

## **Friendship: The Most Overlooked Public Health Asset**

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## **Abstract**

Friends confer powerful benefits to physical and mental health, happiness, longevity, economic mobility, work productivity, civic participation, and community resilience. In the face of twin crises—the loneliness epidemic and the friendship recession—friendships are more important to understand and facilitate than ever. Yet friendship is undervalued in public discourse and invisible in public policy. Drawing from research across and beyond social psychology, this paper describes the profound consequences of the current state of social affairs—and the ways friendship can not only combat those but also boost flourishing on individual and societal levels. The paper then outlines a set of grounded policy recommendations aimed at making friendship easier to form, maintain, and prioritize across the lifespan. These include coordinating a national response to social disconnection, integrating friendship skills into school curricula, embedding friendship into eldercare infrastructure, and—provocatively—prioritizing friendship alongside already-subsidized romantic and familial relationships. A closing offers caveats: effective policy can, at best, create the conditions for friendship to flourish; it cannot mandate affection. By treating friendships as determinants of physical, mental, social, and public health—as essential as sustenance, exercise, and sleep—policymakers can take real strides toward a healthier, more connected, and more resilient society.

## **Friendship: The Most Overlooked Public Health Asset**

Imagine wanting better physical and mental health, a longer life, greater happiness, and economic mobility. Imagine being a U.S. policymaker who wants to reduce national healthcare costs, improve performance and persistence in schools, curtail absenteeism and burnout at work, curb violent extremism, amplify civic engagement, and strengthen the resilience of local communities. Could any intervention realistically advance all these goals? Likely yes: friendship.

But social connections are eroding. The former U.S. Surgeon General has described loneliness of epidemic proportions (U.S. Department of Health and Human Services [HHS], 2023). This paper first describes the extent and consequences—at the individual and societal levels—of these crises. Then it outlines ways that friendship can not only buffer from these adverse outcomes but is also uniquely poised to boost human flourishing before offering policy implications that follow from taking friendship seriously.

### **The Friendship Recession, The Loneliness Epidemic, and Their Costs**

Social connection is as fundamental a need as food and water (Baumeister & Leary, 2017; Kenrick et al., 2010). Yet connection—and its benefits—seem harder than ever to realize (Peng & Roth, 2021; Surkalim et al., 2022).

Humans are living through twin crises, including a *friendship recession*—a decline in the number and adequacy of friendships (Cox, 2021b). In the United States, the share of adults reporting *zero* close friends has quadrupled since 1990—from 3% to 12 (Cox, 2021a). This recession feeds directly into the *loneliness epidemic*.

Today, nearly every other American reports feeling lonely, defined as distressing feelings of isolation or unmet needs for social connection (HHS, 2023). Americans' most common unmet need was connection (Centers for Disease Control and Prevention [CDC], 2022a). Similar numbers appear worldwide (e.g., Fuller-Rowell et al., 2025), leading the World Health Organization to establish a *Commission on Social Connection* in 2023. Although older adults experience the highest rates of objective *social isolation*—one in four—young people report unprecedented levels of loneliness, reflecting their subjective feelings of unmet needs for connection (National Academies of Sciences et al., 2020).

Loneliness is more widespread than smoking (12.5% of U.S. adults) or obesity (41.9%) (CDC, 2022b, 2022c, 2022d).

### ***The Costs of Loneliness***

At the individual level, isolation and loneliness are implicated in a slew of health problems (House et al., 1988): hypertension, cardiovascular disease, chronic pain, dementia, depression, anxiety (Albasheer et al., 2024; Cacioppo et al., 2002; Fratiglioni et al., 2000; Hawkley et al., 2010; Kent et al., 2015; Mesas et al., 2020; National Academies of Sciences et al., 2020; Wang et al., 2023). Lacking social support carries the same mortality risk as smoking fifteen cigarettes a day (Holt-Lunstad et al., 2010).

Disconnection also undermines people's ability to flourish academically, professionally, and economically (e.g., via poorer performance at school and work, vulnerability to fraud) (Bryan et al., 2023; Stewart et al., 2020).

And do not forget the human costs: loneliness feels terrible. Lonely people may go weeks without anyone asking how they are; they may have no one to share good news with (Weissbourd et al., 2021).

Loneliness also brings economic and social burdens at the societal level. Via links to poorer health, loneliness costs the U.S. \$7 billion per year in excess healthcare spending on older adults (Flowers et al., 2017). Via its links to lowered immune functioning and burnout, loneliness costs U.S. employers \$154 billion (Bowers et al., 2022). The erosion of connection depresses innovation and slows economic growth (Haldane, 2024), weakens communities' ability to respond to disasters (e.g., floods, fires), resulting in higher public expenditures (Zhao et al., 2025), is linked to violence, incarceration, and recidivism (Berg & Huebner, 2011; Tung et al., 2019), and undermines civic participation (Langenkamp, 2025). Loneliness reduces resilience to misinformation, increasing susceptibility to extremist views and radicalization (Langenkamp, 2025; Office for National Statistics, 2025), potentially accelerating shifts toward authoritarianism (Opozda-Suder et al., 2025; Peterson et al., 2025).

