

**Who Gets Help? A National Longitudinal Study of Personal Networks and Pandemic Support
among Older Adults**

Molly Copeland, PhD.^{1*} and Hui Liu, PhD.¹

¹ Department of Sociology, Michigan State University, East Lansing, Michigan, USA.

*Correspondence to: Molly Copeland, Department of Sociology at Michigan State University, 509 East Circle Drive, 317 Berkey Hall, East Lansing, MI 48824

Author Contributions: M. Copeland constructed network variables and led writing the paper. H. Liu conducted analyses and contributed to writing the paper.

Acknowledgments: This research was supported by the National Institute on Aging (R01 AG061118).

Abstract

Objectives: Personal networks provide social support for older adults, perhaps especially during the COVID-19 pandemic when traditional avenues may be disrupted. We provide one of the first population-based studies on how pre-pandemic personal networks predict support during the pandemic among older adults, with attention to gender and race variation.

Method: We analyzed longitudinal data from the National Social Life, Health, and Aging Project Round 3 (2015/16) and COVID-19 Round (2020) (N=2622, 55.68% female, 78.75% white, aged 50-99), a nationally representative survey of community-dwelling older Americans. We considered structure (i.e., size, density) and composition (i.e., proportion female and kin) of pre-pandemic personal networks, estimating multinomial logistic models to predict self-reported need and receipt of instrumental help and emotional support during the pandemic.

Results: Larger pre-pandemic confidant networks predicted higher risk of receiving needed pandemic help and support, higher risk of receiving help and support more often than pre-pandemic, and lower risk of being unable to get help. Denser pre-pandemic networks also predicted higher risk of receiving pandemic help and support. Furthermore, how network size and density related to support differed with respondent race, and a greater proportion of kin in pre-pandemic networks predicted higher risk of receiving help for non-white older adults only.

Discussion: Older adults' pre-pandemic confidant network structure and composition can provide underlying conditions for receiving pandemic social support. Findings speak to policies and programs that aim to foster social support or identify vulnerable groups that suffer the greatest unmet need for support during a global crisis.

Keywords: social networks, social support, COVID-19, gender and race

Introduction

Social support is critical for healthy aging in older adults (Cornwell et al., 2008; House et al., 1988). Social support and relationships predict many aspects of older adults' wellness, including mortality (Holt-Lunstad et al., 2010; Uchino, 2006). This importance of social support suggests that it may provide a key resource for older adults during the COVID-19 pandemic, when closures and social distancing measures required to curtail contagion also limit the services and activities that typically support older adults (Giebel et al., 2021; Gorenko et al., 2021). Given these heightened risks and disruption to traditional resources, accessibility of both instrumental support with tangible tasks and emotional support that bolsters psychological well-being may be especially important for older adults during the COVID-19 pandemic.

One determinant of older adults' social support is personal networks. Personal networks of confidants (i.e., those with whom respondents discuss important matters) contribute to well-being for older adults, who typically experience a shift or decline in the social roles (e.g., employment) that generally provide integration and support (Cornwell et al., 2008). Accessing and receiving social support vary with characteristics of network structure, such as network size (Seeman & Berkman, 1988) and density (i.e., extent of confidants' interconnectedness) (Cornwell et al., 2008), as well as network composition (e.g., the gender or kin-status of one's confidants) (Goldman, 2016; Latham et al., 2015). Furthermore, networks and support are both conditioned by macro-social forces, such as gender and race, that shape social relations and the extent to which networks provide support (Barger & Uchino, 2017; Donato et al., 2018; House et al., 1988; Verdery & Campbell, 2019). Examining how any associations between networks and support might differ based on gender and race can indicate factors that foster support across groups and identify the groups least supported during a global health crisis. Yet, no previous population-based studies have examined how pre-pandemic personal network structure and composition relate to older adults' needing or receiving pandemic support, or how these patterns may differ by gender or race.

In this study, we advance the literature assessing social networks and social support by using nationally representative longitudinal survey data to examine how features of older adults' personal networks prior to the pandemic predict receiving needed instrumental help and emotional support during the pandemic. We examine how pandemic help and support are associated with features of pre-pandemic network structure, including size and density, and composition, including the proportion of women and kin. We then consider how associations differ based on individuals' gender and race. Results indicate groups that may face unmet support needs, and how to best focus opportunities to strengthen network-based support for older adults during a global crisis.

Background

Social Support During the COVID-19 Pandemic

Social support includes functions perceived or provided to an individual through their social relations (Thoits, 2011; Uchino, 2006). In older adults, greater social support predicts lower mental distress (Child & Lawton, 2020), better cardiovascular health and immune function (Uchino, 2006), and lower mortality (Holt-Lunstad et al., 2010). Multiple types of support –informational, instrumental help with tasks, or emotional and psychological aid (Berkman et al., 2000; House et al., 1988) – impact well-being directly and indirectly by buffering stress (Thoits, 2011).

One major stressor facing older adults is the COVID-19 pandemic. Older people face heightened risks from COVID-19 infection, including increased risk of mortality, which can increase stress and support needs (Gorenko et al., 2021; Li et al., 2021). Simultaneously, physical distancing has limited routine social engagement and services that previously supported many older adults (Giebel et al., 2021; Gorenko et al., 2021). Support can also deteriorate as a wide-ranging disaster persists (Norris et al., 2005), so that the scope of the pandemic may limit support. In sum, it is likely that the pandemic has both increased needed support and decreased typical sources of support, indicating a need to understand which factors contribute to receiving support during the pandemic.

Personal Networks and Social Support

Personal networks are a key feature of social life for the provision of social support (Berkman et al., 2000). While social support is embedded in personal networks, networks vary in structure, support capacity, and the interactions that mobilize support (Lubbers et al., 2020). Multiple aspects of network structure (e.g., size, density) and composition (e.g., women or kin confidants) relate to older adults' social support and well-being (Holt-Lunstad et al., 2017; House et al., 1988; Wong & Waite, 2015).

