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Friends, family, and romantic partners: Three critical relationships in older women's lives

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ABSTRACT

How are different social relationships jointly and uniquely associated with older women's health and well-being, and what is the directionality of these associations? We address these questions using longitudinal data from the Midlife in the United States study. We find that relationship quality with romantic partners, family, and friends is positively linked with better health and well-being concurrently and longitudinally. Cross-lagged analyses indicate that romantic relationships are more predictive of than predicted by health and well-being, family relationships are more predicted by than predictive of health and well-being, and friendships are both predicted by and predictive of health and well-being.

KEYWORDS

Adult development; health and well-being; social relationships

Introduction

Although relationships play a crucial role in human health and well-being across the life span (Holt-Lunstad, 2018; Sun et al., 2019), the types of relationships that are valued and the motives they are governed by vary across individuals and with time. According to Socioemotional Selectivity Theory (SST; Carstensen, 1995), as people develop a sense of the time-limitedness of life in older age, information seeking- and self-concept-related motives that support early adult identity development generally and gradually wane, while desire for close social relationships and positive emotional experiences typically wax (Charles & Carstensen, 2014). Indeed, although the *quantity* of social relationships decreases throughout adulthood (Wrzus et al., 2013), the *quality* of these connections becomes increasingly important in later life (Carmichael et al., 2015; Carstensen, 1995; Charles & Carstensen, 2010). An abundance of evidence also suggests that social relationships may be particularly crucial for women (Reid, 2004; Taylor et al., 2000; Walen & Lachman, 2000). Women often value relationships and see them as central to their identity (Eagly & Wood, 2012), experience high levels of self-disclosure and intimacy in their relationships (Hall, 2011), affiliate with others to cope with stress (Taylor et al., 2000), and report strong links between social support and well-being (Stronge et al., 2019).

Integrating literature on the importance of relationships for women with SST, in the current research we contend that social relationships are likely to be especially significant for *women in older age* (i.e., 60 years of age and older). We seek to expand the understanding of social relationships among older women by examining two key research questions. First, how is the quality of *distinct* relationships (those with family, friends, and romantic partners) related concurrently and longitudinally to older women's functioning—their health (*physical health, mental health, chronic health conditions, acute health symptoms, instrumental activities of daily living*) and psychological well-being (Ryff, 2018: *self-acceptance, autonomy, personal growth, environmental mastery*)? Second, what is the *directionality* of the

associations between relationship quality and women's health and well-being over time? We address these questions using multiwave data from the Midlife in the United States Study (MIDUS).

Friends, family, romantic partners: Three distinct relationships in older women's lives

Relationships with romantic partners, family members, and friends constitute an individual's closest and most stable social relationships (e.g., Antonucci et al., 2014) and accordingly likely entwine with health and well-being (Holt-Lunstad, 2018; Rook & Charles, 2017; Sun et al., 2019). For example, romantically coupled women tend to experience greater well-being and better health outcomes in older age than those who are single, widowed, or divorced (e.g., Diener et al., 2000; Infurna et al., 2017; Lapierre, 2009; Stronge et al., 2019). Moreover, siblings (particularly sisters), children, and even grandchildren are a critical source of both comfort and assistance in older age (Stocker et al., 2020; Voorpostel & van der Lippe, 2007; White, 2001), with the frequency of support predicting better mental health (Werner et al., 2017) and well-being (Hansen et al., 2009) over time. Most older women, including the very old (e.g., age 85 and up), still maintain a small group of close friends with whom they stay in touch (Ertel et al., 2009; Luong et al., 2011; Wrzus et al., 2013). Friendships are also a source of support, and this may be particularly true for those who lack romantic or familial relationships (Bookwala et al., 2014; De Vries et al., 2014).

Despite their overall importance in older age, relationships with romantic partners, family, and friends have largely been evaluated in isolation. This is problematic in that some of these relationships may be more strongly connected to functioning in older age than others, or they may predict different outcomes (e.g., physical health vs. well-being). For example, prior research suggests that social engagement with friends predicts better life satisfaction, whereas engagement with family members does not (Huxhold et al., 2014; also see Chen & Feeley, 2014; Hill et al., 2014). The voluntary nature of friendships may distinguish them from familial relationships, which are more likely to involve a sense of obligation. Correspondingly, in older age, friendships seem to be characterized by a greater exchange of emotional support and affection (e.g., Voorpostel & van der Lippe, 2007; De Vries et al., 2014) and are guided more strongly by norms of reciprocity (Rotkirch et al., 2014) than other relationships. Further, using the first wave of data from MIDUS, Walen and Lachman (2000) found that romantic partner strain was linked to impaired health, but partner support and family support and strain were not. Such studies suggest that each relationship type may contribute to older women's health and well-being in different ways, yet a thorough understanding of how these distinct associations unfold over time is still lacking.

Relationship quality, health, and well-being in older women's lives

Although the simple presence of social relationships may provide benefits in older age, the quality of these relationships really counts. Indeed, positive and negative aspects of relationship quality have been shown to intertwine with older adults' functioning (Pinquart & Sörensen, 2000; Rook & Charles, 2017). For example, in married partnerships, higher relationship quality is associated with functioning across a range of domains including well-being (Rook, 2015), mental health (Stafford et al., 2017), and physical health (Choi et al., 2016; Robles et al., 2014). Similar associations emerge with the quality of family relationships (Djundeva et al., 2015; Ryan & Willits, 2007; Stocker et al., 2020) and close friendships (Antonucci et al., 2001; Bookwala et al., 2014; Hintikka et al., 2000; Moremen, 2008). These positive relationships likely buffer the individual from stress by providing more responsive and effective support, enhancing positive emotion, and promoting health-maintenance behaviors (Cohen & Wills, 1985; Holt-Lunstad, 2018; Rook, 2015). Conversely, negative relationships increase and prolong stress and arousal that can further tax an aging system (Charles, 2010; Rook & Charles, 2017) and impair functioning (Brooks & Dunkel Schetter, 2011; Brooks et al., 2014; Rook, 2015; Sneed & Cohen, 2014).

This research implies that relationship quality plays a causal role in health and well-being. However, the causal relationship may be reversed or bidirectional. Impaired health or well-being may make it difficult to share quality time with friends and family, and to respond to their needs, thereby undermining closeness (Luo et al., 2012). Some research supports this connection. For example, in one study, nursing home residents who were less lucid and had worse speech and vision were less likely to have friends (Retsinas & Garrity, 1985). In another study, participants whose vision further deteriorated after the onset of vision loss kept fewer of their friendships over time compared to those whose health improved after rehabilitation (Reinhardt et al., 2003). Interestingly, in the latter study, ongoing disability was also associated with the expansion of the family network and increased family support. Thus, associations between each type of relationship and aspects of functioning may be distinct and bidirectional; a proposition that we examine in the current research.

The current research

Prior research has established a link between relationship quality and functioning in older women, supporting the contention that family, friends, and romantic partners are all important. To our knowledge, however, a single examination of all three relationships as well as their concurrent, longitudinal, and bidirectional associations with both health and well-being is still missing. Addressing these gaps in one comprehensive study (rather than utilizing a piecemeal approach) will allow for a more precise understanding of the common and unique roles of older women's family, friend, and romantic relationships in their health and well-being while simultaneously addressing the bidirectional connection between these associations over time. The information gleaned from this holistic approach has the potential to assist gerontological care professionals in their efforts to effectively coordinate care for older women and to inform policies and social interventions geared at improving older women's lives.

As such, the first goal of the current research is to examine the common and unique concurrent and longitudinal associations between the quality of older women's relationships with their romantic partner, family, and friends and their own health and well-being. *We hypothesize (Hypothesis 1) that for older women, the quality of all three relationships will be uniquely and positively associated with health and well-being both concurrently and over time.*

The second goal of our research is to explore the directionality of these associations across relationship types and domains of functioning. *We hypothesize (Hypothesis 2) that for older women, the quality of relationships with romantic partners, family, and friends will be predictive of, and predicted by, health and well-being over time.*

To address these hypotheses, we utilized three waves of data spanning an 18-year period from the Midlife in the United States study (MIDUS I, II, III) (Ryff et al., 2017). We assessed both the supportive and straining nature of each of these three types of older women's social relationships and operationalized relationship quality for each as their combination (see Schuster et al., 1990). Using parallel process latent growth curve structural equation models and cross-lagged structural equation models, in a single comprehensive study we were able to consider the quality of these three relationship types simultaneously, as well as their bidirectional associations with health and well-being over time.

Method

Participants

Data come from the Midlife in the United States study (MIDUS I, II, III) (see Ryff et al., 2017 for study details; data are available through ICPSR at <https://www.icpsr.umich.edu/icpsrweb/ICPSR/series/203>). The study reports on three waves of longitudinal data, with each wave separated by an average of nine years (MIDUS I 1995–1996; MIDUS II 2004–2006; MIDUS III 2013–2014). The University of Wisconsin–Madison IRB approved MIDUS data collection. The Brooklyn College IRB approved secondary data analysis (approval number 2017–0892). Of the original sample of 7,108 participants, a subsample of

participants who identified as female and completed at least two assessment waves when they were 60 years of age or older was analyzed ($n= 771$). Participants in the analyzed sample were born between 1920 and 1945. Demographic and summary statistics for the analyzed and original samples are presented in Table 1, and pairwise correlations at each assessment wave between the study variables, age, and household income are presented in Table 2. We handled missing data using full information maximum likelihood estimation in Mplus 7 (Muthén et al., 1987; Muthén & Muthén, 1998–2012).

