Social Regulatory Processes in Later Life: A Web-Based Microlongitudinal Study

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Abstract

The goal for this study was to examine within-person processes driving individual development related to social goals. We examined how social regulatory processes travel together over time to understand if daily social goal progress is sensitive to variation in experiences of support and hindrance, and the extent to which maintenance or achievement goal orientation explains differences in sensitivity to social experiences. A sample of 105 adults over the age of 50 chose an individually meaningful social goal to track over time, which they coded as achievement- or maintenance-oriented. Participants then reported their daily progress, and experiences of support and hindrance toward that goal over a 100-day study period. We found social goal progress to positively covary with support and negatively covary with hindrance. These linkages, which we termed sensitivity, varied significantly across participants. This variation was partially explained by differences in goal orientation. Those with an achievement goal made lower goal progress, and were more sensitive to support and less sensitive to hindrance than those with a maintenance-oriented goal. Our findings partially explain the processes by which older adults work toward their social goals. Daily goal progress is contingent on daily social experiences, but these sensitivities are in part shaped by goal orientation.

*Keywords:* relationship regulation, intraindividual variability, achievement or maintenance goal orientation, hindrance processes, support processes

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As we move through life, and especially in later adulthood, there is awareness that one is at least partially responsible for creating the conditions leading to personal growth and valued outcomes. In developmental systems theory (Ford & Lerner, 1992) this idea is expressed as the view that *individuals are producers of their own development*. Although humans do not have control over all aspects of their lives, one of the most important ways in which individuals feel a sense of efficacy, eudemonic well-being, and flourish (Lachman, Neupert, & Agrigoroaei, 2011) is through setting and working toward goals. It is largely through goal setting and goal striving, that individuals are able to direct their development (Brandtstädter, 2009; Heckhausen, Wrosch, & Schulz, 2010; Hooker & McAdams, 2003; Hooker, 1999). In this study we examine older adults’ progress toward a meaningful social goal in the context of their daily interpersonal experiences over a 100-day time period, and consider the extent to which goal progress and sensitivity to daily social experiences varies across achievement and maintenance-oriented goals.

**Social Goals and Relationship Regulation in Later Life**

People have goals in multiple areas, but one of the most important throughout life is the social domain. Through social goals, individuals regulate their relationships by selecting social partners, striving toward desired interactions, and seeking to manage the tone of their dyadic social exchanges (Lang & Carstensen, 2002; Lang, 2001). By regulating their relationships, individuals work toward maintaining a supportive environment, which is closely tied to health and well-being across the lifespan, especially in older adulthood. Older adults with supportive and satisfying social relationships
maintain more meaning in life (Krause, 2007), demonstrate higher cognitive functioning (Blanchard-Fields, Horhota, & Mienaltowski, 2008), have more positive health behaviors (Umberson & Montez, 2010), and report higher psychological well-being (Walen & Lachman, 2000).

The complexities of social ties in older adulthood also highlight the importance of relationship regulation. Feelings of ambivalence (Connidis & McMullin, 2002; Fingerman, Hay, & Birditt, 2004) and conflicted social experiences, potentially threaten health (Seeman, 2000) and socioemotional well-being (Antonucci, Akiyama, & Lansford, 1998; Rook, 1984). Further, in older adulthood, age-associated losses (Baltes, Lindenberger, & Staudinger, 2006), and a more limited capacity to take on challenges directly (Neupert, Almeida, & Charles, 2007) emphasize the importance of managing social ties to meet changing needs (Charles, 2010; Lang, Reschke, & Neyer, 2006).

Although working toward social goals is a social regulatory process (Lang & Carstensen, 2002; Lang, 2001), little empirical work to date has examined its processes in situ, in the daily lives of older adults. Groundbreaking work on social goals has been conducted over the last two decades through the lens of socioemotional selectivity theory (Carstensen, Isaacowitz, & Charles, 1999). A plethora of studies using laboratory and natural experiments (e.g. Carstensen & Fredrickson, 1998; Fung, Carstensen, & Lutz, 1999) suggest that as future time perspective decreases, older adults begin to prioritize emotional closeness (Lang, Staudinger, & Carstensen, 1998). Social goals have been examined in terms of age-related preferences (Ebner, Freund, & Baltes, 2006), differences in well-being (Lang & Carstensen, 2002), and in the context of responding to stressful interactions (Martini & Busseri, 2010; Sorkin & Rook, 2006), but little is
currently known about the processes by which older adults work toward their social goals on a day-to-day basis, and under what circumstances they are more or less successful. In this study we ask older adults themselves to set a meaningful goal to work on for 100 days, and examine goal pursuit on a within-person level to understand the conditions under which they are more or less successful, and explore the variation of these patterns across individuals.

**Social Goal Orientation**

Because humans have wide potential but are bound to a limited amount of time, goal hierarchies and structures vary depending on the individual’s life period (Ebner et al., 2006; Hooker, 1999). Lifespan theory draws attention to goal orientation - whether a goal is toward achievement or maintenance (Baltes et al., 2006). Achievement goals are directed toward something that has yet to be accomplished, and as such are directed toward growth. A maintenance goal, on the other hand, refers to maintaining a goal that has already been accomplished (Ebner et al., 2006), such as an established level of relationship quality. As individuals age, their goal priorities tend to shift from achievement to maintenance (Baltes et al., 2006; Neugarten, Havighurst, & Tobin, 1968), potentially to reduce socioemotional risk (Carstensen, Isaacowitz, & Charles, 1999).

Consistent with theory, maintenance orientation has been positively related to well-being among older adults (Ebner et al., 2006). Differences in goal types have also been related to differences in older adults’ reactions to social tensions (Martini & Busseri, 2010; Sorkin & Rook, 2006). Goal orientation may therefore predict differences in goal progress and sensitivity to variation in daily social experiences.