Network size. Network size, or the number of network confidants, indicates opportunities to access support, information, and resources (Cornwell et al., 2008). Despite older adults' greater need for support, network size generally decreases with age as older adults occupy fewer social roles and prune less fulfilling ties (Cornwell et al. 2008; Verdery & Campbell, 2019), making size an important structural resource of older adults' personal networks. We expect:

Hypothesis 1: Greater network size predicts receiving greater needed help and support during the pandemic for older adults.

While personal networks provide a foundational component for social support, simply having relationships does not mean that social support is needed, mobilized, perceived, or received in times of extended stress (Eckenrode, 1983; Lubbers et al., 2020). Resource mobilization theory suggests that characteristics of networks, social contexts, individuals, and network confidants, all shape whether social support is sought or activated through personal networks (Eckenrode, 1983; Norris et al., 2005). As such, it is important to consider additional characteristics of networks, individuals, and confidants that research has shown relate to needing and receiving support, beyond simply counting network ties.

Network density. Another key structural feature is network density, or whether network confidants are interconnected. Higher density networks indicate tight-knit groups who can share time, resources, or caregiving tasks better than sparser networks of disconnected confidants (Cornwell et al., 2008; Cornwell, 2009; Goldman, 2016). Denser networks can also indicate increased contact among confidants in response to support needs. As a result, greater density is associated with greater support and coordination of support (Bui, 2020; Cornwell et al., 2008; Roth 2021), suggesting:

Hypothesis 2: Greater network density predicts receiving greater needed pandemic help and support for older adults.

Proportion of female confidants in network. Network composition can also affect social

support. Gender is one pervasive social characteristic related to networks and social support. Women are more likely to provide instrumental help, emotional support, and caregiving than men, and women often function as “kin-keepers” maintaining contact and support in families (Latham et al., 2015; Mair, 2010; Verdery & Campbell, 2019). In relationships, female partners often provide greater emotional support and behavioral control than male partners (Latham et al., 2015). We expect similar patterns here:

Hypothesis 3: A greater proportion of female confidants predicts receiving greater needed pandemic help and support for older adults.

Proportion of kin confidants in network. Another relevant compositional characteristic is whether confidants are family relations. Kin ties are more likely to be beneficial than non-kin ties and to provide higher levels of intensive, unconditional social support (Cornwell et al., 2008; Latham et al., 2015). Non-kin ties are also more likely to be dropped as networks contract with age, making kin a key source of support for older adults (Cornwell et al., 2008; Goldman, 2016; Verdery & Campbell, 2019). We expect:

Hypothesis 4: A greater proportion of kin confidants predicts receiving greater needed pandemic help and support for older adults.

Gender Variation

Macro-social forces can shape how networks predict social support based on older adults' characteristics, such as gender. Older women typically have larger, sparser personal networks than older men (Cornwell et al., 2008), and women generally report greater support from their networks than men (Donato et al., 2018). Women often maintain family social ties (Mair, 2010), and gender homophily, or the tendency of confidants to be the same gender as the focal individual (McPherson et al., 2001), suggests that older women typically have more women in their networks (Cornwell et al., 2009), suggesting greater social support benefits of female and kin confidants for women than for men. We expect:

Hypothesis 5: The structure and composition of pre-pandemic personal networks have a stronger association with receiving needed pandemic support for older women than older men.

Race Variation

While patterns for race/ethnicity differences are less conclusive than those for gender, white adults typically garner greater advantages from networks than non-white adults. Structural racism embedded in social relations and resources can contribute to racial/ethnic differences in capacities to provide and receive needed support (Sarkisian et al., 2007; Sarkisian & Gerstel, 2004). Lower marriage rates and higher risks of familial death among non-whites, particularly non-Hispanic Black adults, compared to whites also shape racial differences in networks (Mair, 2010; Umberson, 2017). Compared to non-white adults, white adults report more network ties from which to access potential support and greater emotional and financial support from their personal networks (Cornwell et al., 2008; Sarkisian et al., 2007; Verdery & Campbell, 2019). Therefore, larger and denser networks may benefit whites more than non-whites. However, disadvantage can intensify

needs for help and support (Lubbers et al., 2020), meaning the privileges of whiteness may reduce support needs for white older adults.

At the same time, non-white older adults are more likely to have more kin-based networks than whites (Cornwell et al., 2009; Sarkisian et al., 2007). Black women are also more likely to be head of household and to support more dependents than their white counterparts (Chinn et al., 2021). The strains placed on networks and support from structural racism may further prune networks for older non-white adults, making female and kin-based networks particularly vital:

Hypothesis 6: The size and density of pre-pandemic personal networks have a stronger association with receiving needed pandemic support for white than non-white older adults (H6a), while a greater proportion of female or kin confidants has a stronger association with receiving needed pandemic support for non-white than white older adults (H6b).

Data

Data were drawn from the National Social Life, Health and Aging Project (NSHAP), a nationally representative sample of community-dwelling older adults in the United States. The first round of data (2005-2006, response rate 76%) included 3,005 adults aged 57-85 and oversampled for African Americans and Latinos (Waite et al., 2014). Round 2 (2010-2011, response rate 74%) surveyed 3,377 respondents, including 2,261 respondents from Round 1 and 1,116 new interviews for partners and those who declined to participate previously (Waite, Cagney, Dale, Huang, et al., 2019). Round 3 (2015/2016) surveyed 4,777 respondents, including 2,368 new refreshment respondents and 2,409 respondents from Round 2 (response rate 71-76%, see more details in O'Muircheartaigh et al., 2021). Data were collected using in-home interviews, supplemental self-administrated questionnaires, and lab tests and assays. During September 2020 to January 2021, the NSHAP COVID-19 substudy was fielded using web, phone, and paper surveys to understand older adults' experiences during the pandemic (N = 2,672; response rate 78%).

In this study, we utilized data from Round 3 for pre-pandemic networks and from the COVID-19 substudy for pandemic support and time invariant measures. Our final analysis was restricted to respondents aged 50 and older in 2020 who completed both the Round 3 interview and COVID-19 survey (N = 2,622). To account for item missingness, we used multiple imputation (M = 20) with multivariate imputation by chained equations to impute missing values on all measures, including confidant networks and pandemic support (about 5%).