### **Friendship: A Brief Introduction and Myriad Benefits**

Friends not only buffer against loneliness and its effects; they make life better in nearly every measurable way.

Friendships are communal bonds marked by mutual affection and a sense of closeness (Blieszner & Adams, 1992; Fehr, 1996). Friendships exist across cultures, although anecdotal evidence from researchers around the world suggests that what Americans call a friend often falls short of the interpersonal commitment required for a Frenchman, Israeli, or Pole.

Even within a culture, friendships exist on a continuum. People speak of *best friends*, *close friends*, *friends*, and so on (Dunbar, 2018). Some data suggest that people have one or two closest partners—which might include a romantic partner, parent, or best friend—but perhaps benefit most from five close friends (Dunbar, 2025).

Like people, friendships have their own lifespans (Fehr, 2000): beginnings, middles, and perhaps ends (Aknin & Sandstrom, 2024; Hall, 2019; Hays, 1985; Vieth et al., 2022). Each stage of friendship presents challenges that people must meet to realize friendship and its benefits. At minimum, then, people must *find*, *make*, and *keep* friends.

None of these are trivial tasks. Children may navigate them unconsciously, but as adults, failure to meet them increasingly occupies public discourse. For example, to *find* friends, people must encounter others—often repeatedly (Festinger et al., 1950)—and experience mutual attraction. People are drawn to some prospective friends and reject others (Krems et al., 2023; Sprecher & Regan, 2002). Notably, people tend to befriend similar others (McPherson et al., 2007)—including others who are similar even on genetic (Christakis & Fowler, 2014) and neural levels (Parkinson et al., 2018). Shen and colleagues (2025) recorded participants' neural responses to

movie clips before participants met one another. Participants whose brains responded similarly were more likely to become remain friends. Participants were unaware that their brains behaved similarly; rather, they likely experienced mutual attraction to those who seemed to *see the world similarly*.

But no one can befriend everyone (Giurge et al., 2020), and some friends are more attractive than others (Krems & Conroy-Beam, 2020). This introduces an under-discussed dimension of friendship: *friendship competition* (Krems et al., 2024). Although loath to admit it, people compete to make friends and to become relatively closer to friends than those friends are to others. People must also work to keep friends (Krems et al., 2021; Oswald et al., 2004). And, as in all close relationships, there are conflicts. Compared to the extensive literature on romantic conflict, little work examines why adult friends fight or what predicts reconciliation.

## Friendship Benefits

Researchers have long known how important people *say* friends. Only recently, however, has science begun to grasp how profoundly friendship shapes a range of outcomes.

**Happiness, wellbeing, life satisfaction.** People with stronger relationships—including friendships—are happier (Diener & Seligman, 2002). In a 2023 Pew survey, more adults deemed friends extremely or very important (64%) elements in living a fulfilling life—a greater percentage than those emphasizing marriage (23%) or children (26%) (Parker & Minkin, 2023). For older adults, contact with friends outperforms contact with adult children or family in predicting wellbeing (e.g., Chopik, 2017).

**Improved physical and mental health, longevity.** Having friends predicts better physical health, mental health, and even longevity (Dunbar, 2025). Friends can boost breast cancer survival rates (Chou et al., 2012; Waxler-Morrison et al., 1991). In one elderly Southern European population, having a close friend (i.e., a confidant) was associated with a 25% reduction in mortality risk, even as supportive family ties were not (Rodriguez-Laso et al., 2007). Friends in adolescence and young adulthood predict health and wellbeing up to 50 years later (Ajrouch et al., 2023; Chopik, 2024; Cundiff & Matthews, 2018). In fact, friendship is so impactful for reducing all-cause mortality that Oxford psychologist Robin Dunbar (2018) proclaimed having friends the next best thing for one's health after quitting smoking.

Throughout both evolutionary and recent history, friends have also been literal lifesavers. Friends provide access to food when one cannot hunt, protection when injured, and other life-preserving support. In fact, onverging evidence from ethnographic studies of small-scale societies (Hruschka, 2010; Sugiyama, 2004), analyses of historical disasters (Grayson, 1990), and logs of modern severe-weather events (Neal et al., 1988) show the same pattern: friends increase people's odds of surviving the worst.

**Achievement and prosperity.** Students' friendships can predict their academic engagement (Chen, Bian, et al., 2023), buffer college students against dropping out, and improve both academic performance and persistence (Alotaibi et al., 2023; Wodika et al., 2025). Friendships that bridge lines of class or socioeconomic status (SES) may be the single strongest predictor of

upward mobility. For low-SES children in the U.S., growing up with higher-SES friends is associated with adult incomes roughly 20% higher than those of peers without such friendships (Chetty et al., 2022).

