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Assessment of Social Network Change in a National Longitudinal Survey

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Objectives. This article describes new longitudinal data on older adults' egocentric social networks collected by the National Social Life, Health, and Aging Project (NSHAP). We describe a novel survey technique that was used to record specific personnel changes that occurred within respondents' networks during the 5-year study period, and we make recommendations regarding usage of the resulting data.

Method. Descriptive statistics are presented for measures of network size, composition, and structure at both waves, respondent-level summary measures of change in these characteristics between waves, as well as measures that distinguish between changes associated with losses of Wave 1 network members, additions of new ones, and changes in relationships with network members who were present at both waves.

Results. The NSHAP network change module was successful in providing reliable information about specific changes that occurred within respondents' confidant networks. Most respondents lost at least one confidant from W1 and added at least one new confidant between waves as well. Network growth was more common than network shrinkage. Both lost and new ties were weaker than ties that persisted throughout the study period.

Discussion. These data provide new insight into the dynamic nature of networks in later life, revealing norms of network turnover, expansion, and weakening. Data limitations are discussed.

Key Words: Aging—Network change—Social isolation—Social networks.

As evidence of the powerful influence of social networks in individuals' lives continues to grow, scholars have become increasingly interested in older adults' networks and how they change in the face of aging (e.g., Aartsen, van Tilburg, Smits, & Knipscheer, 2004; Shaw, Krause, Liang, & Bennett, 2007; Stevens & van Tilburg, 2011). How and why individuals' social networks change in later life is important to understand for several reasons, including the fact that network changes have health effects above and beyond baseline levels of social connectedness (Cornwell & Laumann, in press; Eng, Rimm, Fitzmaurice, & Kawachi, 2002; Holtzman et al., 2004; Seeman et al., 2011; Zhang, Yeung, Fung, & Lang, 2011). Unfortunately, little is known about several potentially consequential aspects of social network change, including how much network member turnover older adults experience and what causes it. The National Social Life, Health, and Aging Project (NSHAP) study has collected the first nationally representative longitudinal data on older adults' social networks that are detailed enough to capture such changes. We introduce a survey technique that was used to capture specific changes within respondents' networks between Waves 1 and 2, we describe measures of several potentially consequential aspects of network change, and we present some preliminary findings.

Method

The NSHAP team was interested in measuring change in respondents' social networks over the 5-year period between the first wave (2005–2006) and the second wave (2010–2011) of the study. There were 3,005 Wave 1 (W1) NSHAP respondents and 3,377 Wave 2 (W2) respondents, including some partners of W1 respondents as well as people who were approached but did not participate at W1. We are interested in how individuals' networks change over time, which we assess using data on those respondents who were interviewed at both waves (N = 2,261).

The Social Network Rosters

The first task is to identify at each time point—for each individual ("ego")—the relevant set of people ("alters") to whom that individual is connected at various time points. The NSHAP adopts the philosophy that respondents themselves are the best sources of information about who the most relevant network members are (see Cornwell, Schumm, Laumann, & Graber, 2009; Laumann & Schumm, 1997; Marsden, 2011). They provide information about their network members, their relationships with them, as well as alters' relationships with each other—thus yielding

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egocentric social network data. The questionnaire that was used to get this information (and the resulting data) may be obtained from the National Archive of Computerized Data on Aging (http://www.icpsr.umich.edu/NACDA/).

The NSHAP collected egocentric social network data from all respondents at both W1 and W2 using computer-assisted personal interviewing (CAPI). At both waves, the interview began with a module that records who the alters are. This module was placed at the beginning of the interview to minimize interviewer effects and respondent fatigue that can affect the number of network members named (Paik & Sanchagrin, 2013). Four "rosters," or lists of alters, were collected: A, B, C, and D. Roster A contained respondents' "confidants." To elicit the names of confidants, interviewers asked the following name generator: "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 you?" Respondents could name up to five confidants. This name generator tends to elicit names of strong, frequently accessed, long-term contacts—ties through which normative pressures and social influence are likely to operate (Marin, 2004; Straits, 2000; cf., Bearman & Parigi, 2004). The vast majority of confidants identified in NSHAP at W1 were relatively strong ties in terms of frequency of contact, emotional closeness, and respondents' likelihood of discussing health matters with confidants (Cornwell et al., 2009; Cornwell & Laumann, 2011). In this article, we will focus primarily on the characteristics of alters included in Roster A.