There are several demographic differences between our analytic sample and respondents from the Round 3 survey who did not complete the COVID-19 survey (N=2,127). Compared to those who did not, respondents who completed the COVID-19 survey are more likely to be female, white, have higher education, and to be married (in t-tests and tests of proportions at $p < .05$; Supplemental Appendix Table S1), making the analytic sample slightly more privileged on these dimensions compared to respondents lacking pandemic information.

Measures

Pre-pandemic Confidant Network

Confidant network measures came from the ego-network name generator in Round 3 that asked respondents: “From time to time, most people discuss things that are important to them with others. For example, these may include good or bad things that happen to you, problems you are having, or important concerns you may have. Looking back over the last 12 months, who are the people with whom you most often discussed things that were important to you?” Respondents named up to 5 confidants, with successive questions providing information about each confidant’s relationship to the respondent, gender, and if they talk with each other confidant. Measures here used Rosters A and B of the network data to include named confidants and spouses/partners living in the respondent’s household if they were not named as a confidant. Further details regarding the NSHAP networks are available in Cornwell et al., 2009.

While network data were collected roughly five years prior to the onset of the pandemic, and networks could change within the intervening time, research suggests that network profiles of most older adults remain stable over time, even if the exact people named as confidants change (Cornwell et al., 2021). This homeostasis means that the network measures examined here are likely consistent for many older adults over time, and that these data provide a unique opportunity to examine pre-pandemic network structure and composition associated with pandemic outcomes in a way currently unavailable in any other nationally representative data of older adults.

We considered four measures of older adults’ confidant networks. Two measures assessed network structure: 1) *network size* indicated a respondent’s number of confidants, and 2) *network density* measured the extent to which confidants knew each other. Density is measured as the proportion of existing ties to total possible ties in the respondent’s network (Perry et al., 2018). Existing ties between confidants are based on a dichotomous measure of respondents’ reports of who talks to each other (less than once a year or never = no tie, more frequently than less than once a year = tie) following prior work (Goldman, 2016). Practically, density measures a network’s cohesion or tight-knittedness.

Two measures assessed network composition: 3) *proportion of female confidants* indicated the proportion of confidants who were women out of total confidants, and 4) *proportion of kin confidants* indicated the proportion of confidants who were family relations to the respondent out of total confidants. Following prior work, kin relations included a spouse, parent, in-law, child, step-child, sibling, or other relative, leaving all other relation types as non-kin (Goldman, 2016). All network measures were centered at means.

Pandemic Received Help and Support

We included four variables, drawn from the COVID-19 substudy, that measured two aspects of received pandemic social support: instrumental help and emotional support. 1) For *instrumental help* (i.e., task help), respondents were first asked: “Since the start of the COVID-19 pandemic, have you relied on someone outside your household to regularly help you with everyday tasks?”, with three possible responses of “Yes”, “No, I have not been able to get”, and “No, I have not needed” (reference). 2) Then, respondents assessed change in the frequency of receiving instrumental help

(hereafter “*help frequency*”) with a follow-up question: “Compared to before the pandemic, are you receiving help less often, about as often [reference], or more often than before the pandemic?” 3) *Emotional support* was measured based on the question: “Since the start of the COVID-19 pandemic, has anyone outside your household given you advice, encouragement, or emotional support?”, with three possible responses of “Yes”, “No, I have not been able to get”, and “No, I have not needed” (reference). 4) Respondents then assessed change in frequency of receiving emotional support (hereafter “*support frequency*”): “Compared to before the pandemic, are you receiving support: less often, about as often [reference], or more often than before the pandemic?” Table 1 includes descriptive statistics.

TABLE 1 HERE

Covariates

Key demographic characteristics that might shape both networks and social support were drawn from the COVID-19 substudy, including: *gender* (0 = male, 1 = female), *race* (1 = non-white, 0 = white, collapsing racial/ethnic categories due to small sample size), *age* (in years), *marital status* (married [reference], cohabiting, divorced/separated, widowed, and never married), and *education* attainment (less than high school [reference], high school graduate, some college, and Bachelor’s degree or more).

We also adjusted for pre-pandemic factors from Round 3 that may relate to networks and support, including self-rated physical health (1=poor to 5=excellent), self-rated mental health (1=poor to 5=excellent), and two proxies for social support assessing how often respondents can rely on family (0=never to 3=often), and how often respondents can rely on friends (0=never to 3=often). We further control for interview month during the COVID-19 substudy (09/2020 [reference], 10/2020, 11/2020, 12/2020, 01/2021) given the dynamic nature of the pandemic.

Analytic Plan

We estimated four separate sets of multinomial logistic regression models for the four help and support outcomes. For each outcome, we started with the main effects models including the main effects of confidant networks controlling for all covariates. We then added interaction effects of network characteristics by respondent gender and by respondent race to test potential gender and race differences. All analyses were weighted and adjusted for complex sampling design using STATA 15 (StataCorp, 2017).

Results

Table 2 shows results from the main effects multinomial logistic regression models.

Several demographic factors predicted pandemic support. Women were more likely to receive needed instrumental help and emotional support and to do so more often than pre-pandemic. Older age predicted higher risk of receiving instrumental help, greater risk of more frequent help, and lower risk of less frequent help than pre-pandemic. Greater education predicted lower risk of receiving needed instrumental help, but college graduates had higher risk of receiving needed emotional support compared to those with less than a high school degree. Being non-white predicted higher risk of receiving needed help and support and greater help frequency than pre-

pandemic, but also higher risk of being unable to get needed emotional support and lower help frequency than pre-pandemic. Being unmarried generally related to less stable patterns of help and support, with a greater likelihood of both receiving and being unable to receive needed help and support, and more change (both decreasing and increasing) in receiving help and support compared to pre-pandemic. Additional analyses (Supplemental Appendix Table S2) that recode the dependent variable categories to compare needing help and support (whether that need is met or unmet) to not needing help or support suggested that both non-white and unmarried older adults have higher risk of reporting needing pandemic help and support (whether met or unmet) compared to their white and married counterparts. Better pre-pandemic physical health predicted lower risk of both receiving and being unable to receive needed instrumental help and more frequent help than pre-pandemic. Better pre-pandemic mental health predicted lower risk of receiving needed pandemic emotional support.

