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Assessing Support Network Stability With Transition-Age Foster Youth: Measuring Change Over Time

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Abstract

Objective: This study uses the Support Network Assessment for Practice (SNAP) approach to measure the support provided to young people transitioning from foster care.

Methods: The SNAP was administered on two occasions, approximately 7 months apart, to a cohort of transition-age foster youth ($n = 27$). Analyses investigated measurement reliability and sensitivity to change for network-level characteristics as well as baseline factors associated with relationship stability.

Results: Most network-level indicators had strong test–retest correlations, and differences in mean scores over time also were detected, suggesting measurement sensitivity to change. Respondents were able to explain most observed changes in their networks, further suggesting reliable measurement. Stable relationships were those reported as stronger and providing more multifaceted support and those with family members and/or parent figures.

Discussion: The SNAP approach could be used to facilitate planning around support needs for youth transitioning out of foster care and to evaluate efforts to enhance support networks.

Keywords

foster youth; social support; network stability; transition to adulthood; independent living programs; aging out

Stable and multidimensional social support is recognized in many fields as fundamentally important in facilitating healthy socioemotional development during the transition to adulthood. There is agreement in child welfare research and practice that such network-based support is a necessary—and often scarce—developmental resource for youth aging out of foster care (e.g., Avery, 2010; Goodkind, Schelbe, & Shook, 2011). The social contexts that might typically support overall health and wellness—stable family-based networks, connections to schools and recreation, relationships with prosocial peers—are potentially disrupted or inhibited by the circumstances that lead to child welfare system involvement, and in many cases, by the long-term experience of foster placement itself. For many foster youth, the situational opportunities and individual capacities to develop and

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maintain healthy, supportive relationships with peers and adults are hampered by the complex factors related to long-term out-of-home placement without the benefit of a stable family-based network (Cushing & Greenblatt, 2009; Hiles, Moss, Wright, & Dallos, 2013; Negriff, James, & Trickett, 2015; Perry, 2006; Samuels, 2009; Samuels & Pryce, 2008).

Given multiple threats to their social networks, it is not surprising that older youth experience relatively poor outcomes before and after transitioning from foster care (see Stott, 2013, for a recent review of evidence). Yet, relatively little research has drawn connections between the social networks of youth aging out of care and their well-being. Some studies have illustrated the developmental significance of the family-based network, identifying subgroups of foster youth with associations between youth functioning and socioecological context, such that those placed in family foster care, and specifically with relatives, show better behavioral and social functioning than youth in group settings (Keller, Cusick, & Courtney, 2007; Shpiegel & Ocasio, 2015; Yates & Grey, 2012). Other research has indicated that the presence of social support can buffer the effects of child maltreatment on psychosocial outcomes for this population (Salazar, Keller, & Courtney, 2011). Studies representing the perspectives of former foster youth have revealed the personal challenge, emotional strain, and ambiguous loss associated with foster care impermanence, particularly in the context of multiple placement moves (Samuels, 2009; Samuels & Pryce, 2008; Unrau, Seita, & Putney, 2008). It also has been shown that such psychological distress is reduced when strong and supportive ties are able to replace weak or absent ties in disrupted foster youth networks (Perry, 2006).

Although the extended developmental period of “emerging adulthood” (Arnett, 2000) is now reflected in federal policy allowing, for example, the extension of child welfare services up to age 21, youth aging out of care still transition to independence earlier and more abruptly than the general population, exacerbating normative developmental needs. For example, whether youth transition from foster care at age 18 or 21, ongoing behavioral health needs remain high, but service use drops precipitously (Brown, Courtney, & McMillen, 2015). Thus, the transition from foster care leads directly into an extended period of typical challenges that may be worsened by individual and circumstantial risks related to foster care experiences (Berzin, Singer, & Hokanson, 2014; Munson, Lee, Miller, Cole, & Nedelcu, 2013). In many cases, these risks include the lack of a stable family-based network of supportive relationships to monitor and address both typical and nontypical young adult needs as formal support in the form of agency case management recedes (Munson et al., 2013; Singer, Berzin, & Hokanson, 2013).

Consequently, it becomes incumbent upon child welfare service providers to assess the social network supports available to this population and devise strategies for youth to build sufficient social resources to facilitate a successful transition from care (Collins, Spencer, & Ward, 2010). Researchers and practitioners have recognized that a primary objective for programs working with older youth in care is cultivating interdependence—or the capacity to develop and maintain mutually supportive relationships with others—in early adulthood (Antle, Johnson, Barbee, & Sullivan, 2009; Mendes & Moslehuddin, 2006; Propp, Ortega, & NewHeart, 2003). Similarly, a growing body of research is highlighting the important role of nonparental adults as sources of multidimensional social support for older youth in care

(Ahrens et al., 2011; Greeson, Thompson, Ali, & Wenger, 2015; Munson & McMillen, 2009), and recent efforts have addressed the development of informal supportive connections as a primary service outcome (Greeson, Garcia, Kim, & Courtney, 2014; Nesmith & Christophersen, 2014).