Rosters B–D capture other potentially important network members. When respondents who had a spouse or romantic partner did not include that person in Roster A, that individual was recorded in Roster B. Otherwise, Roster B is not used. Following this, respondents were asked: "(Besides the people you already listed), is there anyone (else) who is very important to you, perhaps someone with whom you feel especially close?" If such an individual was identified, s/he was recorded in Roster C (one person only). This item was added to ensure inclusion of any other especially important contact who may not have been captured by the main name generator. Finally, household members not captured in Roster A, B, or C were recorded in Roster D.

Network Composition and Structure

Next, interviewers asked a series of questions—called *name interpreters*—which elicit information about the nature and quality of the relationship the respondent (ego) has with each alter. Our focus is on aspects of network composition and structure that are related to older adults' well-being. (For a detailed discussion of the rationale behind collecting these particular measures, see Cornwell et al., 2009.) For one, we examine network composition (i.e., types of contacts), which affects the scope of social support and influence that flows through one's network (e.g., Haines, Hurlbert, & Beggs, 1996). We asked the respondent to describe his or her relationship to each alter (e.g., kin and friend) and the alter's gender. For alters in Rosters A–C, we recorded whether the alter lives with ego, which makes it possible to construct a complete household roster (see York Cornwell, in press).

We also collect information about the strengths of the ties to alters in Rosters A–C, which capture the quality and intensity of those relationships (Wellman & Wortley, 1990). Ego's frequency of contact with each alter is recorded using ordinal rating that correspond to real frequencies, ranging from 1 ("less than once a year") to 8 ("every day"). To get this information, respondents were asked: "How often do you talk to this person?" and were told (if they asked) that they could include talking over the telephone and personal E-mail. The respondent's emotional closeness to each alter is also measured in terms of an ordinal response, ranging from 1 ("not very close") to 4 ("very close").

The relevance of network ties to well-being depends in part on ego's ability to discuss health with network members (Perry & Pescosolido, 2010; York Cornwell & Waite, 2012). To capture this functional specificity of network ties, the NSHAP asked respondent how likely they would be to discuss health or medical matters with each of the alters in Rosters A–C. This is reported using an ordinal response that ranges from 1 ("not likely") to 3 ("very likely").

The extent of connectedness among one's social network members (i.e., network density) may also be consequential for health-related social support (Haines et al., 1996). To capture this structural feature of networks, respondents were asked to estimate each alter's frequency of contact with each of the other network members who are listed in Rosters A–C, using ordinal ratings that range from 0 ("have never spoken to each other") to 8 ("every day"). If the respondent named k alters, s/he reported the frequencies of contact between $k(k-1)/2$ pairs of network members. Respondents provided this information for all but 1.0% of the alter–alter relationships within their networks.

Personnel Changes Within Networks

We are interested in how these aspects of networks change over time. In most studies, this is measured using a simple comparison of the values of a given measures at two time points. Although such measures (e.g., overall changes in network size) are useful for assessing shifts in the social environment, they provide no means of distinguishing between changes that occurred within persisting network ties versus changes that stem from the loss of past network members and/or the addition of new ones who may be different in various respects (Feld, Suitor, & Hoegh, 2007; Wellman, Wong, Tindall, & Nazer, 1997). Making

this distinction, and assessing the amount of turnover that occurs within networks, requires detecting specific personnel changes that occur over a given period of time.

The NSHAP devised a CAPI exercise to reveal specific confidant changes between waves among the 2,261 respondents who participated at both W1 and W2. Interviewers first collected each respondent's W2 network roster and information about each W2 alter. The respondent's W1 roster was preloaded into the CAPI instrument and was not visible to the respondent while completing the W2 roster. After the respondent completed the W2 roster, the CAPI was programmed to display a visual representation linking matches between the respondent's W1 and W2 rosters from Rosters A–C (Figure 1). The respondent was asked to verify if these computer-programmed matches were correct and were given the opportunity to correct any mismatches. The W1 roster line corresponding to a given W2 alter was recorded by the computer, where applicable.