In Table 2, greater pre-pandemic confidant network size predicted higher risk of receiving instrumental help (RRR = 1.25, $p < .001$) and emotional support (RRR = 1.21, $p < .001$), and lower risk of being unable to get needed help (RRR = 0.79, $p < .05$). Larger pre-pandemic network size also predicted higher risk of more frequent help (RRR = 1.19, $p < .05$) and emotional support (RRR = 1.17, $p < .01$) than pre-pandemic. Denser pre-pandemic networks predicted higher risk of receiving needed pandemic instrumental help (RRR = 2.60, $p < .01$) and emotional support (RRR = 1.62, $p < .05$).

TABLE 2 HERE

Table 3 shows results from models with gender interaction effects. Here, a larger proportion of female confidants related differently to being unable to get needed emotional support for older men and women. For men, a higher proportion of female confidants was suggestive of being unable to receive needed emotional support (RRR = 8.17, $p < .10$), while this association is significantly dampened for women. Here, while the proportion of female confidants does not significantly predict emotional support for either gender (other than marginally for men), it does significantly differ in how it relates to emotional support by gender.

TABLE 3 HERE

Table 4 shows results from models with race interactions, suggesting three significant differences. First, a larger network size was associated with higher risk of being unable to receive needed emotional support for white respondents (RRR = 1.66, $p < .05$), but this relationship is significantly weaker for non-white respondents. Second, a denser pre-pandemic network predicted higher risk of receiving emotional support for white respondents (RRR = 2.02, $p < .01$), but this association is significantly weaker for non-white respondents. Third, a larger proportion of kin in white adults' pre-pandemic confidant networks was not significantly related to their risk of receiving needed help during the pandemic, but this association was significantly different for non-white respondents. Additional analysis switching the reference group for race (Supplemental Appendix Table S3) suggested that this effect of proportion kin tended to be positive but only marginally significant for non-white adults ($p < .10$).

TABLE 4 HERE

Discussion

Social support is a key resource for older adults' well-being, particularly during the COVID-19 pandemic. Personal networks are an important component of support, and how networks relate to support can differ with macrostructural factors, such as gender and race. Understanding how pre-pandemic networks relate to pandemic support clarifies which older adults may face gaps in needed support and how to foster networks that promote resilience during a global crisis.

Results here indicate that the structure of older adults' pre-pandemic networks relates to pandemic help and support. Larger networks predicted higher risk of receiving needed instrumental help and emotional support, lower risk of being unable to receive needed help, and higher risk of more frequent help and support than pre-pandemic. These results align with Hypothesis 1 and prior work indicating network size relates positively to social support (Bui, 2020; Cornwell et al., 2008). Older adults with larger pre-pandemic networks may have more confidants to provide needed aid, or having more confidants may provide access to more varied types of support that meet a wider range of pandemic needs. The benefits of network size also suggest risks of social isolation, as having relatively fewer social ties is then associated with not experiencing the same benefits in received support or support frequency.

Network density is also positively related to receiving help and support, aligned with Hypothesis 2. More densely interconnected personal networks may better coordinate resources and care (Cornwell et al., 2008; Goldman, 2016) to meet pandemic needs. Alternatively, sparsely connected networks can be less stable (Burt, 2002), which may affect support if peripheral ties are more disrupted by the pandemic. Sparser networks may also be more taxing for older adults (Cornwell, 2009) in ways that limit pandemic support.

Findings suggest that pre-pandemic network composition is less relevant for receiving pandemic help and support. Contrary to Hypotheses 3 and 4, the proportion of women or kin in pre-pandemic networks did not predict pandemic support. While a non-finding should not be overinterpreted, future work should examine whether *how* older adults are connected is more relevant than *who* they are connected to for pandemic support.

Results indicate that older adults' gender and race significantly interact with network structure and composition in relation to pandemic support. The proportion of female confidants related differently to support by gender, partially consistent with Hypothesis 5. A greater proportion of female confidants is suggestive of higher risk of being unable to receive needed pandemic emotional support for older men (though marginally significant), but this relationship significantly differs for older women. While analyses indicate a significant difference by gender, the conditional effect for older men is only marginally significant (and non-significant for women in additional analyses) and should be interpreted cautiously. Such a pattern may suggest an unmet need for emotional support among older men with more female-based networks that could reflect the role of gender in mobilizing socioemotional resources from networks, if traditional norms of masculinity in relationships and emotional expression (Rosenfield & Mouzon, 2013; Simon, 2020) limit older men from disclosing emotional needs with female confidants, leaving pandemic emotional support needs unmet.

Results indicate that the associations of pre-pandemic networks with pandemic support may

differ by race. First, contrary to Hypothesis 6a, results do not indicate greater support from pre-pandemic network structure for white older adults. In fact, results examining network size by race suggest that larger networks predict higher risk of being unable to receive needed pandemic emotional support for whites, but the pattern is significantly different for non-white respondents (though size does not significantly predict inability to receive needed emotional support for non-white respondents in analyses stratified by race). This pattern may indicate that for some white older adults, having more ties does not necessarily mobilize socioemotional resources to meet identified emotional support needs. Future work should further examine this interplay between older adults' race and network size for emotional support.

Second, higher density in pre-pandemic networks predicted higher risk of receiving needed emotional support for white older adults, but significantly less so for non-white older adults, partially supporting Hypothesis 6a. For example, the predicted probability of receiving needed emotional support (from models in Table 4) for white respondents is .32 in the least dense networks, but .59 in the densest networks. For non-white respondents, the same levels of density predict probabilities of receiving emotional support of .58 and .49, respectively. This pattern suggests that benefits of network density, such as greater coordination of care and resources, may not extend equally to all racial/ethnic groups.

Third, the proportion kin in pre-pandemic networks is more likely to predict higher risk of receiving help for non-white compared to white older adults, as expected by Hypothesis 6b. This finding aligns with studies indicating the greater importance of kin-based networks for non-white older adults than their white counterparts (Sarkisian et al., 2007; Sarkisian & Gerstel, 2004).

