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Original Research Report

Positive Expectations Regarding Aging Linked to More New Friends in Later Life

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Abstract

Objectives: Negative perceptions of aging can be self-fulfilling prophecies, predicting worse cognitive and physical outcomes. Although older adults are portrayed as either lonely curmudgeons or perfect grandparents, little research addresses how perceptions of aging relate to social outcomes. We considered whether more positive expectations about aging encourage older adults to maintain or bolster their social network connections and support.
Method: This study examined baseline, 12-, and 24-month questionnaire data from the Baltimore Experience Corps Trial, a longitudinal randomized volunteer intervention for adults aged 60 years and older. The associations between expectations regarding aging and different types of social support were tested using negative binomial and multiple regression models controlling for relevant covariates such as baseline levels of perceived support availability.
Results: Participants with more positive expectations at baseline made more new friends 2 years later and had greater overall perceived support availability 12 months later. Notably, only participants with at least average perceived support availability at baseline showed an association between expectations and later support availability.
Discussion: These results are the first to link overall expectations regarding aging to the social domain and suggest that the influence of perceptions of aging is not limited to physical or cognitive function.

Keywords: Beliefs—Friendship—Social networks—Social psychology of aging—Social support—Stereotypes

In a rapidly aging and mobile world, a growing number of older adults face challenges maintaining social networks as they retire, move to a new residence, or lose a loved one. Ongoing social support continues to be important for personal development, health, and well-being into old age (Blieszner & Roberto, 2004). Informal socializing with friends seems to be especially important for well-being over time in late life and is related to less negative affect than family interactions (Huxhold, Miche, & Schüz, 2014). Besides documenting the benefits of social engagement for older adults, the extant research on friendship in late-life primarily focuses on how older adults "prune" their social networks to focus on close, emotionally meaningful relationships (e.g., Fung, Carstensen, & Lang, 2001). Despite the normative pattern of smaller social networks in later life, there is still considerable variability (e.g., van Tilburg, 1998). Unfortunately, there is a dearth of research identifying key factors that influence whether and how older adults successfully maintain and bolster their social networks.

Beliefs about aging, such as expecting negative life changes like loneliness or disability, may be an important influence on older adults' motivation to pursue new social

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ties. Stereotype embodiment theory posits that when people internalize prevalent negative age stereotypes, this influences how they actually age (Levy, 2009). Previous work has focused on how negative beliefs about aging predict worse mental and physical functioning (e.g., Levy, Slade, & Kasl, 2002; Levy, Zonderman, Slade, & Ferrucci, 2012; Wurm, Tesch-Römer, & Tomasik, 2007), reflecting the corresponding negative content of age stereotypes (e.g., forgetful and feeble). However, positive and negative stereotypes related to older adults' sociability are prevalent too (e.g., the subtype of "curmudgeon" vs. "perfect grandmother"; Hummert, Gartska, Shaner, & Stahm, 1994).

Researchers have only just begun to investigate the relationships between perceptions of aging and the social domain. The English Longitudinal Study of Ageing found participants who most strongly endorsed expectations of loneliness or the lonely age stereotype were more likely to report being lonely within the next 8 years (Pikhartova, Bowling, & Victor, 2015); however, these were all single-item measures. Kornadt, Voss, and Rothermund (2015a) found that age stereotypes about social engagement were associated with older adults' current self-views about their social relationships, but they did not find that older adults' baseline age stereotypes in this domain predicted changes in their corresponding self-views 4 years later. However, older adults' expectations about their own age-related changes in the social domain did predict increases in self-reported social preparation over time, such as endorsing "actively working to maintain my personal relations in old age (e.g., by fostering contacts, being included in social groups, etc.)" (Kornadt, Voss, & Rothermund, 2015b). It remains to be seen how preparation efforts influence social outcomes and whether effects are limited to *social* expectations.

Exposure to age stereotypes appears to both have a matching and generalized effect. Older adults exposed to negative age stereotypes related to mental function performed worse on a subsequent recall task than those exposed to negative age stereotypes related to physical function, but any negative age stereotype exposure was detrimental (Levy & Leifheit-Limson, 2009). Similarly, general positive expectations regarding aging have been linked to greater physical activity and importance of seeking healthcare (Sarkisian, Hays, & Mangione, 2002; Sarkisian, Steers, Hays, & Mangione, 2005); however, effects may be driven by domain-specific items. Meisner, Weir, and Baker (2013) found only expectations about physical activity in older age, not overall aging expectations, correlated with middle age and older adults' level of strenuous activity. Similarly, the relationship between expectations regarding aging and receiving a physical health examination appeared to be driven by mental health expectations; though this was not clearly hypothesized a priori (Meisner & Baker, 2013).

