

PREDICTING CHANGES IN OLDER ADULTS' INTERPERSONAL CONTROL STRIVINGS*

DARA H. SORKIN

KAREN S. ROOK

JUTTA HECKHAUSEN

JOHN BILLIMEK

University of California, Irvine

ABSTRACT

People vary in the importance they ascribe to, and efforts they invest in, maintaining positive relationships with others. Research has linked such variation in interpersonal control strivings to the quality of social exchanges experienced, but little work has examined the predictors of interpersonal control strivings. Given the importance of close relationships in later life, this study examined conditions that might precipitate increases or declines in interpersonal control strivings over a 2-year period. Specifically, change in interpersonal control strivings was hypothesized to be particularly influenced by the interplay of two co-occurring conditions: 1) experiences in the social environment that bolster or undermine older adults' motivation to foster satisfying social ties and 2) the availability of personal resources to respond to these experiences. The findings suggest that a change in older adults' interpersonal control strivings over a 2-year period was affected jointly by the frequency with which they experienced positive social exchanges and their health status. Features of the social environment, therefore, may interact with personal resources to influence interpersonal control strivings in later life.

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Numerous studies demonstrate that involvement in satisfying social relationships is associated with enhanced emotional and physical health (e.g., Baumeister & Leary, 1995; House, Landis, & Umberson, 1988; Reis, Collins, & Berscheid, 2000). Theorists have suggested that older adults, as co-producers of their own social environment, actively manage their social relationships to foster positive interactions and reduce negative interactions (Carstensen, Issacowitz, & Charles, 1999; Lang, 2001). Having rewarding social relationships, therefore, is an important goal for many older adults, and evidence suggests that actively investing in this goal is important for well-being in later life (Sorkin & Rook, 2004). Interpersonal control strivings reflect individuals' active engagement in efforts to promote satisfying, conflict-free social relationships and to resolve problems that arise in their relationships. People who exhibit greater interpersonal control strivings are assumed to be engaging in more efforts to maintain harmony in their close relationships (Sorkin & Rook, 2004). However, people may not be able to maintain a consistent level of investment in their personal relationships over time. Thus, the current study examines factors that predict increases or decreases in older adults' interpersonal control strivings.

The Importance of Interpersonal Control Strivings

According to the life-span theory of control, the desire to exert personal control over the environment by producing behavior-event contingencies is widely regarded as a basic human motivation (Heckhausen & Schulz, 1995). People make use of control strategies to achieve behavior-event contingencies that are relevant to valued personal goals (Heckhausen & Schulz, 1995). These control strategies have been found to fuel and regulate efforts to attain important life goals in a variety of domains, including health, finances, personal relationships, and childbearing (e.g., Heckhausen, Wrosch, & Fleeson, 2001; Sorkin & Rook, 2004; Wrosch, Schulz, & Heckhausen, 2002). Additionally, research indicates that investment in the pursuit of valued personal goals, manifest in control strivings, is important for developmental transitions and psychological health (Harlow & Cantor, 1996; Heckhausen et al., 2001; Wrosch et al., 2002).

An important life goal toward which many individuals aspire is to have satisfying interpersonal relationships (Klinger, 1977). Indeed, researchers have suggested that most people are motivated by a fundamental need to form and maintain satisfying social ties (Baumeister & Leary, 1995; Ryan, 1991). Consistent with this idea, evidence suggests that individuals actively strive to manage their social relationships by fostering positive interactions and reducing negative interactions (Carstensen et al., 1999; Lang, 2001). Individuals' investment of effort to maintain harmony in their relationships has been found to be a significant predictor of the quality of interpersonal exchanges in later life (Sorkin & Rook, 2004).

In spite of possible benefits derived from investing in one's close relationships, not all individuals maintain their level of investment over time. Individuals' motivation to pursue important life goals can vary over time. For example, strivings to attain financial goals appear to peak in young and middle adulthood, and then decline in older ages, whereas, health-related goal strivings become more apparent in older ages (Cross & Markus, 1991; Heckhausen, 1997). Empirical evidence suggests that the investment in these goals is dependent on shifting opportunities and constraints for their attainment across the life-span (e.g., Ebner, Freund, & Baltes, 2006). Little research to date, however, has examined shifts in relationship-specific control strivings. The current study accordingly addresses this gap in knowledge by examining the extent to which interpersonal control strivings rise or fall as interpersonal successes versus setbacks are experienced, in concert with good versus poor health (a key personal resource). Factors that predict changes in interpersonal control strivings are important to examine in view of evidence documenting both the significance of satisfying social relationships for health and well-being and the relevance of these strivings to the maintenance of satisfying social relationships (Sorkin & Rook, 2004).

Predictors of Change in Interpersonal Control Strivings

The life-span theory of control describes the circumstances that are likely to bring about a change in an individual's control strivings. When opportunities for attaining one's goals are favorable, control strivings directed toward goal attainment are expected to be both high and adaptive. In such situations, goal engagement should result in successful goal realization. In contrast, when individuals face unfavorable opportunities to attain their personal goals, strivings to attain that goal should be reduced as well (Heckhausen, 1999). Interpersonal control strivings in later life, therefore, should be strongly influenced by actual experiences in the social environment, such as the quality of exchanges with others. The life-span theory of control also emphasizes that goal strivings will be stronger when personal resources are adequate to support goal pursuit. In later life, physical health is likely to be a key personal resource that influences the degree of investment in interpersonal control strivings.