Measures

Relationship quality

Relationship quality with romantic partner, family, and friends was assessed at all three time points using the relationship support and strain scales (Schuster et al., 1990). Items were answered if participants had someone who filled that role at the time of the assessment. While the romantic partner relationship quality measure contains four additional items, in accordance with previous research (e.g., Walen & Lachman, 2000) and to better enable comparisons, we used the eight items common across relationship partner measures, four reflecting relationship support (e.g., “How much do/does your [relationship partner] really care about you?”) and four reflecting relationship strain

Table 1. Demographic and summary statistics for the original sample and the analyzed sample.

| | Original sample | Analyzed sample— | | Analyzed sample— |
|---------------------------|---|---|--|---|
| | | Wave 1 | Analyzed sample—Wave 2 | Wave 3 |
| Number of observations | 4,656–7,099 | 521–771 | 445–771 | 250–586 |
| Age | 46.38 (13.00) [20, 75] {.28 (.03)} | 60.87 (6.58) [50, 74] {.28 (.09)} | 69.74 (6.42) [60, 84] {.31 (.09)} | 76.82 (5.68) [68, 93] {.65 (.10)} |
| Birth Year | 1948 (13) [1920, 1975] {-.26 (.03)} | 1934 (6) [1920, 1945] {-.28 (.09)} | 1934 (6) [1920, 1945] {-.29 (.09)} | 1936 (6) [1920, 1945] {-.65 (.10)} |
| % Female | 51.70% | 100% | 100% | 100% |
| % White | 89.72% | 92.87% | 92.87% | 93.17% |
| Household income | \$71,701 (61,282) [0, 300,000] {1.56 (.03)} | \$58,918 (58,499) [0, 300,000] {1.90 (.09)} | \$40,179 (42,057) [0, 300,000] {2.49 (.09)} | \$46,068 (47,462) [0, 300,000] {2.09 (.11)} |
| Romantic partner RQ | 3.20 (.55) [1, 4] {-1.15 (.04)} | 3.19 (.59) [1.25, 4] {-.93 (.11)} | 3.26 (.56) [1, 4] {-1.33 (.12)} | 3.26 (.58) [1.13, 4] {-. 1.12 (.15)} |
| Family RQ | 3.16 (.51) [1, 4] {-.89 (.03)} | 3.31 (.43) [1.25, 4] {-.86 (.09)} | 3.22 (.30) [2, 4] {-.87 (.09)} | 3.41 (.47) [1.63, 4] {-. 1.14 (.11)} |
| Friend RQ | 3.15 (.45) [1, 4] {-.43 (.03)} | 3.30 (.42) [1.5, 4] {-.40 (.09)} | 3.36 (.40) [1.63, 4] {-.51 (.09)} | 3.39 (.45) [1, 4] {-.79 (.11)} |
| Physical health | 3.53 (.99) [1, 5] {-.32 (.03)} | 3.50 (.94) [1, 5] {-.13 (.09)} | 3.40 (1.00) [1, 5] {-.38 (.09)} | 3.27 (1.03) [1, 5] {-.27 (.10)} |
| Mental health | 3.77 (.95) [1, 5] {-.32 (.03)} | 3.77 (.91) [1, 5] {-.22 (.09)} | 3.79 (.90) [1, 5] {-.30 (.09)} | 3.54 (.90) [1, 5] {.07 (.10)} |
| Chronic conditions | 17.59 (2.50) [0, 20] {-. 1.72 (.03)} | 17.02 (2.64) [0, 20] {-. 1.57 (.09)} | 16.74 (2.65) [0, 20] {-1.66 (.09)} | 15.88 (3.68) [0, 20] {-. 1.24 (.11)} |
| Acute symptoms | 4.96 (.81) [1, 6] {-1.14 (.03)} | 4.80 (.87) [1, 6] {-.82 (.09)} | 4.40 (.87) [1.43, 6] {-48 (.09)} | 4.41 (.88) [1.5, 6] {-51 (.11)} |
| IADL | 3.43 (.77) [1, 4] {-1.58 (.03)} | 3.17 (.81) [1, 4] {-.96 (.09)} | 2.76 (.95) [1, 4] {-31 (.09)} | 2.50 (.97) [1, 4] {-01 (.11)} |
| PWB Self-Acceptance | 5.53 (1.16) [1, 7] {-.77 (.03)} | 5.59 (1.08) [1.33, 7] {-.62 (.09)} | 5.57 (1.20) [1.33, 7] {-.77 (.09)} | 5.52 (1.20) [1, 7] {-.76 (.11)} |
| PWB autonomy | 5.47 (1.10) [1, 7] {-.64 (.03)} | 5.55 (1.07) [1.67, 7] {-.53 (.09)} | 5.59 (1.01) [2.33, 7] {-.35 (.09)} | 5.48 (.99) [2.33, 7] {-.36 (.11)} |
| PWB Personal growth | 5.96 (1.04) [1, 7] {-1.11 (.03)} | 5.97 (1.04) [1, 7] {-1.14 (.09)} | 5.81 (1.04) [2, 7] {-62 (.09)} | 5.80 (1.03) [2, 7] {-72 (.11)} |
| PWB Environmental mastery | 5.38 (1.15) [1, 7] {-.64 (.03)} | 5.55 (1.09) [1, 7] {-.57 (.09)} | 5.73 (1.03) [1, 7] {-.79 (.09)} | 5.62 (1.06) [1.67, 7] {-.59 (.11)} |

Note. Higher values equal more positive outcomes (e.g., fewer chronic conditions, greater autonomy). Mean (SD) [Min, Max] {Skewness (SE of Skewness) presented for continuous variables, % presented for binary variables. RQ = relationship quality. IADL = instrumental activities of daily living. PWB = psychological well-being.

Table 2. Pairwise correlations at each assessment wave between study variables, age, and household income.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-------------------------------|------|------|------|-------|-------|------|------|-------|------|------|-------|-------|-------|
| Wave 1 | | | | | | | | | | | | | |
| 1. RP RQ | | | | | | | | | | | | | |
| 2. Fam RQ | .33* | | | | | | | | | | | | |
| 3. Friend RQ | .34* | .53* | | | | | | | | | | | |
| 4. Physical health | .16* | .23* | .21* | | | | | | | | | | |
| 5. Mental health | .21* | .21* | .22* | .51* | | | | | | | | | |
| 6. Chronic conditions | .14* | .21* | .18* | .46* | .33* | | | | | | | | |
| 7. Acute symptoms | .21* | .29* | .25* | .38* | .32* | .54* | | | | | | | |
| 8. IADL | .14* | .17* | .15* | .50* | .25* | .40* | .40* | | | | | | |
| 9. PWB Self-acceptance | .28* | .33* | .25* | .24* | .32* | .22* | .26* | .14* | | | | | |
| 10. PWB Autonomy | .05 | .14* | .17* | .16* | .17* | .16* | .15* | .05 | .28* | | | | |
| 11. PWB Personal growth | .14* | .19* | .22* | .23* | .27* | .10* | .18* | .18* | .36* | .26* | | | |
| 12. PWB Environmental mastery | .29* | .32* | .29* | .27* | .32* | .22* | .30* | .19* | .51* | .31* | .34* | | |
| 13. Household income | .04 | .03 | .01 | .25* | .25* | .14* | .06 | .18* | .22* | .04 | .12* | .10* | |
| 14. Age | -.03 | .15* | .07 | -.02 | -.03 | .00 | .15* | -.14* | -.03 | .04 | -.08 | .06 | -.30* |
| Wave 2 | | | | | | | | | | | | | |
| 1. RP RQ | | | | | | | | | | | | | |
| 2. Fam RQ | .33* | | | | | | | | | | | | |
| 3. Friend RQ | .28* | .43* | | | | | | | | | | | |
| 4. Physical health | .16* | .08* | .18* | | | | | | | | | | |
| 5. Mental health | .22* | .14* | .21* | .53* | | | | | | | | | |
| 6. Chronic conditions | .18* | .18* | .23* | .44* | .26* | | | | | | | | |
| 7. Acute symptoms | .18* | .20* | .21* | .38* | .25* | .50* | | | | | | | |
| 8. IADL | .16* | .15* | .18* | .55* | .26* | .48* | .45* | | | | | | |
| 9. PWB Self-acceptance | .41* | .28* | .31* | .22* | .33* | .20* | .24* | .14* | | | | | |
| 10. PWB Autonomy | .20* | .15* | .19* | .17* | .22* | .20* | .21* | .10* | .37* | | | | |
| 11. PWB Personal growth | .16* | .13* | .27* | .29* | .28* | .20* | .21* | .22* | .48* | .34* | | | |
| 12. PWB Environmental mastery | .33* | .22* | .28* | .36* | .43* | .31* | .27* | .32* | .51* | .41* | .46* | | |
| 13. Household income | .06 | -.01 | .02 | .13* | .16* | .08 | -.04 | .11* | .14* | .00 | .13* | .08 | |
| 14. Age | .06 | .17* | -.00 | -.11* | -.09 | -.04 | .07 | -.22* | -.06 | -.03 | -.17* | -.08 | -.23* |
| Wave 3 | | | | | | | | | | | | | |
| 1. RP RQ | | | | | | | | | | | | | |
| 2. Fam RQ | .33* | | | | | | | | | | | | |
| 3. Friend RQ | .35* | .56* | | | | | | | | | | | |
| 4. Physical health | .15* | .13* | .21* | | | | | | | | | | |
| 5. Mental health | .17* | .15* | .15* | .56* | | | | | | | | | |
| 6. Chronic conditions | .24* | .24* | .25* | .45* | .30* | | | | | | | | |
| 7. Acute symptoms | .21* | .24* | .23* | .40* | .29* | .54* | | | | | | | |
| 8. IADL | .15* | .16* | .18* | .58* | .35* | .45* | .41* | | | | | | |
| 9. PWB Self-acceptance | .40* | .42* | .37* | .29* | .25* | .29* | .28* | .23* | | | | | |
| 10. PWB Autonomy | .05 | .06 | .12* | .20* | .15* | .05 | .12* | .09 | .32* | | | | |
| 11. PWB Personal growth | .29* | .25* | .26* | .28* | .27* | .20* | .17* | .27* | .47* | .29* | | | |
| 12. PWB Environmental mastery | .21* | .21* | .24* | .38* | .39* | .30* | .27* | .31* | .49* | .37* | .44* | | |
| 13. Household income | .08 | .03 | .09 | .24* | .23* | .09 | .04 | .22* | .17* | .07 | .18* | .14* | |
| 14. Age | .07 | .15* | -.02 | -.12* | -.17* | -.01 | .06 | -.24* | .01 | -.03 | -.10 | -.11* | -.22* |

Note. RP = romantic partner; RQ = relationship quality; PWB = psychological well-being.