At the policy level, the Administration for Children and Families has prioritized a preventive focus on social and emotional well-being to allay the poor outcomes experienced by former foster youth (U.S. Department of Health and Human Services [HHS], 2012). Policy makers specifically recommend that independent living programs (ILPs)—federally supported services delivered by state agencies or through contracted providers—are a suitable venue to focus on socio-emotional development as a service outcome (HHS, 2012). ILPs are the most prevalent service mechanism available to foster youth (in addition to case management related to state guardianship) and historically have been charged with increasing youth skills for employment, education, and self-sufficiency. Recent federal-level ILP evaluation planning prioritizes “next generation” service delivery for transition-age foster youth, focusing on developmental assets like social connections and relationship skills, in addition to the traditional assets such as independent living skills, human capital, and material resources (McDaniel, Courtney, Pergamit, & Lowenstein, 2014).

Although policy makers recognize the need to increase interdependence for foster youth, few road maps are available for assessing such needs and evaluating program efforts. Intervention to enhance support networks can start with systematic social network measurement to guide strategic efforts to increase the availability and utilization of stable network-based support for youth exiting foster care. The present study describes and evaluates such a measurement strategy, using the Support Network Assessment for Practice (SNAP; Blakeslee, 2015) tool, which was developed to assess the support networks of youth aging out of foster care to yield accurate and relevant information for social work research and practice. In particular, this study addresses the use of this assessment over time, investigating its reliability and sensitivity in tracking network stability.

Support Network Stability

Systematic network measurement reflects formalization of the historical assessment of social ecology in social work, and it can be an intervention in itself (Tracy & Whittaker, 1990, 2015). Blakeslee (2012) lays the groundwork for using such assessment to guide the development and delivery of network-oriented intervention, including methods for mapping structural features like size, density, and composition, and describing relationships in terms of strength and support provision. Research using SNAP has shown that transition-age foster youth support networks can be reliably measured in terms of expected associations between- and within-network constructs of support capacity and actual support provision (Blakeslee, 2015). Further, network-based support indicators can predict youth outcomes expected to be related to support, for example, retention in postsecondary educational or training programs (Blakeslee, 2015).

If indicators of network capacity and supportiveness can be reliably measured and can predict outcomes of interest, then it is important to evaluate whether the measured networks are stable over time or change in ways that may influence ongoing support provision. Specifically, if some relationships are expected to end and new ones to be added during foster youth transitions to adulthood, then it is important to know whether support network assessment fluctuates in ways that are explainable in terms of the relational and/or circumstantial changes that occur between measurements. Further, the value of measuring these support networks is increased if such assessment can help predict which kinds of relationships are more likely to be retained over time and thereby contribute to support network stability during transitions from foster care.

Network stability can be defined as “the tendency to reproduce the same basic features of the social network across multiple elicitations of that network” (Morgan, Neal, & Carder, 1996, p. 12). Network stability generally reflects network member cohesion, which contributes to the retention of a core group of stable networked relationships over time. One of the most important predictors of network stability is the cohesive function of interconnecting relationships among the network members or the *density* of ties among multiple network members (e.g., Marsden, 1987; Wellman, 1979). The cohesion of members within networks is also a function of the strength of network ties, usually based on selected relational characteristics like interaction frequency, relationship quality, and relationship duration (Campbell & Lee, 1991; Marsden & Campbell, 1984). Based on these characteristics, relationships can be analyzed as relatively strong ties or weak ties to account for the network functions provided through different kinds of relationships (e.g., Granovetter, 1973). For example, dense clusters of strong ties are considered network *cores*, where members are embedded in a regular flow of varied communication and activity over time (Morgan, Neal, & Carder, 1996; Wellman, Wong, Tindall, & Nazer, 1997). Because these core members are interconnected, the network is structurally cohesive and resists disruption of overall social processes contributing to network functionality when individual ties weaken or disappear (Moody & White, 2003). In the case of social support, such core members would be expected to facilitate regular, multidimensional support through strong and interconnected ties.

Network stability can be assessed at the network level, in terms of measured changes in overall characteristics (e.g., size, density, etc.), and also at the dyadic tie level to identify the characteristics of relationships that come or go relative to those that are stable over time (Feld, Suitor, & Hoegh, 2007; Morgan et al., 1996; Suitor, Wellman, & Morgan, 1997). Changes in network-level indicators, such as network size and composition, are used to estimate the reliable and sensitive measurement of networks over time. Analyses conducted at the tie level explore relationship properties as independent or dependent variables. For example, tie-level stability—in terms of whether a tie is repeatedly named in a network over time relative to ties that are transitory—can be used as a dependent variable predicted by tie characteristics like role type and tie strength. Likewise, at the tie level, the range of types of support provided through an identified relationship is used as a measure of *multiplexity* (Beggs, Hurlbert, & Haines, 1996) reflecting the breadth of types of interaction between two network members. Multiplexity is positively associated with relationship stability (Walker, Wasserman, & Wellman, 1993).