Using these data, one can distinguish between alters who were named at W1 but not at W2 ("lost" alters), those who were named at both W1 and W2 ("stable" alters), and those who were named for the first time at W2 ("new" alters). One can, therefore, also assess the extent to which a given network change (e.g., decrease in average frequency of contact with alters) reflects changes that occurred within relationships that persisted from W1 to W2 versus changes that were due to the loss and/or addition of network members. For example, it may be important to note that a given woman had more frequent contact with her confidants at W1 than she did at W2. With the data just described, though, we have not only this estimate of overall change but also alter-level data that allow us to detect the sources of this change. We can determine the extent to which this change was due to (a) her decreasing her contact with alters who were present at both W1 and W2, (b) the loss of past alters with whom she had frequent contact, and/or (c) the addition of new alters with whom she has infrequent contact.

Additional Information About "Lost" Network Members

Losses from a social network may occur for a number of important reasons, ranging from deliberate efforts to change one's network to life-course transitions (e.g., Ikkink & van Tilburg, 1999). Apparent losses (or additions) may also arise from survey method and reporting biases. It is possible that estimates of confidant network turnover, for example, are inflated by the limitations of the five-person network cap for Roster A—as respondents who have more than five confidants may simply think of them in a different order at the two waves.

For these reasons, following the roster matching exercise, respondents were asked to provide additional information about any W1 alters who were not named at W2. In these cases, interviewers inquired: "I noticed that in our last interview in (YEAR), you also listed (NAME) as someone with whom you discuss important matters, but you did not list (NAME) this time. Is (NAME) still living?" If the respondent responded "Yes," the interviewer asked: "What is the main reason you are no longer in touch with (NAME)?" Respondents were provided with a small preset list of reasons, including "I moved," "(NAME) moved," "I became ill or had a health problem," "(NAME) became ill or had a health problem," or "other." Most respondents chose "other" and were then asked to provide short open-ended explanations. There were no prevalidated response categories to classify such losses. The NSHAP team, therefore, used two independent approaches to categorize these explanations. Through a series of working group discussions, the team identified eight categories of broad explanations for alter losses (including the four preset categories described previously). Two teams used different methods to independently code each open-ended response. One team categorized the responses by evaluating them and deciding which category was most appropriate. The other team used a computer to apply a data-reduction method based on word-frequency count that is commonly used in content analyses (Krippendorff, 1980)—the operative assumption being that the words that are mentioned most often capture the general meaning of the text. Using these methods, the two teams achieved 80.1% interrater agreement across the nine categories, yielding a respectable level of reliability (Cramer's $V = 0.71$). The NSHAP social networks team then discussed and resolved any remaining disputed categorizations.

Additional Information About "New" Network Members

Understanding the nature of the respondent's relationship with "new" alters may also provide additional insight into the nature of network change. Respondents were, therefore, asked how long they had known any alters who were newly added

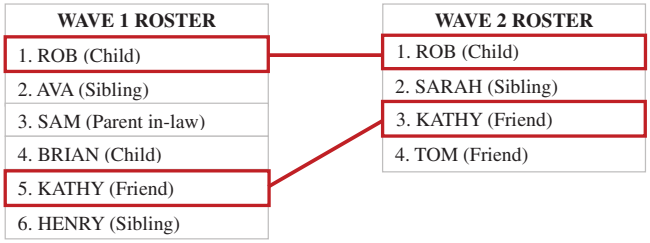

Figure 1. Sample screenshot of the computer-assisted personal interviewing interface used by a hypothetical National Social Life, Health, and Aging Project respondent to match her W1 network members to her W2 network members.

to the rosters at W2: "How long have you known (NAME)?" Expanding on a similar item from the General Social Survey, responses include: "Less than a year" (=0), "1 to 3 years" (=1), "3 to 6 years" (=2), and "More than 6 years" (=3).