* $p < .01$.

(e.g., “How often do/does your [relationship partner] make too many demands on you?”) for each relationship quality measure.¹ Participants responded to support items using a 4-point scale ranging from 1 (*often*) to 4 (*not at all*) and to strain items using a 4-point scale ranging from 1 (*often*) to 4 (*never*). We reversed support items that we then mean-summed with strain items so that higher values indicate greater relationship quality (romantic partner relationship quality: $\alpha = .88-.89$; family relationship quality: $\alpha = .76-.81$; friendship quality: $\alpha = .74-.78$).

Health

We assessed participants’ health using five distinct measures: overall physical health, overall mental health, number of chronic health conditions, frequency of acute health symptoms, and instrumental activities of daily living.

We assessed *overall physical health* with the single item “In general, would you say your physical health is excellent, very good, good, fair, or poor?” and *overall mental health* with the single item “What about your mental or emotional health? Would you say your mental or emotional health is excellent, very good, good, fair, or poor?” We reversed responses to physical and mental health measures so that higher values indicated better health.

We assessed *number of chronic health conditions* with participants’ report of whether they had experienced or been treated for any of 39 different health conditions in the past 12 months. Only one participant reported greater than 20 chronic conditions at waves 1 and 2, and no participants reported greater than 20 chronic conditions at wave 3. Accordingly, we recoded the raw sum total into values ranging from 0 (*none*) to 20 (*twenty or greater*). To aid interpretation, we reversed scores so that higher values indicated better health (fewer chronic conditions).

We assessed *frequency of acute health symptoms* with participants’ report of how often they had experienced 10 different acute health symptoms during the past 30 days. Participants responded to each condition using a 6-point scale ranging from 1 (*almost every day*) to 6 (*not at all*). We mean-summed responses so that higher values indicated better health (less frequent acute health symptoms) ($\alpha = .68-.72$).

We assessed *instrumental activities of daily living* (IADL) with participants’ response to the 7-item IADL scale (Ware Jr., & Sherbourne, 1992). Participants responded to each item (e.g., “How much does your health limit you in lifting or carrying groceries”) using a 4-point scale ranging from 1 (*a lot*) to 4 (*not at all*). We mean-summed responses so that higher values indicated better health (less difficulty in performing activities of daily life) ($\alpha = .91-.93$).

Well-being

We assessed well-being using participants’ responses to four subscales of the psychological well-being scale (Ryff, 1989): *autonomy* (e.g., “I tend to be influenced by people with strong opinions”), *environmental mastery* (e.g., “In general, I feel I am in charge of the situation in which I live”), *personal growth* (e.g., “For me, life has been a continuous process of learning, changing, and growth”), and *self-acceptance* (e.g., “I like most parts of my personality”). Each subscale contained three items, which participants responded to using a 7-point scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). We reverse-coded positively worded items that we then mean-summed with negatively worded items so that higher values indicated better well-being (*autonomy* $\alpha = .43-.48$; *environmental mastery* $\alpha = .52-.56$; *personal growth* $\alpha = .54-.55$; *self-acceptance* $\alpha = .59-.67$). While the scale alphas are low, they have been previously validated (Lindfors et al., 2006; Ryff & Keyes, 1995) and widely used (for review see Ryff, 2018). We did not include the *positive relations with others* subscale in our analyses because of conceptual overlap with our primary predictors, nor did we include the *purpose in life* subscale because of particularly weak internal consistency ($\alpha = .29-.36$).

Analyses

We conducted two sets of analyses to examine how relationship quality, health, and well-being were associated concurrently and over time and the directionality of these associations. First, we ran two parallel process latent growth curve structural equation models (Muthén, 1997). One model estimated latent growth curves for the three relationship quality measures and each health measure, while the other model estimated latent growth curves for the three relationship quality measures and each well-being measure. Intercepts and slopes were covaried, with the covariances between the intercepts examining concurrent associations, and the covariances between the slopes examining associations in change over time. Figure 1 depicts a general parallel process growth curve model with two variables, which was extended to eight variables in the health parallel process model and seven variables in the well-being parallel process model.

Next, we ran cross-lagged structural equation models to assess the directionality of association (Finkel, 1995). These models examined how one variable predicts another variable at

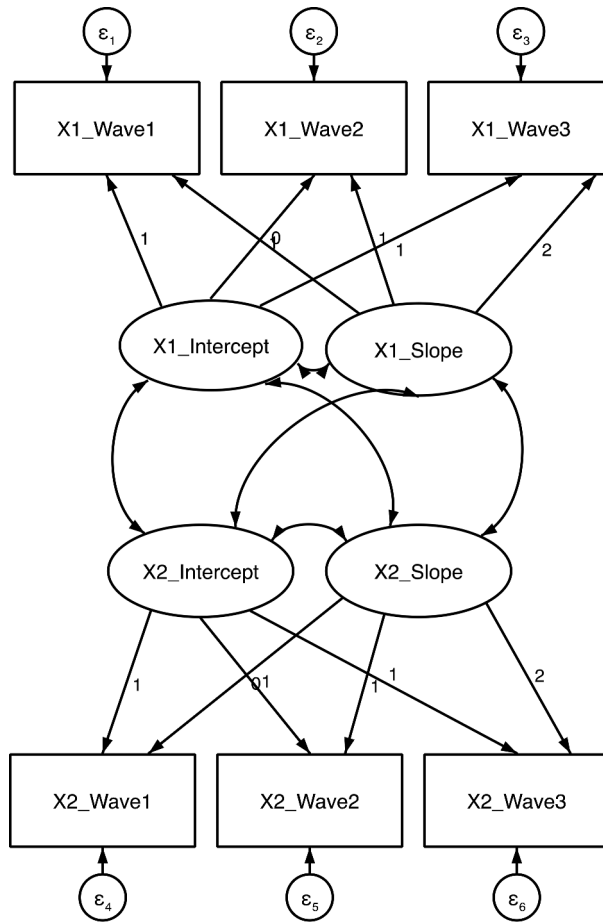


Figure 1. General parallel process latent growth curve structural equation model.

a later time (cross-lagged effects) controlling for the autoregressive effect of the variable. The three relationship quality measures were first assessed independently as predictors and outcomes of each health (physical health, mental health, chronic conditions, acute symptoms, IADL) and well-being measure (self-acceptance, autonomy, personal growth, environmental mastery), resulting in 27 models. Then the three relationship quality measures were simultaneously assessed as predictors and outcomes of each health and well-being measure, resulting in nine additional models. The autoregressive and cross-lagged paths were constrained to be equal across measurement waves in each model. [Figure 2](#) depicts a general cross-lagged model with two variables that was extended to four variables (romantic partner relationship quality, family relationship quality, friend relationship quality, and one health or well-being variable) in the simultaneous predictor analyses.

We used an adjusted significance level of $p < .01$ in all analyses because each relationship and outcome combination contained up to five comparisons (Bonferroni adjustment $.05/5$). For example, analyses examining bidirectional relationships between romantic relationship quality and health outcomes contained separate models for each of the five health outcomes. This adjustment reduces Type I error rate compared to the standard $.05$ significance level, while avoiding unnecessary Type II error rate inflation that would have arisen from a more conservative significance level adjustment (Cabin & Mitchell, 2000; Perneger, 1998).

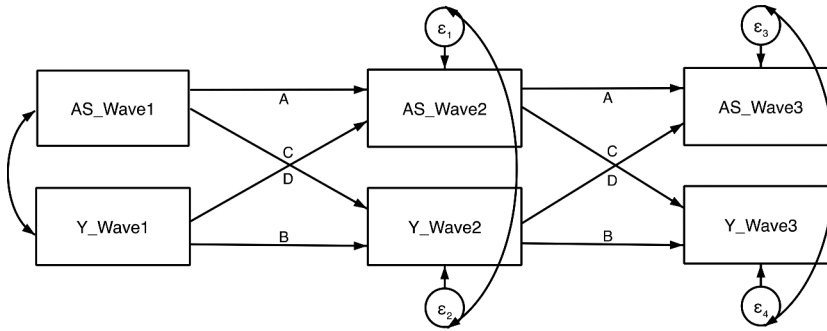


Figure 2. General cross-lagged structural equation model.

Results

Parallel process latent growth curve models

We ran one parallel process latent growth curve model that included each relationship quality measure (romantic partner, family, and friend) and each health measure (physical health, mental health, chronic conditions, acute symptoms, IADL) (Table 3). We ran another parallel process latent growth curve model that included each relationship quality measure and each well-being measure (self-acceptance, autonomy, personal growth, environmental mastery) (Table 4). We used a significance level of $p < .01$ in each model. The results suggest that family and friendship relationship quality significantly increased over time, while romantic partner relationship quality remained relatively stable. Of particular importance to the study hypotheses are the intercept by intercept covariances that show concurrent associations and slope by slope covariances that show how change in one variable is associated with change in another variable. Overall, the results support Hypothesis 1 in that romantic partner, family, and friend relationship quality were uniquely and positively related to better health and well-being concurrently and over time.