**Civic engagement and democracy.** Friendships—including those with people who do not always agree with us—can boost trust, civic engagement, public health, and the health of democracy. Social connectedness fosters interpersonal trust, which underpins civic behavior—like voting (Langenkamp, 2025). When friendships are strong and widespread, this social infrastructure supports democratic functioning through informal monitoring, social norms, and mutual trust. When they fray, that infrastructure weakens—*with some scholars now viewing the absence of friendship as a growing threat to democracy* (e.g., Bogatyreva et al., 2024).

**Combating loneliness.** Friendships might be most beneficial insofar as they protect individuals and societies against the effects of loneliness (Chopik, 2018; Kaufman et al., 2022). Friends decrease isolation and increase feelings of support (Dunbar, 2018). Each new friend reduces the odds of chronic loneliness by ~15% (Cacioppo et al., 2009; Cox, 2021a). As the Director of the Survey Center on American Life observed, “As an antidote to loneliness, nothing is more effective—not church membership, marriage, or parenthood—than a generous collection of friends” (Cox, 2023).

## **The Policy Implications of Friendship Science**

The potentially profound benefits of friendship suggest policy implications for taking the science of friendship seriously.

### ***Treat Friendship as a Public Health Asset***

Friendship is biological infrastructure—as determinant for human health as sleep, diet, and exercise. Yet friendship remains unintegrated in healthcare.

Healthcare professionals must treat friendship as a determinant of health.

First, they must be trained to understand the benefits of friendship. Second, providers need tools and incentives to assess friendship as part of routine care. Just as physicians ask patients about depression or measure weight, they should inquire about social support. Like many adverse health conditions, prevention and early intervention may be easier and more cost-effective than treatment.

Third, create a coordinating body to lead the national response to the loneliness epidemic (see also Holt-Lunstad et al., 2025). Responsibilities would include (1) surveillance and metrics. The office should support the development, testing, and implementation of validated social health metrics, including them in national health surveys. Making “connection” a measurable outcome—analogue to obesity or housing stability—opens pathways for targeted intervention. (2) Support preliminary funding mechanisms for testing, evaluating, and scaling interventions that promote lasting, high-quality friendships. (3) Issue guidance to support the adoption of friendship-forward policies. (4) Because friendship intersects with health, education, transportation, housing, labor, and urban planning, this office must be empowered to coordinate

across agencies—for example, ensuring that transportation and housing initiatives consider their impact on social cohesion.

(5) The office should lead campaigns to elevate awareness friendship's benefits, framing friendship as a core health behavior. (6) The office must play a role in shaping technology policy. Platforms such as WhatsApp, Snapchat, Instagram, and artificial intelligence (AI) companions, sometimes called chatbots, increasingly shape how people interact with their worlds. Scholars, technology professionals, and policymakers are still early in understanding of how chatbots will affect friendship and its benefits (Smith et al., 2025). For example, California's new Senate Bill 243 (2025) would require operators to track addictive engagement patterns and report on connections between chatbot use and suicidal ideation. Data like these could feed into a regularly updated *AI Companionship Impact Report*, guiding regulatory standards.

### ***Friendship Must Be Core To Eldercare Strategy***

The U.S. population is aging. As of 2024, there are more than 60 million Americans over the age of 65, and this demographic is projected to surpass 80 million by 2050 (Mather & Scommegna, 2024).

Friendship in later life is perhaps the best predictor of older adults' health and wellbeing. Eldercare systems and policies must begin treating friendship as critical. For example, the architecture of eldercare facilities should invite repeated, consistent interactions. Where these facilities are built also matters. Facilities must be placed near transit and built with sufficient parking, so older adults can reach support networks, and vice versa. For those with limited mobility, investments in digital infrastructure are essential: high-speed internet, user-friendly devices, and reliable video conferencing. Just as Medicare's Nursing Home Compare includes ratings for staffing and cleanliness, it could also include ratings for resident social connectedness. That kind of transparency incentivizes facilities to treat connection as core to their mission and can empower families to prioritize it when making decisions.

Measuring and tracking elder social connectedness—and related outcomes—is also essential. Regularly collected connection metrics—folded into Medicaid services—could identify where interventions are needed and track their effectiveness over time.

### ***Add Friendship to the Curriculum***

Children are taught reading, writing, and arithmetic—and, more recently, practical competencies (e.g., cooking, financial literacy). Few school systems include instruction in friendship. In fact, there exist more college courses on Taylor Swift than adult friendship.

Although friendship skills can feel innate, they also involve teachable competencies (Cook, 1977)—such as perspective-taking and empathy, conflict resolution and forgiveness.