**Daily Social Experiences and Goal Progress**
As much as older adults manage their relationships, they do so in concert with
t heir social partners (Fingerman & Charles, 2010). The process of working toward social
goals is firmly embedded within the context of daily social experiences. We propose that
older adults’ progress toward their social goals may hinge on the extent to which they are
sensitive to experiences of social support and hindrance. The positive and negative
effects of support on well-being outcomes in older adulthood are well documented. On
the one hand, perceiving relationships as supportive and less straining is positively
related to health and emotional well-being (e.g. Antonucci et al., 1998; Cobb, 1976;
House, Robbins, & Metzner, 1982; Walen & Lachman, 2000). The findings have been
more mixed in terms of received, or experienced support, which can be helpful, but also
overbearing (Gleason, Iida, Shrout, & Bolger, 2008), unwanted, enabling (Newsom,
1999), and negatively affect well-being (Martire, Schulz, Wrosch, & Newsom, 2003).
Similarly, although those who experience more negative social interactions report lower
emotional well-being, relationships may be close in spite of conflict (Fingerman et al.,
2004), and longitudinal evidence suggests that conflict may even draw social partners
closer (Fung, Yeung, Li, & Lang, 2009).

Social relationships are also known to vary by gender. Men tend to have more
distal connections with their support network, and are less affected by strain but also less
protected by support (Walen & Lachman, 2000). Women tend to have stronger
relationship feelings (Antonucci et al., 1998), and react more intensely to interpersonal
problems (Birditt & Fingerman, 2003). The complexities of social experiences highlight
the importance of understanding how daily variation in social experience may facilitate or
constrain the ability to work toward a meaningful social goal.
Social Goal Support Processes and Social Support Sensitivity

Because the association between daily goal progress and daily experiences of support toward that goal has yet to be examined, we draw on previous work on daily support and daily experiences of well-being (DeLongis, Capreol, Holtzman, O’Brien, & Campbell, 2004) and relationship quality (Rafaeli, Cranford, Green, Shrout, & Bolger, 2008) as starting points. We build on theories of relationship regulation (Lang & Heckhausen, 2006; Lang, 2001) by proposing that individuals work toward meaningful social goals with the support of social partners. Similar to studies of stress reactivity (Bolger & Zuckerman, 1995; Friedman, Karlamangla, Almeida, & Seeman, 2012; Neupert et al., 2007), examining within-person processes allows us to study the link between support and goal progress.

In this study, social support sensitivity refers to the strength of the association between daily support toward a goal and progress toward that goal. We expect daily goal progress to be more tightly coupled with daily social support for some individuals than others. As a result, individuals with high support sensitivity would have difficulty making goal progress in the absence of support, whereas those with low support sensitivity would be largely unaffected by daily fluctuations in support toward that goal.

Social Goal Hindrance Processes and Hindrance Sensitivity

Social partners not only support, but can potentially hinder goal progress (Ruehlman & Wolchik, 1988). Individuals experience social hindrance when a social partner, or the social environment, impedes goal progress (Rafaeli et al., 2008). Hindrance may occur through social tensions, interpersonal criticism, or social obligations that constrain efforts to work toward a goal (Ruehlman & Wolchik, 1988).
Although daily social hindrance has not been studied in relation to daily social goal progress, daily experiences of pain and fatigue have been found to hinder interpersonal goal progress (Affleck et al., 1998). Daily feelings of social hindrance have also been found to be related to negative relationship quality on that day (Rafaeli et al., 2008). In this study, social hindrance sensitivity refers to the strength of association between daily experiences of hindrance and daily goal progress. Based on the literature on hindrance and emotional well-being (Rafaeli et al., 2008; Ruehlman & Wolchik, 1988), we expect hindrance to be negatively related to goal progress. We also expect hindrance sensitivity to vary across individuals.

**Linking Support and Hindrance Processes**

A within-person approach to studying social regulatory processes also allows the examination of how support and hindrance may interact with one another in the same temporal space. Studying within-person processes allows us to examine support and hindrance as one would do so for support and stress reactivity (Bolger & Zuckerman, 1995; Neupert et al., 2007), by testing the extent to which support may dampen the negative effect of hindrance on one’s social goal on that day. Previous research among younger adults did not find support to dampen hindrance (Rafaeli et al., 2008). However, because evidence suggests regulatory processes differ between older and younger adults (Brose, Schmiedek, Lövdén, & Lindenberger, 2011), the interplay between support and hindrance may be evident in an older adult sample.

**The Current Study**

In the current study we apply a within-person perspective to examine how older adults regulate their social goals within the context of daily social experiences. To
understand this process, we aim to: (a) understand the extent to which daily experiences of social support and social hindrance covary with daily goal progress, (b) examine whether the level of sensitivity to social experiences varies across participants, and (c) investigate the extent to which a maintenance or achievement goal orientation predicts higher and lower goal progress, and also explains variation in sensitivity to social experiences. We expect higher support will be positively related to social goal progress and hindrance will be negatively related to goal progress, and that these associations will vary significantly across individuals. Based on previous research demonstrating a preference among older adults for maintenance goals over achievement goals (Bolkan & Hooker, 2012; Ebner et al., 2006; Neugarten et al., 1968), we expect participants with maintenance social goals to report higher daily goal progress. Finally, because goal types have been linked to differences in reaction to interpersonal tensions (Martini & Busseri, 2010; Sorkin & Rook, 2006), we expect social goal progress among those with an achievement goal to be more sensitive to variation in support and hindrance.