Characteristics of the Social Environment

The extent to which the social environment is a source of rewarding exchanges with others may influence older adults' interpersonal control strivings. Experiencing positive social exchanges, or actions by members of the older adult's social network that encompass the provision of aid, information, affirmation, and companionship (e.g., Bolger & Eckenrode, 1991; House, 1981; Rook, 1998; Vinokur & Van Ryan, 1993), should serve to motivate and reinforce continued efforts to invest in personal relationships (Fischer, 1982). Conversely, people who

experience few positive exchanges with members of their social networks may experience little motivation to invest in such relationships.

Exchanges with social network members, however, are not always positive. Negative social exchanges, such as exchanges marked by critical behavior, unwanted advice, and insensitivity from network members, are distressing and have been shown to have detrimental effects on health and well-being (Finch & Zautra, 1992; Okun, Melichor, & Hill, 1990; Rook, 1990, 1998). Negative exchanges, therefore, may threaten an individual's investment in efforts to maintain satisfying relationships with others and erode interpersonal control strivings (Sorkin & Rook, 2004; Taylor, 1991). On the other hand, motivational theories that focus on goal commitment suggest that experiencing negative social exchanges could also lead to intensified control strivings to mitigate the impact of such exchanges or prevent their recurrence (Aspinwall & Taylor, 1997). Because experiences of positive and negative social exchanges are not strongly intercorrelated (Rook, 1990) and make independent contributions to physical health (Mavandadi, Sorkin, Rook, & Newsom, 2007), the effects of negative social exchanges on interpersonal control strivings should be examined independently of the effects of positive social exchanges. Furthermore, whether people respond by increasing or decreasing their interpersonal control strivings when they experience negative social exchanges may depend upon a key personal resource—their health (Heckhausen & Schulz, 1995).

*Personal Resources: Health Status as a Key Resource
for Interpersonal Control Strivings*

Investing in one's social relationships, and particularly striving to resolve disagreements and restore goodwill in one's social relationships, takes effort. Whether older adults are able to devote such effort to foster positive interactions with others and to resolve disagreements that might arise may depend, in part, on their health status. Physical health is an especially important resource in later life (Benyamini, Idler, Leventhal, & Leventhal, 2000; Mossey, 1995; Wrosch, Heckhausen, & Lachman, 2000). Motivational strivings in later life therefore, are particularly sensitive to health status (Baltes, 1987).

Under conditions of plentiful personal control resources (e.g., good health, low functional limitations), people might respond to a negative social exchange by increasing their interpersonal control strivings. However, social environments marked by high conflict or low support, particularly in conjunction with compromised personal resources, are likely to erode individuals' control strivings. Poor health, therefore, may drain an older adult's resources for investing effort in their interpersonal relationships. We accordingly hypothesized that older adults' health status is likely to interact with the quality of the social exchanges they experience in influencing their interpersonal control strivings. Specifically, we hypothesized that having poor health would make it more difficult to respond

to unfavorable experiences in the social environment (low social support or high conflict), and thus would contribute to a reduction in individuals' control strivings. In contrast, we hypothesized that having good health, in concert with favorable experiences in the social environment (high social support or low conflict), would make it easier to respond, and thus would contribute to an increase in individuals' control strivings.

The Current Study

Accordingly, interpersonal control strivings are posited to increase or decrease as a function of conditions in the social environment in conjunction with individuals' ability to respond to these conditions. Applying these ideas to the interpersonal domain, we hypothesize that interpersonal control strivings will increase over time when experiences in the social environment reinforce older adults' interpersonal control strivings and when older adults enjoy good health that allows them to continue investing in their close relationships. In contrast, we expect interpersonal control strivings to decrease over time when experiences in the social environment threaten older adults' interpersonal control strivings and when older adults have poor health that limits the resources they can invest in improving their close relationships.

METHODS

Sample

Data for this study came from the Later Life Study of Social Exchanges (LLSSE), a 2-year, five-wave, longitudinal survey of older adults. Participants were randomly drawn from a representative sample of non-institutionalized older adults 65 and older living in the coterminous United States. The study population was defined as non-institutionalized, English-speaking, 65 to 90 years of age, and cognitively functional. The sampling frame was obtained from the Medicare Beneficiary Eligibility List of the Centers for Medicare and Medicaid Services (CMS; formerly the Health Care Finance Administration). Among those who were eligible to participate and who could be contacted, 53% were enrolled. The baseline sample consisted of 916 participants (349 men and 567 women). More information about the sample is available elsewhere (Newsom, Rook, Nishishiba, Sorkin, & Mahan, 2005; Sorkin & Rook, 2004).

The average age of the participants was 74 years ($SD = 6.63$ years). Slightly more than half (54%) of the participants reported being married, 34% were widowed, 8% were divorced, and 4% were never married. The sample was primarily Caucasian (83%), although 11% of the participants were African American, 5% were Hispanic, and 1% belonged to another racial minority group (e.g., Asian, Native American). Study participants closely resembled the older (65+) U.S. population based on comparisons with the 2000 census data (U.S. Bureau of the Census: Current Population Survey, 2000).

