

Associations among relational values, support, health, and well-being across the adult lifespan

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Abstract

Is the link between close relationships and health and well-being static across the lifespan, or are the benefits most evident in older adulthood, when concerns about physical health are greater? In Study 1, a cross-sectional survey of 271,053 adults, valuing friendships was related to better functioning, particularly among older adults, whereas valuing familial relationships exerted a static influence on health and well-being across the lifespan. In Study 2, a longitudinal study of 7,481 older adults, only strain from friendships predicted more chronic illnesses over a 6-year period; support from spouses, children, and friends predicted higher subjective well-being over an 8-year period.

Engaging and investing in close relationships are associated with a variety of psychological and physical health benefits. The quality of close relationships has been linked to healthier behavior, lower incidence of chronic illnesses, higher levels of happiness, and lower mortality (Holt-Lunstad, Smith, & Layton, 2010; Saphire-Bernstein & Taylor, 2013). Researchers often assume that the enhancing effects of investing in close relationships are present throughout the lifespan (House, Landis, & Umberson, 1988) and are of particular importance to older adults during a time in which physical health begins to decline (Cornwell & Waite, 2009). However, no study has compared the relative magnitude of the effect that different close relationships (e.g., friendships, family, spouses) have on well-being and health among younger, middle-aged, and older adults.

Social support, health, and happiness across the lifespan

Investing in social roles and relationships enables individuals to reap the benefits of those institutions (Roberts, Wood, & Smith, 2005). As a result, the degree to which individuals value different types of relationships (i.e., how important my family is) can be a proxy for the degree to which they allocate effort and resources to these relationships (Carstensen, Isaacowitz, & Charles, 1999). Likewise, investing in close relationships yields greater support from these relationships. There is now a large body of research supporting the idea that close relationships enhance health and well-being across the lifespan. Harmonious family relationships have a long history of endowing positive effects on people, whether those relationships are with spouses or other immediate family members (e.g., Solomon & Jackson, 2014; Umberson, 1992).

What about other nonspousal/familial relationships? The relative influence of nonfamilial relationships, like friendships, on health and well-being across the lifespan has been historically understudied in research on lifespan development (Hartup & Stevens, 1999). The little research that does exist on the role of friendships suggests that friendships can also enrich health and well-being. Health and

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well-being are often fostered (or diminished) through friendship networks (Smith & Christakis, 2008). For example, the smoking and substance abuse behavior of friends predicts the likelihood of initiation, continuation, and cessation of these behaviors in adolescence (Andrews, 2002; Urberg, Degirmencioglu, & Pilgrim, 1997). Targeting weight-loss interventions toward one person often causes weight loss in his or her friends as well (Gorin et al., 2005; Wing & Jeffery, 1999). Happiness, loneliness, depression, and health behaviors have also been shown to spread through social networks, including friendships (Rosenquist, Fowler, & Christakis, 2011; Smith & Christakis, 2008).

There are many mechanisms through which social relationships can affect health and well-being (Krause & Hayward, 2015). For example, social relationships provide us with a sense of control and purpose in life and are a source of self-esteem—all of which buffer against the negative health effects of stress (Leary, Tambor, Terdal, & Downs, 1995; Rowe & Kahn, 1997). Negative or stressful interactions with close others can also lead to greater stress and inflammation by activating neuroendocrine stress response systems (Pietromonaco, Uchino, & Dunkel Schetter, 2013; Yang et al., 2016). Social relationships can also aid in us adopting positive health behaviors (Jackson, Steptoe, & Wardle, 2015). Thus, when close relationships are going well and are positive, they can provide health-enhancing benefits (Uchino, 2006); when close relationships are going poorly and are stressful, they can exacerbate existing health problems or even create new ones (Pietromonaco et al., 2013).

However, the relative influence of different types of relationships on health and happiness across the lifespan is hard to quantify. Each of these relationships (e.g., family, friends, spousal relationships) is often tested in isolation of each other or averaged into a global measure of social support or relationship investment (Dupertuis, Aldwin, & Bosse, 2001). Studies rarely examine all of these relationships simultaneously to compare whether the benefits of friendships for well-being

remain over and above the effects of relationships in other domains, like with children or spouses. The few studies that do examine the entirety of relationships in peoples' lives reveal the value of making this effort. For example, Christakis and Fowler (2007) examined the spread of obesity through a large social network over a 32-year period. They found that the likelihood of a person becoming obese was partially determined by whether someone in their social network became obese during that same time period. However, the influence of different *types* of relationships on health was also tested. Friends exerted the largest influence on obesity—if a person's friend became obese, the likelihood that they became obese was 57%. The effects that siblings (40%) and spouses (37%) had on obesity were also influential, albeit slightly lower. Bearman and Moody (2004) also found that a recent suicide by a friend increased the risk of suicidal ideation and attempts for individuals, but having a suicidal relative affected only ideation. Thus, there is some evidence that although all relationships that provide support are important, some relationships might be more influential in some domains compared to others.