**Method**

**Study Design**

We used data from the Personal Understanding of Life and Social Experiences (PULSE) Project (Hooker, 2009), a 100-day microlongitudinal study of self-regulation in the context of daily experiences. The PULSE project was conducted completely via a web-application designed by our research team. The 100-day time frame was chosen to capture processes associated with the pursuit of a newly established goal in the health (Gruber, 2010) and social domains. The PULSE project applied a within-person repeated measures design (e.g., Nesselroade, 1990) to examine the covariation of intraindividual processes in
health and social goals and interindividual differences in those processes (Nesselroade & Ram, 2004). In this study, daily goal progress was measured concurrently with support and hindrance to capture qualities of the immediate social environment and to allow investigation into the daily interplay of these constructs (Ram, Conroy, Hyde, & Molloy, 2012).

Participants

Our sample of 105 older adults (age = 52 – 88, $M = 63.13$, $SD = 7.8$) was recruited from an existing human participant registry. Participants were mostly white (97%), women (88%), and well educated (77% > college degree). In addition, 73% were married or partnered, 47% were retired, and 93% reported their health to be good or excellent. An email describing the internet-based study, which included a link to enroll, was sent to the 450 registry members with an email address. Members were informed that they would receive $10 compensation for completing the initial survey and an additional $50 for completing at least 80% of the daily surveys. One goal of the PULSE project was to explore different temporal frames for data collection. Therefore, 25% of the sample was randomly assigned to a burst measurement group. This group completed four equally spaced 7-day bursts of measurement during the same 100-day time period. There were no significant demographic differences between the burst group who participated for 28 days versus the daily group that participated for 100 days ($T^2 = .05, F(1,2) = .76, ns$).

Procedure

The PULSE project had two distinct components: (a) an initial survey and (b) a series of daily surveys. In the initial survey, participants provided information on demographic and psychosocial variables. Participants were able to save the survey and
return later to complete it. The median summed duration of the initial survey sessions was 51.75 minutes (interquartile range = 33.13). In the daily questionnaires, participants documented their daily goal progress and experiences in their daily life. Participants accessed their surveys by following a link that was embedded in a daily reminder email. Reminders were sent each morning, and included instructions to complete the daily survey that evening. We designed the daily survey to be answered in a brief single session. Answers were not saved until participants pressed submit, and unsubmitted surveys expired at 2:00 am the following day. Analysis of time-stamped data showed that 83% of sessions were completed in the evening, and the median completion time for daily surveys was 3.66 minutes (interquartile range = 5.12).

**Initial Survey Measures**

**Meaningful social goal.** Participants described one meaningful goal, and its importance, in the domain of social relations by responding to the following: “Choose one goal that is important to you in the realm of social relations (family and/or friends) that you expect to be working on over the next 4 months.” Participants were asked to “describe this goal in as much detail as possible” in a text field, and then answered the question “Why is it important to you?” in a second text field. After describing their goals, the participants were asked to provide a few cue words to represent their social goals. These cue words were programmed to automatically populate the participant’s daily survey. Researchers reviewed each social goal, and followed up with participants by email to clarify goals and cue words as needed.

**Goal orientation.** After describing social goals and their importance, participants were asked whether their social goal was achievement or maintenance oriented: “Would
you say that this goal is one of initial achievement (you need to work toward it) or one of continuing achievement or maintenance (you have achieved your goal but want to work to maintain it)?” An illustration of goals, cue words, and goal orientation is displayed in Table 1.

**Daily Measures of Social Regulatory Processes**

Daily measures of social goal progress, support, and hindrance were completed on the daily survey, which began with instructions to respond based on experiences for that day. Daily goal progress, support, and hindrance were measured on scales that ranged from 0 and 100, and participants responded by using their mouse to move a slider across the scale. The numbers on the scale were not visible to participants, but were recorded in the database. Our intention was to encourage assessment of each day independently (Brose & Ram, 2012; Freyd, 1923; Hooker, 1991) and to avoid the potential response bias of repeatedly favoring a specific number.

**Daily social goal progress.** Participants reported their daily social goal progress in the daily survey. The cue words that participants provided in the initial survey populated their daily surveys. An example goal prompt with participant-generated cue words (in italics) follows: “Rate your progress towards your goal of make new friends.” Participants then indicated their progress by moving the slider between no progress (0) and much progress (100).

**Daily social support.** In each daily survey, participants indicated how much assistance they received toward their social goal that day by responding to the following question, which we adapted from Rafaeli and colleagues (2008): “Did you receive any practical or emotional assistance towards your social goal today?” Participants responded
by moving the slider between no support (0) and much support (100).

**Daily social hindrance.** The degree to which daily social experiences hindered daily social goal progress was measured using the social hindrance measure (adapted from Rafaeli et al., 2008). In each session over the 100-day time period, participants reported experiences of hindrance by responding to the question, “Did anyone in your social network create tension, arguments, or time constraints that impeded progress towards your social goal today?” Participants responded by moving a slider between not at all (0) and very much (100).

**Covariates**

Age and gender were included as covariates because of their known relationships to self-regulatory processes (Birditt & Fingerman, 2003; Hennecke & Freund, 2010) and social relationships (Akiyama, Antonucci, Takahashi, & Langfahl, 2003). A dummy variable indicating membership in the burst group was included to control for differences in test exposure (28 days vs. 100 days) on daily goal progress and social regulatory processes.