Schools should incorporate friendship literacy into early education, helping children learn and practice these skills. Colleges, workplaces, and community organizations (e.g., libraries, YMCAs) can offer adult-level programming, including practice in initiating conversations with strangers and reconnecting with old friends (see Aknin & Sandstrom, 2024). In-person offerings might do double duty, by additionally providing a setting for those interested in improving their social connectivity to meet one another.

### ***Stop Treating Friendships as Second-class***

Friendship has a good pitch: friends make you happier, healthier, and helps you live longer. Yet governments, workplaces, and universities treat friendships as second-class relationships.

These institutions often support and even subsidize romance. Marriage is recognized through tax and other legal benefits, health insurance coverage, family leave, housing policies, and social rituals. In academia, the “two-body problem” means universities routinely offer spousal hiring accommodations—yet no equivalent exists for close friends or chosen family. Federal family-leave laws guarantee time to care for a sick spouse or grieve their loss, but not for a friend. In hospitals, partners have automatic visitation rights; friends often must rely on staff goodwill. Even public health agencies devote billions to supporting marriage and family life.

Integrating friendship into policy could build a less lonely, more thriving society. For one, U.S. federal family and medical leave law covers only spouses, children, and parents—not friends. The Family and Medical Leave Act (FMLA) could be amended to allow workers to take paid or unpaid leave to care for a designated friend, grieve their death, or support them in a crisis. Some Scandinavian companies offer “social health days” that encourage workers to invest time in their networks. This might be particularly valuable in large countries like the U.S., where friends from home or college often live far enough away that friends need to plan, buy flights, and take time off to see each other. Other reforms could extend tax and housing benefits to friends. France’s *Pacte Civil de Solidarité (PACS)* lets adults formalize non-marital partnerships for tax and inheritance purposes—though technically intended for civil unions. A similar “Registered Friendship” model in the U.S. could allow adults to share housing, insurance, adoption, and inheritance rights without needing to marry.

### ***Make Friendship a Research Priority***

Hunger for friendship guidance is great. Hundreds of articles in outlets like *The New York Times*, *The Atlantic*, and *The Washington Post* offer advice on how to make friends, deepen friendships, break up with friends, and so on. But without empirical evidence to lean on, such advice is the epistemic equivalent of your doctor prescribing their own favorite meals to help you lose weight—merely anecdotal.

But what else are journalists to do when that evidence is missing? Today, scholars remain astonishingly underinformed about how friendship works. A preliminary analysis of ~27,000 peer-reviewed articles from top psychology journals finds that fewer than 4% of papers focus on friendship (versus >30% on romance) (Hong et al., in prep). A scientific community focusing so exclusively on romantic relationships will be unable to solve a problem the size of the loneliness epidemic.

Support research that answers basic and translational questions about friendship. (HHS, 2023; Holt-Lunstad et al., 2025), arguing for national investment in the science of friendship. Identify gaps in knowledge and redress them, fostering evidence-based decision-making about which friendship-forward policies work, as well as how, where, and when they should best be implemented.

Beyond government, the private sector is already entering this space—Match Group and Bumble have rolled out friendship-matching platforms, and start-ups focused on curated group outings or “friendship accelerators” are proliferating. These companies have resources and user data;



scientists have theory and empirical methods. Even with clear risks (Holt-Lundstad et al., 2025), there is enormous potential for partnership.

### **Caveats**

First, not all friendships are good (Krems et al., under review). This has long been recognized; Aristotle, the Buddha, and others taxonomized the “bad friends” people regularly encounter. Such relationships can undermine the positive outcomes outlined above (Holt-Lundstad et al., 2007). Policy must therefore focus on helping individuals cultivate several high-quality friendships.

A second caveat is that the form and function of friendship vary by sex, age, culture, and life stage. The best-studied example is sex differences in friendship patterns: men tend to form looser, activity-based groups, while women often prioritize emotionally intimate dyads. These structural and functional distinctions shape what people seek, how they sustain friendships, and the support they exchange (e.g., Ayers et al., 2023, 2024; Benenson, 2014; Williams et al., 2022). Interventions should reflect this variation—fore example, men may benefit most from recurring, low-pressure group activities, whereas women may benefit from spaces that encourage disclosure and emotional connection.

Friendship differs, too, by education, mobility, and parental status (e.g., Kalmijn, 2012). While interventions cannot be tuned to every subgroup, policies that ignore this diversity risk being less effective—or even missing those most in need of connection.

### **Conclusion**

Friendships are neither luxuries nor consolation prizes. The evidence is clear: Friendships are central to health and flourishing. Friendship can help create healthy minds and bodies. Friendships can be key ingredients in creating productive, functioning, resilient individuals and societies. Friendship might also be the best weapon in to fight the ongoing loneliness epidemic. Taking friendship seriously can create friendship-conducive conditions with wide-ranging, powerful effects.