Stereotype embodiment theory argues that people internalize age stereotypes which then operate unconsciously and are reinforced by self-relevance to influence cognitive and physical outcomes through psychological, behavioral, and physiological pathways (Levy, 2009). The existing literature suggests several plausible pathways linking negative beliefs about aging to social behavior, including self-fulfilling prophecies that modify behavior and weaken motivation to socialize; viewing social isolation as due to age rather than as a modifiable behavior; and increased social anxiety disrupting the quality of social interactions.

Expecting that older adults are lonely may act as a self-fulfilling prophecy (as in Pikhartova et al., 2015). For example, expecting to be socially rejected can lead people to act in ways that make rejection more likely, such as acting more hostile (Downey, Freitas, Michaelis, & Khouri, 1998). Kornadt and Rothermund (2012) posit that age stereotypes influence expectations about one's future possible self, which in turn shapes how one ages. If a woman believes that older adults are lonely or unappealing social partners, she might expect to personally become lonely or rejected; this could undermine her motivation to try to make new friends, thinking her efforts would fail.

Viewing problems as immutable because of aging, rather than modifiable through behavior change, can divert attention from the true "source" of the problem. For example, blaming physical problems on "getting old" can distract people from real disease or environmental factors that may be the source of the problem. People were less likely to engage in preventive health behaviors if they had negative self-perceptions of aging and seemingly saw preventive behaviors as futile (Levy & Myers, 2004). Moreover, training older adults to attribute sedentary behavior to modifiable attributes, rather than age, led to increased walking behavior (Sarkisian, Prohaska, Davis, & Weiner, 2007). There may be a parallel behavioral process within the social domain. Attributing being isolated or lonely to being old may prevent an individual from understanding that getting out and meeting new people may prevent or ameliorate isolation.

Levy (2009) also posits that exposure to negative age stereotypes may influence cognitive performance and physical health through physiological arousal. Levy, Hausdorff, Hencke, and Wei (2000) observed heighted cardiovascular response to stress when faced with negative age stereotypes compared to positive ones. If people endorse more negative age stereotypes or expect more negative changes with age, this might also promote greater physiological reactivity during social interactions, especially interacting with new people who you may expect to judge you based on your age. This arousal might distract from a social interaction, and social anxiety could also lead one to act in a less warm and friendly manner (Bögels & Mansell, 2004), making new social interactions less pleasant. Having more negative expectations regarding aging may therefore undermine the quality of novel interactions and motivation to interact with new people in the future. Without new friendship formation or interaction with more peripheral social ties, older adults with negative expectations regarding aging

may not maintain as much social support as they would like over time.

In the current study, we examined how expectations regarding aging relate to new friendship formation and social integration using a prospective design. The Baltimore Experience Corps Trial (BECT) was a longitudinal randomized volunteer intervention for adults aged 60 and older (Fried et al., 2013). Volunteering provides a rich environment for making new friends (e.g., interacting with other volunteers and meeting new people), and the participants' questionnaires covered a variety of topics including expectations about aging, social support, and how many friends they had made since enrolling.

Given the variety of social support measures collected, we had the opportunity to explore whether the effects of expectations regarding aging were consistent for social relationships across different levels of closeness and across different aspects of support. Although new friendships may contribute to a sense of belonging and community, they are often less emotionally intimate than older, more established friendships (e.g., Perkins, Ball, Kemp, & Hollingsworth, 2013). Even if positive expectations about aging facilitate making more new friends as people age, would this also translate to perceptions of greater social support availability, or quantity and quality of received support? Greater perceived available support may be linked to a more positive psychological profile overall, given the proposed common antecedent of having a positive early family environment. In contrast, received or enacted support is often shaped by the person's current situation; for example, someone may receive support because of life stressors (Uchino, 2009). Furthermore, measures of social network quantity and quality are only weakly related to loneliness (Pinquart & Sorensen, 2001); someone can have friends and still not be satisfied with their available social support. In sum, social integration and support are complex constructs, and it is unclear how far any effect of expectations regarding aging would generalize across the social domain.

In the present study, we hypothesized that participants with more positive expectations regarding aging would make more new friends over the course of the study. We also tested whether, in addition to bolstering their social network by making new friends, the participants with more positive expectations also had greater perceived support, greater received support, and greater satisfaction with their current level of support. As the first study to explore the relationship between general perceptions of aging and social outcomes, and among the first to explore expectations about age-related social changes, we did not propose specific a priori hypotheses about how expectations might differentially relate to the diverse outcomes. We further examined whether relationships between expectations and social outcomes were related to expectations about aging more broadly, or whether they were driven primarily by expectations regarding social and emotional changes specifically.