Furthermore, previous studies often examine these effects in groups of participants that are developmentally homogenous (e.g., only younger adults or only older adults). Including participants from a large age range will enable researchers to test whether certain types of relationships become more or less important for health and well-being across the lifespan. Do close relationships have a static influence on health and well-being across the lifespan, such that there is a consistent effect of close relationships on health and well-being at every age? Or do some close relationships become increasingly more important for health and well-being as people age?

These questions were examined in two large, representative panel studies. In Study 1, in a large cross-sectional sample from nearly 100 countries, the relation between valuing close relationships (e.g., familial and friendships) on health and well-being across the lifespan was tested. In Study 2, in a longitudinal sample of older adults, different sources of social support and strain (i.e.,

spousal, children, family, and friends) were used to predict the onset of chronic illnesses and changes in subjective well-being over time.

Study 1

In Study 1, a large cross-sectional sample was used as an exploratory test of whether the association between valuing close relationships (e.g., family and/or friendships) and health and well-being was static across the lifespan. There are many different inventories used to assess values, particularly interpersonal values (Cheng & Fleischmann, 2010). One of the most widely used models is Inglehart's (2008) distinction between survival and self-expansion values. Among his taxonomy of self-expansion values are interpersonal trust and investment, which were the focus of Study 1. Because interpersonal values often predict future behavior and greater investment and involvement in close relationships (Eyal, Sagristano, Trope, Liberman, & Chaiken, 2009; Locke, 2000), valuing family and friend relationships served as proxies for relationship involvement across the lifespan. Although these are imperfect measures of relationship involvement, there is a considerable amount of evidence demonstrating that if individuals value relationships highly, they are more likely to reap the benefits of them (Locke, 2000). Furthermore, social support and strain from particular relationships were the focus of a follow-up study, Study 2.

The World Values Survey (WVS), a large cross-sectional survey of values across countries, was used to assess the relative impact of valuing family and friend relationships on health and well-being across the adult lifespan. The degree to which participants valued family and friend relationships were used as predictors of health and well-being. Furthermore, the moderating effect of age was tested to compare the magnitude of this effect among younger, middle-aged, and older adults.

Method

Participants and procedure

Participants included 271,053 individuals (51% female) from the WVS (see Inglehart,

Foa, Peterson, & Welzel, 2008). Since 1981, the WVS has interviewed representative national samples from several countries around the world. Information on publications, findings, methodology, and free data access are available at <http://www.worldvaluessurvey.org>. For the current study, data from Waves 2 to 5 of the WVS were aggregated, and 97 countries are represented in the current report. Primary study variables were not collected at Wave 1. Sample sizes ranged from 374 (Dominican Republic) to 14,345 (South Africa), with an average sample size of 2,794 ($SD = 2,078$). The overall sample ranged in age from 15 to 99 years ($M = 40$ years, $SD = 16$ years); the median level of education was secondary education. Participant birth year ranged from 1900 to 1999 ($M = 1,964$, $SD = 17$). Each decade of life was well represented (e.g., 15–19 years: 14,787; 20–29 years: 69,038; 30–39 years: 60,871; 40–49 years: 50,454; 50–59 years: 36,264; 60–69 years: 24,708; 70+ years: 14,931). All data are cross-sectional.¹

Measures

Relational values. In Waves 2–5, participants were asked to indicate how important (a) family and (b) friends were in their lives on a scale ranging from 1 (*very important*) to 4 (*not at all important*). Scores were recoded such that higher values reflected more importance placed on these domains.

Self-rated health. Health was assessed at each wave with a single item, "All in all, how would you describe your state of health these days?" Participants rated their health on a scale ranging from 1 (*very good*) to 4 (*poor*). Responses were reverse scored so that higher values reflected better self-rated health. Numerous studies have shown that self-rated health measures are strong predictors of mortality

1. Cultural variation in the relationships between family and friendship importance on health was not the focus of the current report. The worldwide sample was employed to maximize the number of available participants at each age. Thus, the multilevel analyses account for the fact that participants are nested within countries but do not formally model any Level 2 (e.g., country-level) predictors.

(Idler & Benyamini, 1997; Schnittker & Bacak, 2014).

Happiness and subjective well-being. Happiness was measured with a single item, "Taking all things together, would you say you are ..." Participants rated their happiness on a scale ranging from 1 (*very happy*) to 4 (*not at all happy*). Responses were reverse scored so that higher values reflected more happiness. Subjective well-being was measured with a single item, "All things considered, how satisfied are you with your life as a whole these days?" Participants responded to this item on a 10-point scale ranging from 1 (*completely dissatisfied*) to 10 (*completely satisfied*).

