Social Relationships and Health in Older Adulthood

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Abstract

Older adults make up a larger proportion of the population and are living longer than in any time in previous history, which has important implications for their social relationships. This essay reviews key theory and research on changes in social networks over the lifespan, the benefits (and costs) of social relationships for physical health, and the health impact of loss of social relationships during older age. Methodological innovations are shedding new light on the specific biological mechanisms that explain how high and low quality social relationships can impact health, and we review these innovations in different contexts: marriage and loneliness. While social networks generally decrease in size across the lifespan, there is considerable potential for expanding social networks and forming new relationships in later life. However, the research literature on forming new friendships and intimate relationships in older adults is quite limited. Thus, this essay concludes by describing key issues and methodological challenges involved in studying new relationship formation in older adults.

INTRODUCTION

Improvements in public health have led to a significant "graying" of populations around the world, which, along with economic challenges, poses social challenges as well. In this essay, we address emerging trends in social relationships in older adulthood, with a focus on implications for health and well-being. We review seminal theory and research on changes in social networks across the lifespan, the benefits and costs accrued from social networks, and the health impact of specific social losses that occur in later life. We then describe cutting-edge research in two areas: marriage and loneliness, and their impact on physical health. Finally, as the field has generally focused on shrinkage and loss, an increasing older adult population also brings much potential for expanding social relationships. Thus, we review research on new relationship formation in later life, including friendships

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and intimate relationships, describing open questions and challenges in studying new relationship formation.

FOUNDATIONAL RESEARCH

Social Network Changes with Age

While there is likely significant interindividual variability, on average overall social network size peaks in late adolescence/early adulthood, followed by steady shrinking over the lifecourse (Wrzus, Hänel, Wagner, & Neyer, 2013). The downward rate of change continues but slows in older age, primarily due to a reduction in number of friends, but not family ties.

Widely accepted theories attribute changes in social networks to individual changes in social motivation (socioemotional selectivity theory) or to life events and environmental changes (social convoy theory). *Socioemotional selectivity theory* posits that for social behavior, when people perceive their future as more constrained (such as aging adults), emotion regulation goals become increasingly valued over acquiring information, leading to increased preference for spending time with close others (e.g., family or friends). In contrast, when people view their future time as unlimited, they prefer to spend time with others who provide new information or experiences. Indeed, older adults appear to prune their social networks to reduce numbers of acquaintances but preserve close, meaningful relationships (for a review, see Charles & Carstensen, 2010). *Social convoy theory* also matches the observed data, but attributes the lower stability of more peripheral acquaintances to external life events such as loss of a spouse or relocation.

In addition to specific life events, older adults may experience a different social environment more broadly. Older adults often have less time constraints than middle-aged counterparts (e.g., less conflict with work and childcare), but they can have new constraints, such as reduced physical and financial resources (Blieszner & Roberto, 2004). Furthermore, on a day-to-day basis, older adults tend to report fewer situations where they avoided or engaged in an argument than younger adults (Birditt, Fingerman, & Almeida, 2005). Lifespan development perspectives suggest that older adults differ from younger adults in how they think about and evaluate interpersonal tensions (cognitive appraisals) and control the experience and expression of emotions (emotion regulation). However, this reduction in negative social experiences in later life may also be influenced by the interaction partner's behavior toward older adults. The *social input model* proposes that when older adults are motivated to minimize conflict in social relationships, their social partners (of any age) correspondingly treat

them favorably to maintain a positive relationship (Fingerman & Charles, 2010). Thus, both internal factors (social motivation goals, ways of thinking) and external factors (life events, how other people view older adults) contribute to the changes in social networks in older adulthood and how those networks are perceived and maintained over time. Such factors likely contribute to the benefits and costs of social relationships for health.

Social Support and Negativity and Health

Strong social relationships are associated with a lower risk of mortality across the lifespan (Holt-Lunstad, Smith, & Layton, 2010) and in older adults (e.g., Steptoe, Shankar, Demakakos, & Wardle, 2013). The benefits and costs of social relationships for well-being operate through psychological, behavioral, and physiological mechanisms (for a review see Uchino, 2004). While such processes are expected to influence health throughout the lifespan, they may take on particular importance in later life when individuals have greater physical vulnerability. Here, we focus on the benefits and costs of social relationships more broadly.