Method

Participants

Baltimore residents aged 60 years and older were recruited and randomly assigned to control or intervention conditions (for additional details about the rationale, design, and methods of the BECT, see Fried et al., 2013). Intervention participants provided academic support to elementary school students for at least one school year as part of the structured Experience Corps® volunteer program; control participants were referred to the area agency on aging for information on usual volunteer opportunities. Participants completed a variety of psychosocial, cognitive, and physical health measures at baseline, 12, and 24 months later. Questionnaires measuring expectations regarding aging were administered to the last 520 of the 702 participants. In the subsample, mean age was 66 years (range 59–85), 93% identified as Black, 85% were female, and mean formal education was 13.79 years—in the full sample, 85% were women, 90.5% were Black, the mean age was 67, and the mean formal education was 13.85 years. After attrition, a subsample of 424 completed both baseline questionnaires assessing aging expectations *and* questions at 24 months about new friendships. The demographic composition of the full sample at baseline and 24 months was virtually identical, and there was no evidence of differential attrition after 2 years by expectations or baseline perceived support availability (ps > .250).

Measures

Expectations Regarding Aging

The 12-item Expectations Regarding Aging Survey (α = .87 at baseline; Sarkisian et al., 2005) is made up of three subscales (physical health, α = .66; mental health, α = .73; and cognitive function expectations, α = .82). Each year, respondents rated statements (e.g., "Having more aches and pains is an accepted part of aging" or "I expect that as I get older I will become more forgetful") from 1 = *definitely true* to 4 = *definitely false*. Higher average scores indicated more positive expectations. The mental health subscale included two items assessing expectations of social withdrawal (e.g., "Being lonely is just something that happens when people get old"). In the analyses, the overall average scale score was the primary predictor and is referred to hereafter as "expectations"—averages were only calculated for participants missing less than one item per subscale. This excluded two participants at baseline and three participants at 12 months.

New Friendship Formation

Participants were asked how many new friends they had met since enrolling in the study, of those how many they considered close ("people that you feel at ease with, can talk to about private matters, and can call on for help"), and how many of these new close friends they saw or

talked to at least once every 2 weeks. Participants who had been involved in any volunteer work since study entry (including Experience Corps®) were also asked how many new friends they had met through such activities, and of those how many they saw or talked to outside of volunteer activities at least once every 2 weeks. Although these count measures were administered at the 12- and 24-month follow-up, we focused on the number of new friends participants reported after 2 years, which should more accurately reflect who participants maintained as actual friends versus passing acquaintances.

Perceived Support

Each year, participants responded to a single item indicating the number of people they felt they could turn to for help (i.e., "…get advice, talk over a problem or get help with an errand"), which was our count measure of *overall perceived support availability*. Participants also indicated the number of close friends they had ("…not relatives… but who you feel at ease with, can talk to about private matters, and can call on for help"), which was our count measure of *perceived friend support availability*.

Enacted Or Received Support

At each time point, an adapted version of the Social Network Index (asking about grandchildren instead of in-laws; Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997) assessed the total number of people the respondent talked to at least once every 2 weeks across social domains (*high-frequency social contacts*), including how many close friends participants talked to at least once every 2 weeks. *Network diversity* was assessed by summing the number of social roles (e.g., neighbor) in which the participant had contact with at least one person once every 2 weeks.

Received support and conflict with close and volunteer friends was assessed through several items. Four *support* items asked how often these friends made the participant feel that they really cared, were willing to listen, provided advice or information, and how often participants could count on these friends. Four *conflict* items asked how often these friends made too many demands, were critical of what the participants did, got on their nerves, or let them down (1 = *never*, 4 = *frequently*). These questions were asked about close friends each year, but volunteer friend items were only administered at 12 and 24 months.

Desire for Additional Support and Loneliness

Desire for additional support was assessed at 12 and 24 months by averaging responses (1 = *never*, 4 = *frequently*) to two items asking how often participants wished they knew more people they could rely on for tangible and emotional support respectively (α = .80). Each year, *loneliness* was assessed by averaging three items reflecting how frequently participants felt they lacked companionship, felt left out, and felt isolated from others from 1 = *hardly ever*, 2 = *some of the time*, and 3 = *often* (α = .73).

Covariates

Age, gender, race/ethnicity, marital status, and years of education were sociodemographic covariates. We also controlled for variables expected to influence social outcomes (e.g., perceived support availability and network size), including whether participants lived alone, subjective social status in society (Adler, Epel, Castellazzo, & Ickovics, 2000), intervention status, depression status (above or below the Geriatric Depression Scale-Short Form cutoff; Marc, Raue, & Bruce, 2008; Sheikh & Yesavage, 1986), self-reported health (1 = *excellent*, 5 = *poor*), and disability or limitation across a variety of social and instrumental daily activities (Late Life Function and Disability Scale, total limitation dimension score; Jette et al., 2002). Furthermore, baseline overall perceived support availability was included in models predicting new friendship formation as a proxy for baseline network size. Analyses using the number of high-frequency social contacts had an identical pattern of significance. In cross-lagged analyses, we controlled for initial measured levels of the outcome variable whenever they were available.