Results

Multilevel analyses

Because respondents were nested within countries, three multilevel random coefficient models (for health, happiness, and well-being) were created using the SPSS MIXED procedure (Peugh & Enders, 2005). Participant age, age², importance placed on family relationships, importance placed on friendships, and the interactions between these variables with age were treated as predictors of participant health, happiness, and well-being, respectively. Age² was included in each model to capture the curvilinear relation of well-being across the lifespan that many studies have previously found (e.g., Baird, Lucas, & Donnellan, 2010). Age and importance placed on family/friendships were centered prior to computing the interaction terms. Participant gender (−1 = male, 1 = female), marital status (−1 = single, 1 = partnered), education, and birth year were included as covariates.²

Results from these multilevel models are presented in Table 1. The linear effect of age

was significant for health, such that older adults reported worse health compared to younger adults. The linear and quadratic effects of age were significant for both happiness and subjective well-being, such that both were lowest among middle-aged adults and higher among younger and older adults.

Placing higher importance on family and friend relationships was associated with better health, greater happiness, and greater subjective well-being across the lifespan. For the most part, these were static associations that did not differ (i.e., were not moderated) by age. However, the effect of valuing friendships on each of the dependent variables increased with age as evidenced by significant Age² × Friendship importance interactions in each model. As seen in Figures 1–3, individuals who placed high importance on friendships had particularly better health, happiness, and subjective well-being at older ages than individuals who did not place as high importance on friendships. Finally, a significant Age × Family Importance interaction emerged for subjective well-being (but not health and happiness). The pattern of this interaction was similar to that in the other figures—individuals who placed higher importance on family relationships reported higher levels of well-being, particularly in older adulthood. The Age² × Family Importance interaction predicting subjective well-being was not significant.³

Discussion

Study 1 examined associations between valuing close relationships and health and happiness across the lifespan. Valuing family

the possibility of cohort effects, it does enhance the likelihood that age differences observed in health, happiness, and well-being result from developmental processes rather than processes resulting from different cohorts being psychologically different. Only cohort sequential studies, in which the people from many different cohorts are followed longitudinally over large stretches of time, can definitively separate the effects of development from cohort (Elder & Giele, 2009; Roberts, Walton, & Viechtbauer, 2006).

2. Because the data in the current study were cross-sectional, it is difficult to draw developmental conclusions about how interpersonal values predict health and happiness when examining age differences. Luckily, because the WVS was collected over a 25-year period (from 1989 to 2014), several cohorts of individuals were present across the five waves of data included in the current report. Thus, controlling for birth year makes an 18-year-old individual born in 1971 and an 18-year-old individual born in 1996 somewhat more comparable. Although this does not entirely rule out

3. In a series of follow-up analyses, models were rerun as fixed effects regressions in which country was entered as a dummy coded variable. The results from these analyses did not differ substantively from the results presented in Table 1.

Table 1. Study 1: Multilevel models predicting health, happiness, and subjective well-being from age and the reported importance of family and friends

	Health					Happiness					Subjective well-being				
	<i>b</i>	<i>SE</i> (<i>b</i>)	β	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i> (<i>b</i>)	β	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i> (<i>b</i>)	β	<i>t</i>	<i>p</i>
Age	-.01	.0003	-.10	-20.84	<.001	.001	.0002	.01	3.18	.001	.02	.001	.28	20.69	<.001
Family	.07	.01	.03	12.75	<.001	.16	.01	.06	30.24	<.001	.33	.02	.12	19.67	<.001
Friend	.08	.003	.06	28.98	<.001	.08	.002	.06	31.44	<.001	.18	.01	.13	22.03	<.001
Age × Family	-.00003	.0003	-.0002	-.10	.92	.0003	.0003	.002	1.17	.24	.002	.001	.01	2.10	.04
Age × Friend	.00004	.0001	.0005	.27	.79	.0001	.0001	.001	.44	.66	.0005	.0004	.01	1.13	.26
Age ²	.000004	.00001	.001	.76	.45	.0002	.00001	.06	33.99	<.001	.001	.00002	.19	35.02	<.001
Age ² × Family	-.00001	.00001	-.002	-.81	.42	-.00002	.00001	-.002	-1.18	.24	.00001	.00004	.002	.33	.74
Age ² × Friend	.00003	.00001	.01	4.10	<.001	.00003	.00001	.01	4.84	<.001	.0001	.00002	.03	4.70	<.001
Gender	-.04	.001	-.04	-28.77	<.001	.01	.001	.01	10.54	<.001	.04	.004	.04	10.42	<.001
Marital status	.04	.002	.04	22.37	<.001	.10	.002	.10	63.39	<.001	.23	.01	.23	45.48	<.001
Education	.04	.001	.09	56.29	<.001	.02	.001	.05	31.62	<.001	.10	.002	.22	46.99	<.001
Birth year	.01	.0003	.14	29.32	<.001	.01	.0002	.11	26.68	<.001	.03	.001	.50	36.89	<.001

Note. Gender: -1 = male, 1 = female. Marital status: -1 = single, 1 = partnered.