Procedure

In-person interviews (lasting approximately 70 minutes) were conducted at baseline (W1), 1 year (W3), and 2 years (W5) later.¹ The interviews included sections that assessed:

1. interpersonal control strivings;
2. characteristics of the social environment (e.g., positive and negative social exchanges); and
3. demographic characteristics and health status (e.g., age, gender, marital status, ethnicity, self-rated health, physical disability).

Responses to most questions were assessed with standard Likert-type items. The survey data were collected by Harris Interactive, Inc., a major survey research firm with a long history of experience conducting public opinion polls and social science surveys in the United States, including surveys with older adults. Approximately 70 interviewers, working in locations around the United States, participated in the collection of the data.

Measures

Interpersonal Control Strivings

Six items assessed goal-engagement interpersonal control strivings (see Sorkin & Rook, 2004). Three items assessed control strivings in which behavioral resources are invested in pursuit of an interpersonal goal:

- a) “You put a lot of effort into making your relationships with other people enjoyable;”
- b) “If difficulties develop in one of your relationships, you do whatever you can to improve the situation”; and
- c) “If difficulties develop in one of your relationships, you keep trying to work things out even when it is hard to try to find a solution.”

The other three items in the scale addressed control strivings directed at motivational commitment to an interpersonal goal:

- e) “You often think about how important it is to try to maintain good ties with other people”;
- f) “If difficulties develop in one of your relationships, you remind yourself how important it is to try to find a solution”; and
- g) “If difficulties develop in one of your relationships, you think about how much better you will feel when the problem is resolved.”

Together these control strivings comprise goal-engagement-related control strivings. Participants were asked to rate how well each statement described them, as

¹The W2 and W4 assessments consisted of brief telephone interviews that measured participants’ social exchanges, life stress, physical health, and emotional health; interpersonal control strivings were not assessed in these brief interviews.

they thought about their relationships with other people, such as their spouse (if married), family members, friends, neighbors, in-laws, and others. Ratings were made on a 4-point scale, ranging from 0 (*not at all*) to 3 (*very well*). The measure exhibited strong internal consistency, (Cronbach's alpha = .86; see Sorkin & Rook, 2004, for additional information).

At W3, half of the participants ($N = 364$) were randomly chosen to be administered the module of interpersonal control items, and the remaining half were administered an alternate module of items with a different content that was germane to other aspects of the study. Reliability was good at W3 (Cronbach's alpha at W3 = .87). At W5, participants who remained in the study and who had been administered the W1 and W3 interpersonal control items ($N = 341$) were again administered the interpersonal control items.

Health Status

Two aspects of participants' health status were examined: self-rated health and functional limitations. Self-rated health was assessed at W1 by asking participants to rate their health on a 5-point scale, ranging from 0 (*poor*) to 4 (*excellent*). This single-item measure of self-rated health has been used in previous research as a reliable and valid measure of health, predicting morbidity and mortality better than many objective indicators of health (see Mossey, 1995 for a review). Functional limitations were assessed by asking participants to rate how the level of difficulty involved in completing 15 different instrumental activities of daily living (IADL; Lawton & Brody, 1969) and ADLs (Katz, Ford, & Moskowitz, 1963) on a 4-point scale, ranging from 0 (*not at all difficult*) to 3 (*very difficult*).

Positive and Negative Social Exchanges

We developed a measure of positive and negative social exchanges with network members (adapted from McCallister & Fischer, 1978, see Newsom, Nishishiba, Morgan, & Rook, 2003), which has been used successfully in a number of studies (e.g., Rook, 1984; Sorkin & Rook, 2004; Stephens, Kinney, Ritchie, & Norris, 1987). Twelve items assessed the frequency with which participants had experienced four specific kinds of positive social exchanges in the past month (three items per domain): emotional support, informational support, instrumental support, and companionship. Twelve additional items assessed the frequency with which participants had experienced specific kinds of negative social exchanges in the past month. These 12 items represented four domains of negative social exchanges (three items per domain): others' unsympathetic/insensitive behavior, others' unwanted advice/intrusion, others' failure to provide needed help, and rejection/neglect by others. These correspond to the four domains of positive social exchanges noted above (for more information, see Newsom et al., 2003). Ratings were made on a 5-point scale ranging from 0 (*never*) to 4 (*very often*). The alphas for the overall measures of frequency of

positive social exchanges and of negative social exchanges were high in this sample (W1 Cronbach's $\alpha = .90$ and $.90$ respectively).

Analyses

Hierarchical linear modeling (HLM; Bryk & Raudenbush, 1992) allows researchers to analyze simultaneously both within-person variations (such as change within individuals in their interpersonal control strivings over time) and between-person differences (such as differences between individuals in their health status or social environment). In this framework, individual change in interpersonal control strivings is represented through a 2-level hierarchical model, where Level 1 represents each person's trajectory that depends on a set of parameters (intercept and slope). These individual parameters become the outcome variables in a Level-2 Model, where they may depend on specific person-level characteristics. Each person-level predictor was centered around the sample mean before analysis (cf. Suls, Martin, & David, 1998).