Data Analysis

Primary Analyses

We ran negative binomial regression models (using the GENLIN command in SPSS version 23) for count outcomes and linear regression models for continuous outcomes. Means for all variables are available in Supplementary Table 1. For new friendship formation, we only tested whether baseline expectations predicted number of new friends made 2 years later. For perceived support availability, received support, desire for support, and loneliness, we tested concurrent associations, then 12-month lags (baseline expectations predicting 12-month outcomes, and 12-month expectations predicting 24-month outcomes), and finally the 24-month lag if the more proximal relationship was significant. We winsorized variables with extreme values to 3 *SD*s above the mean, such as number of new friends, perceived support availability, and number of high-frequency social contacts. We recoded between 2 and 16 values depending on the winsorized variable.

When a significant relationship was found, we also checked whether the association between expectations and the outcome was consistent across two sets of participant subgroups: (a) participants with social integration at baseline above or below average levels (dummy coded) and (b) participants in the intervention or the control condition. Perhaps motivation to make new friends only matters when participants have plenty of opportunities for social interaction and to successfully follow through on their social goals.

Although age has been identified as a possible moderator of the relationship between future self-views and preparation in the social domain, this interaction was found in a sample with a wider age range (aged 30–80; Korndadt et al., 2015b) than our sample. We did not expect age moderation

within our more limited age range; indeed, the age by expectation interaction was not significant in predicting new friendship formation, overall perceived support availability at 12 months, nor desire for additional support (*p*s > .10).

Secondary Analyses

For significant relationships, we also confirmed that significant associations were not only due to the mental health items (expectations of social withdrawal) from the expectations scale by testing whether the physical health or cognitive subscales were also associated with the outcome.

Results

New Friendship Formation

We hypothesized that participants with more positive baseline expectations would report significantly more *new friends* 2 years later, and we found this to be the case, $b = 0.33$, $p = .008$ (see Table 1). Among participants who reported making new friends, those with more positive baseline expectations considered more of their new friends "close," $b = 0.26$, $p = .023$, and talked to more close friends at least once every 2 weeks, $b = 0.27$, $p = .011$. Among the participants who did any volunteer work (regardless of their intervention/control group membership), those with more positive baseline expectations reported more new friends from volunteering 2 years later, $b = 0.35$, $p = .012$. Notably, a one point difference in expectations corresponded to making roughly one or more additional friends in general or from volunteering (Figure 1). However, expectations were not related to the number of new friends from volunteering who participants saw or talked to at least once every 2 weeks outside of volunteer time, $b = 0.09$, $p > .250$. Social integration and intervention condition did not influence the association between expectations and number of new friends in any of the new friendship formation models (*p*s > .179).

Perceived Support

We hypothesized that having more positive expectations might also influence perceptions of available support.

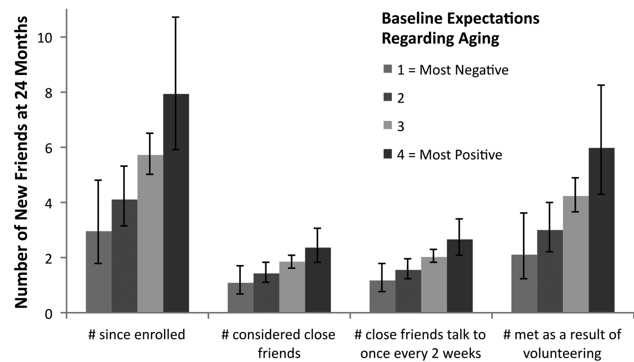

Figure 1. Estimated marginal mean number of new friends at 24 months for different possible levels of baseline expectations regarding aging. The estimated marginal means are from negative binomial models including baseline covariates. Bars represent 95% Wald CIs.

Table 1. Negative Binomial Estimates of the Relationship Between Baseline Expectations Regarding Aging and Number of New Friends at 24 Months Adjusting for Covariates