Results should be interpreted in light of limitations. First, network data precede the onset of the COVID-19 pandemic by approximately 4-5 years, meaning that pandemic networks could look very different. Future data collection efforts should consider personal networks directly preceding and throughout the pandemic. Second, low sample sizes of non-white adults limit further disaggregation of race. Future work should consider how patterns here vary between Non-Hispanic Black and Hispanic respondents and across more fine-grained racial/ethnic groups, especially as work (Roth 2021) indicates different associations between networks and health for Hispanic older adults compared to other groups. Third, analyses capture limited aspects of networks and support. Social relationships need not always be beneficial, and negative relationships or unwanted forms of social support may be harmful during a pandemic. Furthermore, the current data limit further distinguishing between perceived or received support (e.g., lacking non-self-report measures or statistical power to examine received support only among those with perceived support needs). Finally, despite the temporal ordering of pre-pandemic networks predicting pandemic support, results here speak only to associations, not causal mechanisms, which should be examined in future studies.

Despite limitations, this study clarifies the role of personal networks in social support during a global health crisis by examining how the structure and composition of pre-pandemic confidant networks related to receiving needed instrumental help and emotional support during the pandemic, and by considering how patterns differ with gender and race. Results align with social networks as a resource in health-related policies and interventions (Umberson & Montez, 2010), extending this literature to aspects of network structure and composition related to support during a pandemic. Results suggest that older adults with smaller or sparser personal networks may face challenges in receiving needed pandemic support. Policies or interventions targeting individuals most needing pandemic support should consider risks for such relatively isolated older adults.

Accepted Manuscript

References

- Barger, S. D., & Uchino, B. N. (2017). Racial and Ethnic Variation in the Association of Social Integration with Mortality: Ten-year Prospective Population-based US Study. *Scientific Reports*, 7. <https://doi.org/10.1038/srep43874>
- Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, 51. [https://doi.org/10.1016/S0277-9536\(00\)00065-4](https://doi.org/10.1016/S0277-9536(00)00065-4)
- Bui, B. K. H. (2020). The relationship between social network characteristics and depressive symptoms among older adults in the United States: Differentiating between network structure and network function. *Psychogeriatrics*, 20(4), 458–468. <https://doi.org/10.1111/psyg.12530>
- Burt, R. S. (2002). Bridge Decay. *Social Networks*, 24(4), 333–363. [https://doi.org/10.1016/S0378-8733\(02\)00017-5](https://doi.org/10.1016/S0378-8733(02)00017-5)
- Child, S. T., & Lawton, L. E. (2020). Personal networks and associations with psychological distress among young and older adults. *Social Science & Medicine*, 246, 112714. <https://doi.org/10.1016/j.socscimed.2019.112714>
- Chinn, J. J., Martin, I. K., & Redmond, N. (2021). Health Equity Among Black Women in the United States. *Journal of Women's Health*, 30(2). <https://doi.org/10.1089/jwh.2020.8868>
- Cornwell, B. (2009). Good health and the bridging of structural holes. *Social Networks*, 31(1), 92–103. <https://doi.org/10.1016/j.socnet.2008.10.005>
- Cornwell, B., Goldman, A., & Laumann, E. O. (2021). Homeostasis Revisited: Patterns of Stability and Rebalancing in Older Adults' Social Lives. *The Journals of Gerontology: Series B*, 76(4), 778–789. <https://doi.org/10.1093/geronb/gbaa026>
- Cornwell, B., Laumann, E. O., & Schumm, L. P. (2008). The Social Connectedness of Older

Adults: A National Profile. *American Sociological Review*, 73(2), 185–203.

<https://doi.org/10.1177/000312240807300201>

Cornwell, B., Schumm, L. P., Laumann, E. O., & Graber, J. (2009). Social Networks in the NSHAP Study: Rationale, Measurement, and Preliminary Findings. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 64B(Supplement 1), i47–i55. <https://doi.org/10.1093/geronb/gbp042>

Donato, K. M., León-Pérez, G., Wallston, K. A., & Kripalani, S. (2018). Something Old, Something New: When Gender Matters in the Relationship between Social Support and Health. *Journal of Health and Social Behavior*, 59(3), 352–370.

<https://doi.org/10.1177/0022146518789362>

Eckenrode, John. 1983. “The Mobilization of Social Supports: Some Individual Constraints.” *American Journal of Community Psychology* 11(5):509.

Giebel, C., Lord, K., Cooper, C., Shenton, J., Cannon, J., Pulford, D., Shaw, L., Gaughan, A., Tetlow, H., Butchard, S., Limbert, S., Callaghan, S., Whittington, R., Rogers, C., Komuravelli, A., Rajagopal, M., Eley, R., Watkins, C., Downs, M., ... Gabbay, M. (2021). A UK survey of COVID-19 related social support closures and their effects on older people, people with dementia, and carers. *International Journal of Geriatric Psychiatry*, 36(3), 393–402. <https://doi.org/10.1002/gps.5434>

Goldman, A. W. (2016). All in the family: The link between kin network bridging and cardiovascular risk among older adults. *Social Science & Medicine*, 166, 137–149.

<https://doi.org/10.1016/j.socscimed.2016.07.035>

Gorenko, J. A., Moran, C., Flynn, M., Dobson, K., & Konnert, C. (2021). Social Isolation and Psychological Distress Among Older Adults Related to COVID-19: A Narrative Review of Remotely-Delivered Interventions and Recommendations. *Journal of Applied Gerontology*, 40(1), 3–13. <https://doi.org/10.1177/0733464820958550>