More specifically, romantic partner relationship quality was positively related with each health outcome concurrently (*better physical health; better mental health; fewer chronic health conditions; less frequent acute health symptoms; better IADL*) and two of the four well-being outcomes (*greater self-acceptance and environmental mastery*). Change over time in romantic partner relationship quality was not significantly related to change over time in the health outcomes but was positively related to change over time in two of the four well-being outcomes (*greater self-acceptance and environmental mastery*).

Family relationship quality was positively related with each health outcome concurrently (*better physical health; better mental health; fewer chronic health conditions; less frequent acute health symptoms; better IADL*) and each well-being outcome (*greater self-acceptance, autonomy, personal growth, and environmental mastery*). Change over time in family relationship quality was positively related to change over time in two of the five health outcomes (*better physical health; less frequent acute health symptoms*) and three of the four well-being outcomes (*greater self-acceptance, personal growth, and environmental mastery*).

Friend relationship quality was positively related with each health outcome concurrently (*better physical health; better mental health; fewer chronic health conditions; less frequent acute health symptoms; better IADL*) and each well-being outcome (*greater self-acceptance, autonomy, personal growth, and environmental mastery*). Change over time in friend relationship quality was positively related to change over time in two of the five health outcomes (*better physical health; less frequent acute health symptoms*) and three of the four well-being outcomes (*greater self-acceptance, personal growth, and environmental mastery*).

Table 3. Parallel process latent growth curve model results: Relationship quality and health.

| | Intercept | Slope | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|--------------------------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|--------------------------------|
| 1) Romantic Partner RQ | 3.18 (.03) [3.13, 3.23] | .02 (.01) [-.00, .05] | | .07 (.01) [.05, .09] ** | .08 (.01) [.06, .10] ** | .10 (.02) [.05, .14] ** | .11 (.02) [.07, .15] ** | .21 (.07) [.08, .34] * | .11 (.02) [.07, .15] ** | .08 (.02) [.04, .11] ** |
| 2) Family RQ | 3.25 (.01) [3.22, 3.27] | .02 (.01) [.00, .05] | .01 (.00) [.00, .01] | | .07 (.01) [.06, .09] ** | .07 (.01) [.05, .10] ** | .06 (.01) [.04, .09] ** | .18 (.04) [.11, .25] ** | .09 (.01) [.06, .11] ** | .05 (.01) [.03, .07] ** |
| 3) Friend RQ | 3.30 (.02) [3.28, 3.33] | .04 (.01) [.02, .06]** | .02 (.00) [.01, .02] ** | .02 (.00) [.02, .03] ** | | .08 (.01) [.06, .11] ** | .08 (.01) [.05, .11] ** | .18 (.04) [.11, .26] ** | .09 (.01) [.06, .11] ** | .05 (.01) [.03, .07] ** |
| 4) Physical Health | 3.51 (.03) [3.45, 3.58] | -.16 (.02) [-.20, -.12]** | .02 (.01) [.00, .03] | .02 (.01) [.01, .03]* | .01 (.01) [.00, .03]* | | .42 (.03) [.36, .48] ** | 1.09 (.09) [.91, 1.28] ** | .30 (.03) [.24, .36] ** | .39 (.03) [.33, .45] ** |
| 5) Mental Health | 3.83 (.03) [3.77, 3.89] | -.15 (.02) [-.19, -.11]** | .01 (.01) [-.01, .02] | .01 (.01) [-.00, .02] | .00 (.01) [-.01, .01] | .10 (.01) [.07, .12] ** | | .71 (.08) [.55, .88] ** | .24 (.03) [.18, .29] ** | .17 (.03) [.12, .22] ** |
| 6) Chronic Conditions | 17.10 (.09) [16.92, 17.28] | -.56 (.06) [-.68, -.44]** | .02 (.02) [-.02, .07] | .02 (.02) [-.01, .05] | .01 (.02) [-.02, .04] | .20 (.04) [.12, .27] ** | .13 (.03) [.07, .20] ** | | 1.16 (.09) [.99, 1.33] ** | .88 (.08) [.72, 1.04] ** |
| 7) Acute Symptoms | 4.74 (.03) [4.68, 4.80] | -.21 (.02) [-.25, -.17]** | .01 (.01) [-.00, .03] | .02 (.01) [.01, .03] ** | .02 (.01) [.01, .03]* ** | .07 (.01) [.05, .10] ** | .06 (.01) [.04, .08] ** | .20 (.03) [.13, .26] ** | | .29 (.03) [.24, .35] ** |
| 8) IADL | 3.17 (.03) [3.11, 3.23] | -.41 (.02) [-.44, -.37]** | .01 (.01) [-.01, .02] | .01 (.01) [.00, .02] | .00 (.01) [-.01, .01] | .10 (.01) [.08, .13] ** | .04 (.01) [.02, .06] ** | .16 (.03) [.10, .22] ** | .07 (.01) [.05, .08] ** | |

Note. Above diagonal are intercept covariances (concurrent associations), below diagonal are slope covariances (change associations). Unstandardized coefficients, (standard error), and [95% confidence interval of coefficient] presented. Model fit statistics: RMSEA = .07, 90% CI [.07, .08]; CFI = .92. RQ = relationship quality. IADL = instrumental activities of daily living. ** $p < .001$; * $p < .01$.

Cross-lagged models

Results from the cross-lagged models are presented in Table 5 (27 models with the cross-lagged associations between each relationship quality measure and each health and well-being measure analyzed separately) and Table 6 (nine models with the cross-lagged associations between all three relationship quality measures and each health and well-being measure). We used a significance level of $p < .01$ in each model. Collectively, these results support Hypothesis 2 in that relationship quality reflects and directs health and well-being over time.

Models examining each relationship quality measure separately

When examining each relationship quality measure separately, better romantic partner relationship quality predicted fewer chronic health conditions and greater self-acceptance over a nine-year interval. However, romantic partner relationship quality was not significantly predicted by any of the health or well-being measures.

Better family relationship quality predicted better mental health, fewer chronic conditions, and greater self-acceptance over a nine-year interval. Regarding the other direction, better family relationship quality was predicted by better physical health, fewer chronic conditions, less frequent acute symptoms, better IADL, and greater self-acceptance, autonomy, and personal growth.

Better friend relationship quality predicted better mental health, fewer chronic conditions, and greater self-acceptance, autonomy, personal growth, and environmental mastery over the nine-year

Table 4. Parallel process latent growth curve model results: relationship quality and well-being.

| | Intercept | Slope | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------------|----------------------------|----------------------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 1) Romantic partner RQ | 3.17 (.03) [3.12, 3.22] | .02 (.01) [-.00, .05] | | .07 (.01) [.05, .09] ** | .08 (.01) [.06, .10] ** | .20 (.03) [.15, .25] ** | .04 (.03) [-.01, .09] | .05 (.03) [.01, .10] | .20 (.03) [.14, .25] ** |
| 2) Family RQ | 3.25 (.01) [3.22, 3.27] | .03 (.01) [.01, .05]* | .01 (.00) [.00, .01] | | .07 (.01) [.06, .09] ** | .11 (.02) [.08, .14] ** | .05 (.01) [.03, .08] ** | .06 (.01) [.03, .08] ** | .11 (.02) [.08, .14] ** |
| 3) Friend RQ | 3.30 (.02) [3.28, 3.33] | .04 (.01) [.02, .06]** | .02 (.00) [.01, .02] ** | .02 (.00) [.02, .03] ** | | .11 (.02) [.08, .14] ** | .08 (.02) [.05, .11] ** | .10 (.02) [.07, .13] ** | .13 (.02) [.10, .17] ** |
| 4) PWB Self-Acceptance | 5.60 (.04) [5.43, 5.68] | -.06 (.02) [-.10, -.02] * | .03 (.01) [.01, .04] ** | .03 (.01) [.01, .04] ** | .02 (.01) [.01, .03] ** | | .33 (.04) [.25, .41] ** | .41 (.04) [.33, .49] ** | .57 (.05) [.48, .66] ** |
| 5) PWB Autonomy | 5.58 (.04) [5.51, 5.66] | -.04 (.02) [-.09, .00] | .02 (.01) [.00, .03] | .00 (.01) [-.01, .02] | .00 (.01) [-.01, .02] * | .04 (.01) [.02, .07] * | | .27 (.04) [.20, .35] ** | .34 (.04) [.27, .42] ** |
| 6) PWB Personal growth | 5.96 (.04) [5.89, 6.03] | -.13 (.02) [-.27, -.08] ** | .01 (.01) [-.01, .02] ** | .02 (.01) [.00, .03] * | .02 (.01) [.00, .03] * | .07 (.01) [.05, .10] ** | .02 (.01) [-.01, .04] | | .37 (.04) [.29, .44] ** |
| 7) PWB Environmental mastery | 5.61 (.04) [5.54, 5.68] | .02 (.03) [-.03, .07] | .03 (.01) [.01, .04] * | .02 (.01) [.01, .03] * | .02 (.01) [.01, .04] ** | .09 (.02) [.07, .12] ** | .08 (.02) [.05, .11] ** | .07 (.02) [.04, .09] ** | |

Note. Above diagonal are intercept covariances (concurrent associations), below diagonal are slope covariances (change associations). Unstandardized coefficients, (standard error), and [95% confidence interval of coefficient] presented. Model fit statistics: RMSEA = .07, 90% CI [.07, .08]; CFI = .91. RQ = relationship quality. PWB = psychological wellbeing.

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

interval. Better friend relationship quality was also predicted by better physical health, better mental health, fewer chronic conditions, less frequent acute symptoms, better IADL, and greater self-acceptance, autonomy, personal growth, and environmental mastery.

The cross-lagged effects were smaller in magnitude compared to the autoregressive effects. This suggests that health and well-being is more strongly predicted by prior health and well-being than by prior relationship quality. Supplementary analyses without the autoregressive effects found that significant effects of each relationship quality measure on later health and well-being outcomes were small, explaining between 2% and 8% of outcome variance.