Predictor	# since enrolled (*N* = 400)	# consider close friends (*N* = 291)	# talk to once every 2 weeks (*N* = 273)	# met from volunteering (*N* = 341)	# talk to once every 2 weeks outside of volunteering (*N* = 277)
Intercept	2.03 (1.19)†	−0.57 (1.18)	0.29 (1.12)	2.45 (1.44)†	2.50 (1.31)†
Baseline expectations	0.33 (0.13)**	0.26 (0.11)*	0.27 (0.11)*	0.35 (0.14)*	0.09 (0.12)
Age	−0.03 (0.01)*	0.00 (0.01)	−0.01 (0.01)	−0.02 (0.02)	−0.03 (0.01)*
Gender (ref. = male)	−0.42 (0.20)*	−0.15 (0.19)	−0.33 (0.17)†	−0.60 (0.24)*	−0.05 (0.22)
Caucasian (ref. = Black)	−0.89 (0.41)*	−0.18 (0.46)	−0.03 (0.45)	−2.37 (0.61)***	−0.86 (0.66)
Other ethnicity (e.g., Hispanic)	0.41 (0.37)	−0.49 (0.37)	−0.17 (0.33)	0.03 (0.43)	−0.10 (0.43)
Live alone (ref. = no)	0.06 (0.16)	0.01 (0.15)	−0.13 (0.14)	0.12 (0.18)	0.12 (0.17)
Divorced (ref. = married)	−0.15 (0.21)	0.04 (0.20)	0.06 (0.18)	−0.17 (0.24)	0.15 (0.23)
Widowed	0.28 (0.22)	0.20 (0.20)	0.26 (0.19)	−0.04 (0.24)	0.21 (0.23)
Never married/separated/other	0.20 (0.24)	0.32 (0.23)	0.32 (0.21)	0.06 (0.28)	0.09 (0.26)
Years of education	0.00 (0.03)	−0.03 (0.03)	−0.06 (0.02)*	−0.05 (0.03)	−0.02 (0.03)
Subjective social status	−0.09 (0.05)†	0.04 (0.05)	0.04 (0.04)	−0.06 (0.06)	0.00 (0.05)
Intervention status (ref. = control)	0.19 (0.14)	−0.05 (0.13)	−0.20 (0.12)	0.37 (0.16)*	0.03 (0.15)
Depression status (ref. = below cutoff)	−0.82 (0.35)*	−0.42 (0.42)	−0.47 (0.45)	−0.91 (0.45)*	−1.30 (0.58)*
Self-reported health	0.01 (0.09)	0.07 (0.09)	0.13 (0.08)	−0.05 (0.10)	0.03 (0.10)
Disability/limitation	0.02 (0.01)*	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)
Baseline perceived support availability	0.02 (0.01)**	0.02 (0.01)**	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)

Notes: Unstandardized betas and *SE*s (in parenthesis) are presented.
**p* < .05. ***p* < .01. ****p* < .001. †*p* < .10.

Indeed, expectations predicted the concurrent number of people participants felt they could turn to for support at baseline, $b = 0.28$, $p < .001$, and 12 months, $b = 0.17$, $p = .008$ (Table 2). Baseline expectations even predicted this overall perceived support availability 12 months later after controlling for baseline availability, $b = 0.17$, $p = .010$ (Table 3). Notably, participants reported fewer people who they felt they could turn to for support at 12 months than at baseline (mean of 7.03 vs. 8.48, respectively); but greater positive expectations were still related to reporting more people they could turn to for support. Overall perceived support availability at 24 months, which had a more restricted range compared to earlier time points, was not related to concurrent or earlier expectations (*p*s > .250; see Tables 2 and 3).

Although expectations predicted overall perceived support availability, expectations did not predict the number of close friends participants felt they could turn to for help. For example, baseline expectations and baseline perceived friend support availability were not significantly related, $b = 0.09$, 95% CI: −0.03, 0.21, $p = .125$, $N = 480$.

Interestingly, for overall perceived support availability at 12 months, there was a significant interaction between having below average baseline perceived support availability and expectations regarding aging, $b = -0.34$, 95% CI: −0.59, −0.09, $p = .007$ (see Figure 2)—given that baseline perceived support availability was dichotomized in this analysis, the living alone dummy code was excluded from these interaction analyses to avoid multicollinearity. For participants who reported at least average perceived support availability at baseline, more positive expectations strongly predicted greater perceived support availability at 12 months, $b = 0.40$, 95% CI: 0.20, 0.61, $p < .001$. By contrast, expectations were not a significant predictor of 12-month support availability for participants with below average perceived support availability at baseline, $b = 0.06$, 95% CI: −0.09, 0.21, $p > .250$. Intervention condition did not moderate the association between baseline expectations and perceived support availability at 12 months, $b = 0.05$, 95% CI: −0.19, 0.29, $p > .250$, $N = 384$.