The indicators of network cohesion (see Table 1)—core density, tie strength, mulitplexity, and member stability—are all theoretically important predictors of the presence of lasting relationships providing multidimensional support in a personal network (Degenne & Lebeaux, 2005; Wellman & Whortley, 1989). Such indicators of network cohesion would be expected in a strong family-based (or "family-like") social network embedded in a community setting. Thus, ensuring a degree of network cohesion and stability would be an important aim of interventions that focus on the presence of enduring social support for youth exiting foster care.

Study Aims

Previous research has explored the reliability of the SNAP network mapping approach to measure network support capacity and actual support provision to older foster youth exiting care (Blakeslee, 2015). The current study specifically addresses the stability of support capacity and support provision, in terms of indicators of the cohesion of members within youth networks who are likely to provide ongoing support during the transition from foster care. The analysis considers these networks in terms of the reliability of youth recall of support network members over two time points, the overall stability of network characteristics over time, and predictors of the stability of particular relationships. This demonstrates the application of a network measurement approach to reliably capture the presence of stable support relationships in youth networks over time, while remaining sensitive to expected turnover in these networks. This approach is relevant to research and practice with youth in foster care, as well as other populations of vulnerable youth, where an adequate and stable support network is presumed to be a desirable outcome before, during, and after youth transitions from service systems.

Method

Participants and Procedure

This study uses network data collected for the evaluation of a small academic mentoring program called Coaching for College Success (CCS), which matched foster youth with volunteer mentors who had personally experienced success in postsecondary education. CCS was piloted at an urban nonprofit agency in Portland, OR, and was primarily offered as an optional 6-month service for eligible participants in the agency's larger co-housed ILP. The study protocol was approved by the Portland State University Institutional Review Board to evaluate the effect of the CCS program on a range of outcomes, including support network enhancement.

Participants were young adults (18 or older) with current or recent foster care experience who were enrolled in postsecondary academic or career training programs or who planned to enroll over the course of the 6-month CCS program. Participants were primarily recruited through the host agency's ILP staff, although CCS was also marketed to other local ILP providers and community college programs for disadvantaged students (e.g., TRIO). Eligible young people were invited to take part in the 6-month CCS program and/or in the evaluation data collection, which created a nonequivalent comparison group of participants who chose not to be matched with an academic mentor; this nonrigorous design was appropriate for the small, short-term, and community-based evaluation from which data are drawn for this study.

Baseline data collection (Time 1 or “T1”) was conducted in January 2011 to March 2011, with 34 participants (21 in the program group, 13 in the comparison group). Participants completed a paper assessment with program staff ($n = 14$) or with the first author ($n = 20$). This protocol was repeated at Time 2 (“T2”) by the first author, with additional questions to assess the reliability of respondent recall. T2 data collection took place in October 2011 to December 2011, and the mean interval between assessments was 7.37 months ($SD = .25$). At T2, 10 comparison group participants were retained (77%) and 17 of the program group were retained (81%), for an overall 79% retention rate. There were no statistically significant differences in retention by group, age, race/ethnicity, or living situation. The T2 sample for this study ($n = 27$) was 74% female, mean age 20.3 ($SD = .25$), and identified as White (44%), Black or African American (26%), Hispanic/Latino (15%), or other or mixed race (15%).

This study explores measurement feasibility using the network data collected at two time points for the convenience sample of participants in the CCS program and comparison groups, which are pooled for all analyses. This is justified by preliminary testing of differences between these groups by demographics, which confirmed no statistically significant group differences by age, race/ethnicity, or living situation at either time point. Additionally, this study does not report on the impact of the mentoring program; although 6 of the 17 (35%) program participants named CCS mentors at the follow-up network assessment, preliminary testing (described below) showed no observed differences by intervention group on any of the network indicators tested here, which supports the pooling of the network data for the groups. Lastly, this study does not report generalizable findings about whether foster youth networks change over time. Rather, this study explores measurement reliability and sensitivity to network change in a convenience sample of service-connected foster youth, with the aim to translate the measurement approach to practice settings for assessing network enhancement.

Support Network Assessment

The network instrument was developed to measure the quantity and quality of supportive ties before and after the brief mentoring program (see Blakeslee, 2015, for the instrument and additional description). The network “map” and “grid” used here are adapted from instruments developed by Tracy and Whittaker (1990) to assess client support networks in practice. First, a network map was used to brainstorm network members (“who are the people who supported you in the last year?”). Respondents wrote down first names or initials and situated these people in map categories for *family*, *friends*, *school/work*, and *other*. Respondents were instructed to place people wherever they wanted to (e.g., “family” could include anyone they considered family), with an additional prompt that “other” might include people like a supportive caseworker, counselor, or mentor. Respondents were asked to indicate, to the best of their knowledge, the presence of any interconnecting relationships between the people they placed on the map; these ties are used to calculate network density (the proportion of potential interconnecting ties that are actually present; 0–1.0).