**Analytic Plan**

We addressed our research questions by analyzing our data with a series of multilevel random coefficient models (Bolger, Davis, & Rafaeli, 2003; Raudenbush & Bryk, 2002), which accommodated nested data and allowed the intercept and slope to vary across participants. To examine within-person social regulatory processes, and between person differences in these processes, we constructed both within-person (level 1) and between-person (level 2) models. Level 1 variables were collected daily, represent within-person processes, and included daily experiences of support and hindrance. These variables were person-centered, and represent the link between the social experience and
goal progress on that day. Level 2 variables were time-invariant and included goal progress, age, gender, group measurement, and the aggregate of support and hindrance across the study. Level 2 variables were grand mean centered, and their coefficients represent between-person differences in the level of goal progress across the 100-day study. Goal orientation was examined in terms of its direct effect on the level of social goal progress, and its interaction with within-person support and hindrance processes. Models were built sequentially, beginning with an unconditional model. The full model was expressed as follows:

\[
SocialGoal_{it} = \beta_{0i} + \beta_{1i} (Day_{it}) + \beta_{2i} (SupportWP_{it}) + \beta_{3i} (HindranceWP_{it}) + \beta_{4i} (SupportWP \times HindranceWP_{it}) + e_{it} 
\]

\[
\beta_{0i} = \gamma_{00} + \gamma_{01} (Age_{i}) + \gamma_{02} (Gender_{i}) + \gamma_{03} (Group_{i}) + \gamma_{04} (SupportBP_{i}) + \gamma_{05} (HindranceBP_{i}) + \gamma_{06} (Goal_{i}) + u_{0i} 
\]

\[
\beta_{1i} = \gamma_{10} + u_{1i} 
\]

\[
\beta_{2i} = \gamma_{20} + \gamma_{21} (SupportBP_{i}) + \gamma_{22} (Goal_{i}) + u_{2i} 
\]

\[
\beta_{3i} = \gamma_{30} + \gamma_{31} (HindranceBP_{i}) + \gamma_{32} (Goal_{i}) + u_{3i} 
\]

In equation (1), social goal progress for person \( i \) at occasion \( t \) is modeled by intercept \( \beta_{0i} \), embedded linear trend \( \beta_{1i} \), and participant’s variation around their average of support (\( \beta_{3i} \)) and hindrance (\( \beta_{4i} \)) and the within-person residual \( e_{it} \). The \( u \) parameters in equations (2) and (3) allowed the intercept and coefficients to vary across individuals. Mean levels of support (\( \gamma_{21} \)), and hindrance (\( \gamma_{31} \)) moderated their respective coefficients. Goal orientation was modeled to predict the level of goal progress (\( \gamma_{06} \)), and between-person variability in support (\( \gamma_{22} \)) and hindrance (\( \gamma_{32} \)) sensitivity.

Data were analyzed using the lme function in the R nlme package (Pinheiro, Bates,
DebRoy, & R Development Core Team, 2012) We assessed our models in terms of improved model fit (Δ -2LL), and proportional reduction in variance

\[ R^2 = \left( \frac{\sigma^2_{wb} + \sigma^2_{wm}}{\sigma^2_{wb}} \right) \] in the random estimates (Hox, 2010; Raudenbush & Bryk, 2002).

Examination of model residuals and the autocorrelation function showed that applying a linear time parameter removed the trend, and that an AR(2) process best absorbed the autocorrelation of within-person residuals. Heteroskedasticity was modeled across gender and age subsets of the sample, and significantly improved model fit ($\chi^2 (3) = 329.729, p < .001$).

**Attrition and Compliance Analysis**

From the original sample of 105 participants who completed the initial survey, five women in the daily group dropped out of the study, and one participant was excluded for completing only 5 observations, leaving a final sample of 99 participants. Those who dropped out were not significantly different from participants in age, education, employment status, marital status, self-reported health, and goal orientation ($t^2 = 0.04$, $F(6, 98) = .58, ns$). The remaining sample completed a combined 7032 observations. The median completion rate was .90 (interquartile range = .2). Correlation analysis of compliance across the study covariates showed higher compliance to be associated with a lower level of hindrance ($r = -.32, p = .001$). We also examined compliance in terms of the time of day that they daily surveys were completed. Correlation analysis of the intraindividual mean time of day showed no significant association with study covariates. Multilevel analysis found that neither the level, nor day-to-day variation in time of day was associated with variation in social goal progress ($BP = -.13, SE = .63, ns$; $WP = -.04, SE = .07, ns$), support ($BP = -.06, SE = .74, ns$; $WP = .02, SE = .08, ns$), or hindrance.
Results

Descriptive analyses of between-person characteristics are presented in Table 2. Table 3 presents intraindividual means, standard deviations, and the correlations of daily measures across achievement and maintenance goal orientations.

Daily Variation in Within-Person Social Regulatory Processes

To begin analysis, each social regulatory process was modeled unconditionally to estimate the proportion of within- and between-person variation for each process. Social goal progress had an intraclass correlation of .50, showing that the distribution of within-and between-person variation was equally distributed. The proportions of the within-person variance for the social regulatory processes (1 – ICC) were 45% and 50% for social support and social hindrance respectively. We then modeled support and hindrance separately against the covariates day, age, gender, measurement group, and mean levels of support and hindrance, so that meaningful cross-level interactions could be indentified and carried forward to the full model. Interaction terms for hindrance WP × BP, and support WP× BP were included in the analysis that follows.

Social support processes. We began with modeling support processes. These results are presented in Model 1 on Table 3. On the between-person level, those who experienced more support also made higher goal progress (estimate = .59, SE = .06, p < .001). On the within-person level, goal progress was sensitive to variation in experiences support, where higher than average support was associated with higher goal progress on that day (estimate = .49, SE = .03, p < .001). The support WP× BP interaction was also significant (estimate = .002, SE = .001, p = .05). Those with a higher
level of support were more sensitive to variation in support. As shown in Figure 1, however, the strength of this association varied greatly across individuals ($\chi^2(3) = 748.16, p < .001$). In this sample, participants varied from the fixed within-person support effect by a standard deviation of .27. Accordingly, 95% of the plausible participant-specific slopes of support sensitivity fell between -.04 and 1.02. Participants varied significantly, in other words, in the extent to which their daily goal progress was sensitive to daily experiences of social support. For some, support and goal progress were tightly coupled, whereas for others, they varied independently.