Enacted or Received Support

If positive expectations provide more motivation to maintain and bolster one's network, this might also translate to reports of greater received support from one's entire social network beyond new friends. Although there was a significant concurrent relationship between expectations and number of high-frequency social contacts at baseline, at 12 and 24 months, the relationships were not significant (see Table 2). In addition, baseline expectations did not predict subsequent number of high-frequency social contacts after controlling for baseline number of high-frequency social contacts (e.g., at 12 months, $b = 0.04$, 95% CI: −0.08, 0.15, $N = 384$). Similarly, there was no relationship between expectations and number of close friends

Table 2. Concurrent Relationships With Expectations Regarding Aging, Adjusting for Covariates

Outcome	Baseline ($N = 480$)	12 months ($N = 469$)	24 months ($N = 484$)
Overall perceived support availability	0.28*** (0.14, 0.41)	0.17** (0.05, 0.30)	−0.04 (−0.15, 0.08)
# high-frequency contacts	0.16** (0.05, 0.27)	0.09 (−0.03, 0.21)	0.01 (−0.10, 0.11)
Network diversity	0.27* (0.06, 0.48)	0.10 (−0.14, 0.34)	0.17 (−0.07, 0.41)

Notes: Covariates included age, gender, ethnicity, whether lived alone, marital status, subjective social status, years of education, intervention status, depression status, self-reported health, and disability/limitation. Unstandardized betas are presented with 95% CIs in parenthesis. Effect sizes for the network diversity models were estimated using R^2 change when expectations were added to the models. The R^2 change for the network diversity models are .01 at baseline, .001 at 12 months, and .003 at 24 months.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 3. Associations for 12-Month Lags Between Expectations Regarding Aging and Social Outcomes, Controlling for Covariates and Available Earlier Levels

Outcome	12 months	24 months
Overall perceived support availability	0.17* (0.04, 0.29) $N = 384$	0.03 (−0.09, 0.14) $N = 438$
Desire for additional support	−0.22** (−0.38, −0.06) $N = 374$	−0.15* (−0.30, −0.01) $N = 421$

Notes: Unstandardized betas and 95% CIs (in parenthesis) are presented. Covariates included age, gender, ethnicity, whether lived alone, marital status, subjective social status, years of education, intervention status, depression status, self-reported health, disability/limitation, and the outcome level from 12 months earlier when available (desire for additional support was not collected at baseline). Effect sizes for the desire for additional support models were estimated using R^2 change when expectations were added to the models: the R^2 change was .02 and .01, respectively.
*$p < .05$. ** $p < .01$.

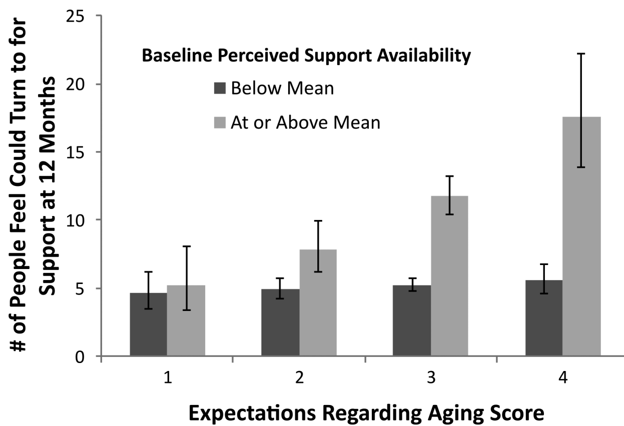

Figure 2. Estimated mean number of people participants feel they can turn to for support at 12 months, dependent on baseline level of perceived support. Results are from negative binomial models including covariates and an interaction between expectations and baseline perceived support availability. Estimated means are presented for an average participant with an expectations score of 1, 2, 3, or 4. Bars represent 95% Wald CIs.

who participants talked to at least once every 2 weeks (*p*s > .091). The concurrent relationship between baseline expectations and network diversity was significant at baseline, but not at 12 or 24 months (Table 2). Expectations did not significantly predict later social network diversity (*p*s > .202). Expectations were also not consistently related to received support or conflict from close friends or volunteer friends (see Supplementary Tables 2 and 3). Thus, contrary to our predictions, expectations were not related to broader measures of quantity of received support (as measured through high-frequency social contacts) nor to the quality of received support.

Desire for Support and Loneliness

If participants with more positive expectations have greater overall perceived support availability but no difference in level or quality of received support, how does this relate to their desire for additional support or their loneliness? Participants with more positive expectations at baseline reported less desire for additional support 12 months later, $b = -0.22$, $p = .009$. The relationship between expectations at 12 months and desire for additional support at 24 months was significant even after controlling for the 12-month desire for additional support, $b = -0.15$, $p = .037$. Although desire for additional support was not measured at baseline, we tested whether expectations at baseline predicted desire for additional support at 24 months, controlling for baseline covariates and 12-month desire for additional support. Expectations were not a significant predictor of desire for additional support 24 months later, $b = -0.07$, 95% CI: −0.22, 0.08. Social integration and intervention condition did not moderate associations between expectations and desire for additional support at baseline or 12 months (*p*s > .250).