Survey Adjustment and Attrition

Because network change can only be analyzed for respondents who were present at W1 and W2, researchers can conduct analyses using the original W1 person-weights and survey design variables (i.e., strata and clusters). Researchers may want to adjust weights for non-random attrition, which could be related to both baseline social connectedness and subsequent network change (e.g., Eng et al., 2002). Not doing so may result in overestimation of baseline network connectedness and network growth, as well as other characteristics that are likely to reduce mortality risk and other sources of attrition. For the sake of clarity and reproducibility, we utilize the original W1 person-weights and survey design variables without attrition adjustments. It is worth noting that a recent analysis we conducted of these data (Cornwell & Laumann, in press) reveals that the network change patterns reported here remain even after taking attrition into account.

Results

In the following sections, we describe these two approaches to measuring social network change using the NSHAP data. For most of this discussion, we will focus on changes that occurred in Roster A of respondents' networks, so as to maintain the interpretability of these networks as "confidant" networks.

Respondent-Level Measures of Network Change

Table 1 compares the characteristics of respondents' social networks at W1 (Column 2) and W2 (Column 3). Most survey-based studies characterize social network change in terms of respondent-level summary measures of average change over time, such as the measures presented in Column 4. This approach produces some important findings. For one, the average number of confidants per respondent increased (from 3.6 to 3.8) between waves. There were also substantial declines in the proportion of confidants who are coresident, emotional closeness to and frequency of contact with confidants, as well as in respondents' likelihood of discussing health with confidants. (Some of these changes are undoubtedly due to the loss of spouses from some networks.) These findings reveal a general expansion and weakening of respondents' confidant networks over time.

Some of the levels of change (e.g., with respect to confidant network size) are small, which belies a wide range of experiences with network change in this sample. It is often more instructive to examine the prevalence of decreases, stability, and increases in respondent-level network measures (presented in Columns 5–7 of Table 1). For example, although the difference in overall frequency of contact between respondents and their confidants appears to be small, a closer look shows that 26.0% more people experienced a decrease in contact frequency than experienced an increase (49.5% divided by 39.3%).

Network Turnover and Alter-Level Measures of Network Change

The network roster matching exercise that was designed to record specific changes within respondents' social networks worked well. Only 12 respondents were unable to definitively verify whether (and where) all of their W2 alters appeared in the W1 roster. When coding the reasons respondents gave for why any W1 network members were no longer included at W2, we discovered an additional 29 respondents who reported having trouble identifying a particular W1 alter (e.g., due to the fact that alters' full names were not recorded). An additional seven respondents beyond these had missing

Table 1. Comparison of Respondent-Level Network Measures Between Waves 1 and 2 (N = 2,261)[a]

	Overall average			% reporting		
Measure	W1	W2	Diff.	Decrease	Same	Increase
Network size						
Roster A	3.60 (1.43)	3.80 (1.35)	0.20 (1.56)	26.7	37.3	36.0
Roster B	0.16 (0.37)	0.16 (0.37)	0.00 (0.45)	10.1	79.7	10.2
Roster C	0.57 (0.50)	0.51 (0.50)	–0.06 (0.67)	25.5	55.2	19.3
Roster D	0.24 (0.72)	0.23 (0.71)	–0.01 (0.78)	10.2	80.7	9.1
Proportion kin[b]	0.67 (0.32)	0.66 (0.33)	–0.01 (0.34)	34.6	34.6	30.9
Proportion coresident[b]	0.24 (0.27)	0.20 (0.25)	–0.03 (0.28)	31.8	44.8	23.4
Emotional closeness to alters (1–4)[b]	3.17 (0.52)	3.09 (0.52)	–0.08 (0.60)	48.5	15.3	36.2
Frequency of contact with alters (1–8)[b]	6.85 (0.85)	6.76 (0.86)	–0.10 (0.97)	49.5	11.2	39.3
Likelihood of discussing health with alters (1–3)[b]	2.61 (0.46)	2.56 (0.46)	–0.04 (0.54)	40.8	25.2	34.0
Frequency of contact among alters (0–9)[b]	4.15 (1.97)	4.13 (1.94)	–0.04 (2.19)	50.6	3.1	46.3
Network density (0–1)[b]	0.77 (0.28)	0.77 (0.28)	–0.00 (0.33)	34.9	33.4	31.7

Notes. [a]Estimates are calculated for all respondents for whom valid data were available for a given variable, which varies slightly from one variable to the next. Standard deviations appear in parentheses below the relevant measure. All estimates are weighted using National Social Life, Health, and Aging Project W1 person-weights.

