize to this segment of the older adult population.

Measures

Table 1 presents descriptive statistics, reliability coefficients, and intercorrelations of all study variables. Higher scores represent more of each attribute, or more positive attributes, with respect to CSE and self-rated health.

Health status.—Respondents directly rated their general health for their age on a 5-point scale, labeled excellent, good, fair, poor, and bad. Much previous research attests to the test–retest reliability and predictive validity of this single-item measure (Bailis, Segall, & Chipperfield, in press; Idler & Benyamini, 1997). The full range of scores was observed.

Respondents also answered yes or no regarding whether they had experienced each of 22 chronic health problems (or aftereffects thereof) in the past year, including (a) heart/circulation problems, (b) high blood pressure, (c) heart attack, (d) stroke, (e) anemia/other blood disease, (f) arthritis/rheumatism, (g) palsy/Parkinson’s disease, (h) Alzheimer’s disease/dementia, (i) eye trouble not relieved by glasses, (j) ear trouble, (k) dental problems, (l) chest/breathing problems, (m) stomach trouble, (n) bladder incontinence, (o) trouble controlling bowels, (p) kidney trouble, (q) diabetes, (r) foot trouble, (s) skin problems, (t) nerve trouble (including all mental illness/emotional problems), (u) any variety of cancer, and (v) other specified problems (including amputations). Affirmative responses were summed to create an index of chronic health problems, which ranged from 0 to 16.

CSE.—CSE has been conceived in terms of four components: (a) one’s perceived contribution to social groups, (b) one’s private opinion of these groups, (c) one’s metaperception of how these groups are viewed by others, and (d) the importance to identity that one attaches to belonging to

<table>
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<th>Measure</th>
<th>M</th>
<th>SD</th>
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<td>CSE</td>
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<td>6.3</td>
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<td>.18</td>
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<td>HLC</td>
<td>19.2</td>
<td>5.5</td>
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<td>.22</td>
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<td>4.5</td>
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<td>−.20</td>
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<td>INT</td>
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<td>3.0</td>
<td>.08</td>
<td>.07</td>
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<td>.18</td>
<td>.16</td>
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<td>.11</td>
<td>−.07</td>
<td>.00</td>
<td>.08</td>
<td>.03</td>
<td>.01</td>
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<tr>
<td>Female</td>
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Notes: PH = perceived health; CC = summed chronic conditions; CSE = collective self-esteem; HLC = internal health locus of control; LON = loneliness total; INT = summed internal attributions for loneliness; EXT = summed external attributions for loneliness. Correlations above ±.06 are significant at p < .05.
these groups (Crocker & Luhtanen, 1990; Luhtanen & Crocker, 1992). A modified CSE scale assessing the positivity or strength of each component was developed for this study. Instructions were adapted from those of the original CSE scale (Luhtanen & Crocker, 1992, p. 305). They began:

> We all belong to different social groups or relationships and often think of ourselves as members of these. For example, you might think of yourself as a member of your family or group of friends, as a Canadian, or as a member of your religion or race.

A social identity checklist was interposed at this point, in order to bring respondents’ valued identities to mind just before answering the CSE items. Respondents were asked, “Which of the following would you say are the most important social groups or relationships for you?” The checklist included seven items to which respondents could answer yes or no. Family/circle of friends provided an important social identity for 95% of respondents; religion/church/temple was next most commonly identified (45%), followed by caregiver to someone/something in need (26%), national identity (e.g., Canadian) (20%), occupation/employment status (16%), racial/ethnic/linguistic background (14%), and all others combined (5%). The sum of affirmative responses showed the full range ($M = 2.2$, $SD = 1.39$). The instructions continued:

> Next, I would like you to consider your feelings toward these groups or relationships. I will read several statements that could be used to describe your feelings about [groups/relationships indicated above]. Everyone has positive and negative feelings about his or her social groups or relationships. There are no right or wrong answers to the following statements. Please try to give your honest opinion of how strongly you agree or disagree with each one.

The original CSE scale (Luhtanen & Crocker, 1992) was modified in two important ways. The number of items was reduced from 16 to 8, including 2 items from each subscale, and the wording of items was changed so that or relationships followed social groups. Thus, respondents indicated their agreement or disagreement, using a 7-point scale, with statements such as “I am a worthy member of the social groups or relationships I belong to,” “In general, I’m glad to be a member of the social groups or relationships I belong to,” “Overall, my social groups or relationships are considered good by others,” and “The social groups or relationships I belong to are an important reflection of who I am.”