To identify the regularly supportive core network, respondents indicated who on the map provided support “at least monthly” and transferred these names to the relationship grid, which details three relational dimensions—type, content, and characteristics (Campbell & Lee, 1991)—for up to 10 names (personal network measurement often minimizes respondent burden by limiting the number of ties described in detail; Marsden, 2005). Respondents described the social role of each core tie (e.g., mom, boyfriend, teacher, etc.), and these descriptions were coded by the first author as: (1) parent/parent-figure roles, defined as mothers and fathers, stepparents, foster parents, grandparents, and aunts or uncles; (2) service-oriented roles, defined as child welfare and ILP caseworkers, postsecondary teachers/staff, or any paid providers; or (3) other. Next, respondents reported receipt of each of three support types (*emotional*, *informational*, *concrete*; e.g., Tracy & Whittaker, 1990) as provided within each of four domains (*academic*, *career*, *extracurricular*, and *social*), for a count up to 12 for each core tie. Participants could describe up to 10 core ties, for a total support score up to 120 (or up to 40 for each support type). The range of support types provided by a tie (1–3) is used as an indicator of tie multiplexity, or the dimensional breadth of support (emotional and/or informational and/or concrete), regardless of domain. Lastly, respondents described characteristics of frequency (*monthly*, *weekly*, *daily*), closeness (*not close*, *close*, *very close*), and duration (*more than 5 years, 1–5 years, less than a year*), which are common measures of tie strength (Marsden & Campbell, 1984). These were coded (1–3) and averaged for a measure of each tie’s strength. Youth support networks were measured twice following the same protocol, with additional probing at follow-up about member turnover and any forgotten ties (as in Feld et al., 2007; Wright & Pescosolido, 2002).

Analysis

All described analysis were conducted using SPSS version 19.0 (IBM Corp., 2010).

Network-level change.—An adapted test–retest approach was used to assess selected T1 and T2 indicators over time. Two assumptions of most test–retest reliability procedures—that measurement is repeated over a short period of time and that constructs are not expected to change between measurements—were not made in this case. Measurement was not repeated over a short period of time and some network change was expected, especially given the known assignment of mentors to participants in the program group. Prior to pooling the data for reliability testing, analysis of variance, and its non-parametric equivalent were used to establish that assignment to the intervention group was not associated with any of the network-level indictors at either time point. Next, this analysis considered bivariate correlations (Pearson product–moment correlation coefficient or Spearman’s rank correlation coefficient, depending on normality) to determine whether there is moderate consistency in how the constructs are being measured over time, even though the networks may have changed between measurements. Second, parametric paired-sample *t*-tests and nonparametric-related sample comparisons were used to test differences on the indicators over time. In summary, the analyses compared the T1 and T2 measurements to assess: (1) whether these are correlated, indicating some test–retest reliability between the time points, and (2) whether there are statistically significant mean differences, indicating that measurement was sensitive to change over time. If the T1 and T2 network variables are correlated yet also show differences in the values, these results may suggest reliable measurement of network change.

Member stability.—For each of the participants who completed network measurement at both time points, the individual T1 and T2 core ties were aggregated and analyzed by member name and role description to determine which ties were stable over time and which ties appeared or disappeared between the two measurements (as in Morgan et al., 1996). To do this for each participant, each unique core tie was coded as representing a person who was named at T1 only, named at T2 only, or named at both time points. This provides a participant-level measure of the proportion of all ties that were stable over time, relative to those that were named at only one time point. This similarity coefficient represents the amount of change over two network elicitations within a 0–1.0 range (where 0 indicates no overlap between the ties observed over time, and 1.0 represents the observation of the same set of ties at different time points).

Reliability of respondent recall.—An important issue in network measurement is the ability of respondents to accurately recall who is in their network at any given moment, and this risk is exacerbated if comparing networks over time, where actual instability can be hard to distinguish from measurement error (Morgan et al., 1996; Tracy, Catalano, Whittaker, & Fine, 1990; Wright & Pescosolido, 2002). To test the reliability of this instrument, and to collect qualitative data about member turnover, respondents were asked about core network members they had named at only one measurement. As part of the follow-up data collection protocol, T1 and T2 networks were compared and participants were asked to briefly indicate why they had not named a tie(s) at T2 that they previously named at T1, and/or why they had not previously named any new T2 tie(s) (as in Wright & Pescosolido, 2002). All T2 data were collected by the first author, who documented these explanations, including instances where participants reported that they simply forgot to mention someone at one time point, when they had recalled this person as regularly supportive at another time point. The first author open-coded (Strauss & Corbin, 1990) the reasons given for any tie changes between time points, including forgotten ties. Initial codes were then discussed and refined in collaboration with the second author.