[b]Estimates refer to confidants (Roster A) only.

data in error for at least one of their network members. Not including these people, the data set includes complete data on network change for 2,213 respondents or 97.9% of the valid sample of 2,261 returning W1 respondents.

Table 2 provides a breakdown of where alters appear in respondents' rosters at W1 and W2. A total of 4,064 confidants (in Roster A) at W1 remained in Roster A at W2, 481 were reallocated to either Roster B or C, and 3,193 were either not named again at all or included only in Roster D. Researchers should be mindful of this reallocation of alters between rosters when attempting to restrict analyses to W1 and/or W2 confidants, as this might affect estimates of turnover and of the number of confidants "lost" or "added" between waves. Note also that the second row shows that several Rosters B and C alters from W1 reappear in a roster at W2. The bottom row details where in the W2 rosters any "new" alters appeared.

Of the 2,213 respondents who had complete non-missing network change data, 780 reported no change in the number of confidants between waves. Of these, 627 (80.4%) still reported some change with respect to who, exactly, their confidants are. Overall, 2,060 respondents (93.1%) reported some change in confidant personnel.

Table 3 details the characteristics and strengths of stable, lost, and new confidant relationships. In this table, "lost" confidants refer to the 3,193 alters who were in Roster A at W1 but not in Roster A, B, or C at Roster 2, "new" confidants refer to the 3,761 alters who were in Roster A at W2 but not in Roster A, B, or C at W1, and "stable" confidants are those who were in Roster A at both waves. Note that the stable confidant relationships were substantially stronger than both lost and new confidant relationships.

These data make it possible to distinguish between facets of network change that operate within persisting relationships versus those that involve processes such as loss and replacement. For example, recall from Table 1 the overall weakening of confidant networks between waves. Table 3 suggests that, at least with respect to emotional closeness to confidants, this is due to both (a) the replacement of lost W1 confidants with new ones that are weaker and, to a much lesser extent, (b) a slight weakening of stable confidant relationships. In the case of frequency of contact with network members, weakening of the confidant networks is due more to decreasing rates of contact with persisting confidant relationships.

Table 2. Matrix Showing Alters' Movement Between Network Rosters From W1 to W2 (Unweighted)[a]

Alter location at W1	Alter location at W2		
	Roster A	Roster B or C	Neither
Roster A	4,064	481	3,193[b]
Roster B or C	500	234	870[b]
Neither	3,761[c]	735[c]	—

Notes. [a]Estimates are drawn from all respondents for whom valid data were available, ignoring those who had any trouble with the roster matching exercise and/or who had missing data on any alter.

[b]Includes a combination of alters from Roster A, B, or C at W1 who may have been included in Roster D at W2 or who were not included in any roster at W2 for any of a number of reasons, including death.

[c]Includes a combination of alters from Roster A, B, or C at W2 who may have been included in Roster D at W1 or who were not included in any W1 roster.

Additional Information About "Lost" and "New" Confidants

A total of 3,193 confidants were lost between waves. When asked if these confidants were still alive, respondents reported that 2,648 of them were. In these cases, respondents provided information either using the preset list of responses described previously or in an open-ended response about why the relationship ended. Table 4 presents 11 reasons NSHAP respondents gave for confidant losses, including the category "the confidant died" based on the response to the first question. The third column reports the percent of confidants who were lost for a given reason. For example, 4.1% of the 3,193 confidants who were lost were lost because of a falling out or

Table 3. Alter-Level Measures Describing Stable, Lost, and New Confidant Ties (Unweighted)[a]