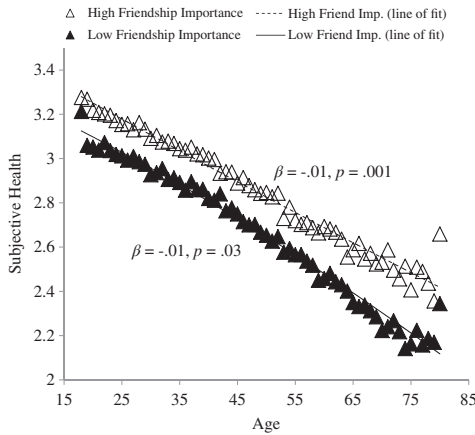


Figure 1. Study 1: Age differences in health among individuals with high versus low friendship importance. Points represent means for individual year with ages below 18 and above 80 collapsed to these age points because of low sample sizes. Median splits of friendship importance were used to graph these interactions, but continuous versions of the variables were used in all data analyses. Simple slopes represent the effect of age² at 1 SD above/below the mean of friendship importance.

and friendship relationships was associated with greater health and higher happiness overall. However, only valuing friendships became a stronger predictor of health and happiness at advanced ages. These findings are in line with previous research showing the health and hedonic benefits of close relationships (House et al., 1988; Saphire-Bernstein & Taylor, 2013). Furthermore, the fact that friendship showed stronger effects in older adulthood than familial relationships underscores the importance of examining multiple relationships simultaneously (Giles, Glonek, Luszcz, & Andrews, 2005). In Study 2, the effect of friendships on health and happiness—as well as other relationships—was examined in a large sample of older adults.

Although Study 1 provided some evidence that friendships predict better happiness and health over time, there are some notable limitations. First, the data were cross-sectional. Having participants at different ages can provide insight into developmental processes,

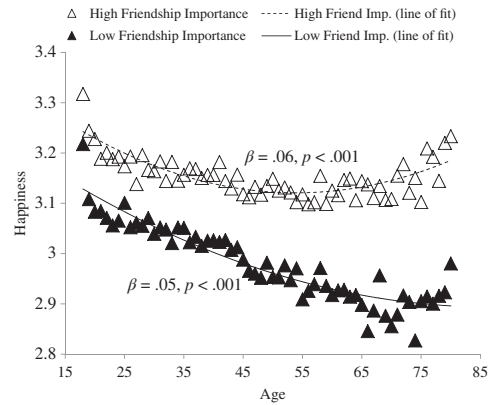


Figure 2. Study 1: Age differences in happiness among individuals with high versus low friendship importance. Points represent means for individual year with ages below 18 and above 80 collapsed to these age points because of low sample sizes. Median splits of friendship importance were used to graph these interactions, but continuous versions of the variables were used in all data analyses. Simple slopes represent the effect of age² at 1 SD above/below the mean of friendship importance.

but it also leaves open the interpretation that there were preexisting differences between birth cohorts in this study. Thus, longitudinal data are needed to strengthen the claim that friendships are associated with better health and well-being in later life over and above the effect of other relationships. Second, due to the limited survey items available, only two (single-item) measures of relationship importance were measured. Multi-item measures can more reliably assess the degree to which people invest in and receive support from these relationships. Study 2 not only uses multi-item measures but also assesses the quality of actual relationships in participants' lives rather than how much they value close relationships. Third, the family importance item lumped in several distinct relationships—relationships with spouses, children, and other immediate family. Each of these relationships could have distinct influences on predicting health and well-being across the lifespan. Fourth, the people in our lives do not always provide support; indeed, their presence can oftentimes

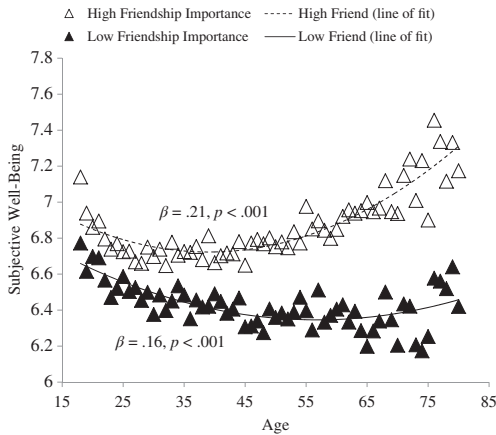


Figure 3. Study 1: Age differences in subjective well-being among individuals with high versus low friendship importance. Points represent means for individual year with ages below 18 and above 80 collapsed to these age points because of low sample sizes. Median splits of friendship importance were used to graph these interactions, but continuous versions of the variables were used in all data analyses. Simple slopes represent the effect of age² at 1 *SD* above/below the mean of friendship importance.

be quite stressful. There is now a growing literature suggesting that it is appropriate to distinguish between the support and strain provided by different agents in people's social networks (Darbonne, Uchino, & Ong, 2013; Walen & Lachman, 2000). In Study 2, the unique effects of support and strain from different sources on health and happiness were examined. Fifth, single-item measures of health and happiness were used in Study 1. The use of a subjective health measure is particularly problematic as it has been shown to be biased by psychological processes and assesses things beyond objective health status (Jylhä, 2009; Wu et al., 2013). In Study 2, a count of chronic illnesses was used as a more objective measure of health status.