Humans "need to belong" in social networks, which is on par with our basic needs for safety, shelter, and sustenance (Baumeister & Leary, 1995). Social relationships are a critical source of instrumental, informational, emotional support that we receive from others during stressful events and circumstances (Uchino, 2004). In addition, sharing good personal news with others, known as capitalization, can prolong the positive emotions that accompany good news (Gable, Gonzaga, & Strachman, 2006). At the same time, social relationships inevitably incur some cost (reviewed in Brooks & Dunkel Schetter, 2011). Social networks are a source of disagreement and conflict. In addition, friends and family can be sources of insensitivity (i.e., showing disregard for one's needs and wishes) and even impede our pursuit of important goals.

As described, older adults normatively pursue more positive social interactions in the process of pruning social networks. In addition, older adults are more adept at avoiding social negativity, and show less affective reactivity to negative social interactions when they occur. However, social tension is unavoidable, and people with social networks characterized by members who are sources of social support *and* negativity, often termed "ambivalent" network ties (having high positive and negative self-reported attitudes toward such individuals) may be at particular risk for poor health and well-being because of the unpredictable nature of those relationships. For example, in a nationally representative sample of older adults, greater self-reported negativity of ambivalent family ties was related to greater

limitations in physical functioning (Rook, Luong, Sorkin, Newsom, & Krause, 2012).

Loss of Social Relationships

The loss of core social relationships is a major contributor to social network shrinkage in old age. Over the past 20 years, the divorce rate among adults over age 50 has doubled, accounting for one out of every four dissolved marriages; the rate of increase was largest for older adults (Brown & Lin, 2012). Following divorce, parent–child relationship contact and quality may suffer (reviewed in Brown & Lin, 2012) and social networks show decreased size and density (Milardo, 1987). For the divorced individual, divorce has negative consequences for mental and physical health, including decreased subjective well-being, increased risk for depression, and mortality (Sbarra, Hasselmo, & Nojopranoto, 2012).

Widowhood, considered one of the most stressful events one could experience, increases risk for depression and complicated (prolonged) grief. Widowhood is also associated with worse self-rated physical health, and elevated disability and illness (Stroebe, Schut, & Stroebe, 2007). In prospective studies widowers have 22% greater risk of early mortality compared to married persons (Shor *et al*., 2012). While mortality risk due to widowhood is lower in older relative to younger adults, widowhood itself is much more common in older adults.

Mechanisms

Positive and negative aspects of social relationships on health likely exert their effects through several mechanisms (DiMatteo, 2004; Uchino, 2004). Friends and family influence health-compromising behaviors (e.g., smoking, drinking) and health-promoting behaviors (e.g., healthy diet, exercise) through direct influence, such as pressuring a loved one to give up smoking, and indirect influence, such as modeling ideal (or less than ideal) behaviors. In addition, our social networks help protect us against the effects of stressful events on health behaviors (i.e., self-medicating through smoking, drinking, or eating). Another mechanism is promoting psychological well-being, such as reduced depression or anxiety. Finally, social relationships may exert direct impacts on biological systems with key roles in the onset and progression of disease, such as the cardiovascular, endocrine, and immune systems. Here, we describe cutting-edge research that uses sophisticated methodological approaches to understanding the impact of social relationships on biological processes in older adults.

CUTTING-EDGE RESEARCH IN SOCIAL RELATIONSHIPS AND HEALTH IN OLD AGE

The normative changes in social networks during the lifespan make certain relationships particularly important for well-being, such as close intimate relationships like marriage, and make the perception of limited social interactions particularly deleterious for well-being.

Marital Functioning

A recent review found that greater subjective and objective ratings of the quality of married relationships were associated with better health (Robles, Slatcher, Trombello, & McGinn, 2014). These associations may be particularly important in older adults (Umberson, Williams, Powers, Liu, & Needham, 2006) who in the twenty-first century will represent the highest proportion of married individuals (Cherlin, 2010). Here, we focus on recent findings on marital functioning and cardiovascular function and disease, because such findings suggest plausible biological pathways.