Measure[b]	Average values for			
	Stable confidants, at		Lost confidants	New confidants
	W1 (N = 4,064)	W2 (N = 4,064)	(N = 3,193)	(N = 3,761)
Kin relationship	0.78 (0.42)	0.78 (0.41)	0.48 (0.50)	0.47 (0.50)
Coresident status	0.24 (0.43)	0.25 (0.43)	0.06 (0.25)	0.05 (0.21)
Emotional closeness to alters (1–4)	3.32 (0.67)	3.29 (0.66)	2.84 (0.76)	2.76 (0.74)
Frequency of contact with alters (1–8)	7.07 (1.10)	7.02 (1.15)	6.34 (1.41)	6.36 (1.38)
Likelihood of discussing health with alters (1–3)	2.72 (0.56)	2.72 (0.55)	2.35 (0.77)	2.34 (0.76)
Frequency of contact between alters (0–8)	4.53 (2.01)	4.44 (0.55)	3.51 (2.18)	3.62 (2.17)
Length of time ego has known alters (1–4)	—	—	—	3.69 (0.68)
Number of observations per respondent	1.84 (1.22)	1.84 (1.22)	1.44 (1.27)	1.70 (1.36)

Notes. [a]Estimates are drawn from all respondents for whom valid data were available for a given variable, ignoring those who had any trouble with the roster matching exercise and/or who had missing data on any alter. Standard deviations appear in parentheses below the relevant measure.

[b]All estimates refer to confidants (Roster A) only. W2 confidants who were in Roster B or C at W1 are not considered "new," just as W1 confidants who are in Roster B or C at W2 not treated as either "lost" or "stable."

Table 4. Reasons Respondents (R) Given for Why Wave 1 Confidants (N = 3,193) Were "Lost" Between Waves[a]

Reason W1 confidant not named as W2 confidant	% of respondents[b] who reported such a loss	% of lost confidants[c] who were lost for this reason
R or confidant moved/now too "distant"	24.2	23.4
The confidant died	21.1	17.1
They "drifted apart"/circumstances changed	17.2	14.8
They are "still in touch"	16.2	15.3
Actually, this is still a confidant relationship	9.0	8.0
R or confidant suffers from health problems	8.9	7.4
There was a falling out/disagreement/conflict	6.1	4.1
"I don't know"	4.4	4.7
R or confidant retired or changed jobs	4.4	3.3
Ambiguous/unclassified	2.3	1.8
Refused	0.2	0.1

Notes. [a]Findings are based on assessments of two independent coders (80.1% agreement). Estimates ignore those who had any trouble with the roster matching exercise or who had missing data on any alter. "Lost" confidants do not include those appearing in Roster B or C at W2.

[b]Estimates are weighted using National Social Life, Health, and Aging Project W1 person-weights. Estimates are generated only for the 2,175 respondents who had at least one W1 confidant and who had non-missing network change data.

[c]Estimates are unweighted.

disagreement. We can also look at this at the individual level. For example, 4.1% of confidants were lost due to some kind of falling out, whereas the second column shows that 6.1% of *respondents* reported losing a confidant for this reason.

A concern when devising this survey module was that much of the apparent network "turnover" would be a mere artifact of the limitations of the five-person network roster cap or would have no definable cause. Fortunately, in only 8.0% of cases did respondents report that the purportedly "lost" confidant was actually still a confidant at W2. In these cases, the open-ended explanation they provided often suggested that they had merely "forgotten" to include the person. And only seldom (0.6% of losses) did respondents directly report that they dropped a confidant because there was "not enough space to list" the confidant in Roster A at W2. A combined 6.6% of losses are unexplained in cases where respondents refused, did not know, or provided ambiguous explanation for the loss. Several other classes of responses provide incomplete information about lost confidant ties. The largest class includes responses that blamed the physical "distance" between respondents and their old confidants. These responses typically did not clarify whether this involved an actual change in residence, increasing difficulty by one or both parties to cover that distance, or perhaps increasing reluctance to do. In addition, in 16.2% of cases, respondents report that they are "still in touch" with lost confidants. This may indicate either a weakening of the relationship or an ongoing connection that for some reason is not consistently treated or thought of by respondents as a confidant relationship. Some of these classifications are thus ambiguous and imprecise, and researchers should interpret them with caution.