Study 2

In Study 2, a large sample of older adults was used to examine whether the effects of receiving support and strain from different

relationship sources (i.e., spouses, children, family, friends) predicted changes in health (over 6 years) and subjective well-being (over 8 years). To this end, a sample of over 7,000 older adults was used to test whether support from different types of relationships was associated with better health and subjective well-being longitudinally. Thus, the moderating role of time was entered into the model. Study predictions, preregistration, and syntax for the models tested in Study 2 are available on the Open Science Framework (<https://osf.io/9jpux/>). Confirmatory factor analyses suggested that one of the measures was better conceptualized as having two factors, so this preregistration was later relaxed to reflect this and the inclusion of the subjective well-being measure, which became available after the study was preregistered.

Method

Participants and procedure

Participants were 7,481 older adults ($M_{\text{age}} = 68$ years, $SD = 10$ years; 58.1% female) from the Health and Retirement Study (HRS). Participants averaged 13 ($SD = 3$) years of education. HRS is a nationally representative and prospective panel study that has surveyed more than 22,000 Americans aged 50+ every 2 years (Sonnega et al., 2014). Data have been collected since 1992. The current study reports on psychological, health, and covariate data collected from 2006 to 2014. The University of Michigan's Institute for Social Research is responsible for the study and provides extensive documentation about the protocol, instrumentation, sampling strategy, and statistical weighting procedures.

Measures

Sources of support and strain. Social support and strain were indexed for the following relationships: spouses, children, family members (immediate family), and friends. Three questions were asked about the support derived from each relationship (e.g., "How much do they really understand the way you feel about things?"). Four questions were asked about the strain derived from each relationship (e.g.,

“How much do they let you down when you are counting on them?”). Participants responded to each question on a scale ranging from 1 (*a lot*) to 4 (*not at all*). Immediately following the questions about spousal and parent–child relationships, participants were directed to think of “any other immediate family, for example, any brothers or sisters, parents, cousins or grandchildren” to distinguish these immediate family relationships from spouses and children.

A series of confirmatory factor analyses revealed a two-factor solution for support and strain for spouses, $\chi^2(13) = 44.95$, $p < .001$, comparative fit index (CFI) = .956, root mean square error of approximation (RMSEA) = .018, $\alpha_{\text{support}} = .81$, $\alpha_{\text{strain}} = .78$; children, $\chi^2(13) = 33.74$, $p < .001$, CFI = .974, RMSEA = .015, $\alpha_{\text{support}} = .83$, $\alpha_{\text{strain}} = .78$; immediate family, $\chi^2(13) = 42.17$, $p < .001$, CFI = .971, RMSEA = .017, $\alpha_{\text{support}} = .86$, $\alpha_{\text{strain}} = .78$; and friends, $\chi^2(13) = 25.75$, $p < .001$, CFI = .979, RMSEA = .011, $\alpha_{\text{support}} = .84$, $\alpha_{\text{strain}} = .76$.⁴ Responses were scored such that higher values corresponded to higher support/strain.

Chronic illness. An index of eight major chronic illnesses was computed for each participant at each wave. Participants were asked to report if he or she was diagnosed by a physician with any of the following: (a) high blood pressure; (b) diabetes; (c) cancer or a malignant tumor of any kind; (d) lung disease; (e) coronary heart disease including heart attacks, angina, and congestive heart failure; (f) emotional, nervous, or psychiatric problems; (g) arthritis or rheumatism; and (h) stroke. The number of major health problems was summed so that higher values reflect more health problems. This index of chronic illnesses assesses multiple morbidities among older adults and is compiled by the RAND Corporation in consultation with HRS. Chronic illnesses were assessed four times (in 2006, 2008, 2010, and 2012). The RAND 2014 index of chronic illnesses was not available at the time of the writing of this report.

Subjective well-being. The well-established Satisfaction with Life Scale was administered to assess subjective well-being (Diener, Emmons, Larsen, & Griffin, 1985). A sample item is “In most ways my life is close to my ideal.” Participants rated the extent to which they agreed with each of the five items on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*; $\alpha_{\text{mean}} = .89$). The response format differed between a 6-point scale (in 2006) and a 7-point scale (in 2010 and 2014). The items were thus recoded to a 5-point scale to be consistent across waves. Subjective well-being was assessed thrice (in 2006, 2010, and 2014).

Results

Longitudinal analyses

To examine longitudinal changes in chronic illnesses and subjective well-being and whether these changes were moderated by support/strain received from different sources, two multilevel models were constructed. Multilevel modeling allows for the analysis of the entire sample, whereas traditional regression approaches utilize a listwise deletion of subjects who do not have complete data on all measures. Thus, if an individual had missing data on spousal support/strain (e.g., if they were not married), the effect is only estimated among people with data on this variable. Chronic illnesses and subjective well-being at each wave were treated as within-subjects variables that varied over time. The linear effect of time was modeled on these within-subject observations. Support and strain from spouses, children, family, and friends were entered as time-invariant predictors of changes in chronic illnesses and subjective well-being. Furthermore, interactions between each of the support/strain sources and time were included to test whether the association between support and health became stronger, weaker, or stayed the same over time in older adulthood. Participant gender ($-1 = \text{male}$, $1 = \text{female}$), marital status ($-1 = \text{single}$, $1 = \text{partnered}$), age (at Wave 1), and education (at Wave 1) were included as covariates. Because significance levels in multilevel growth curve modeling can occasionally be inaccurate (Raudenbush

4. The fitting of a two-factor model significantly improved the overall fit for spouses, children, immediate family, and friends compared to a one-factor solution, $\chi^2_{\text{(diff)}} > 148.87$, $\Delta\text{CFIs} > .162$, $\Delta\text{RMSEA} > .010$.