Tie-level stability.—Tie-level stability analysis examined whether baseline relational qualities (e.g., role, tie strength, and support provided) were associated with follow-up retention or attrition of the tie. For each of the participants who completed assessment at both time points, all unique core ties were analyzed by name and role to determine which were stable and which appeared or disappeared between the time points. Such tie-level analysis allows for exploration of the characteristics of each unique core tie named at T1 and/or T2 ($n = 280$), as distinct from network-level analysis of mean tie characteristics for each network at T1 or T2 and network-level member stability. More stable ties are expected to be stronger as well as more broadly supportive. Likewise, stable ties are more likely to be family relationships. Thus, this analysis investigated the ability to distinguish the anticipated correspondences between the stability groups and the baseline relational indicators. Because the tie-level variables were not normally distributed, nonparametric tests were run to determine whether there were group mean differences in relational qualities (support content and indicators of tie strength) by tie-level stability. (Note that for stable ties, relational qualities reflect T1 measurement, so that for all tie stability categories, the tie characteristics reflect the first and/or only time the tie was named.) Analysis of variance was used to further explore group differences by means of post hoc comparisons. Follow-up tests included the distribution of role types by tie stability and logistical regression of the tie-level relational predictors on tie stability.

Results

Network-Level Change

Table 2 shows the observed means with 95% confidence intervals for network indicators that are expected to be related to stability over time, the correlations between these indicators at the two time points, and the paired-sample comparisons reflecting change in the means over time. The test–retest correlations show that the indicators generally are associated over time, indicating reliable measurement. Exceptions were the number of core members in the friends category, tie closeness, and tie multiplexity (the average range of support types provided by each network's ties). The paired-sample tests show statistically significant gains in the means for core size, emotional support, and average tie strength, although the confidence intervals and the number of tests performed suggest that these differences may be due to type 1 error. At T2, core size increased by slightly less than one network member on average. Overall, the core ties in these networks got stronger and provided 10% more overall support at follow-up, particularly emotional support. Total support, informational support, concrete support, and tie frequency showed trend-level changes.

As a sensitivity analysis, the potential influence of interrater effects on measurement was examined because there were multiple raters at T1 and only one rater at T2. Interrater analysis of variance on the T1 indicators in Table 2 showed a difference only for the measurement of core density. Core density was higher ($p = .016$) for participants interviewed by the first author ($M = .39$, $SD = .237$) compared to other interviewers ($M = .21$, $SD = .129$). There was no paired-sample difference in core density between T1 and T2, and core density was correlated over time (.61, $p < .01$), indicating some measurement reliability regardless of interrater effects.

Member Stability

Table 3 reports the mean participant-level distribution of unique core ties ($n = 280$) by tie-level stability. On average, participants named about three people at T1 were not named at T2, three to four people were named for the first time at T2, and about four people were named at both measurements. Participants retained about 40% of their core members from one time point to the next, and more ties were added at T2 than were lost, which would explain the average gain in core size over time reported above.

Respondent Recall and Member Turnover

The reasons participants gave to explain why a T1 tie was not named at T2, and vice versa, indicated minimal measurement error. As reflected in Table 4, the most common reason for not mentioning a T1 tie at T2 (27% of 78 total T1-only ties) was circumstantial, in that the respondent was not in the same class or job as this person anymore, they moved away, or other circumstances (e.g., serious illness). The second most common response (24%) to why they didn't mention a tie at follow-up was that there wasn't a specific reason, just that they were not as close to the person anymore, in that they "fell out of touch" or "just don't talk as much," with no relational conflict indicated. The next most common reason for not mentioning a T1 tie at T2 (19%) was that the person was no longer one of their service providers. For 13%, the omission was due to interpersonal conflict. Only 4% of the T1 ties that were not named at T2 were omitted because the respondent initially forgot to include that person at follow-up. In such cases, these individuals were documented as forgotten ties and then added to the T2 network if desired. In contrast to these ties which were easily recalled when prompted, about 6% were T1 ties that respondents could not recall at T2, even with prompting. In addition, 4% of T1 ties were not named at T2 because respondents had no room to include them on the T2 network grid. Thus, approximately 86% of the turnover cases reflected reliable assessment of actual network changes, whereas 14% of cases reflected measurement error due to memory or instrumentation (the latter three categories for why a tie was not named at follow-up).

The reasons respondents gave for why some T2 ties were not included at T1 were equally varied, with the most common explanation being that a new tie was someone the participant had previously known but who was now more supportive or who spent more time with them than that person did at T1 (36% of 97 total T2-only ties). 21% of the new T2-only ties were new friends, coworkers, or classmates. 20% were new service providers or formal mentors; note that for 6 participants, a new T2-only tie was specifically identified as a CCS mentor assigned by the program from which this sample was drawn, indicating that for 35% of the program group, these mentoring relationships were identified as ongoing and regularly supportive. Resolved conflict was the reason for 6% of the newly named ties, half of which were family members, and 5% of the new ties represented family members who were newly in contact with the respondent. Another 5% were people who had moved back to the area since the T1 assessment. Analysis revealed that only 6% of these T2-only ties were not included at T1 because the respondent forgot about this person when asked at the earlier measurement. Exploration of these tie discrepancies generally reflects network membership changes, suggesting the sensitivity of the assessment through relatively few documented instances of measurement error (6% of T2-only ties).