Compared to younger adults, older adults generally show larger cardiovascular responses (greater heart rate and blood pressure changes) to brief stressors in laboratory settings, such as performing challenging mental arithmetic (Uchino, Holt-Lunstad, Bloor, & Campo, 2005). Greater "cardiovascular reactivity" is associated with greater risk for cardiovascular disease (Chida & Steptoe, 2010). In married relationships, lower marital quality is associated with greater cardiovascular responses to marital stressors, such as when spouses discuss problems in their relationship. Thus, if older adults show greater cardiovascular reactivity to stress, older married adults may accordingly show larger cardiovascular responses during marital conflict.

On the other hand, socioemotional selectivity theory predicts greater warmth and less hostility among older married couples during conflict discussions. Consistent with that prediction, blood pressure responses were similar between older adult and middle-aged couples, and heart rate responses were smaller in older adult couples (Smith *et al*., 2009). At the same time, older men showed larger cardiovascular responses compared to middle-aged men when they had to work with their spouse in planning a schedule of errands and a route through a fictitious town to efficiently complete those errands. Thus, while spousal discussions about problems in the relationship become more positive over time, spousal discussions about other topics such as collaborating to solve a problem may contribute to cardiovascular risk in older adults.

Although cardiovascular reactivity to conflict did not differ between middle-aged and older couples, behaviors during conflict discussions were associated with cardiovascular risk in those couples (Smith *et al*., 2011). Specifically, women who displayed low warmth (affirming one's spouse, demonstrating affection) during conflict had greater levels of calcification in their coronary arteries, which is a surrogate marker of cardiovascular disease. Men who displayed high dominance during conflict (ignoring, controlling) had greater coronary artery calcification. In sum, these studies are examples of how innovative methods add to our understanding of how marital functioning contributes to cardiovascular disease risk in older adults.

Loneliness

The normative decrease in social network density with age may contribute to perceived social isolation and its deleterious effects on health and well-being. Loneliness is the distress associated with perceiving one's social needs are not being met (Hawkley & Cacioppo, 2010). Importantly, loneliness is weakly correlated with measures of social network quantity and quality (Pinquart & Sorensen, 2001), and predicts depressive symptoms independently of perceived social support measures. Moreover, in initially dementia-free older adults, loneliness at baseline was associated with a faster decline in cognitive functioning over 4 years (Wilson *et al*., 2007).

For physical health, chronic loneliness predicted greater risk of all-cause mortality and cardiovascular mortality (reviewed in Hawkley & Cacioppo, 2010). Similar to the mechanisms described, loneliness is associated with worse health behaviors, including lower physical activity and worse sleep. In terms of biological processes, greater loneliness in middle-aged and older adults was related to higher blood pressure and larger increases in resting blood pressure over a 4-year follow-up. Finally, loneliness may have also have effects at the level of cells and genes, as chronically lonely older adults showed greater expression of genes in immune cells that are involved in immune system activation and inflammation compared to more socially connected older adults (Cole *et al*., 2007). Inflammation is the body's rapid response to infection and injury, and two decades of research suggest that the pathophysiology of many chronic illnesses associated with aging (e.g., heart disease, certain cancers, Alzheimer's disease) is fueled in part by excessive inflammation (Robles, Glaser, & Kiecolt-Glaser, 2005). Thus, perceived social isolation appears to pervade numerous physiological systems, all the way to the level of gene expression, increasing risk for poor health and well-being in old age.

KEY ISSUES FOR FUTURE RESEARCH

New Friendship Formation

Research on changes in social networks in later life has focused primarily on overall decreases in network size with age. However, life events that weaken social ties (e.g., retirement, relocation, and widowhood) can also be opportunities to strengthen or establish new social ties, increasing time to socialize and/or motivation to seek new social relationships. Furthermore, a study on retirement found that respondents' average number of social contacts did not change significantly after retirement, but the network composition—who these social contacts were—changed substantially (Van Tilburg, 1992); older adults appeared to bolster their social networks to compensate for life changes. Yet, there is a dearth of research on how people establish new relationships in older adulthood, and the preliminary work described later was conducted over 20 years ago. We review existing data and key issues for future research.