- Holt-Lunstad, J., Robles, T. F., & Sbarra, D. A. (2017). Advancing Social Connection as a Public Health Priority in the United States. *American Psychologist*, 72(6), 517–530. <http://doi.org/10.1037/amp0000103>
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social Relationships and Mortality Risk: A Meta-analytic Review. *PLoS Medicine*, 7(7). <https://doi.org/10.1371/journal.pmed.1000316>
- House, J. S., Umberson, D., & Landis, K. R. (1988). Structures and Processes of Social Support. *Annual Review of Sociology*, 14, 293–318. <https://www.jstor.org/stable/2083320>
- Latham, K., Clarke, P. J., & Pavea, G. (2015). Social Relationships, Gender, and Recovery From Mobility Limitation Among Older Americans. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 70(5), 769–781. <http://doi.org/10.1093/geronb/gbu181>
- Li, F., Luo, S., Mu, W., Li, Y., Ye, L., Zheng, X., Xu, B., Ding, Y., Ling, P., Zhou, M., & Chen, X. (2021). Effects of sources of social support and resilience on the mental health of different age groups during the COVID-19 pandemic. *BMC Psychiatry*, 21(1), 16. <https://doi.org/10.1186/s12888-020-03012-1>
- Lubbers, Miranda J., Hugo Valenzuela García, Paula Escribano Castaño, José Luis Molina, Antònia Casellas, and Jorge Grau Rebollo. 2020. “Relationships Stretched Thin: Social Support Mobilization in Poverty.” *The ANNALS of the American Academy of Political and Social Science* 689(1):65–88. doi: 10.1177/0002716220911913.
- Mair, C. A. (2010). Social Ties and Depression: An Intersectional Examination of Black and White Community-Dwelling Older Adults. *Journal of Applied Gerontology*, 29(6), 667–696. <https://doi.org/10.1177/0733464809350167>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a Feather: Homophily in

Social Networks | Annual Review of Sociology. *Annual Review of Sociology*, 27, 415–444. <https://www.jstor.org/stable/2678628>

Norris, Fran H., Charlene K. Baker, Arthur D. Murphy, and Krzysztof Kaniasty. 2005.

“Social Support Mobilization and Deterioration after Mexico’s 1999 Flood: Effects of Context, Gender, and Time.” *American Journal of Community Psychology* 36(1–2):15–28. doi: 10.1007/s10464-005-6230-9.

O’Muircheartaigh, C., English, N., Pedlow, S., & Schumm, L. Philip. (2021). Sample Design and Estimation in the National Social Life, Health and Aging Project (NSHAP): Round 3 (2015-16). *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 76(Supplement_3), S207–S214. <https://doi-org/10.1093/geronb/gbab182>

Perry, B. L., Pescosolido, B. A., & Borgatti, S. P. (2018). *Egocentric network analysis: Foundations, methods, and models* (Vol. 44). Cambridge university press.

Rosenfield, S., & Mouzon, D. (2013). Gender and Mental Health. In C. S. Aneshensel, J. C. Phelan, & A. Bierman (Eds.), *Handbook of the Sociology of Mental Health* (pp. 277–296). Springer Netherlands. https://doi.org/10.1007/978-94-007-4276-5_14

Roth, A. R. (2021). Personal networks and mortality in later life: Racial and ethnic differences. *Journal of Public Health*, 43(4), 824–832. <https://doi.org/10.1093/pubmed/fdaa135>

Sarkisian, N., Gerena, M., & Gerstel, N. (2007). Extended Family Integration among Euro and Mexican Americans: Ethnicity, Gender, and Class. *Journal of Marriage and Family*, 69(1), 40–54. <https://doi-org/10.1111/j.1741-3737.2006.00342.x>

Sarkisian, N., & Gerstel, N. (2004). Kin Support among Blacks and Whites: Race and Family Organization. *American Sociological Review*, 69(6), 812–837. <https://doi.org/10.1177/000312240406900604>

- Seeman, T. E., & Berkman, L. F. (1988). Structural characteristics of social networks and their relationship with social support in the elderly: Who provides support. *Social Science & Medicine*, 26(7), 737–749. [https://doi.org/10.1016/0277-9536\(88\)90065-2](https://doi.org/10.1016/0277-9536(88)90065-2)
- Simon, R. W. (2020). Gender, Emotions, and Mental Health in the United States: Patterns, Explanations, and New Directions. *Society and Mental Health*, 10(2), 97–111. <https://doi.org/10.1177/2156869320926236>
- StataCorp. (2017). *Stata statistical software: Release 15*. StataCorp LLC.
- Thoits, P. A. (2011). Mechanisms Linking Social Ties and Support to Physical and Mental Health. *Journal of Health and Social Behavior*, 52(2), 145–161. <https://doi.org/10.1177/0022146510395592>
- Uchino, B. N. (2006). Social Support and Health: A Review of Physiological Processes Potentially Underlying Links to Disease Outcomes. *Journal of Behavioral Medicine*, 29(4), 377–387. <https://doi.org/10.1007/s10865-006-9056-5>
- Umberson, D. (2017). Black Deaths Matter: Race, Relationship Loss, and Effects on Survivors. *Journal of Health and Social Behavior*, 58(4), 405–420. <https://doi.org/10.1177/0022146517739317>
- Umberson, D., & Montez, J. K. (2010). Social Relationships and Health: A Flashpoint for Health Policy. *Journal of Health and Social Behavior*, 51(1_suppl), S54–S66. <https://doi.org/10.1177/0022146510383501>
- Verdery, A., & Campbell, C. (2019). Social Support in America: Stratification and Trends in Access over Two Decades. *Social Forces*, 98(2), 725–752. <https://doi.org/10.1093/sf/soz008>
- Waite, L. J., Cagney, K., Dale, W., Huang, E., Laumann, E. O., McClintock, M. K., O’Muircheartaigh, C. A., Schumm, L. P., & Cornwell, B. (2019). *National Social Life, Health, and Aging Project (NSHAP): Wave 2 and Partner Data Collection*.

ICPSR34921-v4. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [Distributor]. <https://doi.org/10.3886/ICPSR34921.v4>

Waite, L. J., Laumann, E. O., Levinson, W., Lindau, S. T., & O'Muircheartaigh, C. A. (2014). *National Social Life, Health, and Aging Project (NSHAP): Wave 1*.