Tie-Level Stability

As shown in Table 5, tie-level stability was statistically associated with most relationship characteristics and support variables, although the effect sizes were small. Compared to T1-only or T2-only ties, network ties that were stable over time already were described at the initial T1 assessment as being closer and of longer duration. Compared to T1-only ties, stable ties were also stronger overall. Stable ties were less likely to provide emotional support, compared to T2-only ties, and more likely to provide concrete support compared to T1-only ties. Additionally, stable ties had higher levels of multiplexity—or the mean number of support types respondents received through a tie, regardless of the amount of support provided—compared to T1- and T2-only ties.

Two follow-up χ^2 tests examined the distribution of ties as categorized on the network map (family, friend, other) and as designated by role type (parent, service, or other) by tie stability. There were statistically significant differences in the distribution of stable ties by category (χ^2 = 15.547, p = .004) and by role (χ^2 = 19.525, p = .001). Family members, and particularly parents, tended to represent the most stable ties, although the effect size was small.

In an additional follow-up analysis, tie stability was modeled as a dichotomous dependent variable with the tie-level characteristics and support variables shown in Table 5 as predictors. A multiple logistic regression of these predictors on whether a tie was stable (n = 104), produced a statistically significant model (χ^2 = 34.540, p = .003). In this regression, support multiplexity was the only statistically significant predictor (OR = 2.064, p = .016), such that a unit increase in support multiplexity doubled the odds of a tie being stable over time. For example, providing concrete support and emotional support, instead of just concrete support, doubled the odds that the tie would be named at both T1 and T2, compared to being named at either T1 or T2.

Discussion and Applications to Practice

The purpose of this study was to evaluate a practical method for measuring the composition and stability of youth support networks during the transition out of foster care. The analysis focused on network- and tie-level support network member stability over two time points, assessing the reliability of respondent recall of supportive relational ties at both time points and exploring the characteristics associated with the retention of network ties over time. These aims help to establish the relevance of the approach for use in social work practice settings to assess youth support network change and development during transitions from foster care. The findings demonstrate that following a systematic network assessment approach, practitioners could feasibly assess network indicators of cohesion that predict network stability and could repeat this effort over time to measure youth network membership with some reliability.

It was previously established that this assessment approach can reliably measure networks in terms of their structure and composition—how many people are named, and from what range of social categories or roles—and also the type and total amount of support these networks provide to participants (Blakeslee, 2015). The question addressed here was whether the actual network members are being reliably observed, and whether comparison of the networks over time indicates reasonable consistency in measuring both stable and transitory support network relationships. This is an especially important consideration in establishing the relevance of network measurement for assessment purposes in practice, where it is necessary to track network changes that occur naturally or as a result of network-related intervention.

The methodological question asking whether repeated personal network measurements capture error versus actual change over time is an important one (Morgan et al., 1996; Walker et al., 1993). Longitudinal network methods are prone to reliability problems when it cannot be determined whether changes in network indicators reflect measurement error, primarily due to inconsistent respondent recall, or actual changes in network membership, which is expected to be somewhat dynamic. For example, for the population of older foster youth, some degree of network member turnover would be expected for young people experiencing placement changes. Similarly, given the transitional developmental stage these young people are in, we expect normative instability in living situations, work or school involvement, and friendship ties between measurements (e.g., Degenne & Lebeaux, 2005).

The reliability findings here suggest that the majority of differences reported over time reflect actual changes in the participant support networks, rather than measurement error specifically due to recall problems. The provided explanations for network changes reflected shifts in interpersonal dynamics (e.g., becoming closer or losing contact), service provision (e.g., caseworkers, mentors), or circumstances (e.g., a move, a new job, or school). For example, 6% of all new ties were specifically identified as mentors from the program from which this sample was drawn. In some cases, participants did forget to mention people at baseline or follow-up, and would have included them had they remembered, which reflects documented measurement error. However, the occurrence of forgotten ties in this study was small (5% of "missing" ties were forgotten network members), matching the 5% rate reported using a similar protocol with adults experiencing mental illness (Wright & Pescosolido, 2002; see Brewer, 2000, for a review of respondent recall in network studies).

It is worth noting that many of the reported reasons for the presence or absence of particular ties are aligned with the characteristics measured on the core relationship grid. For example, increasing or decreasing "closeness" is a common explanation for new or absent ties, and changes in support frequency also explain many of the changes in network membership. Additionally, the presence of service roles in the support networks accounts for one fifth of the member instability, given changes in service types or providers or shifts in the nature of the relationship. This is both expected and relevant to practice, if support network assessment captures the characteristics of these ties that are generally not expected to be retained over time.