## References

- Albasheer, O., Abdelwahab, S. I., Zaino, M. R., Altraifi, A. A. A., Hakami, N., El-Amin, E. I., ... & Medani, I. E. (2024). The impact of social isolation and loneliness on cardiovascular disease risk factors: A systematic review, meta-analysis, and bibliometric investigation. *Scientific Reports*, 14(1), 12871.
- Alotaibi, T. A., Alkhalifah, K. M., Alhumaidan, N. I., Almutiri, W. A., Alsaleh, S. K., AlRashdan, F. M., ... & Almutairi, H. (2023). The benefits of friendships in academic settings: A systematic review and meta-analysis. *Cureus*, 15(12).
- Ajrouch, K. J., Hu, R. X., Webster, N. J., & Antonucci, T. C. (2024). Friendship trajectories and health across the lifespan. *Developmental Psychology*, 60(1), 94.
- Ayers, J. D., Krems, J. A., & Aktipis, A. (2023). A factor analytic examination of women's and men's friendship preferences. *Personality and Individual Differences*, 206, 112120.
- Ayers, J. D., Krems, J. A., & Aktipis, A. (2024). How do you build the perfect friend? Evidence from two forced-choice decision-making experiments. *Journal of Social and Personal Relationships*, 41(8), 2387–2410.
- Barclay, P. (2016). Biological markets and the effects of partner choice on cooperation and friendship. *Current Opinion in Psychology*, 7, 33–38.
- Baumeister, R. F., & Leary, M. R. (2017). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. In *Interpersonal development* (pp. 57–89). Psychology Press.
- Berg, M. T., & Huebner, B. M. (2011). Reentry and the ties that bind: An examination of social ties, employment, and recidivism. *Justice Quarterly*, 28(2), 382–410.
- Benenson, J. F. (2014). *Warriors and worriers: The survival of the sexes*. Oxford University Press.
- Blieszner, R., & Adams, R. G. (1992). *Adult friendship*. Sage Publications.
- Bogatyreva, N., Albath, E. A., & Greifeneder, R. (2024). Ostracism as a threat to modern democracies: Evidence from 11 European countries. *Political Psychology*.
- Bowers, A., Wu, J., Lustig, S., & Nemecek, D. (2022). Loneliness influences avoidable absenteeism and turnover intention reported by adult workers in the United States. *Journal of Organizational Effectiveness: People and Performance*, 9(2), 312–335.
- Cacioppo, J. T., Fowler, J. H., & Christakis, N. A. (2009). Alone in the crowd: The structure and spread of loneliness in a large social network. *Journal of Personality and Social Psychology*, 97(6), 977–991.

- Cacioppo, J. T., Hawkley, L. C., Crawford, L. E., Ernst, J. M., Burleson, M. H., Kowalewski, R. B., ... & Bernston, G. G. (2002). Loneliness and health: Potential mechanisms. *Psychosomatic Medicine*, 64(3), 407–417.
- California Senate Bill 243, Chapter 677, Statutes of 2025. (2025). *Companion chatbots*. California Legislature.  
[https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=202520260SB243](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202520260SB243)
- Cappellari, L., & Tatsiramos, K. (2015). With a little help from my friends? Quality of social networks, job finding and job match quality. *European Economic Review*, 78, 55–75.
- Centers for Disease Control and Prevention. (2022). *Behavioral Risk Factor Surveillance System survey questionnaire*. U.S. Department of Health and Human Services.
- Centers for Disease Control and Prevention. (2022). *Prevalence of both diagnosed and undiagnosed diabetes*. U.S. Department of Health and Human Services.  
<https://www.cdc.gov/diabetes/data/statistics-report/diagnosed-undiagnosed-diabetes.html>
- Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity. (2022). *Adult obesity facts*. U.S. Department of Health and Human Services. <https://www.cdc.gov/obesity/data/adult.html>
- Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. (2022). *Current cigarette smoking among adults in the United States*. U.S. Department of Health and Human Services.  
[https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/adult\\_data/cig\\_smoking/index.htm](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm)
- Chen, C., Bian, F., & Zhu, Y. (2023). The relationship between social support and academic engagement among university students: The chain mediating effects of life satisfaction and academic motivation. *BMC Public Health*, 23(1), 2368.
- Chopik, W. J. (2017). Associations among relational values, support, health, and well-being across the adult lifespan. *Personal Relationships*, 24(2), 408–422.
- Chopik, W. J. (2018). The unique role of friendship for health and well-being across life and around the world. *Innovation in Aging*, 2(Suppl 1), 269.
- Chopik, W. J. (2024). Friendship quality in college predicts well-being in qualitative life reflections 50 years later. *Innovation in Aging*, 8(Suppl 1), 681.
- Chou, A., Stewart, S. L., Wild, R. C., & Bloom, J. R. (2012). Social support and survival in young women with breast carcinoma. *Psycho-Oncology*, 21(2), 125–133.
- Christakis, N. A., & Fowler, J. H. (2014). Friendship and natural selection. *Proceedings of the National Academy of Sciences*, 111(Suppl 3), 10796–10801.