ICPSR20541-v6. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [Distributor]. <https://doi.org/10.3886/ICPSR20541.v6>

Wong, J. S., & Waite, L. J. (2015). Marriage, Social Networks, and Health at Older Ages. *Journal of Population Ageing*, 8(1–2), 7–25. <https://doi.org/10.1007/s12062-014-9110-y>

Accepted Manuscript

Table 1. Weighted Descriptive Statistics of Analytic Variables

Confidant networks (uncentered)	Mean	S.D.	Percentage	N
Network size	4.29	1.31		2,610
Network density	0.72	0.28		2,474
Proportion of female confidants	0.59	0.25		2,607
Proportion of kin confidants	0.62	0.29		2,610
Received pandemic support				
Instrumental help				2,606
Yes			16.11	
No need (ref.)			81.37	
Unable to get			2.52	
Help frequency				2,505
Less often			9.94	
About same (ref.)			81.29	
More often			8.77	
Emotional support				2,586
Yes			47.03	
No need (ref.)			50.79	
Unable to get			2.18	
Support frequency				2,514
Less often			9.52	
About same (ref.)			78.25	
More often			12.22	
Demographic covariates				
Age 2020	68.24	9.98		2,622
Gender				2,622
Men			44.32	
Women			55.68	
Race				2,622
White			78.75	
Non-white			21.25	
Education				2,622
< High school			07.48	
High school			21.04	
Some college			36.09	
College graduate			35.39	
Marital status				2,622
Married			71.78	
Cohabiting			2.83	
Divorced/separated			13.07	
Widowed			7.93	
Never married			4.39	
Self-rated physical health	3.46	0.98		2,620
Self-rated mental health	3.91	0.92		2,312
Rely on family	2.49	0.73		2,344
Rely on friends	2.21	0.83		2,389
Interview month				2,593
9/2020			44.49	
10/2020			1.59	
11/2020			22.92	
12/2020			8.74	
01/2021			7.95	

Note: Missing values are handled using multiple imputation. Descriptive statistics reported are calculated before the imputation.

Table 2. Estimated Relative Risk Ratios for Pre-pandemic Confidant Network Predicting Pandemic Support from Multinomial Logistic Models (N=2,622).

	Help		Help Frequency		Support		Support Frequency	
	Yes vs. no need	Unable to get vs. no need	Less often vs. same	More often vs. same	Yes vs. no need	Unable to get vs. no need	Less often vs. same	More often vs. same
<i>Confidant Networks</i>								
Size	1.25** *	0.79*	1.02	1.19*	1.21***	1.23	1.01	1.17*
	(0.07)	(0.08)	(0.08)	(0.08)	(0.05)	(0.17)	(0.07)	(0.07)
Density	2.60**	1.36	0.89	1.58	1.62*	0.90	0.96	1.36
	(0.74)	(0.89)	(0.33)	(0.50)	(0.31)	(0.46)	(0.34)	(0.37)
% female confidant	1.03	1.44	0.83	1.03	1.29	1.87	0.73	0.87
	(0.26)	(0.87)	(0.25)	(0.41)	(0.30)	(1.57)	(0.23)	(0.28)
% kin confidant	1.08	0.58	1.38	1.15	1.01	1.00	1.05	1.07
	(0.25)	(0.40)	(0.51)	(0.35)	(0.17)	(0.74)	(0.31)	(0.32)
<i>Demographics</i>								
Female	1.78** *	1.18	1.19	1.47*	1.52***	1.00	0.94	1.78**
	(0.23)	(0.35)	(0.23)	(0.27)	(0.14)	(0.40)	(0.18)	(0.32)
Age	1.07** *	0.99	0.97*	1.05***	1.00	0.99	0.98+	1.01
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Non-white	1.83** *	1.89+	1.84** *	2.08***	1.56***	2.25*	1.27	1.35+
	(0.28)	(0.66)	(0.31)	(0.41)	(0.17)	(0.70)	(0.20)	(0.23)
Education (ref: < high school)								
<i>High school</i>	0.51**	0.72	1.02	0.99	0.92	0.33+	1.12	0.82
	(0.11)	(0.31)	(0.32)	(0.30)	(0.16)	(0.19)	(0.38)	(0.25)
<i>Some college</i>	0.54*	0.55	1.45	1.28	1.23	0.76	0.97	0.95
	(0.13)	(0.22)	(0.43)	(0.40)	(0.24)	(0.30)	(0.30)	(0.26)
<i>College graduate</i>	0.48**	0.37+	1.56	1.23	1.62*	0.36+	1.26	1.58
	(0.11)	(0.21)	(0.55)	(0.37)	(0.30)	(0.19)	(0.40)	(0.47)

Marital status (ref: married)								
<i>Cohabiting</i>	1.80+	1.42	1.72	1.27	1.93**	2.44	1.45	1.11
	(0.58)	(1.11)	(0.61)	(0.53)	(0.48)	(2.08)	(0.47)	(0.46)
<i>Divorced/separated</i>	2.25** *	2.18+	1.42	2.21***	1.69***	2.68*	1.88**	1.84**
	(0.46)	(0.99)	(0.34)	(0.46)	(0.23)	(1.12)	(0.41)	(0.40)
<i>Widowed</i>	1.61*	2.44*	1.60+	1.12	1.61***	0.66	1.55	1.30
	(0.29)	(0.94)	(0.42)	(0.32)	(0.22)	(0.39)	(0.48)	(0.28)
<i>Never Married</i>	2.46**	2.95+	2.45*	1.80	1.57+	2.39	1.88+	1.10
	(0.79)	(1.64)	(0.95)	(0.68)	(0.39)	(1.31)	(0.69)	(0.41)
Self-rated physical health	0.63** *	0.66*	0.85+	0.66***	0.89+	0.82	0.91	0.84+
	(0.05)	(0.12)	(0.07)	(0.07)	(0.05)	(0.15)	(0.08)	(0.07)
Self-rated mental health	1.00	0.95	1.00	0.99	0.83**	0.72	0.84+	0.85+
	(0.08)	(0.18)	(0.10)	(0.11)	(0.05)	(0.15)	(0.08)	(0.07)
Rely on family	0.93	0.79	0.88	0.93	1.02	0.66+	0.83	1.13
	(0.08)	(0.13)	(0.12)	(0.12)	(0.07)	(0.14)	(0.09)	(0.13)
Rely on friends	0.89	0.82	0.82+	1.04	1.14+	0.85	0.83+	1.13
	(0.08)	(0.15)	(0.08)	(0.11)	(0.08)	(0.17)	(0.09)	(0.12)
Interview month (ref: 9/2020)								
<i>10/2020</i>	0.95	1.49	1.51*	1.02	0.95	0.93	0.97	0.82
	(0.16)	(0.79)	(0.28)	(0.23)	(0.13)	(0.52)	(0.22)	(0.16)
<i>11/2020</i>	1.16	2.72*	1.17	1.05	1.04	2.19+	0.74	0.92
	(0.21)	(1.34)	(0.23)	(0.21)	(0.15)	(0.97)	(0.19)	(0.18)
<i>12/2020</i>	1.21	2.16	1.43	1.08	1.16	1.40	1.08	1.59+
	(0.29)	(1.18)	(0.39)	(0.34)	(0.20)	(0.77)	(0.33)	(0.41)
<i>01/2021</i>	0.62	1.28	1.10	0.61	0.69*	0.53	0.61	0.78
	(0.18)	(0.79)	(0.33)	(0.19)	(0.12)	(0.40)	(0.21)	(0.23)

Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 3. Estimated Relative Risk Ratios for Pre-pandemic Confidant Network Predicting Pandemic Support from Multinomial Logistic Models with Gender Interactions (N=2,622)

	Help		Help Frequency		Support		Support Frequency	
	Yes	Unable	Less	More	Yes	Unable	Less	More
	vs. no need	to get vs. no need	often vs. same	often vs. same	vs. no need	to get vs. no need	often vs. same	often vs. same
<i>Confidant Networks</i>								
Size	1.20+ (0.11)	0.82 (0.11)	0.93 (0.09)	1.22* (0.11)	1.23*** (0.07)	1.42+ (0.27)	1.06 (0.10)	1.21+ (0.12)
Size X female	1.07 (0.11)	0.99 (0.18)	1.20 (0.17)	0.95 (0.12)	0.97 (0.08)	0.85 (0.25)	0.90 (0.12)	0.93 (0.12)
Density	3.06* (1.45)	0.92 (0.78)	0.91 (0.46)	2.02 (1.16)	1.35 (0.37)	0.61 (0.42)	0.81 (0.33)	1.16 (0.52)
Density X female	0.78 (0.47)	2.13 (2.25)	1.01 (0.61)	0.67 (0.51)	1.44 (0.67)	2.30 (2.64)	1.43 (0.76)	1.31 (0.80)
% female confidant	1.06 (0.33)	1.39 (1.34)	0.72 (0.41)	0.80 (0.50)	1.20 (0.39)	8.17+ (8.77)	0.67 (0.33)	0.58 (0.32)
% female confidant X female	0.93 (0.48)	0.63 (0.85)	1.00 (0.78)	1.51 (1.24)	1.10 (0.42)	0.06* (0.07)	1.13 (0.80)	1.85 (1.38)
% kin confidant	0.91 (0.32)	1.21 (1.10)	1.38 (0.77)	1.21 (0.66)	1.22 (0.35)	0.85 (0.65)	1.45 (0.67)	1.62 (0.73)

% kin confidant X female	1.28	0.24	0.91	1.02	0.71	0.67	0.55	0.57
	(0.66)	(0.24)	(0.59)	(0.79)	(0.31)	(0.75)	(0.31)	(0.34)
Female	1.79***	1.13	1.24	1.51*	1.53***	1.02	0.93	1.85**
	(0.23)	(0.42)	(0.27)	(0.29)	(0.14)	(0.36)	(0.19)	(0.34)

Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10

All models controlled for race, age, education, current marital status as well as Round 3 measures of self-rated physical health, self-rated mental health, rely on family and rely on friends.

Accepted Manuscript

Table 4. Estimated Relative Risk Ratios for Pre-pandemic Confidant Network Predicting Pandemic Support from Multinomial Logistic Models with Race Interactions (N=2,622)

	Help		Help Frequency		Support		Support Frequency	
	Yes vs. no need	Unable to get vs. no need	Less often vs. same	More often vs. same	Yes vs. no need	Unable to get vs. no need	Less often vs. same	More often vs same
<i>Confidant Networks</i>								
Size	1.19*	0.83	1.10	1.09	1.25***	1.66*	1.00	1.15+
	(0.08)	(0.12)	(0.11)	(0.09)	(0.06)	(0.35)	(0.08)	(0.09)
Size X non-white	1.17	0.92	0.85	1.27	0.89	0.55*	1.03	1.04
	(0.15)	(0.20)	(0.12)	(0.20)	(0.08)	(0.13)	(0.11)	(0.13)
Density	3.52***	1.97	0.62	1.69	2.02**	1.46	0.89	1.63
	(1.20)	(1.87)	(0.29)	(0.63)	(0.47)	(1.17)	(0.42)	(0.55)
Density X non-white	0.34+	0.36	2.82	0.80	0.36*	0.25	1.40	0.48
	(0.20)	(0.45)	(1.88)	(0.55)	(0.17)	(0.30)	(0.98)	(0.29)
% female confidant	1.07	1.87	0.83	0.95	1.35	2.53	0.95	0.82
	(0.31)	(1.80)	(0.32)	(0.44)	(0.33)	(2.78)	(0.35)	(0.33)
% female confidant X non-white	0.89	0.58	1.00	1.26	0.84	0.47	0.40	1.33
	(0.46)	(0.66)	(0.50)	(0.81)	(0.29)	(0.48)	(0.26)	(0.93)
% kin confidant	0.83	0.36	1.81	0.90	0.84	0.70	1.04	0.94
	(0.22)	(0.33)	(0.85)	(0.33)	(0.17)	(0.62)	(0.35)	(0.32)
% kin confidant X non-white	2.79*	3.83	0.48	2.16	2.39+	2.82	1.10	1.75
	(1.42)	(4.45)	(0.31)	(1.30)	(1.20)	(4.29)	(0.66)	(1.03)

Non-white	1.84***	1.78	1.80***	2.02***	1.53***	2.01+	1.25	1.33
	(0.28)	(0.67)	(0.30)	(0.40)	(0.16)	(0.74)	(0.20)	(0.23)

Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10

All models controlled for gender, age, education, current marital status as well as Round 3 measures of self-rated physical health, self-rated mental health, rely on family and rely on friends.

Accepted Manuscript