Test–retest correlations show reliable measurement over time on the primary indicators theoretically related to network stability. Furthermore, for core size and mean tie strength, analysis reflected sensitivity to change during the measurement interval (about 7 months on average). In other words, these indicators demonstrated consistent variation around means that showed a statistically significant increase. For example, core size was strongly correlated over time and also increased by about one network member on average. This increase was corroborated by the member stability findings, which showed that participants named about three people at baseline who were not named at follow-up, an average of three to four people were named for the first time at follow-up, and about 40% of the network ties were stable over time. The preliminary conclusion here is that the assessment method reliably captured the stability of some network ties while remaining sensitive to actual turnover in other relationships, although these findings should be considered with caution due to risk of type 1 error and the breadth of the confidence intervals for the observed means.

The reliability findings supported analysis of tie-level features of relationships assessed at baseline for their ability to predict tie stability. Importantly, there is some weak association of tie-level stability with theoretically related relational quality predictors, including tie strength (specifically relationship closeness and duration), emotional and concrete support provision, and support multiplexity. The findings linking support multiplexity with tie stability are consistent with the theoretical influence of multiple relational roles noted elsewhere in the personal network and social support literature (see Walker et al., 1993, for a review). Stable ties tend to be multidimensional, and the multiplexity (Beggs et al., 1996) measured here considers the breadth of interaction in terms of multiple kinds of supportiveness—emotional, informational, and/or concrete—provided through relationships across multiple domains (e.g., academic and career). Relationships that are more broadly supportive are more likely to last, and those that last are more likely to be more broadly supportive (e.g., Perry & Pescosolido, 2012).

Further, although the effect size was small, tie-level stability also was associated with specific roles, where there was increased likelihood of stability among members in parental roles, and more broadly, among ties categorized as family on the network map. Although some support network members were designated as parent roles by the researchers, there was no distinction between foster parents and parent figures from families of origin, which may or may not differ in relational quality or duration, but likely serve similar functions by assuming a frequent and multidimensional support role in youth networks. These tie-level stability findings reflect what is generally known about parent–child ties and other family-based relationships in personal networks, which tend to be more stable and supportive across the board, and specifically provide concrete support (e.g., Morgan et al., 1996; Wellman et al., 1997; Wellman & Wortley, 1989). Assessing the presence of such relationships is of critical importance in child welfare practice because these foster or biological family-based ties may be the support providers most likely to persist in youth networks and provide support in young adulthood (Cushing, Samuels, & Kerman, 2014). Relatedly, the tie-level findings point to potential overlap of these roles with enduring natural mentoring relationships, which are often between youth and nonparent family members or other caring adults providing multidimensional support in the context of close, lasting relationships. In recent years, child welfare research and practice have recognized the importance of such relationships in facilitating youth development during the transition from foster care (Ahrens et al., 2011; Greeson et al., 2015; Munson & McMillen, 2009).

The preceding findings should be interpreted with awareness of study limitations. First, this study used evaluation data from a mentoring program for youth with foster care experience who were enrolled in postsecondary education and training programs, and these participants were recruited from ILPs and postsecondary programs serving current and former foster youth. Therefore, this study is not generalizable to all transition-age youth in care but rather reflects patterns found among a group of foster youth specifically involved in these services. Next, the study uses pooled data from a small convenience sample of program participants and a nonequivalent comparison group, partly prompted by the first author's evaluation of the program model, which was not fully implemented as designed. Although there were no observed statistical differences between the program and comparison groups on the network-level indicators or by demographic variables, the sample is underpowered to detect such group differences, which would weaken the justification for pooling the follow-up data. In recognition of the small sample size, nonparametric statistical tests were employed in many cases as a form of sensitivity analysis.

Other reliability considerations include how density was measured, as well as the specificity of the program domains within which support was measured (see Blakeslee, 2015 for discussion). There is also a risk of error due to a testing effect, as participants were more familiar with the measure at follow-up, which may have made it easier to generate network member names. Lastly, there was inconsistency in the protocol for exploring the presence or absence of ties at follow-up, in that respondents could amend their follow-up network after being reminded of a forgotten tie but were not able to amend their baseline networks retrospectively. This introduces systematic error that may explain the increased core size at follow-up, although this was shown to be consistently measured. In general, network assessment is intended to measure actual support networks, as opposed to documenting error, and future confirmation of forgotten ties will therefore allow reasonable documented amendments to previously measured networks.

An additional limitation concerns the tie-level analysis. Each respondent reports on multiple ties included in the analysis, meaning the data are nested within individuals. Personal network research has used multilevel models to account for the interdependence of ties nested within networks (Wellman & Frank, 2001), as compared to network-level properties that assume interdependent ties (e.g., density). The development of a multilevel model would have allowed for a more sophisticated analysis of the ties within networks. However, direct comparison of single- and multilevel analysis of network data have “confirmed the robustness” of the approach used in the present study (Wellman & Frank, 2001, p. 247).