Models examining relationship quality measures simultaneously

Unique patterns emerged when all three relationship quality measures were analyzed simultaneously (Table 6). Controlling for autoregressive effects and the other relationship quality measures, better romantic partner relationship quality uniquely predicted greater self-acceptance. Family relationship quality was no longer predictive of any health or well-being measure. Better friend relationship quality uniquely predicted better mental health and greater autonomy, personal growth, and environmental mastery.

Regarding the reverse direction, health and well-being were not significantly predictive of romantic partner relationship quality when controlling for the effects of family and friendship relationship quality. Better family relationship quality was predicted by better physical health, fewer chronic conditions, better IADL, and greater self-acceptance but was no longer predicted by mental health, acute symptoms, autonomy, or personal growth. Better friendship relationship quality was predicted by better physical health, fewer chronic conditions, less frequent acute symptoms, better IADL, and greater self-acceptance, autonomy, and personal growth but was no longer predicted by mental health or environmental mastery.

The cross-lagged effects were smaller in magnitude compared to the autoregressive effects. This suggests that health and well-being is more strongly predicted by prior health and well-being than by prior relationship quality. Supplementary analyses without the autoregressive effects found that the

Table 5. Cross-lagged model results, with each relationship analyzed independently.

| | Romantic partner models | | Family models | | Friend models | |
|---------------------------------|---------------------------------|-------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | RQ → Y | Y → RQ | RQ → Y | Y → RQ | RQ → Y | Y → RQ |
| Outcome variables (Y) | | | | | | |
| Health | | | | | | |
| Physical health | .06 (.05), .03 [-.02, .09] | .01 (.02), .02 [-.03, .07] | .11 (.07), .04 [-.01, .10] | .04 (.01), .10 [.05, .15]** | .15 (.06), .06 [.01, .11] | .05 (.01), .12 [.07, .17]** |
| Mental health | .07 (.05), .04 [-.02, .10] | .02 (.02), .03 [-.02, .08] | .21 (.06), .09 [.04, .14]** | .02 (.01), .06 [.01, .11] | .27 (.06), .12 [.07, .17]** | .04 (.01), .08 [.03, .13]** |
| Chronic conditions | .44 (.14), .08 [.03, .14]* | .01 (.01), .06 [.01, .12] | .68 (.17), .08 [.04, .12]** | .01 (.00), .11 [.06, .16]** | .71 (.17), .09 [.05, .14]** | .02 (.00), .11 [.06, .15]** |
| Acute symptoms | -.05 (.04), -.03 [-.08, .02] | .05 (.02), .07 [.02, .12] | -.03 (.06), -.01 [-.06, .04] | .03 (.01), .08 [.03, .13]* | .06 (.05), .03 [-.02, .07] | .05 (.01), .10 [.05, .15]** |
| IADL | .07 (.04), .04 [-.01, .09] | .03 (.02), .04 [-.01, .10] | .04 (.06), .02 [-.03, .06] | .04 (.01), .10 [.06, .15]** | .12 (.05), .05 [.01, .09] | .04 (.01), .08 [.04, .13]* |
| Psychological well-being | | | | | | |
| Self-acceptance | .27 (.06), .13 [.08, .19]** | .01 (.01), .02 [-.03, .08] | .32 (.08), .11 [.05, .14]** | .03 (.01), .10 [.06, .16]** | .33 (.07), .11 [.07, .16]** | .05 (.01), .12 [.07, .17]** |
| Autonomy | .01 (.05), .01 [-.05, .07] | .01 (.01), .01 [-.04, .06] | .06 (.07), .02 [-.03, .07] | .03 (.01), .07 [.03, .11]* | .19 (.06), .08 [.03, .13]* | .03 (.01), .07 [.03, .12]* |
| Personal growth | .10 (.05), .06 [.00, .11] | .02 (.02), .03 [-.02, .09] | .12 (.07), .04 [-.00, .09] | .02 (.01), .07 [.02, .11]* | .26 (.06), .10 [.06, .15]** | .05 (.01), .13 [.08, .17]** |
| Environmental mastery | .13 (.06), .07 [.01, .13] | .02 (.02), .04 [-.01, .09] | .15 (.07), .05 [.00, .10] | .02 (.01), .05 [.01, .10] | .37 (.07), .14 [.09, .20]** | .04 (.01), .09 [.04, .14]** |

Note. Unstandardized coefficients, (standard error), standardized coefficient, and [95% confidence interval of standardized coefficient] presented. Standardized coefficients are averaged across the two intervals. Autoregressive (stability) pathways included in the model but coefficients are not presented here. RQ = relationship quality. IADL = instrumental activities of daily living. Model fit statistics: *Romantic partner relationship quality* and physical health (RMSEA = .08 [.06, .11]; CFI = .96); mental health (RMSEA = .10 [.08, .12]; CFI = .93); chronic conditions (RMSEA = .12 [.10, .14]; CFI = .92); acute symptoms (RMSEA = .09 [.07, .11]; CFI = .96); IADL (RMSEA = .07 [.05, .09]; CFI = .98); self-acceptance (RMSEA = .12 [.10, .14]; CFI = .93); autonomy (RMSEA = .09 [.06, .11]; CFI = .95); personal growth (RMSEA = .10 [.08, .13]; CFI = .93); environmental mastery (RMSEA = .09 [.07, .11]; CFI = .94). *Family relationship quality* and physical health (RMSEA = .15 [.13, .17]; CFI = .84); mental health (RMSEA = .15 [.13, .17]; CFI = .80); chronic conditions (RMSEA = .17 [.14, .19]; CFI = .84); acute symptoms (RMSEA = .15 [.13, .17]; CFI = .87); IADL (RMSEA = .14 [.13, .16]; CFI = .90); self-acceptance (RMSEA = .17 [.15, .19]; CFI = .84); autonomy (RMSEA = .15 [.13, .17]; CFI = .84); personal growth (RMSEA = .16 [.14, .18]; CFI = .82); environmental mastery (RMSEA = .16 [.13, .18]; CFI = .79). *Friend relationship quality* and physical health (RMSEA = .08 [.06, .10]; CFI = .96); mental health (RMSEA = .09 [.07, .12]; CFI = .93); chronic conditions (RMSEA = .12 [.10, .14]; CFI = .92); acute symptoms (RMSEA = .09 [.07, .11]; CFI = .96); IADL (RMSEA = .08 [.06, .10]; CFI = .97); self-acceptance (RMSEA = .123 [.10, .15]; CFI = .92); autonomy (RMSEA = .09 [.06, .11]; CFI = .95); personal growth (RMSEA = .10 [.08, .13]; CFI = .93); environmental mastery (RMSEA = .09 [.07, .11]; CFI = .93).

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

cumulative effects of relationship quality on later health and well-being outcomes were small to medium, explaining between 3% and 16% of outcome variance.

Supplemental analyses

Supplemental parallel process latent growth curve analyses and cross-lagged analyses separately examining associations between relationship *support* and relationship *strain* with health and well-being are included in the supplemental materials. The pattern of findings was largely consistent with those seen when support and strain were analyzed together.

Discussion

According to Socioemotional Selectivity Theory (SST), aging encourages a shift toward focusing on and nurturing high-quality social relationships (Carstensen, 1995). Our findings suggest that doing so may have lasting benefits. We identified how older women’s relationship quality entwines with their health and well-being concurrently and over time and the directionality of these associations. Consistent with SST, our findings suggest that the pruning of social relationships that often comes with age (Wrzus et al., 2013) should be done in ways that maintain high overall relationship quality.

Table 6. Cross-lagged model results, with each relationship analyzed simultaneously.

| | Romantic partner RQ → Y | Family RQ → Y | Friend RQ → Y | Y → Romantic partner RQ | Y → Family RQ | Y → Friend RQ |
|--------------------------|---------------------------------|---------------------------------|--------------------------------|-------------------------------|--------------------------------|--------------------------------|
| Outcome variables (Y) | | | | | | |
| Health | | | | | | |
| Physical health | .00 (.05), .00 [-.06, .06] | .05 (.08), .02 [-.04, .07] | .12 (.07), .05 [-.01, .10] | .00 (.02), .01 [-.04, .06] | .03 (.01), .08 [.03, .13]* | .04 (.01), .10 [.05, .15]** |
| Mental health | -.01 (.05), -.00 [-.07, .06] | .11 (.07), .05 [-.01, .10] | .22 (.06), .10 [.04, .16]* | .01 (.02), .02 [-.03, .07] | .02 (.01), .04 [-.01, .09] | .03 (.01), .06 [.01, .11] |
| Chronic conditions | .23 (.15), .04 [-.01, .10] | .35 (.21), .04 [-.01, .09] | .41 (.20), .05 [.00, .11] | .01 (.01), .05 [-.01, .10] | .01 (.00), .09 [.04, .14]** | .01 (.00), .09 [.04, .14]** |
| Acute symptoms | -.07 (.04), -.05 [-.10, .01] | -.04 (.06), -.02 [-.07, .04] | .09 (.06), .04 [-.01, .10] | .04 (.02), .06 [.00, .11] | .03 (.01), .06 [.01, .11] | .04 (.01), .08 [.03, .13]* |
| IADL | .05 (.05), .03 [-.03, .08] | -.05 (.07), -.02 [-.07, .03] | .12 (.06), .05 [.00, .10] | .02 (.02), .03 [-.03, .08] | .04 (.01), .09 [.04, .14]** | .03 (.01), .07 [.03, .12]* |
| Psychological well-being | | | | | | |
| Self-acceptance | .19 (.06), .09 [.04, .15]* | .16 (.09), .05 [-.00, .10] | .16 (.08), .06 [.00, .11] | .01 (.01), .02 [-.03, .07] | .03 (.01), .08 [.03, .13]* | .03 (.01), .09 [.04, .14]* |
| Autonomy | -.04 (.05), -.02 [-.07, .05] | -.04 (.08), -.02 [-.07, .04] | .24 (.07), .10 [.04, .16]* | .00 (.01), .01 [-.04, .05] | .02 (.01), .05 [.01, .10] | .03 (.01), .07 [.02, .12]* |
| Personal growth | .03 (.05), .01 [-.05, .07] | -.01 (.08), -.00 [-.06, .05] | .23 (.07), .09 [.03, .15]* | .02 (.02), .03 [-.03, .08] | .02 (.01), .04 [-.01, .09] | .05 (.01), .11 [.07, .16]** |
| Environmental mastery | .05 (.06), .03 [-.04, .09] | -.05 (.08), -.02 [-.07, .04] | .37 (.08), .14 [.08, .20]** | .02 (.02), .04 [-.02, .09] | .01 (.01), .02 [-.03, .08] | .03 (.01), .06 [.01, .12] |