One reverse-coded item showed a somewhat bimodal distribution and correlated below .30 with respondents’ total score. This item was removed. Exploratory factor analysis, using principal-components extraction and varimax rotation, revealed that a single factor accounted for 42% of the variance in the remaining items, all of which had factor loadings above .40. In addition, confirmatory factor analysis showed that a single-factor model adequately fit these sample data, $\chi^2(14, N = 1,267) = 167.86$, $p < .001$, goodness-of-fit index = .96, adjusted goodness-of-fit index = .92, root-mean-square error of approximation = .09, and compared favorably with the null or independence model (Tucker-Lewis Index = .88, normed fit index = .91; see Appendix, Note 3). Responses were summed over the seven items to create a composite CSE score, which ranged from 14 to 49.

To validate the modified CSE scale further, we analyzed its relationship to respondents’ attributions for loneliness (see below). We reasoned that individuals with relatively positive social identities should feel greater control over their social outcomes, which would be shown by their stronger endorsement of internal than external attributions for loneliness. By comparison, individuals with relatively negative social identities should attribute loneliness less to internal causes and more to external causes. Following a median split on CSE, repeated measures analysis of variance on respondents’ internal or external attributions for loneliness yielded no significant main effect for CSE ($F < 1$). Respondents endorsed internal more than external attributions overall ($M = 9.54$ vs 6.84), $F(1,1,212) = 575.97$, $p < .001$. The anticipated interaction was significant, however, $F(1,1,212) = 38.52$, $p < .001$: High-CSE respondents endorsed internal attributions more ($M = 9.89$ vs 9.24) and external attributions less ($M = 6.43$ vs 7.20) than did low-CSE respondents, supporting the validity of the CSE measure. This crossover pattern remained when the influence of loneliness on respondents’ attributions was partialled out.

> **Health locus of control (HLC).—**Five positively worded items from the internal dimension of Wallston, Wallston, Kaplan, and Maides’s (1976) HLC scale provided a measure of respondents’ perceived personal control over health. Respondents indicated their agreement or disagreement, using a 6-point Likert scale, with statements such as the following: “If I take care of myself I can avoid illness,” “Whenever I get sick it is because of something I’ve done or not done,” and “People’s ill health results from their own carelessness.” Responses were summed to create a composite HLC score, which ranged from 5 to 30.

> **Loneliness and attributions.—**An 11-item scale developed by de Jong-Gierveld and Kamphuis (1985) indicated the extent of respondents’ social loneliness. Sample items include “There is always someone that I can talk to about my day to day problems” (reverse scored), “I feel my circle of friends and acquaintances is too limited,” and “Often, I feel rejected.” Respondents answered each item using a 3-point scale, with 1 = no, 2 = more or less, and 3 = yes. After reverse scoring as appropriate, responses were summed to create a composite loneliness score, which ranged from 11 to 33.

Four items from the affiliation-goal component of Lefcourt, Von Baeyer, Ware, and Cox’s (1979) multidimensional—multiatributional causality scale measured respondents’ attributions for loneliness. Respondents indicated their agreement or disagreement, using 7-point Likert scales, that (a) “people who are often lonely are lacking in social skills,” (b) “loneliness comes from not trying to be friendly,” (c) “no matter what you do, some people just don’t like you,” and (d) “making friends [is] largely a matter of having the
right breaks.” Respectively, these statements represent attributions to ability, effort, context, and luck (Lefcourt et al., 1979). In each case, the full range of responses was observed. Following Weiner’s (1986) classification, ability and effort ratings were summed to represent internal attributions, whereas context and luck ratings were summed to represent external attributions.

Demographics.—The present analyses included two demographic factors that were theoretically related to CSE or HLC. Respondents’ age in years was self-reported. Sex was coded 1 = male and 2 = female.

Procedure
Following an initial letter that described the AIM study, prospective participants were contacted by interviewers directly in order to schedule the interview, usually in the respondent’s private residence or personal care home. Experienced interviewers, some of whom could also conduct the interview in another language than English, had completed a week-long intensive training session and formed into teams of five. The leader of each team reviewed members’ completed interviews before they were submitted for data entry. The interview was conducted in person, in private if possible, or with friends or family members present at the respondents’ request. The interviewer discouraged these others from answering for the respondent, except when his or her physical or cognitive limitations made it necessary to respond partially or entirely by proxy. Interviewing began in June and continued through August, at which time nonrespondents were recontacted, leading in a few cases to the interview’s being completed in a short form by telephone.