& Bryk, 2002; Snijders & Bosker, 2012), likelihood ratio tests were conducted to examine the contribution of each main effect and interaction to the total variance explained by the overall model. Only terms that yielded a significant positive likelihood ratio test are discussed. Negative likelihood ratios suggest that the overall model fit worsened by the inclusion of that particular term.

The results from these multilevel models are presented in Tables 2 (chronic illnesses) and 3 (subjective well-being).

The number of chronic illnesses tended to increase over time on average. Being older, being single, and having less education were each associated with more chronic illnesses. Using the positive likelihood ratio test criteria, the only significant contributor to the model was friendship strain, which was associated

with a greater number of chronic illnesses. The association between friendship strain and chronic illnesses was invariant over time, suggesting that the negative effects of friendship strain at Wave 1 continued to predict chronic illnesses into older adulthood.

Subjective well-being did not significantly change over time. Higher levels of education were associated with greater subjective well-being. Using the positive likelihood ratio test criteria, spousal support, child support, and friendship support were all associated with greater subjective well-being. Spousal and child strain (marginally) were associated with lower subjective well-being. As in Study 1, family relationships did not contribute to subjective well-being. Each of these relationships was invariant over time, suggesting that the benefits of support and the costs of strain

Table 2. Study 2: Multilevel models predicting chronic illnesses

	Chronic illness						
	<i>b</i>	<i>SE</i> (<i>b</i>)	β	<i>t</i>	<i>p</i>	$R\chi^2$	<i>p</i>
Time	.12	.28	.12	5.10	<.001	20.30	<.001
Spousal support	-.09	.04	-.06	-2.35	.02	0.84	.36
Child support	-.09	.03	-.07	-2.73	.006	2.54	.11
Family support	-.02	.03	-.01	-0.60	.55	-5.00	.03
Friend support	-.02	.03	-.01	-0.60	.55	-4.88	.03
Spousal strain	.03	.04	.02	0.86	.39	-3.98	.05
Child strain	.10	.04	.06	2.34	.02	0.93	.33
Family strain	.04	.04	.03	1.04	.30	-3.41	.06
Friend strain	.15	.05	.07	3.07	.002	5.20	.02
Time × Spousal Support	-.003	.004	-.001	-0.65	.51	-8.74	.003
Time × Child Support	.002	.004	.001	0.46	.64	-9.16	.002
Time × Family Support	.003	.003	.002	0.92	.36	-8.96	.003
Time × Friend Support	-.01	.003	-.01	-3.07	.002	-0.27	.60
Time × Spousal Strain	-.001	.004	-.0004	-.16	.87	-9.13	.003
Time × Child Strain	.001	.005	.0003	0.12	.91	-8.93	.003
Time × Family Strain	.001	.005	.001	0.30	.77	-8.85	.003
Time × Friend Strain	.01	.01	.005	1.76	.08	-5.51	.02
Gender	.004	.02	.004	0.19	.85	-5.82	.02
Age	.04	.002	.44	19.37	<.001	349.68	<.001
Marital status	-.03	.05	-.03	-.56	.58	-3.68	.06
Education	-.05	.01	-.15	-7.38	<.001	46.01	<.001
AIC	30250.05						
-2 log likelihood	30246.05						

Note. Gender: -1 = male, 1 = female. Marital status: -1 = single, 1 = partnered. $R\chi^2$ = likelihood ratio tests with corresponding *p* values; AIC = Akaike information criterion.