- Cook, M. (1977). The social skill model and interpersonal attraction. In S. Duck (Ed.), *Theory and practice in interpersonal attraction* (pp. 319–338). New York, NY: Academic Press.
- Cox, D. A. (2021a). *The state of American friendship: Change, challenges, and loss (American Perspectives Survey, May 2021)*. American Enterprise Institute / Survey Center on American Life. <https://www.aei.org/wp-content/uploads/2021/07/The-State-of-American-Friendship.pdf>
- Cox, D. A. (2021b). Yes, having more friends is better. *Survey Center on American Life / American Enterprise Institute*. <https://www.americansurveycenter.org/yes-having-more-friends-is-better/>
- Cox, D. A. (2023). America’s “friendship recession” is weakening civic life [Newsletter]. *Survey Center on American Life*. <https://www.americansurveycenter.org/newsletter/americas-friendship-recession-is-weakening-civic-life/>
- Cundiff, J. M., & Matthews, K. A. (2018). Friends with health benefits: The long-term benefits of early peer social integration for blood pressure and obesity in midlife. *Psychological Science*, 29(5), 814–823.
- DeScioli, P., & Kurzban, R. (2009). The alliance hypothesis for human friendship. *PLOS ONE*, 4(6), e5802.
- Diener, E., & Seligman, M. E. (2002). Very happy people. *Psychological Science*, 13(1), 81–84.
- Dunbar, R. I. M. (2018). The anatomy of friendship. *Trends in Cognitive Sciences*, 22(1), 32–51.
- Dunbar, R. I. M. (2025). Why friendship and loneliness affect our health. *Annals of the New York Academy of Sciences*, 1545(1), 52–65.
- Fehr, B. (1996). *Friendship processes*. Sage Publications.
- Fehr, B. (2000). The life cycle of friendship. In C. Hendrick & S. S. Hendrick (Eds.), *Close relationships: A sourcebook* (pp. 70–82). Sage Publications.
- Festinger, L., Schachter, S., & Back, K. (1950). *Social processes in informal groups*. Stanford University Press.
- Flowers, L., Houser, A., Noel-Miller, C., Shaw, J., Bhattacharya, J., Schoemaker, L., & Farid, M. (2017). *Medicare spends more on socially isolated older adults* (Insight on the Issues No. 125). AARP Public Policy Institute.
- Fratiglioni, L., Wang, H. X., Ericsson, K., Maytan, M., & Winblad, B. (2000). Influence of social network on occurrence of dementia: A community-based longitudinal study. *The Lancet*, 355(9212), 1315–1319.
- Fuller-Rowell, T. E., Sultana, S., & Kawachi, I. (2025). Global trends and disparities in social isolation. *JAMA Network Open*, 8(9), e2532008.

- Giurge, L. M., Whillans, A. V., & West, C. (2020). Why time poverty matters for individuals, organisations and nations. *Nature Human Behaviour*, 4, 993–1003.
- Grayson, D. K. (1990). Donner Party deaths: A demographic assessment. *Journal of Anthropological Research*, 46(3), 223–242.
- Haldane, A. (2024, December 6). Counting the cost of bowling alone. *Financial Times*.  
<https://www.ft.com/content/97c1044d-141a-42fb-a47a-672ddb9512c4>
- Hall, J. A. (2019). How many hours does it take to make a friend? *Journal of Social and Personal Relationships*, 36(4), 1278–1296.
- Hawkley, L. C., Thisted, R. A., Masi, C. M., & Cacioppo, J. T. (2010). Loneliness predicts increased blood pressure: Five-year cross-lagged analyses in middle-aged and older adults. *Psychology and Aging*, 25(1), 132–141.
- Hays, R. B. (1985). A longitudinal study of friendship development. *Journal of Personality and Social Psychology*, 48(4), 909–924.
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLOS Medicine*, 7(7), e1000316.
- Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: A meta-analytic review. *Perspectives on Psychological Science*, 10(2), 227–237.
- Holt-Lunstad, J., Uchino, B. N., Smith, T. W., & Hicks, A. (2007). On the importance of relationship quality: The impact of ambivalence in friendships on cardiovascular functioning. *Annals of Behavioral Medicine*, 33(3), 278–290.
- Holt-Lunstad, J., Cudjoe, T. K., Dumitriu, D., Ellison, N. B., Kotwal, A. A., Pantell, M. S., ... & Smith, M. L. (2025). The need for scientific leadership and collaboration to enhance social connection: A call to action. *Annals of the New York Academy of Sciences*.
- Hong, H., Krems, J. A., & Chopik, W. (in preparation). *A call to study adult friendship (because we are not)*.
- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science*, 241(4865), 540–545.
- Hruschka, D. J. (2010). *Friendship: Development, ecology, and evolution of a relationship* (Vol. 5). University of California Press.
- Kalmijn, M. (2012). Longitudinal analyses of the effects of age, marriage, and parenthood on social contacts and support. *Advances in Life Course Research*, 17(4), 177–190.