RESULTS

Analyses of Attrition

Of the original sample, 250 participants did not complete the W5 assessment, for reasons that included refusal (57.2%), poor mental or physical health (18.9%), mortality (16.9%), and inability to locate (7.0%). For the analyses of attrition, we compared participants included in the HLM analyses ($n = 336$) to those who were eligible, but were not included in the HLM analyses due to missing both Waves 3 and 5 of the outcome variable ($n = 46$). Analyses examining demographic characteristics indicated that compared to participants missing outcome data for Waves 3 and 5, those who did complete all the assessments were significantly younger ($M_s = 76.26$ vs. 74.00 , respectively, $t(380) = -2.17$, $p < .05$). No significant differences were observed for sex, education, marital status, or ethnicity.² Those who completed all assessments were also in better health ($M_s = 2.25$ vs. 1.83 , respectively, $t(380) = 2.45$, $p < .05$) with less physical disability ($M_s = 0.53$ vs. 0.92 , respectively, $t(380) = -4.26$, $p < .001$) compared to those dropped from the study. The two groups did not differ statistically in either the frequency of their positive or their negative social exchanges at baseline. The differences that emerged are consistent with analyses of prior research on the characteristics of older adults who drop out of longitudinal studies (e.g., Cooney, Schaie, & Willis, 1988). Thus, the findings

²These findings regarding the predictors of attrition from W1 to W5 are consistent with findings reported elsewhere regarding the predictors of attrition from W1 to W3 (Mavandadi, Sorkin, rook, & Newsom, 2007).

reported in this study may not generalize to older adults who are older and in poorer health.

Selection of Covariates

To identify potential covariates for inclusion in the tests of the study hypotheses, analyses were conducted that examined the associations between participants' demographic characteristics (e.g., age, gender, marital status, race/ethnicity) and the outcome variable examined in this study (interpersonal control strivings) at Wave 1. The analyses indicated that only gender (0 = male; 1 = female) was significantly related to baseline interpersonal control strivings ($r^2 = 0.18$, $p < .001$). Therefore, gender was included as a covariate in all hypothesis-testing models.

Descriptive Analyses

Although our ultimate interest was to examine changes in interpersonal control strivings over time, we first conducted univariate analyses. Table 1 presents the descriptive statistics of the study variables. The greater frequency of positive social exchanges relative to negative exchanges is consistent with findings from past research (Rook, 1998). Positive social exchanges were strongly correlated with ratings of interpersonal control strivings at all three waves; however, negative social exchanges were not. Self-rated health also was significantly associated with interpersonal control strivings at all three Waves, and physical disability was inversely associated with control strivings at Waves 1 and 3. The high and consistent means for the measures of interpersonal control strivings over time of, as well as their significant intercorrelations, suggest that generally individuals' remain invested in their close relationships in later life.

Predictors of Changes in Interpersonal Control Strivings

Positive Social Exchanges and Health

The first HLM analysis tested the hypothesis that the frequency with which participants experienced positive social exchanges, together with their health status, would jointly influence their control strivings. Specifically, we examined whether older adults who experienced few positive social exchanges and who were in poor health would be most likely to exhibit a decline over time in interpersonal control strivings, whereas older adults who experienced frequent positive exchanges and who were in good health would report an increase in interpersonal control strivings. At the within-person level of analysis, participants' ratings of their interpersonal control strivings was expressed in the following model:

Table 1. Means, Standard Deviations, Ranges, and Zero-Order Correlations among Study Variables ($n = 304$)

	<i>M</i>	<i>SD</i>	Min	Max	1	2	3	4	5	6	7
1. Positive social exchanges	2.39	0.87	0.00	4.00	—	.10	.02	.10	.20***	.28***	.30***
2. Negative social exchanges	0.45	0.59	0.00	4.00		—	-.05	.23***	-.10	.01	-.09
3. Self-reported health	2.25	1.10	0.00	4.00			—	-.47***	.16**	.22***	.20***
4. Functional limitations	0.53	0.58	0.00	2.80				—	-.20***	-.12*	-.07
5. Interpersonal control strivings (W1)	2.48	0.54	0.00	3.00					—	.49***	.50***
6. Interpersonal control strivings (W3)	2.50	0.53	0.00	3.00						—	.48***
7. Interpersonal control strivings (W5)	2.43	0.56	0.00	3.00							—

Note: *W* = Wave; *SD* = standard deviation.

* $p < .05$; ** $p < .01$; *** $p < .001$.

$$Y_{it} = \pi_{0i} + \pi_{1i}(\text{Time}) + e_{it},$$

where Y_{it} refers to the level of interpersonal control strivings for participant i and time t , π_{0i} represents the expected level of interpersonal control strivings for participant i , and π_{1i} is the expected rate of change per year in interpersonal control strivings for participant i . In addition, e_{it} is the random within-subjects error of prediction for participant i and time t , conditional on that participant's change in parameters π_{0i} and π_{1i} .

In the between-person level of analysis, for any participant i , the within-person coefficient representing the expected level of interpersonal control strivings, π_{0i} , and the coefficient representing expected rate of change per year in interpersonal control strivings are modeled as a function of the participant's health, positive social exchanges, and the interaction of the two variables. This is summarized in the following equations:

$$\begin{aligned} \pi_{0i} = & \beta_{00} + \beta_{01}(\text{Health}) + \beta_{02}(\text{Positive Social Exchanges}) \\ & + \beta_{03}(\text{Health})(\text{Positive Social Exchanges}) + r_{0i} \end{aligned}$$

$$\begin{aligned} \pi_{1i} = & \beta_{10} + \beta_{11}(\text{Health}) + \beta_{12}(\text{Positive Social Exchanges}) \\ & + \beta_{13}(\text{Health})(\text{Positive Social Exchanges}) + r_{1i}, \end{aligned}$$

where β_{00} is the grand mean level of interpersonal control strivings, β_{10} is the grand mean rate of change in interpersonal control strivings, and r_{0i} is the random effect of person i on interpersonal control strivings, and r_{1i} is the random effect of person i on the rate of change in interpersonal control strivings. The remaining β s reflect the amount of change in the predicted parameter for a unit change in the corresponding independent variable.