Table 3. Study 2: Multilevel models predicting subjective well-being

	Subjective well-being						
	<i>b</i>	<i>SE</i> (<i>b</i>)	β	<i>t</i>	<i>p</i>	<i>R</i> χ^2	<i>p</i>
Time	.01	.09	.01	0.15	.881	-2.87	.09
Spousal support	.23	.02	.15	11.82	<.001	131.63	<.001
Child support	.14	.02	.10	8.34	<.001	62.70	<.001
Family support	-.01	.01	-.01	-0.62	.54	-6.41	.01
Friend support	.06	.01	.04	4.00	<.001	9.33	.002
Spousal strain	-.15	.02	-.10	-7.99	<.001	57.24	<.001
Child strain	-.06	.02	-.04	-3.15	.002	3.94	.05
Family strain	-.02	.02	-.02	-1.21	.23	-4.46	.03
Friend strain	-.04	.02	-.02	-1.80	.07	-2.37	.12
Time \times Spousal Support	-.03	.02	-.02	-1.99	.05	-2.40	.12
Time \times Child Support	-.0001	.01	-.0001	-0.01	.99	-6.59	.01
Time \times Family Support	-.01	.01	-.01	-0.81	.42	-6.38	.01
Time \times Friend Support	-.005	.01	-.004	-0.38	.71	-6.79	.01
Time \times Spousal Strain	.03	.02	.02	1.82	.07	-3.05	.08
Time \times Child Strain	.01	.02	.01	0.53	.60	-5.89	.02
Time \times Family Strain	.01	.02	.004	0.40	.69	-6.02	.01
Time \times Friend Strain	.004	.02	.002	0.19	.85	-5.80	.02
Gender	.03	.01	.03	3.07	.002	2.08	.15
Age	.003	.001	.02	2.21	.03	-6.85	.01
Marital status	.04	.03	.04	1.33	.18	-3.57	.06
Education	.02	.003	.06	6.44	<.001	31.69	<.001
AIC	23484.39						
-2 log likelihood	23480.39						

Note. Gender: -1 = male, 1 = female. Marital status (-1 = single, 1 = partnered). *R* χ^2 = likelihood ratio tests with corresponding *p*-values; AIC = Akaike information criterion.

continued to predict subjective well-being into older adulthood.

Discussion

In Study 2, the effects of support and strain from different relationship sources were examined. Only friendship strain predicted more chronic illnesses over time. The support and strain of spousal, parent-child, and friendship relationships predicted subjective well-being. All of these associations were time invariant over a 6- and 8-year window, respectively. The second study addressed many of the limitations of Study 1 by examining the effects of different sources of support on changes in health and well-being over time. By differentiating family relationships into spousal, child, and other immediate family, greater specificity of these

relationships on health and well-being was discovered.

The results from the second study suggest that family relationships with people other than spouses and one's immediate children have little influence on an individual's health and well-being in older adulthood. Support and strain from spouses, children, and friends were larger predictors of well-being and also remained so over the course of the study, not diminishing in influence over time. Friendship strain was among the only predictors of chronic illnesses in later life, a point that is examined in the General Discussion.

Although Study 2 improved on Study 1 considerably, it is not without limitations. One such limitation is that study participation was restricted primarily to older adults (50+ years old). Study 1 focused on a larger

age range (15–99), which allowed for an age-by-age comparison of the effect of close relationships on health and well-being. It could be that the effects of social relationships on health accumulate over large stretches of time. Figures 1–3 provide evidence for this—the benefits of valuing close relationships are very small earlier in life and slowly accumulate over time. Given that participants in Study 2 were followed up over a short time frame, a longer examination of the health and well-being benefits of close relationships among older adults could be warranted.

Another limitation is the way in which chronic illnesses were indexed. In Study 2, the eight illnesses were summed, giving equal weight to each illness. However, different illnesses likely warrant different weights. For example, a person with heart failure may require a larger chronic illness weight than a person with a mild case of arthritis. However, there were no data on the severity of each illness experienced by participants. Therefore, illnesses could not be weighted based on severity, but this distinction may have implications, such that social support and strain may have different influences on some indicators of health (e.g., emotional problems) than others (e.g., strokes). A working hypothesis would be that positive social relationships would likely mitigate most of the severity across many different illnesses. Future research can examine whether support/strain from different sources affect the onset of different health problems and illnesses.

General Discussion

In two studies, valuing and receiving support from different types of relationships were each uniquely associated with better health and higher happiness and subjective well-being across the lifespan. In Study 1, friendships were particularly beneficial for older adults. In Study 2, strain from friendships was the only significant predictor of chronic illnesses over time. Spousal, child, and friend relationships were related to greater subjective well-being. Most notably, familial (nonspousal, nonchild) relationships did not affect health or subjective well-being in either study. The current

findings align well with previous research on the benefits of close relationships (House et al., 1988); furthermore, the current study extended this research by examining the relative influence of different types of close relationships on health and well-being at different points of the lifespan.

The fact that positive spousal and parent–child relationships were related to better health and higher subjective well-being is consistent with previous research (Carr, Freedman, Cornman, & Schwarz, 2014; Kim, Chopik, & Smith, 2014). However, why did familial relationships have a static (or in some cases, no) influence on health and well-being across the lifespan but spousal, parent–child, and friend relationships become increasingly important across the lifespan? Unfortunately, given the limited number of variables in both studies, it is difficult to test specific mechanisms that might link different relationships to health and well-being. Insights from several existing theories and research point to some possible explanations, especially with respect to one finding—that friendships exerted such a strong influence on health and well-being even after controlling for support and strain from other relationships. Friendships were very influential—when friends were the source of strain, participants reported more chronic illnesses; when friends were the source of support, participants were happier. This finding is consistent with previous research showing that friendship quality often predicts health more so than the quality of other relationships (Bearman & Moody, 2004; Christakis & Fowler, 2007; Giles et al., 2005). The discussion of the current studies will focus on the unique aspect that these relationships—friendships—have on health and subjective well-being across the lifespan.