Despite many studies of friendship in later life, there is relatively little empirical work on transitions between stages of friendship, at any age. Most work focuses on early processes such as attraction and relationship initiation, with little examination of how people shift along a continuum of intimacy from being an acquaintance to a close friend, or how people move through stages of a relationship (e.g., from initiation to maintenance; Blieszner & Roberto, 2004). The modest literature focused on later life is primarily composed of qualitative studies, and ranges from studying compensation and adaptation to specific life events (such as retirement, widowhood, and relocation) to interviewing older adults about their friendship history.

The typical pattern of maintaining a small network of close friends appears across interview-based studies in senior residences and community settings, but a subtype of respondents are more open to making new friends and continue to acquire more social ties (Adams, 1987; Matthews, 1986). Other respondents had relatively restricted networks, due to feelings of self-sufficiency or to not yet having the opportunity to compensate for a recent life change such as relocation. These data suggest that more work is needed to determine the prevalence and origins of individual differences in openness to making new friends and factors such as self-sufficiency. For example, dispositional differences in whether one seeks gains or tries to avoid losses may influence likelihood of developing new friendships.

Older adults' old and new relationships may provide different qualities. Old friends knew the person from before aging became a salient change and can provide continuity; conversely, new friends can validate shifts in one's sense of self (Jerrome, 1981). New friendships tended to be especially reciprocal in exchange of resources and affection, while older relationships did

not require as much active upkeep. In addition, new friends were often less emotionally close than longer held friendships with more shared history; conversations focused on a more surface level, impersonal topics rather than intimate disclosures more common with old friends (Shea, Thompson, & Blieszner, 1988). However, some "new" friendships in later life are reactivations of dormant relationships, formed by becoming closer to more peripheral ties (e.g., Matthews, 1986).

Romantic Repartnership

Despite disincentives to remarry (e.g., inheritance issues) roughly 14% of older adults repartner in committed dating relationships in the United States (Brown & Shinohara, 2013) and around 4% of unmarried older adults were in cohabiting relationships (Brown, Lee, & Bulanda, 2006). Remarriage may partially attenuate the negative mental and physical health impact of divorce and widowhood. For example, remarried older adults reported lower depressive symptoms compared to those who lost a partner but remained single (Brown, Bulanda, & Lee, 2005). Yet, little is known about how the process of how people repartner and establish new romantic relationships in later life, and potential impacts on health and well-being.

The existing research on dating in later life is primarily qualitative, and primarily focused on older women and their motivation to date. Older women tended to report less interest in dating than older men, given their desire to maintain independence and avoid caregiving for a new partner; yet, many were still interested in the companionship provided by a romantic partner (e.g., Dickson, Hughes, & Walker, 2005). Limited quantitative research has compared characteristics of older adults across relationship statuses in nationally representative survey data. As of 2005–2006, dating was more common for men than women, for divorced and separated than widowed respondents, and less common among the oldest respondents. Dating adults had higher education, wealth, health, social connectedness, and even mobility compared to nondating adults (Brown & Shinohara, 2013). In earlier data, older cohabitors were disadvantaged compared to remarried respondents, and slightly less socially connected than unpartnered counterparts (Brown *et al*., 2006). However, in these correlational studies the direction of causality is unclear; being advantaged likely makes someone a more appealing partner, but having a romantic partner may also improve economic resources.

Finally, there is a dearth of research on the process of moving from a desire for a relationship to establishing a recognized committed relationship, paralleling the lack of research on friendship phase transitions. Future research should examine individual differences in motivation and establishment of

dating relationships as well as the process of moving from initial to later stages of relationship formation. Having an established romantic partner may benefit health and well-being in the long run, but the uncertainty involved in a fledgling relationship could act as a stressor in the short run.

RESEARCH CHALLENGES AND FUTURE DIRECTIONS

Broadening the Scope

The lack of research on new relationship formation in older adulthood reflects the difficulty of studying relationship formation more generally, which requires prospective, longitudinal research. While challenging, identifying populations to recruit is possible; for example, studying new friendship formation by recruiting people moving into a new senior residence (e.g., Shea *et al.*, 1988). Volunteer programs and social interventions are fertile ground for friendship research, and older adults are increasingly using online dating services. Regardless of recruitment avenue, long-term follow-up is needed to help differentiate between short- and long-term outcomes associated with establishing new social relationships in older adulthood.