The results of the first analysis (summarized in Table 2) revealed that neither positive social exchanges nor self-rated health were significantly related to participants' baseline levels of interpersonal control strivings. Participants' positive social exchanges and their health were associated, however, with changes in these control strivings over time, with more frequent positive exchanges and better health associated with increased interpersonal control strivings over time ($p < .01$). Furthermore, as hypothesized, the interaction of health and positive social exchanges was significant ($p < .05$). To illustrate the significant interaction effect, the frequency of positive social exchanges and rating of health were each plotted at two different levels: "low" at the 25th percentile in the sample, and "high" at the 75th percentile (Figure 1). Older adults who experienced less frequent positive social exchanges and poor self-rated health were more likely to exhibit a decline in interpersonal control strivings, whereas older adults who experienced more frequent positive exchanges and better self-rated health were more likely to exhibit an increase in control strivings over the 2-year period.

The effect of the covariate, gender, is not shown in Table 2, but gender was significantly associated with baseline levels of interpersonal control strivings

Table 2. Predictors of Changes in Interpersonal Control Strivings: Positive Social Exchanges and Self-Rated Health ($n = 303$)

Predictor	Coefficient (Standard Error)	T-ratio	p-Value
For Intercept (Baseline):			
Intercept	2.50 (0.03)	91.35	< .001
Self-rated health (SRH)	0.05 (0.07)	0.66	n.s.
Positive social exchanges (PSE)	0.08 (0.07)	1.12	n.s.
Interaction SRH \times PSE	0.01 (0.03)	0.34	n.s.
For Slope (Change over time):			
Intercept	-0.03 (0.03)	-1.18	n.s.
Self-rated health (SRH)	0.10 (0.04)	2.42	< .05
Positive social exchanges (PSE)	0.12 (0.04)	3.09	< .01
Interaction SRH \times PSE	-0.04 (0.02)	-2.53	< .05

Note: Analysis included control (not shown) for the participant's gender. $\chi^2(8) = 20.61, p < .01$.

with women reporting a greater investment in their personal relationship compared to men (Rook & August, 2009). There was no difference between men and women's change in interpersonal control strivings over time.

The next analysis examined older adults' health status as reflected in functional limitations. The results (summarized in Table 3) mirror those obtained for self-rated health except that the main effects of positive exchanges. In this analysis, unlike the preceding analysis, more frequent positive exchange were related to higher interpersonal control strivings at baseline ($p < .001$), but were not related to a change over time in control strivings. Similar to the findings reported above, however, participants' functional limitations were associated with changes in interpersonal control strivings over time, with more functional limitations associated with decreased strivings over time ($p < .05$). Additionally, the hypothesized interaction of positive social exchanges and health status (functional limitations) emerged in predicting changes in control strivings over time ($p < .01$).

As shown in the plot of the significant interaction effect in Figure 2, older adults who experienced less frequent ("low") positive social exchanges and more ("high") functional limitations were more likely to exhibit a decline in interpersonal control strivings, whereas older adults who experienced more frequent ("high") positive exchanges and fewer ("low") functional limitations were more likely to exhibit an increase in control strivings over the 2-year period of the study.