Note. Unstandardized coefficients, (standard error), standardized coefficient, and [95% confidence interval of standardized coefficient] presented. Standardized coefficients are averaged across the two intervals. Cross-lagged pathways between the relationship quality variables were included in the models but coefficients are not presented here. Autoregressive (stability) pathways included in the model but coefficients are not presented here. RQ = relationship quality. IADL = instrumental activities of daily living. Model fit statistics: *physical health* (RMSEA = .08 [.07, .09]; CFI = .92); *mental health* (RMSEA = .09 [.08, .10]; CFI = .91); *chronic conditions* (RMSEA = .09 [.08, .10]; CFI = .91); *acute symptoms* (RMSEA = .08 [.07, .09]; CFI = .93); *IADL* (RMSEA = .08 [.07, .09]; CFI = .93); *self-acceptance* (RMSEA = .09 [.08, .10]; CFI = .91); *autonomy* (RMSEA = .08 [.07, .09]; CFI = .92); *personal growth* (RMSEA = .09 [.08, .10]; CFI = .91); *environmental mastery* (RMSEA = .08 [.07, .10]; CFI = .91).

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

Concurrent and codeveloping associations

Consistent with prior research (for reviews see Antonucci et al., 2019; Holt-Lunstad, 2018; Rook & Charles, 2017), we found that better relationship quality relates to better concurrent health and well-being. This pattern emerged for each relationship type (romantic partner, family, friends) and with each measure of health (overall physical health, overall mental health, number of chronic health conditions, frequency of acute health symptoms, IADL) and well-being (self-acceptance, autonomy, personal growth, environmental mastery) (with the exception of nonsignificant relationships between romantic partner relationship quality and autonomy and personal growth).

Our results offer additional insight into how these relationships codevelop across later stages of women's lives. Building off prior research, including a cross-sectional analysis of the first MIDUS wave (Walen & Lachman, 2000), we found that changes in romantic partner, family, and friend relationship quality over time were linked with changes in self-acceptance and environmental mastery. Changes in family and friend relationship quality were further linked with changes in physical health, frequency of acute health symptoms, and personal growth. These findings suggest that relationship quality and health and well-being codevelop. However, we were unable to determine if women in our sample had the same relationship partners at each assessment. This means that our findings are reflective of overall relationship patterns across late adulthood but are unable to attest to specific partners, much less specific events in those relationships.

Directional associations

While our findings affirm that high-quality social relationships interweave with better health and well-being, we further contribute to the literature by illustrating the directionality of these associations.

Romantic partner relationship quality predicted fewer chronic health conditions and greater self-acceptance between study assessments (nine-year gaps). Romantic partners are likely to take on caregiving roles in late adulthood (Glauber, 2017), especially when the romantic partner is the person's closest social relationship (Allen et al., 1999). Our findings mirror these in suggesting that higher-quality romantic relationships are important for the prevalence of later chronic health conditions, predictive associations that span nine years and are independent of baseline chronic health. Moreover, in the analyses when all three relationships were included simultaneously, romantic partner relationship was uniquely predictive of self-acceptance, perhaps because of the inherent closeness and interdependence of romantic relationships (Antonucci et al., 2004; Brooks & Dunkel Schetter, 2011) and their centrality to conceptualizations of self and identity (Agnew et al., 1998; Aron et al., 1992; Mattingly et al., 2014; Tomlinson & Aron, 2013). We did not find that health or well-being predicted romantic relationship quality. Thus, our results suggest that older women's romantic relationship quality is more predictive of, than predicted by, their health and well-being.

Turning to family relationships, we found that greater relationship quality predicts better mental health, fewer chronic health conditions, and greater self-acceptance. These predictive associations, however, were no longer present when controlling for romantic partner and friendship relationship quality. This is consistent with prior research in suggesting that family relationships may play a secondary role in supporting older women's health and well-being (Chen & Feeley, 2014; Hill et al., 2014; Huxhold et al., 2014; Walen & Lachman, 2000) and that positive social exchanges can mitigate the adverse effect of negative social exchanges on mental health, particularly among women (Fiori et al., 2013). Moreover, prior work from our laboratory has found that high-quality relationships with one's children in adulthood further enhance the quality of one's romantic partnership (Shane & Heckhausen, 2016). This may indicate that family relationships impact functioning through more circuitous pathways.

Family relationship quality was especially sensitive to older women's health and well-being, as four of the five health measures and three of the four well-being measures predicted family relationship quality. Even when controlling for relationship quality with one's romantic partner and friends, physical health, number of chronic conditions, IADL, and self-acceptance predicted family relationship quality. When a woman is ailing in older age, it is likely that family members, particularly adult children (Ikkink et al., 1999; Leopold & Raab, 2011; Sechrist et al., 2012; Seidel et al., 2020), take on greater caregiving burden. As caregiving is likely to be stressful and straining for children, this may be one reason family relationships are especially vulnerable when one is unwell. However, we assessed the quality of family relationships overall rather than more specific relationships with siblings, adult children, or grandchildren. Accordingly, further research is needed to better understand this association.

Regarding friendships, we found that greater relationship quality predicted mental health, fewer chronic conditions, and greater self-acceptance, autonomy, personal growth, and environmental mastery. When all three relationships were analyzed simultaneously, friend relationship quality was uniquely predictive of mental health, autonomy, personal growth, and environmental mastery. Thus, consistent with prior research, friend relationship quality appears to be a powerful predictor of mental health and well-being (Huxhold et al., 2014; Voorpostel & van der Lippe, 2007; De Vries et al., 2014). Moreover, each health and well-being measure predicted later friend relationship quality, associations that, with the exception of mental health and environmental mastery, remained even when controlling for older women's relationship quality with their family and romantic partner. That friendships are more voluntary than other close relationships (Adams & Blieszner, 1995; Antonucci et al., 2004; Rotkirch et al., 2014) may indicate that they are more vulnerable to impairments in functioning and therefore require greater effort to maintain.

Limitations and future directions

Although we contribute to the literature by identifying how the quality of women's relationships with romantic partners, family, and friends jointly and uniquely predict and reflect their own health and

well-being in older adulthood, our sample, measures, and design were limited in a variety of ways. Firstly, we analyzed a predominately White and middle-class sample of U.S. women. While some prior research suggests that the benefits of relationship quality are relatively consistent across demographic groups (McShall & Johnson, 2015; Nguyen et al., 2016), other research reveals important differences (Ross et al., 2019). Furthermore, our participants were born between 1920 and 1945. Norms revolving around gender roles, identity, and social relationships that were prevalent when our study participants came of age may be quite different than current norms, which are also likely to change in future generations. Thus, the results should be interpreted within the context of our sample, and caution should be used regarding the generalizability of our findings. Moreover, despite prior validation and widespread use (Ryff, 2018), our measures of well-being had relatively low internal consistency. It is also possible that self-reported relationship quality and well-being simply reflect participants' global assessment of how life is at the time of the assessment (Bank et al., 1990; Gottman, 1998). We were unable to target specific family relationships, and for parsimony we did not separate relationship support and strain. Finally, we missed out on any fluctuations that occurred within the nine-year period between assessments and are unable to know if relationship partners were consistent across time. Future research examining the bidirectional effects between relationship quality and health and well-being would benefit from a more frequent, closely spaced, multimethod assessment.

Implications and conclusion

Collectively, our research provides insight into how and why women's social relationships direct and reflect their health and well-being from mid- through late-adulthood. Two important implications emerge from the study. The first is about the unique health and well-being benefits that older women may reap from different relationship partners. While future research is needed to replicate our findings, our study results suggest that older women's later life development is more positive to the extent that they have a variety of close, supportive, and nonstraining relationship partners, particularly friend(s), a romantic partner, and to a lesser extent, other family. Older women may be best served by gerontological care teams who work to coordinate care in such a way that supports and strengthens women's existing friendships and perhaps even promotes new friendships (e.g., for older women living in senior housing centers). At the local level, resources such as community centers or transportation services that make social engagement more feasible for elders is likely to facilitate relationships, particularly friendships. Such services may therefore have benefits for elder health and well-being and perhaps by extension a downstream effect on health-care costs.

The second is about the risk to nonromantic partner relationships that older women's poor health or well-being poses. Aging is fraught with health challenges, role changes, and other stressors that can negatively influence one's well-being. To the extent that these arise, social relationships, particularly those that generally require some degree of effort by both parties to maintain (friends and family), are likely to suffer. Recognition of this complexity may allow gerontology professionals to operate with more sensitivity in their care for older women. Policies that make home health aides and other forms of outside support more accessible to American families would help to buffer these relationships from the deleterious impact of aging and caregiving. Moreover, when elder health deteriorates, resisting the urge to withdraw from these less-obligatory relationships and instead actively engage may be needed to nurture and maintain positive friend and family relationships. Funding for educational services to bolster technical skills such as accessing social media or video-conferencing tools may help older women to stay better in touch with friends and families remotely even when their health is ailing or their mobility declines.