Expectations were not consistently related to loneliness. More positive baseline expectations initially correlated with lower self-reported loneliness at baseline, $b = -0.16$, 95% CI: −0.28, −0.03, $p = .018$, $N = 228$. However, baseline expectations did not predict loneliness at 12 months after controlling for baseline loneliness, $b = -0.04$, 95% CI: −0.15, 0.07, $p > .250$. Furthermore, expectations at 12 months did not significantly predict loneliness at 24 months after controlling for 12-month loneliness, $b = 0.07$, 95% CI: −0.01, 0.15, $p = .087$.

Aging Expectations Broadly or Specific to Particular Domains?

We found support for a generalized effect of expectations (see Tables 4 and 5). The relationships between expectations and friendship formation or overall perceived support availability were not restricted to expectations regarding mental health and social withdrawal. For example, baseline cognitive expectations significantly predicted the number of new close friends at 24 months, $b = 0.22$, $p = .012$, even when the mental health subscale was not a significant predictor.

On the other hand, the relationship between expectations and desire for additional support was driven primarily by mental health (e.g., social withdrawal) expectations. The physical health and cognitive health subscales were not significantly related to later desire for additional support (e.g., cognitive expectations at 12 months, $b = -0.11$, $p = .051$; physical health expectations at 12 months, $b = -0.07$, $p > .250$).

Discussion

Supporting our hypotheses, in this large sample of primarily older Black women, participants' baseline expectations regarding aging were significantly associated with making more new friends 2 years later, even after controlling for relevant covariates expected to influence social behavior. This was true across different types of new friendships, including close friends and friends specifically from volunteering, but not high-contact volunteer-related friendships outside of volunteering.

Even after controlling for baseline levels of perceived support and other covariates, more positive baseline expectations were associated with greater overall perceived support availability 12 months later compared to those with more negative expectations. However, this was only the case for participants who had at least average levels of overall perceived support at baseline. This may indicate that some level of relational competence or support availability is necessary in order to capitalize on the additional social motivation and may help explain the limited efficacy of interventions to increase social interaction (Masi, Chen, Hawkley, & Cacioppo, 2011). However, future research will be necessary to clarify the meaning of our single-item measure of overall perceived support availability, which

Table 4. Expectations Regarding Aging Subscale Associations for the Outcomes Significantly Linked to Baseline Overall Expectations

Baseline predictor	# since enrolled (24 months)	# consider close friends (24 months)	# talk to once every 2 weeks (24 months)	# met from volunteering (24 months)	Overall perceived support availability (12 months)	Desire for additional support (12 months)
Overall expectations	0.33 (0.13)**	0.26 (0.11)*	0.27 (0.11)*	0.35 (0.14)*	0.17 (0.06)*	−0.22 (0.08)**
Physical health expectations	0.16 (0.11)	0.19 (0.10)†	0.17 (0.09)†	0.21 (0.21)†	0.13 (0.06)*	−0.15 (0.08)†
Mental health expectations	0.41 (0.11)***	0.12 (0.11)	0.19 (0.10)†	0.34 (0.13)**	0.10 (0.06)†	−0.23 (0.07)**
Cognitive expectations	0.18 (0.10)†	0.22 (0.09)*	0.21 (0.08)*	0.22 (0.11)*	0.13 (0.05)*	−0.11 (0.06)†

Notes: The presented unstandardized betas and *SE*s (in parenthesis) are from models predicting the outcome from the specific listed subscale predictor and the covariates described in text.
$^{*}p < .05$, $^{**}p < .01$. $^{***}p < .001$. $^{\dagger}p < .10$.

Table 5. Expectations Regarding Aging Subscale Associations for Outcomes Significantly Linked to 12-Month Overall Expectations

12-month predictor	Desire for additional support (24 months)
Overall expectations	−0.15 (0.07)*
Physical health expectations	−0.06 (0.06)
Mental health expectations	−0.15 (0.07)*
Cognitive expectations	−0.11 (0.06)†

Notes: The presented unstandardized betas and *SE*s (in parenthesis) are from models predicting the outcome from the specific listed subscale predictor and the covariates described in text.
$^{*}p < .05$. $^{\dagger}p < .10$.

could also be a proxy for individual differences in extraversion or network size preferences. Regarding the latter, some people may prefer to maintain a network with a select, small number of highly reliable people, which over time would be highly stable.

There was no consistent relationship between expectations and number of high-frequency social contacts, number of close friends participants talked to at least once every 2 weeks, network diversity, or received support or conflict. The new friends that participants made and talked to at least once every 2 weeks may have replaced some previously reported friends. Alternately, new friends made over the course of the 2 years may not be considered as close as older friends (e.g., Perkins et al., 2013) and may not be the people that the participants interact with most frequently. Given that expectations were only related to subsequent overall perceived support availability, and not the number of *close friends* who could provide help, more positive expectations may facilitate new friendly acquaintances rather than additional close friends.