The importance of friendships on health and well-being across the lifespan

Chronic disease, health behavior, and psychological well-being have been shown to spread through social networks over time (Smith & Christakis, 2008). Although social networks tend to decrease in size across the lifespan, individuals tend to shift greater attention and

resources toward maintaining existing relationships that maximize well-being (Carstensen et al., 1999). Thus, as individuals invest more in these relationships over time, they are likely to accumulate the benefits conferred by these relationships, resulting in greater health and well-being in older adulthood. Furthermore, the quality of social networks primarily involving friends predict mortality among older adults, while the quality of social networks with relatives (i.e., family) do not predict mortality (Giles et al., 2005). Giles and colleagues (2005) suggest that friendships may play a larger role in predicting health and well-being in late life primarily because interactions with friends stem from choice and selectivity, and individuals likely maintain the friendships that maximize well-being; selectively removing familial relationships from one's life may be considerably harder.

Familial relationships also might decline more naturally over time, and as a result, individuals invest more in friendships as a source of support and well-being. The latter relationships necessarily involve more effort to maintain because they are mostly optional, whereas familial relationships are arguably not (Roberts & Dunbar, 2011). Due to their selective nature, some relationships can be shaped and changed much easier than other types of relationships. Thus, many of the psychosocial mechanisms that link close relationships to health and well-being may operate through the relationships preserved (or pruned) across the lifespan (Carstensen, Fung, & Charles, 2003) rather than obligatory familial relationships, which exert a smaller influence on well-being in older adulthood (Lee & Ishii-Kuntz, 1987).

The benefits of friendships on well-being have received some empirical support, albeit friendships are rarely explicitly studied. Notably, individuals have many more interactions with friends and other "weaker ties" than with family and other "closer ties" throughout a day (Sandstrom & Dunn, 2014). Friends are an ever-present element in peoples' lives—at work, school, church, the gym. Having good friends in these contexts makes individuals feel less lonely, a greater sense of belonging, and ultimately happier (Jehn & Shah, 1997; Riordan & Griffith, 1995). On days when

individuals interact with friends, they report greater happiness and more positive affect (Sandstrom & Dunn, 2014). In fact, people generally report more positive experiences with their friends than they do with their families, particularly in later life (Huxhold, Miche, & Schüz, 2014; Larson, Mannell, & Zuzanek, 1986). Larson and colleagues (1986) suggest that friendships are more closely tied to well-being because friends often engage in leisure activities together, often in limited doses that involve a degree of spontaneity. Family relationships, on the other hand, are enjoyable for many people, but they also implicate more serious, sometimes negative and monotonous interactions.

How these sources of support and strain predict health and well-being in different contexts is an important direction for future research. For example, among people without romantic partners in old age, emotional support and assistance from friends are among the most protective factors against loneliness (Dykstra, 1995). For many older adults, friends may provide extra support when familial relationships end as they are more likely to as time passes. Indeed, Walen and Lachman (2000) suggest that friendship networks may exert a larger influence on health in late life not only because they are selective relationships (Roberts & Dunbar, 2011) but also because friendships may often be the only relationships left in an individual's life. This may be particularly true if they have a distant relationship with their families or have experienced spousal bereavement (Gupta & Korte, 1994). Often-times, adults can rely on support from one relationship (e.g., spousal, parent-child, family) to buffer against the effects of strain resulting from another relationship (e.g., friendships; Walen & Lachman, 2000). However, in the absence of these other relationships, the strain experienced in friendships may exert a larger effect in late life. This can be particularly toxic given the research demonstrating that relationship strain is more closely linked to health than support (Walen & Lachman, 2000). Although the aforementioned points are speculative, future research can examine the exact mechanisms underlying the link between friendship strain and physical health.

The role of family and friendship support on health and well-being might also exert different influences depending on one's cultural context. Friendships are found in some form or another in nearly all cultures (Cohen, 1966). However, the importance and function of close relationships change over time differently between cultures (Keller, Edelman, Schmid, Fang, & Fang, 1998). The benefits of friendships on health and well-being may also differ on the degree to which friendships are actually considered selective, which likely differs across cultures as well (Beer, 2001). Although cultural variation was not the main focus of the current study, how friendship is expressed in different cultures and whether these differences explain cultural variation in health and happiness are exciting directions for future research and can be examined using data from Study 1 (Keller, 2003; Kumar, Calvo, Avendano, Sivaramakrishnan, & Berkman, 2012).

Conclusion

The current study demonstrated that investing in close relationships is associated with better health, happiness, and well-being in adults across the lifespan. Future longitudinal studies can examine which (and how) close relationships exert their influence on health and well-being and the factors (e.g., cultural, social, and personal variables) that might attenuate these mechanisms. The limitations of the current studies notwithstanding, contextualizing the link between close relationships and health within a lifespan developmental context will hopefully stimulate research for examining the mechanisms that give rise to the enhancing effects of close relationships and how these benefits are conferred and unfold over time.

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