Overall, our findings affirm that social relationships are profoundly important for older women's health and well-being. We contribute to the literature by identifying the directionality of these linkages and the common and unique predictive associations of family, friend, and romantic relationship quality. Romantic partner relationship quality is more predictive of than predicted by health and well-being and seems to play an especially central role in self-acceptance. Family relationship quality

appears to play a supporting role for older women's health and well-being and is more reflective of women's health and well-being than vice versa. Friend relationship quality is uniquely predictive of, and responsive to, older women's mental health and well-being. Overall, these results represent a considerable contribution to the literature that is primarily based on cross-sectional, independent, and unidirectional relationships.

Notes

1. Results were largely consistent when using the 12-item romantic partner relationship quality measure.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

- Adams, R. G., & Blieszner, R. (1995). Aging well with friends and family. *American Behavioral Scientist*, 39(2), 209–224. <https://doi.org/10.1177/0002764295039002008>
- Agnew, C. R., Van Lange, P. A. M., Rusbult, C. E., & Langston, C. A. (1998). Cognitive interdependence: Commitment and the mental representation of close relationships. *Journal of Personality and Social Psychology*, 74, 939–954. <https://doi.org/10.1037/0022-3514.74.4.939>
- Allen, S. M., Goldscheider, F., & Ciambrone, D. A. (1999). Gender roles, marital intimacy, and nomination of spouse as primary caregiver. *The Gerontologist*, 39(2), 150–158. <https://doi.org/10.1093/geront/39.2.150>
- Antonucci, T. C., Ajrouch, K. J., & Birditt, K. S. (2014). The convoy model: Explaining social relations from a multidisciplinary perspective. *The Gerontologist*, 54(1), 82–92. <https://doi.org/10.1093/geront/gnt118>
- Antonucci, T. C., Ajrouch, K. J., Webster, N. J., & Zahodne, L. B. (2019). Social relations across the life span: Scientific advances, emerging issues, and future challenges. *Annual Review of Developmental Psychology*, 1(1), 313–336. <https://doi.org/10.1146/annurev-devpsych-121318-085212>
- Antonucci, T. C., Akiyama, H., & Takahashi, K. (2004). Attachment and close relationships across the life span. *Attachment & Human Development*, 6(4), 353–370. <https://doi.org/10.1080/1461673042000303136>
- Antonucci, T. C., Lansford, J. E., & Akiyama, H. (2001). Impact of positive and negative aspects of marital relationships and friendships on well-being of older adults. *Applied Developmental Science*, 5(2), 68–75. https://doi.org/10.1207/S1532480XADS0502_2
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of other in the self scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, 63(4), 596–612. <https://doi.org/10.1037/0022-3514.63.4.596>
- Bank, L., Dishion, T. J., Skinner, M., & Patterson, G. R. (1990). Method variance in structural equation modeling: Living with “glop”. In G. R. Patterson (Ed.), *Depression and aggression in family interaction* (pp. 247–279). Lawrence Erlbaum Associates, Inc.
- Bookwala, J., Marshall, K. L., & Manning, S. W. (2014). Who needs a friend? Marital status transitions and physical health outcomes in later life. *Health Psychology*, 33(6), 505–515. <https://doi.org/10.1037/hea0000049>
- Brooks, K. P., & Dunkel Schetter, C. (2011). Social negativity and health: Conceptual and measurement issues. *Social and Personality Psychology Compass*, 5(11), 904–918. <https://doi.org/10.1111/j.1751-9004.2011.00395.x>
- Brooks, K. P., Gruenewald, T., Karlamangla, A., Hu, P., Koretz, B., & Seeman, T. E. (2014). Social relationships and allostatic load in the MIDUS study. *Health Psychology*, 33(11), 1373–1381. <https://doi.org/10.1037/a0034528>
- Cabin, R., & Mitchell, R. (2000). To Bonferroni or not to Bonferroni: When and how are the questions. *Bulletin of the Ecological Society of America*, 81(3), 246–248. <https://www.jstor.org/stable/20168454>
- Carmichael, C. L., Reis, H. T., & Duberstein, P. R. (2015). In your 20s it's quantity, in your 30s it's quality: The prognostic value of social activity across 30 years of adulthood. *Psychology and Aging*, 30(1), 95. <https://doi.org/10.1037/pag0000014>
- Carstensen, L. L. (1995). Evidence for a life-span theory of socioemotional selectivity. *Current Directions in Psychological Science*, 4(5), 151–156. <https://doi.org/10.1111/1467-8721.ep11512261>
- Charles, S. T. (2010). Strength and vulnerability integration: A model of emotional well-being across adulthood. *Psychological Bulletin*, 136(6), 1068–1091. <https://doi.org/10.1037/a0021232>
- Charles, S. T., & Carstensen, L. L. (2010). Social and emotional aging. *Annual Review of Psychology*, 61(1), 383–409. <https://doi.org/10.1146/annurev.psych.093008.100448>
- Charles, S. T., & Carstensen, L. L. (2014). Emotion regulation and aging. In J. J. Gross (Ed.), *Handbook of emotion regulation*. (2nd ed., pp. 203–218). Guilford Press.

- Chen, Y., & Feeley, T. H. (2014). Social support, social strain, loneliness, and well-being among older adults: An analysis of the health and retirement study. *Journal of Social and Personal Relationships*, 31(2), 141–161. <https://doi.org/10.1177/026540751348872>
- Choi, H., Yorgason, J. B., & Johnson, D. R. (2016). Marital quality and health in middle and later adulthood: Dyadic associations. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 71(1), 154–164. <https://doi.org/10.1093/geronb/gbu222>
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310–357. <https://doi.org/10.1037/0033-2909.98.2.310>
- de Vries, B., Utz, R., Caserta, M., & Lund, D. (2014). Friend and family contact and support in early widowhood. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 69(1), 75–84. <https://doi.org/10.1093/geronb/gbt078>
- Diener, E., Gohm, C. L., Suh, E., & Oishi, S. (2000). Similarity of the relations between marital status and subjective well-being across cultures. *Journal of Cross-Cultural Psychology*, 31(4), 419–436. <https://doi.org/10.1177/0022022100031004001>
- Djundeva, M., Mills, M., Wittek, R., & Steverink, N. (2015). Receiving instrumental support in late parent–child relationships and parental depression. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 70(6), 981–994. <https://doi.org/10.1093/geronb/gbu136>
- Eagly, A. H., & Wood, W. (2012). Social role theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (Vol. 2, pp. 458–476). Sage Publications Ltd.
- Ertel, K. A., Glymour, M. M., & Berkman, L. F. (2009). Social networks and health: A life course perspective integrating observational and experimental evidence. *Journal of Social and Personal Relationships*, 26(1), 73–92. <https://doi.org/10.1177/0265407509105523>
- Finkel, S. E. (1995). *Causal analysis with panel data*. Sage Publications, Inc.
- Fiori, K. L., Windsor, T. D., Pearson, E. L., & Crisp, D. A. (2013). Can positive social exchanges buffer the detrimental effects of negative social exchanges? Age and gender differences. *Gerontology*, 59(1), 40–52. <https://doi.org/10.1159/000339747>
- Glauber, R. (2017). Gender differences in spousal care across the later life course. *Research on Aging*, 39(8), 934–959. <https://doi.org/10.1177/0164027516644503>
- Gottman, J. M. (1998). Psychology and the study of marital processes. *Annual Review of Psychology*, 49(1), 169–197. <https://doi.org/10.1146/annurev.psych.49.1.169>
- Hall, J. A. (2011). Sex differences in friendship expectations: A meta-analysis. *Journal of Social and Personal Relationships*, 28(6), 723–747. <https://doi.org/10.1177/0265407510386192>
- Hansen, T., Slagsvold, B., & Moum, T. (2009). Childlessness and psychological well-being in midlife and old age: An examination of parental status effects across a range of outcomes. *Social Indicators Research*, 94(2), 319–342. <https://doi.org/10.1007/s11205-008-9426-1>
- Hill, P. L., Weston, S. J., & Jackson, J. J. (2014). Connecting social environment variables to the onset of major specific health outcomes. *Psychology & Health*, 29(7), 753–767. <https://doi.org/10.1080/08870446.2014.884221>
- Hintikka, J., Koskela, T., Kontula, O., Koskela, K., & Viinamäki, H. (2000). Men, women and friends: Are there differences in relation to mental well-being? *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation*, 9(7), 841–845. <https://doi.org/10.1023/A:1008904215743>
- Holt-Lunstad, J. (2018). Why social relationships are important for physical health: A systems approach to understanding and modifying risk and protection. *Annual Review of Psychology*, 69, 437–458. <https://doi.org/10.1146/annurev-psych-122216-01190>
- Huxhold, O., Miche, M., & Schüz, B. (2014). Benefits of having friends in older ages: Differential effects of informal social activities on well-being in middle-aged and older adults. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 69(3), 366–375. <https://doi.org/10.1093/geronb/gbt029>
- Ikkink, K. K., van Tilburg, T., & Knipscheer, K. C. P. M. (1999). Perceived instrumental support exchanges in relationships between elderly parents and their adult children: Normative and structural explanations. *Journal of Marriage and the Family*, 61(4), 831–844. <https://doi.org/10.2307/354006>
- Infurna, F. J., Wiest, M., Gerstorf, D., Ram, N., Schupp, J., Wagner, G. G., & Heckhausen, J. (2017). Changes in life satisfaction when losing one's spouse: Individual differences in anticipation, reaction, adaptation and longevity in the German Socio-economic Panel Study (SOEP). *Ageing and Society*, 37(5), 899–934. <https://doi.org/10.1017/S0144686X15001543>
- Lapierre, T. A. (2009). Marital status and depressive symptoms over time: Age and gender variations. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, 58(4), 404–416. <https://doi.org/10.1111/j.1741-3729.2009.00562.x>
- Leopold, T., & Raab, M. (2011). Short-term reciprocity in late parent-child relationships. *Journal of Marriage and Family*, 73(1), 105–119. <https://doi.org/10.1111/j.1741-3737.2010.00792.x>
- Lindfors, P., Berntsson, L., & Lundberg, U. (2006). Factor structure of Ryff's psychological well-being scales in Swedish female and male white-collar workers. *Personality and Individual Differences*, 40(6), 1213–1222. <https://doi.org/10.1016/j.paid.2005.10.016>