Analysis
We used hierarchical multiple regression to test the main hypothesis and evaluate loneliness as an alternative explanatory factor. The choice of hierarchical multiple regression was appropriate because the key predictors and dependent variables were measured using interval- or ratio-level scales, and the order of entry among the predictors could be specified theoretically in advance (Tabachnick & Fidell, 1989). On an initial step of the regression model, we entered respondents’ age and sex as predictors in order to adjust for their important influence on CSE and health. To test the predicted CSE × HLC interaction, we created a product term from the centered scores for each factor, as described by Jaccard, Turrisi, and Wan (1991). The product term was entered on Step 3 of the regression, after the centered main effects for each factor (Step 2), and an F test for the increment in explained variance assessed significance of the interaction. Simple main effects were examined by using representative high and low HLC scores (i.e., ±1 SD from the mean) to calculate the unstandardized regression coefficients for CSE under each condition of HLC. Standard errors used in testing these coefficients for significance were computed from the coefficient correlation matrix of the main analysis, also as described by Jaccard and colleagues (1991). All analyses were performed using SPSS 10.0 for Windows/PC.

Table 2. Final Standardized Coefficients From Hierarchical Regression Analyses of Perceived Health and Chronic Conditions

<table>
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<tr>
<th>Predictor</th>
<th>Chronic Conditions</th>
<th>Perceived Health</th>
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<tr>
<td>Age</td>
<td>.10**</td>
<td>.01</td>
</tr>
<tr>
<td>Sex</td>
<td>.07*</td>
<td>−.06*</td>
</tr>
<tr>
<td>Collective self-esteem (CSE)</td>
<td>−.17**</td>
<td>.21**</td>
</tr>
<tr>
<td>Internal health locus of control (HLC)</td>
<td>−.20**</td>
<td>.17**</td>
</tr>
<tr>
<td>CSE × HLC</td>
<td>.06*</td>
<td>−.06*</td>
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*p < .05; **p < .001.

RESULTS

Hypothesized Effects of CSE on Health Status
We hypothesized that CSE would have a positive influence on health that was further qualified by a significant interaction with HLC. Specifically, we expected the positive influence of CSE to be robust among older adults whose perceived personal control over health was low, but less strong or absent among those whose perceived personal control over health was high.

For chronic conditions and perceived health alike, the hypothesized interaction reached statistical significance, as shown in Table 2. In each case, the incremental variance explained by this interaction was quite small, less than 1%, as is common in field research (McClelland & Judd, 1993). Simple effects analysis revealed, as predicted, that the influence of CSE on respondents’ chronic conditions was stronger when HLC was low, \( b = −.12, t (1,151) = −6.63, p < .001 \), than when HLC was high, \( b = −.06, t (1,151) = −3.38, p < .01 \). Likewise, CSE had a stronger influence on the perceived health of respondents with relatively low HLC, \( b = .03, t (1,167) = 5.93, p < .001 \), than with relatively high HLC, \( b = .01, t (1,167) = 2.65, p < .01 \).

Figure 1 shows the form of this interaction for respondents’ chronic conditions. The effect of CSE, given low HLC, is noteworthy in that it is larger than 1 on average. To be diagnosed with any of the conditions measured here would likely have an impact on most older adults’ daily functioning.

Loneliness as an Alternative Explanatory Factor
It is important to distinguish CSE from other provisions of belonging to social groups or relationships. Loneliness, in particular, reflects the global perception that one’s social contacts are inadequate to one’s needs. Although CSE and loneliness both imply a sense of belonging, CSE further describes the extent to which one’s self-concept is defined in terms of social categories or relations. This aspect is essential to our treatment of high CSE as a source of secondary control. We therefore sought to determine whether, contrary to our theory, the apparent health benefits of CSE could be reduced to those of feeling socially involved.