Sample size and generalizability is another challenge. The previously described friendship formation research interviewed small samples (often under 50 respondents). Thus, partnering with stakeholders in the community may be necessary to recruit larger samples in the future. Prior samples were also relatively homogeneous in gender; larger studies with older men and women are necessary to examine gender differences in friendship formation. Notably, despite movement toward a lifespan perspective, few studies address friendship in middle age. Indeed, given the need for longitudinal, prospective studies, the ideal place to begin initial data collection is during midlife. Asking questions about new social relationship formation in nationally representative samples would also facilitate describing general patterns and qualities of new friendships. Finally, much of the early research on friendship was conducted within the United States, raising concern that observed patterns may not hold across cultures. Thus, future work must incorporate cultural influences on social behavior in later life.

Addressing Methodological Challenges

A further challenge is that in large national surveys, questions must be succinct. Unfortunately, short self-report items such as "how many new friends have you made in the last year" may yield less accurate and reliable data than longer, more intensive methods such as generating comprehensive lists

of social contacts and determining how long the person has known each contact (e.g., Rook & Sorkin, 2003). Friendship is a broad term (acquaintance or best friend?); therefore, researchers should clarify definitions for participants to facilitate more reliable responses in survey research. Previous qualitative research on the meanings of friendship can inform social survey construction.

Future approaches to measurement should differentiate the consequences of *wanting* to establish new relationships from the effects of actually *creating* new social ties. Motivation to pursue and establish new relationships is easier to query through self-report measures, but may not translate to the likelihood of making new friends. Conversely, making a new friend or repartnering may influence someone differently depending on personal motivations and goals. Repartnering may lead to different shifts in well-being depending on whether the individual values independence from others or pines for a new relationship.

New relationship formation could also be studied using experimental designs such as randomized controlled trials (RCTs; that is, random assignment to either the treatment or a no treatment or a placebo control condition) which allow greater control and causal inference. RCTs have tested interventions to reduce social isolation and loneliness (see Masi, Chen, Hawkley, & Cacioppo, 2011 for a review); however, most target perceived loneliness rather than social network size. Future RCTs should examine what interventions promote social engagement, and how those improvements influence health and well-being. Most interventions target people who are highly lonely and isolated, but efforts to improve social integration may benefit the broader aging population as well (e.g., through volunteering; Rook & Sorkin, 2003).

Establishing new relationships is takes effort and resources, so researchers should also examine how the costs (e.g., energy input) stack up against the benefits of new relationships. Identifying for whom new friendships are most beneficial (or costly), and whether the costs and benefits differ in the short and long run, are key directions for future research. Given that old and new friendships differ in quality, future work should also examine whether there are correspondingly differential effects on health and well-being.

Finally, because social relationships are inherently interpersonal, researchers must strive to measure phenomena at dyadic and network levels. Statistical techniques such as the actor–partner interdependence model allow researchers to examine how focal individuals and their partners influence their own and their partner's outcomes over time, taking into account dependence within each dyad. Researchers also suggest examining how one's macro-level network influences friendship patterns (e.g., Bleiszner & Roberto, 2004). For example, having more family social ties may influence the likelihood of seeking and developing new relationships,

or changes in global network size could lead to corresponding changes in intimacy with the remaining social ties.

CONCLUSION

We highlighted the social challenges and opportunities that emerge in later life. Observed changes in older adults' motivations and social environment mean their relationships are often highly rewarding for well-being and health. However, social relationships are not universally positive; low warmth and greater dominance contribute to cardiovascular risk, and perceiving insufficient support is associated with poor health outcomes. Thus, research on the association between social functioning and well-being clearly suggests that losing and gaining relationships may have important implications for older adults. The psychological and physical health benefits of repartnering or even making new friends in later life remain unclear and demand empirical attention, and our essay provides some suggestions for moving forward. To conclude, while social networks shrink with age, this normative pattern may mask important dynamic processes involved in establishing new friendship and intimate relationships, suggesting that there is still much to learn about social relationships and health in older adulthood.

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