- Kaufman, V., Rodriguez, A., Walsh, L. C., Shafranske, E., & Harrell, S. P. (2022). Unique ways in which the quality of friendships matter for life satisfaction. *Journal of Happiness Studies*, 23(6), 2563–2580.
- Kenrick, D. T., Griskevicius, V., Neuberg, S. L., & Schaller, M. (2010). Renovating the pyramid of needs: Contemporary extensions built upon ancient foundations. *Perspectives on Psychological Science*, 5(3), 292–314.
- Kent, R. G., Uchino, B. N., Cribbet, M. R., Bowen, K., & Smith, T. W. (2015). Social relationships and sleep quality. *Annals of Behavioral Medicine*, 49(6), 912–917.
- Krems, J. A., & Conroy-Beam, D. (2020). First tests of Euclidean preference integration in friendship: Euclidean friend value and power of choice on the friend market. *Evolution and Human Behavior*, 41(3), 188–198.
- Krems, J. A., Kenrick, D. T., Chin, T., Katz, J., Hong, H., & Agolzu, E. (under review). *Bad friends: A functional perspective on the benefits and burdens of friendship*.
- Krems, J. A., Merrie, L. A., Rodriguez, N. N., & Williams, K. E. (2024). Venting makes people prefer—and preferentially support—us over those we vent about. *Evolution and Human Behavior*, 45(5), 106608.
- Krems, J. A., Williams, K. E. G., Aktipis, C. A., & Kenrick, D. T. (2021). Friendship jealousy: One tool for maintaining friendships in the face of third-party threats? *Journal of Personality and Social Psychology*, 120(4), 977–1012.
- Krems, J. A., Williams, K. E. G., Merrie, L. A., Kenrick, D. T., & Aktipis, C. A. (2022). Sex (similarities and) differences in friendship jealousy. *Evolution and Human Behavior*, 43(2), 97–106.
- Langenkamp, A. (2025). Linking social deprivation and loneliness to right-extreme radicalization and extremist antifeminism. *Current Opinion in Behavioral Sciences*, 63, 101525.
- Mather, M., & Scommegna, P. (2024, January 9). *Fact sheet: Aging in the United States*. Population Reference Bureau. <https://www.prb.org/resources/fact-sheet-aging-in-the-united-states/>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415–444.
- Mistry, R., Rosansky, J., McGuire, J., McDermott, C., & Jarvik, L. (2001). Social isolation predicts re-hospitalization in a group of older American veterans enrolled in the UPBEAT Program. *International Journal of Geriatric Psychiatry*, 16(10), 950–959.
- National Academies of Sciences, Engineering, and Medicine. (2020). *Social isolation and loneliness in older adults: Opportunities for the health care system*. National Academies Press.

- Neal, D. M., Perry Jr, J. B., Green, K., & Hawkins, R. (1988). Patterns of giving and receiving help during severe winter conditions: A research note. *Disasters*, 12(4), 366–374.
- Office for National Statistics. (2025, May 16). *Public opinions and social trends, Great Britain: April 2025* [Statistical bulletin].  
<https://www.ons.gov.uk/releases/publicopinionsandsocialtrendsgreatbritainapril2025>
- Oswald, D. L., Clark, E. M., & Kelly, C. M. (2004). Friendship maintenance: An analysis of individual and dyad behaviors. *Journal of Social and Clinical Psychology*, 23(3), 413–441.
- Parkinson, C., Kleinbaum, A. M., & Wheatley, T. (2018). Similar neural responses predict friendship. *Nature Communications*, 9(1), 332.
- Peng, S., & Roth, A. R. (2021). Social isolation and loneliness before and during the COVID-19 pandemic: A longitudinal study of U.S. adults older than 50. *Journals of Gerontology: Series B*, 77(7), e185–e190.
- Peterson, D., Rooduijn, M., Hopp, F. R., Schumacher, G., & Bakker, B. N. (2025). Loneliness is positively associated with populist radical right support. *Social Science & Medicine*, 366, 117676.
- Pleasant, A., & Barclay, P. (2024). Mutual cooperation gives you a stake in your partner's welfare, especially if they are irreplaceable. *Journal of Personality and Social Psychology*.
- Reblin, M., & Uchino, B. N. (2008). Social and emotional support and its implication for health. *Current Opinion in Psychiatry*, 21, 201–205.
- Renström, E. A., Bäck, H., & Knapton, H. M. (2020). Exploring a pathway to radicalization: The effects of social exclusion and rejection sensitivity. *Group Processes & Intergroup Relations*, 23(8), 1204–1229.
- Rodriguez-Laso, A., Zunzunegui, M. V., & Otero, A. (2007). The effect of social relationships on survival in elderly residents of a Southern European community: A cohort study. *BMC Geriatrics*, 7(1), 19.
- Shaver, P. R., & Reis, H. T. (1988). *Intimacy as an interpersonal process*. New York, NY: Guilford Press.
- Silk, J. B. (2003). Cooperation without counting: The puzzle of friendship. *Behaviour*, 140(2), 163–191.
- Smith, M. G., Bradbury, T. N., & Karney, B. R. (2025). Can generative AI chatbots emulate human connection? A relationship science perspective. *Perspectives on Psychological Science*. Advance online publication.
- Song, S. H. (2006). Workplace friendship and employees' productivity: LMX theory and the case of the Seoul city government. *International Review of Public Administration*, 11(1), 47–58.