Finally, recall from Table 2 that 3,761 of the network members who were named as confidants at W2 had not been included in Roster A, B, or C at W1. Some additional information about these new confidants was summarized in the fifth column of Table 3. It is also worth noting that respondents reported that they had known 79.9% of the new confidants for more than 6 years, 10.9% for 3–6 years, 7.4% for 1–3 years, and only 1.8% for less than 1 year. In short, respondents typically turned to preexisting contacts rather than recruiting confidants whom they did not already know. Data are publically available (NSHAP Wave 1: Waite, Linda J., Edward O. Laumann, Wendy Levinson, Stacy Tessler Lindau, and Colm A. O'Muircheartaigh. National Social Life, Health, and Aging Project (NSHAP): Wave 1. ICPSR20541-v6. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2014-04-30. doi:10.3886/ICPSR20541.v6. NSHAP Wave 2: Waite, Linda J., Kathleen Cagney, William Dale, Elbert Huang, Edward O. Laumann, Martha K. McClintock, Colm A. O'Muircheartaigh, L. Phillip Schumm, and Benjamin Cornwell. National Social Life, Health, and Aging Project (NSHAP): Wave 2 and Partner Data Collection. ICPSR34921-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2014-04-29. doi:10.3886/ICPSR34921.v1.).

Discussion

In collecting the first ever nationally representative longitudinal egocentric network data, the second wave of the NSHAP overcame several methodological challenges. The roster matching exercise yielded reliable data on specific changes in who respondents' confidants are. Few respondents had trouble remembering or matching network members. These data thus provide a number of useful insights into rates of turnover in confidant networks, as well as overall changes in respondent-level and alter-level social network characteristics. The data have some important limitations, however, including lack of insight into indirect and weaker (non-confidant) social network contacts. Further, the data do not indicate when exactly old ties were lost or when new ties were added between waves, thus precluding an analysis of the timing of tie replacement or substitution. Finally, the data provide limited insights into causes of confidant losses or the histories of new confidants. This makes it impossible to conduct anything other than a preliminary analysis of why respondents' networks changed. Finally, in using these data, researchers must remain cognizant of floor and ceiling effects with respect to the amount of network change observed in a given case and should take care to distinguish between respondent- and alter-level network changes.

Conclusions

We close with some general observations about our findings that may inform existing debates regarding causes of

social network change in later life. These data suggest that older adults' personal social networks are rarely stable and are likely to experience at least some turnover within a period of just a few years. Contrary to the idea that older adults restrict their social networks to only the strongest contacts as they age, these data show that older adults' networks were more likely to expand than shrink, became less household centric, drew more weak ties, and involved high levels of turnover.

It is beyond the scope of this article to explain these patterns, but future work might consider a number of possible causes. These data paint of picture of later life as a period of transitions and challenges (e.g., health decline and bereavement) that deprive people of some of their strongest ties—but it may be a situation to which people adapt by accepting (weaker) substitutes who effectively function as confidants (e.g., Atchley, 1989; Bloem, van Tilburg, & Thomése, 2008; Cornwell, 2009; Donnelly & Hinterlong, 2010; Lamme, Dykstra, & van Groenou, 1996; Moen, Dempster-McClain, & Williams, 1992). Another possibility is that these patterns of network change reflect period effects. The time that passed between the first and second waves of the NSHAP saw a drastic increase in reliance on computer-mediated communication. Some have argued that this has crippled individuals' social networks (e.g., McPherson, Smith-Lovin, & Brashears, 2006; cf., Fischer, 2009; Paik & Sanchagrin, 2013), whereas others suggest that this technology has merely changed the nature of interaction with existing relationships and even provided opportunities to create new ties (e.g., Fischer, 2011; Wang & Wellman, 2010). We urge researchers to use and expand on these data to inform future analyses of the extent and consequences of social network change in later life.

Key Points

- The NSHAP W2 introduced a novel approach to capturing egocentric social network change, whereby respondents matched members of their network rosters between waves.
- About 98% of respondents who completed both W1 and W2 provided valid data on how (if at all) their networks changed between waves.
- These data can be used to calculate both respondent-level measures of network change and turnover as well as network-member-level measures of change.
- Overall, network growth between waves was more common than network shrinkage.
- About 93% of respondents reported some change in who their network members are, most of them having both lost and gained at least one confidant between waves. Both lost and new ties were weaker than ties that persisted throughout the study period.

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