There was limited support for the hypothesis that expectations would predict desire for additional support availability. More positive expectations were associated with less desire for additional support 12 months later. Again, positive expectations may promote weak social ties and thereby promote perceptions of having a reasonable number of people available to provide tangible and emotional support. Yet, unlike Pikhartova and colleagues (2015), expectations were *not* consistently associated with loneliness. Our expectations measure assessed varied beliefs about aging and only included one item assessing loneliness specifically. Age-related cognitive and physical changes may elicit social withdrawal from weak ties (avoiding social rejection based on these changes, e.g., Perkins et al., 2013), but not loneliness. Although social isolation can contribute to loneliness, loneliness is a distinct construct (Pinquart & Sorensen, 2001) as the *affective* response to satisfaction with support (e.g., quality or closeness).

Taking the available social support measures together, expectations appear to influence peripheral social ties more than close relationships. Expectations predicted the number of new friends, but not the number of friends from volunteering who participants saw at least once every 2 weeks. Expectations predicted overall perceived support which could include support from less emotionally intimate acquaintances, but not perceived or received support from people they considered to be friends. This may be due to the importance and corresponding greater stability of intimate relationships over time compared to peripheral ties (Kahn & Antonucci, 1980). When older adults lose confidants, they appear to replace them most often with people they have known more than 6 years (Cornwell, Schumm, Laumann, J. Kim, & Y. J. Kim, 2014). Older adults are expected to prioritize social interactions that are pleasant and provide emotional meaning (Fung et al., 2001). Weak ties can be sources of instrumental and emotional support, but they may not be as emotionally satisfying as closer ties. Furthermore, greater negative expectations regarding aging could contribute to social anxiety, which may be more prevalent in interactions with peripheral ties compared to close ties because of more uncertainty in the relationship.

The mental health expectations subscale was not always the source of the significant associations, suggesting that perceptions of aging broadly, not just expectations about loneliness (Pikhartova et al., 2015), have an influence on social outcomes. This is consistent with previous work that found exposure to age stereotypes about a specific functional domain can still influence other age-related functions (Levy & Leifheit-Limson, 2009). Even negative

expectations about cognitive performance or physical function may influence social behavior; for example, having negative expectations about cognitive and physical function could lead someone to feel that they would be an undesirable social partner. We did not directly test domain matching as we did not compare subscale effect sizes across domains. However, the relationship between expectations and desire for additional support was driven primarily by the mental health subscale items. This provides tentative support for predictions that views on aging are sometimes domain specific (Kornadt & Rothermund, 2015); expectations specific to a domain can be the strongest predictor of outcomes in that same domain (Meisner et al., 2013).

This data set did not allow for strong tests of possible mediators and also did not assess any additional information about who these new friends were. Promoting more positive views of aging may also promote greater optimism or positive affect, which could in turn facilitate friendship formation. Future experimental work could help identify the specific mechanisms linking beliefs about aging to social behavior, while also ruling out potential third variables such as individuals with more positive expectations "rounding up" their estimate of new friends. Moreover, the novel observed association between beliefs about aging and social behavior begs for additional research investigating who people are making friends with, and how satisfying or beneficial these new friendships are.

Our findings may not generalize to all older adults. There may have been selection effects; more active adults, eager to enroll in a study about volunteering, may be more likely to make friends. Moreover, this sample was primarily African American and female; it is unclear whether males or other ethnicities would show the same relationships between expectations and social engagement. However, previous research suggests little reason to expect the results not to generalize; there were no ethnic differences in expectations regarding aging after controlling for sociodemographics (Sarkisian, Shunkwiler, Aguilar, & Moore, 2006), and African American older adults show similar cardiovascular reactivity after exposure to negative age stereotypes as Caucasian samples (Levy et al., 2008). Furthermore, older women outnumber older men, and older minority adults are often underrepresented in research samples, so this preliminary evidence is relevant and valuable to an understudied population.

Although previous studies using the Expectations Regarding Aging Survey have used a linear transformation to present the data on a 0–100 scale, we decided to use the raw average of the 1–4 scores for simplicity; the standardized betas and significance level of all results are the same whether one uses raw or transformed scores. We have included additional descriptive information about our sample's transformed expectation scores in the supplemental materials in order to facilitate comparison of our sample to previous studies' average expectations regarding aging.

Few studies have examined friendship initiation in later life, and to our knowledge, none have explored relationship initiation in the context of beliefs about aging. Research on stereotype embodiment has only just begun to explore the social domain; this is the first study to document an association between general beliefs about aging and social engagement. Our findings hint at the possibility that enhancing age-related expectations may facilitate more positive trajectories of social engagement in older adulthood. Social integration and support have a positive impact on health and well-being; therefore, interventions that improve expectations regarding aging and minimize negative age stereotypes may indirectly improve health in later life.

Supplementary Material

Supplementary data is available at *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences* online.

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