- Sprecher, S., & Regan, P. C. (2002). Liking some things (in some people) more than others: Partner preferences in romantic relationships and friendships. *Journal of Social and Personal Relationships*, 19(4), 463–481.
- Stewart, C. C., Yu, L., Glover, C. M., Mottola, G., Bennett, D. A., Wilson, R. S., & Boyle, P. A. (2020). Loneliness interacts with cognition in relation to healthcare and financial decision making among community-dwelling older adults. *The Gerontologist*, 60(8), 1476–1484.
- Surkalim, D. L., Luo, M., Eres, R., Gebel, K., Van Buskirk, J., Bauman, A., & Ding, D. (2022). The prevalence of loneliness across 113 countries: Systematic review and meta-analysis. *BMJ*, 376, e067068.
- Sugiyama, L. S. (2004). Patterns of Shiwiari health insults indicate that provisioning during health crises reduces juvenile mortality. In M. Alvard (Ed.), *Socioeconomic aspects of human behavioral ecology: Research in economic anthropology* (Vol. 23, pp. 377–400). Elsevier.
- Tooby, J., & Cosmides, L. (1996). Friendship and the banker's paradox: Other pathways to the evolution of adaptations for altruism. In W. G. Runciman, J. Maynard Smith, & R. I. M. Dunbar (Eds.), *Evolution of social behaviour patterns in primates and man* (pp. 119–143). Oxford University Press.
- Tung, E. L., Hawkey, L. C., Cagney, K. A., & Peek, M. E. (2019). Social isolation, loneliness, and violence exposure in urban adults. *Health Affairs*, 38(10), 1670–1678.
- U.S. Department of Health and Human Services, Office of the Surgeon General. (2023). *Our epidemic of loneliness and isolation: The U.S. Surgeon General's advisory on the healing effects of social connection and community*. U.S. Department of Health and Human Services.  
<https://www.hhs.gov/sites/default/files/surgeon-general-social-connection-advisory.pdf>
- Walsh, L. C., Horton, C., Rodriguez, A., & Kaufman, V. A. (2023). Happily ever after for coupled and single adults: A comparative study using latent profile analysis. *Journal of Social and Personal Relationships*, 40(12), 3955–3982.
- Wang, F., Gao, Y., Han, Z., Yu, Y., Long, Z., Jiang, X., ... & Zhao, Y. (2023). A systematic review and meta-analysis of 90 cohort studies of social isolation, loneliness and mortality. *Nature Human Behaviour*, 7(8), 1307–1319.
- Waxler-Morrison, N., Hislop, T. G., Mears, B., & Kan, L. (1991). Effects of social relationships on survival for women with breast cancer: A prospective study. *Social Science & Medicine*, 33(2), 177–183.
- Weissbourd, R., Batanova, M., Lovison, V., & Torres, E. (2021). *Loneliness in America: How the pandemic has deepened an epidemic of loneliness and what we can do about it* [Executive summary]. Harvard Graduate School of Education, Making Caring Common Project.



- Williams, K. E., Krems, J. A., Ayers, J. D., & Rankin, A. M. (2022). Sex differences in friendship preferences. *Evolution and Human Behavior*, 43(1), 44–52.
- Wodika, A., Lanier, J., Almeda, J., Richter, A., & Schalasky, G. (2025). Helping students make meaningful connections: A cross-sectional survey of college student loneliness. *American Journal of Health Education*. Advance online publication.
- Yu, C., & Chen, J. (2025). Global burden of substance use disorders among adolescents during 1990–2021 and a forecast for 2022–2030: An analysis for the Global Burden of Disease 2021. *BMC Public Health*, 25, 1–16.
- Zhao, G., Hui, X., Zhao, F., Feng, L., Lu, Y., & Zhang, Y. (2025). How does social capital facilitate community disaster resilience? A systematic review. *Frontiers in Environmental Science*, 12, 1496813.