**Social hindrance processes.** In Model 2, we examined the link between hindrance and goal progress, independent of support. On the between-person level, those who experienced more hindrance on average also reported lower goal progress (estimate = -.25, $SE = .07, p = .002$). In terms of within-person variation, participants tended to make lower goal progress on days when they experienced more hindrance than their average (estimate = -.07, $SE = .002, p < .001$). The level of hindrance across the study period also moderated hindrance sensitivity (estimate = -.003, $SE = .001, p = .01$). Goal progress among those who experienced more hindrance on average was more sensitive to variation in hindrance. Adding hindrance processes to model also rendered the support WP×BP interaction marginally insignificant (estimate = .002, $SE = .001, p = .08$). We also found hindrance sensitivity to vary significantly across participants ($\chi^2(4) = 91.11, p < .001$). In this sample, participants varied from the fixed daily social hindrance effect by a standard deviation of .14. Therefore, a plausible range (95%) of the participant-specific hindrance coefficients fell between -.21 and .34 (see Figure 1). For some participants, hindrance was positively related to goal progress on that day.
Support and Hindrance Processes. Contrary to our expectations, the within-person support × hindrance interaction was not significant (estimate = .000, \( SE = .000 \), \( ns \)). Because adding this parameter did not improve model fit, we removed it before constructing Model 3.

Achievement versus Maintenance Goal Orientation

To address our third aim, we added achievement versus maintenance goal orientation to the model. The results from this analysis are presented in Model 3 on Table 4. Achievement versus maintenance goal orientation predicted between-person differences in goal progress, moderated social regulatory processes, and improved model fit (\( \chi^2(3) = 12.30, p = .01 \)). Participants with an achievement goal reported lower social goal progress in general than those with a maintenance goal (estimate = -9.56, \( SE = 2.70 \), \( p < .001 \)). As shown in Figure 2, participants with an achievement-oriented goal were also more sensitive to daily experiences of support (estimate = .11, \( SE = .06, p = .05 \)) and less sensitive to daily experiences of social hindrance (estimate = .08, \( SE = .04, p = .04 \)) than those with a maintenance-oriented goal. Goal orientation explained 3% of the between-person variation in social support sensitivity and 8% of the variation in social hindrance sensitivity.

Discussion

This study represents an initial step toward understanding how self-regulatory processes in service of a goal in the social domain are linked to goal structures that, over time, can explicate the processes by which people become producers of their own development (Ford & Lerner, 1992; Hooker & McAdams, 2003). We asked older adults to create a meaningful social goal and to report their daily progress and social
experiences over a 100-day time period. Our purpose was to understand how daily social experience and goal orientation facilitate or constrain older adults’ ability to regulate relationships through their social goals. We found daily social goal progress to be coupled with social experiences of support and hindrance. Importantly, these linkages, which we termed sensitivity, varied significantly across individuals, which we explained in part by differences in goal orientation.

Social Regulatory Processes: Support, Hindrance, and Social Goal Progress

In our close examination of social goal progress’ coupling with daily social experiences, we found that indeed, progress toward a social goal is linked to experiences of support and hindrance on that day. Beyond their established link to emotional well-being (DeLongis et al., 2004; Rafaeli et al., 2008), our findings show that support and hindrance are also related to social goal progress, a process by which individuals regulate their relationships (Lang & Carstensen, 2002; Lang & Heckhausen, 2006). To the extent that older adults’ optimize their social environment by working toward a social goal (Rook, Mavandadi, Sorkin, & Zettel, 2007), those who receive less support or are more hindered will have more difficulty doing so, which may over time compromise their well-being. The link between goal progress and emotional well-being was not examined in our study and is an important direction for future research.

We also examined experiences of support and hindrance in the same temporal space, and did not find support on a given day to be associated with dampened hindrance sensitivity on that day. Review of the intraindividual correlations (Table 3) suggests considerable variation in the intraindividual correlation of support and hindrance ($M_{\text{corr}} = -.07, \ SD = .30$). For the majority of individuals, support and hindrance varied
independently. However, for a substantial minority, support and hindrance were negatively coupled (high support was linked to low hindrance), or positively coupled (higher support was linked to high hindrance). Given this variation, it is not surprising to us that a multilevel model approach did identify a significant mean effect, even though it may be present for some.

Variation in Sensitivity to Social Experiences

In this study our analytic lens was focused on within-person social regulatory processes, which emphasized variation in the link between daily social experiences and daily goal progress across individual. Consistent with our expectations, we found both hindrance and support sensitivity to vary considerably across individuals, and this has two implications. First, the need for support or the effect of hindrance cannot necessarily be generalized across persons and contexts. For some individuals, goal progress and support were largely independent, whereas for others, the two were tightly linked. Our results also suggest that under some circumstances, hindrance was related to higher goal progress on that day. Similar to findings of conflict drawing social partners closer (Fung et al., 2009), hindrance may motivate some individuals to address conflict by working toward their social goals. Second, similar to research on variation in self-efficacy (Lang, Featherman, & Nesselroade, 1997), for those with higher sensitivity, variation may be more meaningful than mean levels of support or hindrance. That is, those with higher sensitivity may be less able to maintain steady goal progress in the context of fluctuating experiences of support and hindrance.

Sensitivity to social experiences may be an important construct in the study of optimal aging, via its association with health and well-being outcomes and age-related
change. Our findings warrant further investigation into characteristics of the individual (e.g., personality; network composition), and situation (e.g., newly widowed; relocation) that may explain this variation in sensitivity to social experiences.