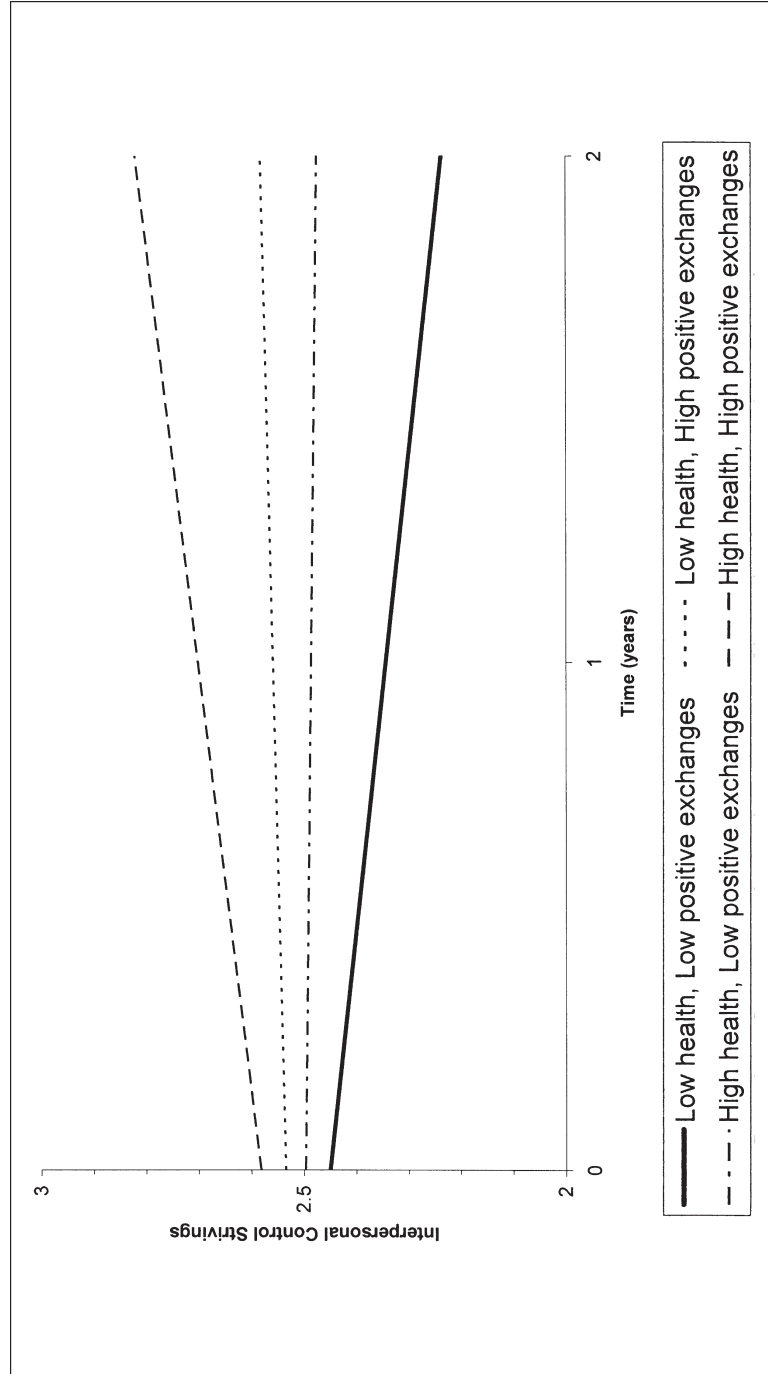


Figure 1. Health status moderates the association between positive social exchanges and change in interpersonal control strivings over a 2-year period.

Table 3. Predictors of Changes in Interpersonal Control Strivings: Positive Social Exchanges and Difficulties Performing Activities of Daily Living ($n = 303$)

Predictor	Coefficient (Standard Error)	T-ratio	p-Value
For Intercept (Baseline):			
Intercept	2.50 (0.03)	91.35	< .001
Functional limitations (ADL)	0.01 (0.15)	0.04	n.s.
Positive social exchanges (PSE)	0.14 (0.04)	3.38	< .001
Interaction ADL \times PSE	-0.07 (0.06)	-1.18	n.s.
For Slope (Change over time):			
Intercept	-0.03 (0.02)	-1.79	n.s.
Functional limitations (ADL)	-0.19 (0.09)	-2.02	< .05
Positive social exchanges (PSE)	-0.01 (0.02)	-0.57	n.s.
Interaction ADL \times PSE	0.10 (0.03)	2.85	< .01

Note: Analysis included control (not shown) for the participant's gender. $\chi^2(8) = 26.07, p < .01$.

Negative Social Exchanges and Health

The next HLM analysis examined whether unfavorable conditions in the social environment, in conjunction with limited personal resources, would predict changes in interpersonal control strivings. Specifically, we first tested the hypothesis that individuals who had experienced more frequent negative social exchanges and who reported poor health would be most likely to exhibit a decline over a 2-year period in interpersonal control strivings, compared to those who experienced less frequent negative social exchanges and reported better health. The HLM analyses described above were repeated, substituting negative social exchanges for positive social exchanges.

The results of this analysis (summarized in Table 4) revealed that the frequency of negative social exchanges was not related either to participants' baseline levels of interpersonal control strivings or to change in their interpersonal control strivings over time.³ Participants' health was associated with baseline levels of interpersonal control strivings, but was not related to a change in these

³In a larger sample examining baseline associations ($n = 916$), W1 negative social exchanges were modestly, but significantly associated with W1 interpersonal control strivings, $r^2 = -.07, p .05$ (see Sorkin & Rook, 2004). Although in the current analyses W1 negative social exchange were not significantly associated W1 interpersonal control strivings, the similarity across analyses in the magnitude of the association, $r^2 = -.10, p = n.s.$, suggests that perhaps the restricted sample size is limiting our ability to detect a significant difference.