Respondents’ chronic conditions and perceived health were regressed hierarchically on a model composed of three steps, as before, with one additional step on which respondents’ loneliness scores were entered. Loneliness contributed
Discussion

Aging inherently presents many challenges to people's perceptions that they can maintain or enhance their health. Individuals who feel in control of this outcome are likely to experience greater subjective health, fewer chronic conditions, fewer visits to their physicians, and more years of life, resulting directly or indirectly from such perceptions (Chipperfield, 1993; Chipperfield & Greenslade, 1999; Krause & Shaw, 2000; Rodin et al., 1985). But what general claims can we make about older adults who do not feel themselves directly able to meet the challenge of maintaining their health? Does having high CSE help these individuals to accommodate this perception and remain healthy?

The present research examined whether CSE would be positively related to health among older adults whose perceptions of personal control over health were low. The premise for this prediction, gained from research and theory on secondary control, was that these individuals would be unlikely to relinquish striving for control, but the focus of their efforts would be on accommodating themselves to their situation (Heckhausen & Schulz, 1995; Rothbaum et al., 1982; Thompson et al., 1998). We reasoned further that having high CSE might favorably predispose individuals to strive for control in this way and thereby preserve their health. Our analyses confirmed the association of CSE with greater perceived health and fewer chronic conditions. Moreover, as predicted, this association was significantly stronger among respondents with low than with high perceived personal control over health. Loneliness, as we showed statistically, could not account for these effects. Although much further research is needed to understand the underlying process, these findings are consistent with our interpretation of CSE as a source of compensatory secondary control. We return to the issue of other plausible mechanisms in discussing the implications of this research.

Limitations

It is important to recognize four major limitations of this research. The first is that the findings are based on cross-sectional data and correlational analyses. Therefore, we are unable to determine cause-and-effect relationships among the variables of interest. Further data from an upcoming wave of the AIM study will permit prospective analyses of health outcomes in relation to CSE. In the meantime, however, we are mindful of the possibility that other causal scenarios than we have identified might account for the relationships we observed.

A second limitation is that not all variables in the theoretical model we proposed could be included in the AIM survey. For example, we have no insight into the respondents' social comparison experiences, although such experiences are a possible mechanism for the health benefits associated with CSE. These more focused hypotheses await future research, for which the present study provides direction.

A third limitation, related to the length of the AIM survey, involves the use of a modified scale to measure CSE. Although the seven items used here yielded a reliable measure of respondents' overall positivity toward their social groups or relationships, further analysis in terms of the conceptual subscales could not be undertaken with this abbreviated measure. Luhtanen and Crocker (1992) have recommended that the CSE subscales be measured and analyzed separately, and we would concur in favoring the use of the original scale whenever possible. Nonetheless, we have presented evidence of the modified scale's internal consistency and convergent and discriminant validity. We also obtained reliable findings with this measure, which were consistent with our theoretical predictions and previous studies of CSE.

Fourth, the size of the present effects, in terms of variance accounted for, is small. This statistic may show only that we have used a nonoptimal research design for the purpose of detecting a hypothetical moderator effect. As demonstrated by McClelland and Judd (1993), moderator effects are often difficult to detect in field research, even with very large samples, owing to the infrequency of naturally occurring extreme cases on the predictor variables. Whereas controlled studies can effectively guarantee large and equal numbers of observations at each extreme corner of a $2 \times 2$ design—thereby maximizing the variance of the interaction term—field studies usually attain small and unequal numbers at these corners. As a result, the reduction in error variance that is associated with significant moderator coefficients in field research is generally much smaller than it would be for the same coefficients in an optimal research design. Even at face value, however, the percentage of explained variance may underestimate the meaningfulness of the present effects. Regarding chronic conditions, the variance in this age group is large: An individual could have from two to six chronic conditions.
conditions and still be within one standard deviation from the population mean. Yet the gain or loss of even one such condition—a small fraction of the normal range of these scores—would have substantial value for the individual, and possibly for society at large, in terms of tangible and intangible costs or benefits. Thus, despite the possibly limited explanatory power of the present constructs, they may still account for a meaningful difference in health.

**Implications**

The main implication of this research is that CSE may compensate to protect the health of older adults whose feelings of personal control over health are low. We hope that this implication will stimulate further research, particularly into the mechanisms of this protective effect. Although our discussion has focused on the role of secondary control, several promising possibilities have emerged. First, CSE may bring about cognitive changes that facilitate accommodating oneself to illness and related experiences of limitation. For example, high CSE is one of a variety of factors that allow individuals to include others in the self when making social comparison judgments, with the result that these individuals assimilate rather than contrast themselves with an upward comparison target (McFarland & Buehler, 1995; Stapel & Koomen, 2001). This outcome has been linked in turn to successful coping with illness in previous research (Heidrich & Ryff, 1993a, 1993b; Taylor & Lobel, 1989).