In this study, we explained some of this variation with the participant’s goal orientation, and also individuals’ aggregate experiences of support and hindrance. Higher levels of support and hindrance were associated with higher sensitivity to daily social experiences. This finding may highlight adaptation to the social environment. Perhaps those who experience support also depend on it more, or alternatively, those who depend on support construct supportive social ties. The hindrance finding is consistent with literature on stress reactivity (e.g., Friedman et al., 2012), where higher exposure to hindrance equates to higher sensitivity. Longitudinal evidence is necessary to understand the dynamics of how changes in the level relates to changes in sensitivity over extended time periods. Importantly, the aggregate of social experiences should also be studied in concert with personality. Those who experience more hindrance are also higher in neuroticism, and therefore also sensitive to variation in stress and less able to regulate their social goals (Hooker, Choun, Mejía, Pham, & Metoyer, in press).

**Goal Orientation: Selection, Progress, and Sensitivity to Social Experiences**

We also examined differences in social goal progress across goal orientation, and compared older adults working toward achieving something new to those working to maintain an aspect of their social domain. Given previous research (Ebner et al., 2006) and theory (Baltes et al., 2006; Neugarten et al., 1968), we expected older adults to select a maintenance goal in the social domain, in an effort to avoid socioemotional risk by choosing the familiar over the novel (Carstensen et al., 1999). We found, however, the
majority (57%) of participants chose an achievement-oriented goal. Their preferences may reflect their life stage, most of whom had recently retired or were on the verge of retirement, a time when changing social roles may amplify the desire to adjust relationships to meet new needs (Lang et al., 2006). However, goal orientation was neither correlated with age \( (r = -0.01) \) nor retirement status \( (r = -0.05) \). Although socioemotional selectivity theory (SST) has been dominant for the last two decades it is important not to reify it into a monolithic orientation for understanding all aspects of social relationships. Our results are consistent with evidence that adults construct achievement goals across the lifespan (Maehr & Kleiber, 1981), even in the face of age and illness (Cotrell & Hooker, 2005) when change is necessary to support well-being.

Our findings also indicate, consistent with previous research on goal orientation and emotional well-being (Ebner et al., 2006), and SST (Carstensen et al., 1999), that selecting an achievement goal entails the potential for facing greater risk. First is the risk of failure, those who created an achievement-oriented goal made less goal progress over the 100-day time period than those who created a maintenance-oriented goal. Second is the risk of interdependency. Those with an achievement goal were also more sensitive to day-to-day variation in their daily experiences of support. Their progress was contingent on experiencing support on that day. Notably, in this sample, an achievement goal was negatively correlated with the level of support \( (-0.19) \), which suggests that although more sensitive to support, those with an achievement goal experienced less support on average. Contrary to our expectations, we found individuals with an achievement goal to be less sensitive to daily variation in hindrance than those with a maintenance goal. This finding is more difficult to interpret, but perhaps achievement endeavors activate regulatory
processes in ways that facilitate ignoring daily hindrances and staying on task (Hennecke & Freund, 2010).

**Limitations and Directions for Future Research**

In this exploratory study, we found a link between daily social experiences and goal progress, identified variation in these associations, and explained a proportion of this variation with differences in goal orientation. Nevertheless, this study had several limitations. First, working toward social goals is naturally intertwined with the participation of social partners. We acknowledge that social goals may be more sensitive to variation in support and hindrance than other goal domains. To explore this, in post-hoc analysis we coded goals that appeared to specifically require the participation of social partners. Post-hoc analysis of these data suggests that individuals with support-confounded goals (N = 15) made less goal progress (estimate = -10.88, SE = 3.89, \( p = .005 \)), and were more sensitive to variation in hindrance (estimate = .13, SE = .06, \( p = .03 \)).

Second, our sample was a unique, and notably facile with computers. To our knowledge, this study is the first microlongitudinal study conducted with older adults entirely over the internet. Thus, our findings may not generalize to a more representative sample of older adults. Also, people willing to participate in a study with frequent data collection over a 4-month time period may be unique in ways that may present a potential selection effect with respect to working toward goals. Finding such variability, even in a relatively homogenous sample, warrants further investigation into other populations. For example, vulnerable populations may be more interdependent than advantaged populations (Allen, Blieszner, & Roberto, 2011; Stack, 1974). Investigating social
regulatory processes in different populations would help us understand which processes vary as a function of structural characteristics such as socioeconomic status, ethnicity, race, and neighborhood. In addition, although gender was included in our model, there were insufficient men in the sample to make a conclusive statement about the role of gender in moderating social regulatory processes.

It’s also important to note that although multilevel models provide an effective method to examine the nomothetic connection of within-person processes, while concurrently estimating variation from the mean, they are limited in identifying within-person connections that vary extensively across individuals. Future approaches that are truly idiothetic, that identify dynamic relationships within persons that can then be generalized across persons (Elavsky, Molenaar, Gold, Williams, & Aronson, 2012; Nesselroade & Ford, 1985; Zevon & Tellegen, 1982), will be important contributions to this area.

We acknowledge that the act of observing and noting one’s actions can potentially modify outcomes. Although this study showed no significant effect of test exposure (burst vs. daily group) on either goal progress or social regulatory processes, participation in the study likely created a high level of self-observance.