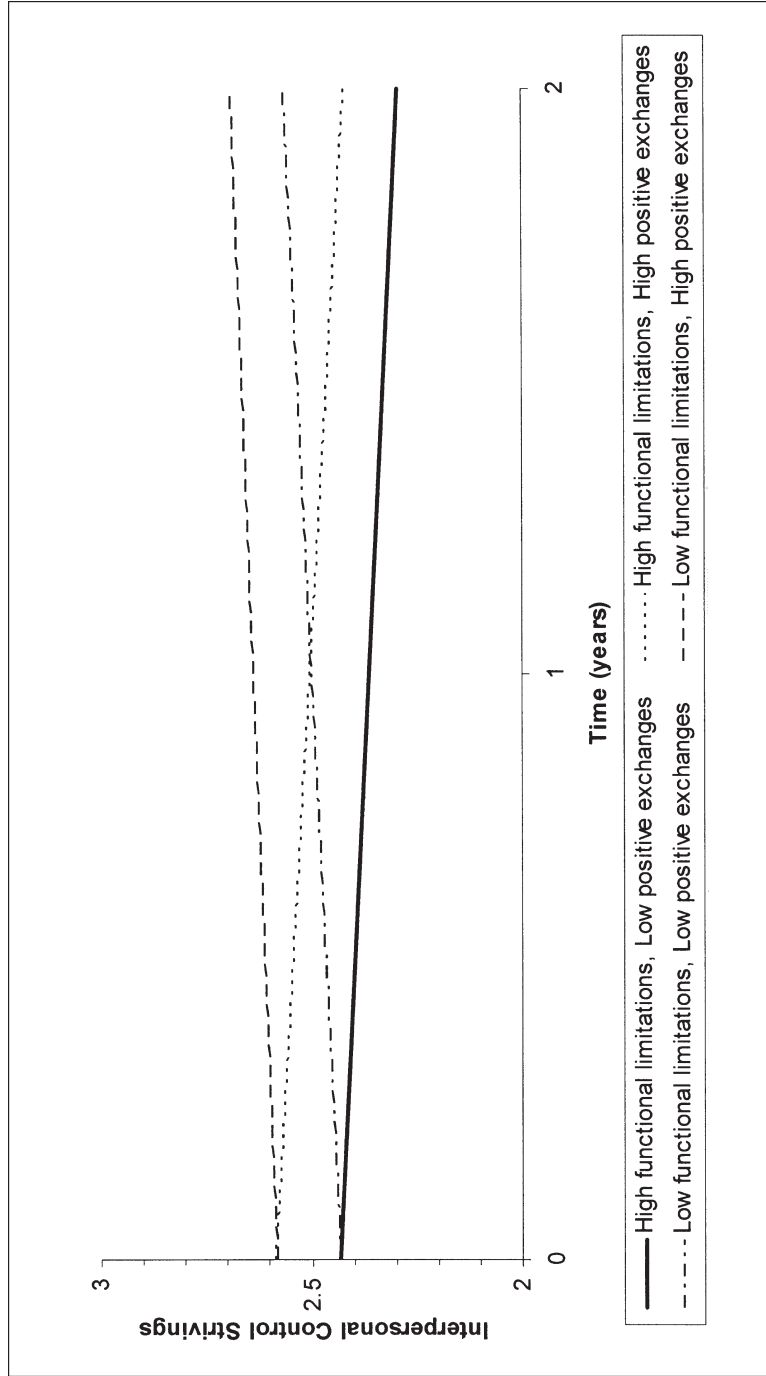


Figure 2. Difficulties performing activities of daily living moderates the association between positive social exchanges and change in interpersonal control strivings over a 2-year period.

Table 4. Predictors of Changes in Interpersonal Control Strivings: Negative Social Exchanges and Self-Rated Health ($n = 301$)

Predictor	Coefficient (Standard Error)	T-ratio	p-Value
For Intercept (Baseline):			
Intercept	2.50 (0.03)	90.12	< .001
Self-rated health (SRH)	0.06 (0.03)	1.87	n.s.
Negative social exchanges (NSE)	-0.11 (0.11)	-1.03	n.s.
Interaction SRH \times PSE	0.02 (0.04)	0.38	n.s.
For Slope (Change over time):			
Intercept	-0.03 (0.02)	-1.64	n.s.
Self-rated health (SRH)	0.01 (0.02)	0.43	n.s.
Negative social exchanges (NSE)	0.02 (0.06)	0.35	n.s.
Interaction SRH \times NSE	-0.01 (0.02)	-0.67	n.s.

Note: Analysis included control (not shown) for the participant's gender. $\chi^2(8) = -6.35, p < n.s.$

strivings over time. Contrary to our hypothesis, the interaction of health and negative social exchanges was not associated with change in interpersonal control strivings over the 2-year study period.

A final HLM analysis was conducted, substituting functional limitations for self-rated health (analyses available upon request). The pattern of findings mirrored those for self-rated health, with the interaction of negative social exchanges and functional limitations not associated with change in interpersonal control strivings over time. Thus, in this study, changes in older adults' interpersonal control strivings were more strongly linked to positive exchanges and health than to negative exchanges and health.

DISCUSSION

People vary in the importance they ascribe to, and efforts they invest in, maintaining positive relationships with others. Research has linked such interpersonal control strivings to the quality of social exchanges experienced (Sorkin & Rook, 2004), but little work has examined the predictors of interpersonal control strivings. The goal of the current study was to investigate hypotheses derived from the life-span theory of control (Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996) regarding factors that predict changes in interpersonal control strivings over time. The findings suggested that both characteristics of the social environment and individuals' personal resources interacted to influence a change in control strivings over a period of 2 years.

Predictors of Change in Interpersonal Control Strivings

We expected that older adults who encountered unfavorable conditions in their social environment in conjunction with low personal resources would exhibit a decline in interpersonal control strivings, whereas those who encountered favorable conditions in their social environment in conjunction with high personal resources would exhibit an increase in their control strivings. Our first analysis examined positive social exchanges, in conjunction with health status, as predictors of changes in interpersonal control strivings. The results of this analysis supported our prediction that experiencing less frequent positive social exchanges, in the context of poorer health, does challenge one's control strivings. Experiencing more frequent positive social exchanges, in the context of better health, appeared to reinforce and motivate older adults' interpersonal control strivings, as reflected in increases over time in the control strivings of these participants. Our second analysis examined changes in interpersonal control strivings as a function of negative social exchanges coupled with limited personal resources (reflected in both low self-rated health and high physical disability). Contrary to expectation, we found that this combination of factors was not associated with changes in interpersonal control strivings over the 2-year period.