Second, CSE may serve a compensatory function that is arguably closer to providing primary than secondary control. In this, CSE resembles conceptions of perceived social support as a personality characteristic of the perceiver, rooted in his or her early life experience with attachment figures, and as a coping resource, which may be positively related to perceptions of self-efficacy or collective efficacy (Bandura, 1997; Krause, 1987; Smith et al., 2000; Stroebe, Stroebe, Abakoumkin, & Schut, 1996). The latter relationship may be especially applicable to older adults’ experiences in groups that have formed specifically for the purpose of mutual aid in dealing with age-related challenges. Also, our validation analysis showed that high CSE was associated with a preference for making internal, rather than external, attributions for loneliness. This finding raises the intriguing possibility that CSE contributes positively to primary control in the social domain, which may offset losses in primary control in the health domain.

Third, part of the harm in perceiving that one has lost control over health may stem from the belief that ill health will threaten one’s ability to perform important social roles, and hence one’s social value to others (Krause & Borawski-Clark, 1994; Krause & Shaw, 2000; Thoits, 1991). For example, the lack of perceived control over health could foster disengagement from previously enjoyed activities because the prospect of becoming ill makes one fear being dependable to others with whom one participates. People in this situation might choose to break off such relationships now rather than have them taken away by illness later. People with high CSE, however, may be unlikely to make this choice or may be less hurt by it if they do because they derive their sense of social value from comparatively symbolic identities or roles—such as grandparent, war veteran, or member of an ethnic community—in which their legitimacy comes more from conferred status than continuing performance. Thus, CSE could compensate for lack of perceived control over health, not only by enhancing primary or secondary control, but by uncoupling the threat of social devaluation from that of poor health in individuals with high CSE.

Finally, although our research is at a preliminary stage and the implications we have identified are still largely theoretical, they suggest several lines of further research that may result in practical applications. Professionals and laypeople who directly provide support to older adults may do so more effectively by learning how and when to supply the message that high CSE implicitly conveys: That one is not alone, and no matter what else happens, one will always be a valued member of a personally meaningful and publicly recognized social group.

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Address correspondence to Daniel S. Bailis, Health, Leisure and Human Performance Research Institute, 307 Max Bell Centre, University of Manitoba, Winnipeg, Manitoba R3T 2N2, Canada. E-mail: bailisds@cc.umanitoba.ca

**References**


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Appendix

Notes

1. European and American social psychologists call this part of the self-concept by different names, respectively, social identity and collective identity. Luhtanen and Crocker (1992) have adopted the American terminology; however, it is important to recognize that the construct of CSE has its origin in social identity theory. It is also important to recognize that CSE is an attribute of individuals, not groups. There is no analogy to similarly named constructs such as collective efficacy (Bandura, 1997), which has been assessed in terms of group members’ combined perceptions of their group’s ability to perform a task.

2. One of these strategies, based on making attributions to powerful others, prefigures our interpretation of CSE. Rothbaum and colleagues (1982) described vicarious control as being “similar to the phenomena of identification and deindividuation, in which individuals submerge a sense of self in order to enhance a sense of close association with a more powerful entity” (p. 11). In considering CSE as a source of secondary control, that entity could be the social group. However, our data do not allow us at present to identify a particular secondary control strategy as the mechanism through which CSE might affect perceived control or health among older adults.

3. Although the significant value of chi-square indicates a lack of fit, this statistic is positively influenced by sample size (Schumacker & Lomax, 1996). Luhtanen and Crocker (1992) reported substantially worse fit and comparison indices than we have observed for the single-factor model of CSE. We observed some improvement in fit for a model of CSE consisting of four correlated factors, especially in the $\chi^2/df$ ratio (2.86 vs 11.99) and RMSEA (.04 vs .09). The modified measure thus retained this theoretically specified structure. We adopted the single-factor model for our analysis, nonetheless, because this model was more parsimonious in regard to the present data and because we did not have separate predictions for each theoretical subscale of CSE.