Finally, although social goals are known to be important in older adulthood, and participants chose their own meaningful social goal, we did not collect data that specified where the social goal was situated in the overall goal hierarchy. This information would provide a unique direction for future research in this area, as goal hierarchies differ greatly in number of goals, level of abstractness, and temporal frame (Bolkan & Hooker, 2012).
Conclusion

In empirically linking social experiences to social goal progress, this study moved toward re-conceptualization of social resources of support and hindrance from correlates of emotional well-being to potential drivers of development. Consistent with the literature on social support and well-being (Cobb, 1976; House et al., 1982; Walen & Lachman, 2000), we found that individuals who experienced higher levels of support over the course of the study also made higher goal progress. Similarly, we found that those with higher levels of hindrance, independent of social support, also made lower goal progress. A portion of the individual variation in the extent to which sensitivity was coupled with hindrance or support was explained by whether the person’s social goal was one of maintenance or achievement. This close-in view of individuals’ social strivings gives researchers an additional lens through which to view development, one that focuses on the transactional processes of the person in situ.
References


Psychological Sciences and Social Sciences, 64B, 612–621.
doi:10.1093/geronb/gbp065


Hooker, K., Choun, S., Mejía, S., Pham, T., & Metoyer, R. (in press). A microlongitudinal study of the dynamic linkages among personality traits, self-


Table 1

Examples of PULSE Participants’ Social Goals, Importance Statements, and Cue Words

<table>
<thead>
<tr>
<th>Goal</th>
<th>Importance</th>
<th>Cue Words</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Achievement-Oriented Goals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Become closer to my spouse, and work through awkward moments.</td>
<td>We have grown a bit apart, and I want to be closer</td>
<td>Close to my wife</td>
</tr>
<tr>
<td>Reach out and make more friends</td>
<td>I am too comfortable being alone, and it’s time to make friends</td>
<td>Make new friends</td>
</tr>
<tr>
<td>More fun spontaneous time with my husband</td>
<td>He likes to be social, and now that we’re both retired, we’ve got a lot of time on our hands</td>
<td>Fun times and date night</td>
</tr>
<tr>
<td>Listen more and be nice to people</td>
<td>I am often critical, and I want people in my life</td>
<td>Kind listening</td>
</tr>
<tr>
<td>Become closer to my new daughter in law</td>
<td>She is important to my son, and I want to be in their life</td>
<td>My new daughter</td>
</tr>
<tr>
<td><strong>Maintenance-Oriented Goals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stay connected with distant friends and family</td>
<td>Even though we live far apart, they are important to me</td>
<td>Stay connected</td>
</tr>
<tr>
<td>Be supportive to my family</td>
<td>Family is important, and I want them to know they can count on me</td>
<td>Support family</td>
</tr>
<tr>
<td>Keep up with my active friends</td>
<td>I love running with them, it’s exercise and social</td>
<td>Running buddies</td>
</tr>
<tr>
<td>Keep in touch with my siblings</td>
<td>They are important to me, I do not want to grow apart</td>
<td>Brother and sister</td>
</tr>
<tr>
<td>Be social, but honor my personal limits.</td>
<td>It’s so easy for me to get ahead of myself</td>
<td>Social within boundaries</td>
</tr>
</tbody>
</table>

Note: The above statements are derived from PULSE participants’ goals, and although representative of the dominant themes, these are not direct quotations.
Table 2
Correlation Matrix and Descriptive Statistics of Between-Person Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Goal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Support</td>
<td></td>
<td>.69***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Hindrance</td>
<td>-.20*</td>
<td></td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Achieve Goal</td>
<td>-.37***</td>
<td>-.19*</td>
<td></td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Age</td>
<td>.04</td>
<td>.02</td>
<td>-.01</td>
<td></td>
<td>-.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Gender</td>
<td>-.14</td>
<td>-.17</td>
<td>.05</td>
<td>-.01</td>
<td>.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Group</td>
<td>-.12</td>
<td>-.05</td>
<td>.28***</td>
<td>.09</td>
<td>.17</td>
<td>-.02</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>62.83</td>
<td>49.72</td>
<td>16.18</td>
<td>.57</td>
<td>63.29</td>
<td>.88</td>
<td>.77</td>
</tr>
<tr>
<td>SD</td>
<td>20.11</td>
<td>24.10</td>
<td>16.06</td>
<td></td>
<td>7.54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Gender (1 = Female, 0 = Male), Achieve (1 = Achieve, 0 = Maintain), and Group (1 = Daily, 0 = Burst).

* p < .05, ** p < .01, *** p < .001
Table 3

Descriptive Statistics: Intraindividual Means, Standard Deviations, and Correlations of Time-Variant Parameters

<table>
<thead>
<tr>
<th></th>
<th>Maintenance</th>
<th></th>
<th>Achievement</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Intraindividual means</td>
<td>Goal progress*</td>
<td>71.37</td>
<td>16.65</td>
<td>56.27</td>
<td>20.08</td>
<td>62.83</td>
</tr>
<tr>
<td></td>
<td>Social support*</td>
<td>54.98</td>
<td>25.51</td>
<td>45.68</td>
<td>22.13</td>
<td>49.72</td>
</tr>
<tr>
<td></td>
<td>Social hindrance</td>
<td>14.72</td>
<td>15.62</td>
<td>17.30</td>
<td>16.31</td>
<td>16.18</td>
</tr>
<tr>
<td>Intraindividual SDs</td>
<td>Goal progress</td>
<td>16.42</td>
<td>7.56</td>
<td>19.23</td>
<td>8.18</td>
<td>18.01</td>
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<tr>
<td></td>
<td>Social support</td>
<td>19.75</td>
<td>7.44</td>
<td>19.49</td>
<td>8.49</td>
<td>19.60</td>
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<tr>
<td></td>
<td>Social hindrance</td>
<td>15.00</td>
<td>8.52</td>
<td>13.31</td>
<td>8.65</td>
<td>14.05</td>
</tr>
<tr>
<td>Intraindividual correlations</td>
<td>$r_{goal progress, support}$</td>
<td>.52</td>
<td>.32</td>
<td>.57</td>
<td>.29</td>
<td>.55</td>
</tr>
<tr>
<td></td>
<td>$r_{goal progress, hindrance}$ *</td>
<td>-.23</td>
<td>.20</td>
<td>-.10</td>
<td>.32</td>
<td>-.15</td>
</tr>
<tr>
<td></td>
<td>$r_{support, hindrance}$ *</td>
<td>-.15</td>
<td>.24</td>
<td>-.01</td>
<td>.32</td>
<td>-.07</td>
</tr>
</tbody>
</table>