These dissimilar findings highlight the distinctive role of positive social exchanges in either eroding or bolstering interpersonal control strivings. Specifically, the findings suggest that older adults' control strivings may be more closely calibrated to their experiences of positive exchanges than to their experiences of negative exchanges. A key question, then, is why positive, but not negative, social exchanges interacted with participants' health status to predict changes in interpersonal control strivings over time. Socioemotional Selectivity Theory (SST; Carstensen, 1992; Carstensen et al., 1999) offers a possible explanation for these findings. According to SST, as people age, they are motivated to shape their social relationships in ways that maximize their emotional well-being. Evidence supporting SST suggests that older adults are particularly invested in social relationships that are emotionally rewarding and, therefore, actively regulate their social ties to spend their time with close, rewarding interaction partners (Carstensen et al., 1999). Their interpersonal control strivings, therefore, may be more likely to be directed toward, and responsive to, positive exchanges with others. Although negative exchanges tax older adults' emotionally, they seem not to influence underlying motivational strivings for pursuing relationship goals more generally.

In a related vein, because positive social exchanges typically occur with much greater frequency than do negative exchanges in many age groups, including older adults (Rook, 1998), people who experience positive exchanges infrequently may begin to experience a withering of their motivation to invest in their personal relationships. As their efforts to cultivate positive interactions with others go

unrewarded, and as their health declines, they may begin to relinquish their interpersonal strivings to some extent (cf. Worsch et al., 2000). Experiencing frequent positive exchanges, in concert with good health, in contrast, appears to reinforce and augment older adults' interpersonal control strivings.

It is also possible that interpersonal control strivings are less closely calibrated to negative than to positive social exchanges because some negative exchanges are chronic in nature, and by later life they may have existed for many years with network members who cannot easily be pruned from the social network (Krause & Rook, 2003; Rook, Sorkin, & Zettel, 2004). If so, then interpersonal control strivings may rise and fall less when chronic negative exchanges recur.

Limitations and Future Directions

Several limitations and remaining issues should be addressed in future research. First, the social environment may shape interpersonal control strivings in ways that go beyond our focus on positive and negative social exchanges. It is important to realize that even with strong interpersonal control strivings, people may not be able to achieve the kinds of positive relationships they desire. It is not only personal and social characteristics of the focal person that will influence individuals' control strivings, but also the responses of the other individuals involved in the focal persons' social environment. For example, if efforts to create satisfying social relationships are frequently rebuked, then motivational strivings are likely to decline in turn. Therefore, an important challenge for future research is to investigate how the actual control potential that exists in the social environment enhances or erodes interpersonal control strivings. Moreover, declining health and changes in the social environment over time are likely to influence this potential, and thus, also may contribute to changes in interpersonal control strivings.

Another challenge for future research is to move beyond the inherent limitations of self-report data. This study relied primarily on participants' self-reports of their interpersonal experiences. Using alternative methodologies, such as behavioral observations or reports of significant others, would help to shed light on the interplay of personal characteristics and the social environment. Observing dyads in interaction may reveal how people's own behaviors shape the social environment in ways that go beyond their self-awareness and, thus, would not be readily detected by self-report methods (cf. Jones & Carver, 1991).

The current study focused on factors that influence older adults' interpersonal control strivings, which reflect individuals' active engagement in efforts to promote satisfying, conflict-free social relationships and to resolve problems that arise in their relationships. According to the life-span theory of control, a different kind of control striving comes into play when goal disengagement becomes adaptive (Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996). Specifically, *compensatory secondary control* refers to the use of internal

resources that afford protection from emotional distress by engaging in self-protective cognitive strategies and by facilitating disengagement from a goal that has proven difficult to attain. Thus, among older adults who do experience a decline in interpersonal control strivings, those who also are able to increase their compensatory secondary control strivings are likely to experience less emotional distress. Analyses of dual shifts in interpersonal control strivings and compensatory secondary control strivings, and the implications of such shifts for older adults' emotional health, were beyond the scope of this article but warrant attention in future research.

Finally, because individuals who were in poorer health were more likely to drop out of the study compared to those in better health, the findings reported in this article may actually underestimate the impact of health in moderating the relationship between characteristics of individuals' social environments and their interpersonal control strivings. Perhaps those with the worst health are most sensitive to their social environments, and thus are more reactive to changing conditions.

CONCLUSION

Most people aspire to having satisfying social relationships, and these relationships are critical to health and well-being across the life-span, including old age. Interpersonal control strivings fuel and regulate efforts to develop and maintain satisfying social relationships. When they encounter challenges or setbacks in their social relationships, people often increase their interpersonal control strivings. However, older adults in poor health appear to lack an important resource needed to pursue their goals in interpersonal relationships. The current study provides a preliminary understanding of what predicts changes in interpersonal control strivings in older adults, and opens up a productive area for future research.

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Direct reprint requests to:

Dara H. Sorkin
Health Policy Research Institute
100 Theory, Suite 110
University of California, Irvine
Irvine, CA 92697-5800
e-mail: dsorkin@uci.edu