- Luo, Y., Hawkey, L. C., Waite, L. J., & Cacioppo, J. T. (2012). Loneliness, health, and mortality in old age: A national longitudinal study. *Social Science & Medicine*, 74(6), 907–914. <https://doi.org/10.1016/j.socscimed.2011.11.028>
- Luong, G., Charles, S. T., & Fingerman, K. L. (2011). Better with age: Social relationships across adulthood. *Journal of Social and Personal Relationships*, 28(1), 9–23. <https://doi.org/10.1177/0265407510391362>
- Mattingly, B. A., Lewandowski, G. W., Jr., & McIntyre, K. P. (2014). “You make me a better/worse person”: A two-dimensional model of relationship self-change. *Personal Relationships*, 21(1), 176–190. <https://doi.org/10.1111/per.12025>
- McShall, J. R., & Johnson, M. D. (2015). The association between relationship quality and physical health across racial and ethnic groups. *Journal of Cross-Cultural Psychology*, 46(6), 789–804. <https://doi.org/10.1177/0022022115587026>
- Moremen, R. D. (2008). Best friends: The role of confidantes in older women’s health. *Journal of Women & Aging*, 20(1–2), 149–167. https://doi.org/10.1300/J074v20n01_11
- Muthén, B. (1997). Latent variable modeling with longitudinal and multi-level data. In A. Raftery (Ed.), *Sociological methodology* (pp. 453–480). Blackwell Publishers.
- Muthén, B., Kaplan, D., & Hollis, M. (1987). On structural equation modeling with data that are not missing completely at random. *Psychometrika*, 52(3), 431–462. <https://doi.org/10.1007/BF02294365>
- Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus user’s guide* (7th ed.). Muthén & Muthén.
- Nguyen, A. W., Chatters, L. M., Taylor, R. J., & Mouzon, D. M. (2016). Social support from family and friends and subjective well-being of older African Americans. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, 17(3), 959–979. <https://doi.org/10.1007/s10902-015-9626-8>
- Perneger, T. V. (1998). What’s wrong with Bonferroni adjustments. *BMJ*, 316(7139), 1236–1238. <https://doi.org/10.1136/bmj.316.7139.1236>
- Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: A meta-analysis. *Psychology and Aging*, 15(2), 187–224. <https://doi.org/10.1037/0882-7974.15.2.187>
- Reid, A. (2004). Gender and sources of subjective well-being. *Sex Roles: A Journal of Research*, 51(11–12), 617–629. <https://doi.org/10.1007/s11199-004-0714-1>
- Reinhardt, J. P., Boerner, K., & Benn, D. (2003). Predicting individual change in support over time among chronically impaired older adults. *Psychology and Aging*, 18(4), 770–779. <https://doi.org/10.1037/0882-7974.18.4.770>
- Retsinas, J., & Garrity, P. (1985). Nursing home friendships. *The Gerontologist*, 25(4), 376–381. <https://doi.org/10.1093/geront/25.4.376>
- Robles, T. F., Slatcher, R. B., Trombello, J. M., & McGinn, M. M. (2014). Marital quality and health: A meta-analytic review. *Psychological Bulletin*, 140(1), 140–187. <https://doi.org/10.1037/a0031859>
- Rook, K. S. (2015). Social networks in later life: Weighing positive and negative effects on health and well-being. *Current Directions in Psychological Science*, 24(1), 45–51. <https://doi.org/10.1177/0963721414551364>
- Rook, K. S., & Charles, S. T. (2017). Close social ties and health in later life: Strengths and vulnerabilities. *The American Psychologist*, 72(6), 567–577. <https://doi.org/10.1037/amp0000104>
- Ross, J. M., Karney, B. R., Nguyen, T. P., & Bradbury, T. N. (2019). Communication that is maladaptive for middle-class couples is adaptive for socioeconomically disadvantaged couples. *Journal of Personality and Social Psychology*, 116(4), 582. <https://doi.org/10.1037/pspi0000158>
- Rotkirch, A., Lyons, M., David-Barrett, T., & Jokela, M. (2014). Gratitude for help among adult friends and siblings. *Evolutionary Psychology*, 12(4), 673–686. <https://doi.org/10.1177/147470491401200401>
- Ryan, A. K., & Willits, F. K. (2007). Family ties, physical health, and psychological well-being. *Journal of Aging and Health*, 19(6), 907–920. <https://doi.org/10.1177/089826430730834>
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Ryff, C. D. (2018). Well-being with soul: Science in pursuit of human potential. *Perspectives on Psychological Science*, 13(2), 242–248. <https://doi.org/10.1177/1745691617699836>
- Ryff, C. D., Almeida, D., Ayanian, J., Binkley, N., Radler, B., Carr, D. S., ... Williams, D. (2017). *Midlife in the United States (MIDUS 3), 2013-2014*. Inter-university Consortium for Political and Social Research [distributor], 2017- 11-21. <https://doi.org/10.3886/ICPSR36346.v6>
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719–727. <https://doi.org/10.1037/0022-3514.69.4.719>
- Schuster, T. L., Kessler, R. C., & Aseltine, R. H. (1990). Supportive interactions, negative interactions, and depressed mood. *American Journal of Community Psychology*, 18(3), 423–438. <https://doi.org/10.1007/BF00938116>
- Sechrist, J., Suito, J. J., Pillemer, K., Gilligan, M., Howard, A. R., & Keeton, S. A. (2012). Aging parents and adult children: Determinants of relationship quality. In R. Blieszner & V. H. Bedford (Eds.), *Handbook of families and aging*. (2nd ed., pp. 153–181).
- Seidel, A. J., Majeske, K., & Marshall, M. (2020). Factors associated with support provided by middle-aged children to their parents. *Family Relations*, 69(2), 262–275. <https://doi.org/10.1111/fare.12413>

- Shane, J., & Heckhausen, J. (2016). Optimized engagement across life domains in adult development: Balancing diversity and interdomain consequences. *Research in Human Development, 13*(4), 280–296. <https://doi.org/10.1080/15427609.2016.1234308>
- Sneed, R. S., & Cohen, S. (2014). Negative social interactions and incident hypertension among older adults. *Health Psychology, 33*(6), 554–565. <https://doi.org/10.1037/hea0000057>
- Stafford, M., Antonucci, T. C., & Zaninotto, P. (2017). Joint trajectories of spousal social support and depressive symptoms in older age. *Journal of Health and Aging, 31*(5), 760–782. <https://doi.org/10.1177/0898264317747077>
- Stocker, C. M., Gilligan, M., Klopach, E. T., Conger, K. J., Lanthier, R. P., Nepl, T. K., O’Neal, C. W., & Wickrama, K. A. S. (2020). Sibling relationships in older adulthood: Links with loneliness and well-being. *Journal of Family Psychology, 34*(2), 175–185. <https://doi.org/10.1037/fam0000586>
- Stronge, S., Overall, N. C., & Sibley, C. G. (2019). Gender differences in the associations between relationship status, social support, and wellbeing. *Journal of Family Psychology, 33*(7), 819–829. <https://doi.org/10.1037/fam0000540>
- Sun, J., Harris, K., & Vazire, S. (2019). Is well-being associated with the quantity and quality of social interactions? *Journal of Personality and Social Psychology*. Advance online publication. <https://doi.org/10.1037/pspp0000272>
- Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A. R., & Updegraff, J. A. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review, 107*(3), 411–429. <https://doi.org/10.1037/0033-295X.107.3.411>
- Tomlinson, J. M., & Aron, A. (2013). The path to closeness: A mediational model for overcoming the risks of increasing closeness. *Journal of Social and Personal Relationships, 30*(6), 805–812. <https://doi.org/10.1177/0265407512469137>
- Voorpostel, M., & van der Lippe, T. (2007). Support between siblings and between friends: Two worlds apart? *Journal of Marriage and Family, 69*(5), 1271–1282. <https://doi.org/10.1111/j.1741-3737.2007.00446.x>
- Walen, H. R., & Lachman, M. E. (2000). Social support and strain from partner, family, and friends: Costs and benefits for men and women in adulthood. *Journal of Social and Personal Relationships, 17*(1), 5–30. <https://doi.org/10.1177/0265407500171001>
- Ware, J. E., & Sherbourne, C. D. (1992). The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Medical Care, 30*(6), 473–483. <https://doi.org/10.1097/00005650-199206000-00002>
- Werner-Seidler, A., Afzali, M. H., Chapman, C., Sunderland, M., & Slade, T. (2017). The relationship between social support networks and depression in the 2007 National Survey of Mental Health and Well-being. *Social Psychiatry and Psychiatric Epidemiology, 52*(12), 1463–1473. <http://doi.org/10.1007/s00127-017-1440-7>
- White, L. (2001). Sibling relationships over the life course: A panel analysis. *Journal of Marriage and the Family, 63*(2), 555–568. <https://doi.org/10.1111/j.1741-3737.2001.00555.x>
- Wrzus, C., Hänel, M., Wagner, J., & Neyer, F. J. (2013). Social network changes and life events across the life span: A meta-analysis. *Psychological Bulletin, 139*(1), 53. <https://doi.org/10.1037/a0028601>