* Differences revealed between participants with an achievement- and maintenance-oriented goal, $p < .05$. 
Table 4

*Multilevel Random Coefficient Models of Social Regulatory Processes and Between-person Differences Across Goal Orientation.*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (SE)</td>
<td>B (SE)</td>
<td>B (SE)</td>
</tr>
<tr>
<td>Intercept</td>
<td>63.05*** (1.48)</td>
<td>63.06*** (1.43)</td>
<td>64.22*** (1.38)</td>
</tr>
<tr>
<td>Day</td>
<td>.07*** (.01)</td>
<td>.07*** (.01)</td>
<td>.07*** (.01)</td>
</tr>
<tr>
<td>Support WP</td>
<td>.49*** (.03)</td>
<td>.48*** (.03)</td>
<td>.48*** (.03)</td>
</tr>
<tr>
<td>Support BP</td>
<td>.59*** (.06)</td>
<td>.59*** (.05)</td>
<td>.57*** (.05)</td>
</tr>
<tr>
<td>Supp WPxBP</td>
<td>.002* (.001)</td>
<td>.002 (.001)</td>
<td>.002 (.001)</td>
</tr>
<tr>
<td>Hindrance WP</td>
<td>-.07** (.02)</td>
<td>-.06** (.02)</td>
<td>-.06** (.02)</td>
</tr>
<tr>
<td>Hindrance BP</td>
<td>-.25*** (.07)</td>
<td>-.23** (.07)</td>
<td>-.23** (.07)</td>
</tr>
<tr>
<td>Hind WPxBP</td>
<td>-.003* (.001)</td>
<td>-.004** (.001)</td>
<td>-.004** (.001)</td>
</tr>
<tr>
<td>Achieve</td>
<td></td>
<td>-9.56*** (2.69)</td>
<td></td>
</tr>
<tr>
<td>AchieveXSup</td>
<td></td>
<td>.11* (.06)</td>
<td></td>
</tr>
<tr>
<td>AchieveXHin</td>
<td></td>
<td>.08* (.04)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Random Effects (SD)</th>
<th>estimate</th>
<th>95% CI</th>
<th>estimate</th>
<th>95% CI</th>
<th>estimate</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>u</td>
<td>14.45</td>
<td>(12.5, 16.7)</td>
<td>13.90</td>
<td>(11.8, 16.5)</td>
<td>13.08</td>
<td>(11.4, 15.17)</td>
</tr>
<tr>
<td>u Day</td>
<td>.11</td>
<td>(.09, .14)</td>
<td>.11</td>
<td>(.08, .14)</td>
<td>.10</td>
<td>(.09, .13)</td>
</tr>
<tr>
<td>u Support</td>
<td>.27</td>
<td>(.23, .32)</td>
<td>.26</td>
<td>(.22, .31)</td>
<td>.26</td>
<td>(.22, .18)</td>
</tr>
<tr>
<td>u Hindrance</td>
<td>.14</td>
<td>(.11, .19)</td>
<td>.14</td>
<td>(.11, .18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>16.85</td>
<td>(16.4, 17.4)</td>
<td>16.61</td>
<td>(16.1, 17.1)</td>
<td>14.66</td>
<td>(16.1, 17.1)</td>
</tr>
<tr>
<td>e[(f\text{(men)})]</td>
<td>.58</td>
<td>(.55, .61)</td>
<td>.58</td>
<td>(.55, .61)</td>
<td>.58</td>
<td>(.55, .61)</td>
</tr>
<tr>
<td>e[(f\text{(older)})]</td>
<td>.87</td>
<td>(.84, .90)</td>
<td>.87</td>
<td>(.83, .90)</td>
<td>.87</td>
<td>(.83, .90)</td>
</tr>
<tr>
<td>e[(f\text{(oldest)})]</td>
<td>.89</td>
<td>(.85, .94)</td>
<td>.90</td>
<td>(.85, .95)</td>
<td>.90</td>
<td>(.85, .95)</td>
</tr>
<tr>
<td>(\Phi_1)</td>
<td>.21</td>
<td>(.19, .23)</td>
<td>.21</td>
<td>(.19, .23)</td>
<td>.21</td>
<td>(.19, .23)</td>
</tr>
<tr>
<td>(\Phi_2)</td>
<td>.07</td>
<td>(.04, .10)</td>
<td>.07</td>
<td>(.04, .10)</td>
<td>.07</td>
<td>(.04, .10)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model Fit</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(R^2) Within</td>
<td>.45</td>
<td></td>
<td>.46</td>
<td></td>
<td>.46</td>
<td></td>
</tr>
<tr>
<td>(R^2) Between</td>
<td>.46</td>
<td></td>
<td>.50</td>
<td></td>
<td>.56</td>
<td></td>
</tr>
<tr>
<td>(-2\times\text{LL})</td>
<td>57755.52</td>
<td></td>
<td>57563.42</td>
<td></td>
<td>57552.12</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* WP = within-person; BP = between-person. Coefficients are unstandardized. Goal progress, support, and hindrance = 0 to 100. Models include direct fixed effects for gender, age, and group, which were not significant. Variance function: Younger women are the reference group. 52 ≥ old ≤ 60 > older ≤ 70 > oldest.  

* \(p ≤ .05\)  \(** p ≤ .01\)  \(*** p ≤ .001\)
Figure 1. Between-person variability in support and hindrance sensitivity.

Light grey lines represent empirical Bayes predictions of participant-specific regression lines of daily support and hindrance on daily social goal progress. The solid line represents the fixed effect of daily experiences of support and hindrance. Dashed lines represent the lower and upper distributions of support and hindrance reactivity in this sample.
Figure 2. Support and hindrance sensitivity as a function of goal orientation.