The findings reported here generally suggest the feasibility of reliable measurement of foster youth support network stability. Importantly, this research demonstrates the practical relevance of assessing foster youth support network membership over time—in terms of structure and composition, comprehensive support provision, and the stability of individual relationships—to guide service activities designed to improve youth network “supportiveness” and stability. Programs and agencies working with transition-age foster youth may already assess social resources in various ways when developing service plans with youth, and such measures may be as simple as asking whether the youth can rely on at least one supportive adult. However, a network-oriented approach represents a more comprehensive evaluation of the formal and informal social structure supporting youth. Furthermore, systematically measuring networks multiple times may provide a more reliable network “snapshot” (Marsden, 1990) or “stable picture of actual support resources” (Tracy et al., 2012, p. 36), especially when networks may or may not be sensitive to intervention. The approach presented here could be used to assess actual social resources with consistent members representing a stable core network, compared to more transitory or peripheral ties that are not expected to provide ongoing support.

In defining a science of social work, Brekke (2012) argues that “the domain of social work spans the intervention to the system and all levels in between, including formal and informal helping networks” (p. 461). This suggests the relevance of applying established network theory and methods to better frame assessment of social network deficits or evaluation of intervention aims, specifically when attempting to improve outcomes for older foster youth. If the transition of youth from foster care systems is visualized as the falling away of a formal network of service providers, then child welfare systems discharging youth should assess and address whether there is a family-based, or family-like, network of informal connections to monitor emergent transition challenges, provide multidimensional support, and facilitate resources adequate to meet each youth's needs. The approach presented here demonstrates how the presence of such a core support network can be systematically and reliably assessed in research and practice. More broadly, developing effective programming to assess and address social network deficits for subgroups of foster youth has the potential to improve service planning in ways that prevent repeated network disruption, prioritize individual socioemotional development needs as a protective factor, and ultimately help bridge the transition from formal services to informal network support among youth aging out of care.

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Table 1.

Network Cohesion Indicators.

Indicator	Operationalization
Core density	The proportion of the potential interconnecting ties between core members that are actually present on the network map (0–1.0)
Tie strength	Tie frequency, closeness, and duration are averaged separately (1–3) and also combined as overall tie strength (1–3)
Multiplexity	How many types of supportive content are provided to youth through each relationship and on average within the network
Tie-level stability	Based on multiple measurements, tie-level stability (0/1) is whether a tie is present at one or both time points
Network-level stability	This is the proportion of network ties that are stable over time

Table 2.

Network-Level Change Over Time by Construct.

Network Construct and Indicator	Tl *M* (CI)	T2 *M* (CI)	Correlation	*t* or z
Network capacity				
Core size (0–10 range)	6.74 (±1.02)[a]	7.52 (±0.96)[a]	.77**	2.14*
In family category	2.48 (±0.74)[a]	2.93 (±0.62)[a]	.56**	1.52
In friends category	2.26 (±0.57)[a]	2.41 (±0.72)[a]	.36	0.40
In other category	1.96 (±0.56)	2.15 (±0.68)[a]	.47*	0.76
Parent roles in core	1.63 (±0.59)[a]	1.67 (±0.52)[a]	.70**	0.33
Service roles in core	1.41 (±0.52)[a]	1.19 (±0.5l)[a]	.51**	1.18
Support provision				
Total support (0–120)	46.70 (±10.08)[a]	57.59 (±10.46)	.47*	1.84†
Emotional (0–40)	18.44 (±3.95)	23.67 (±3.74)	.68**	3.30**
Informational (0–40)	14.85 (±3.54)	18.11 (±3.92)	.64**	2.00†
Concrete (0–40)	12.56 (±3.20)	15.74 (±3.78)	.56**	1.88†
Support per tie (0–12)	6.73 (±0.99)	7.50 (±0.95)	.44*	1.48
Network cohesion				
Core density (0–1.0)	0.33 (±0.08)[a]	0.36 (±0.08)	.61**	0.56
Tie strength (1–3)	2.23 (±0.09)	2.34 (±0.11)	.50**	2.21*
Frequency	2.06 (±0.17)[a]	2.20 (±0.15)	.62**	1.77†
Closeness	2.35 (±0.11)[a]	2.46 (±0.14)	.13	0.59
Duration	2.29 (±0.15)	2.34 (±0.15)	.45*	0.73
Tie multiplexity (1–3)	2.58 (±0.22)[a]	2.60 (±0.I8)[a]	.26	0.39

Note. $N = 27$. T1 = Time 1; T2 = Time 2.

aNot normally distributed. Correlation is Spearman’s ρ. *p* Value is for the nonparametric Wilcoxon signed rank test (z).

$^{*}p < .05$.

** $p < .01$.

† $p < .10$.

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Table 3.

Network-Level Member Stability.

Indicator	N	*M* (CI)	Minimum	Maximum
Core ties named at T1 only	78	2.89 (±0.43)	0	6
Core ties named at T2 only	98	3.63 (±0.33)	0	7
Stable core ties (named at T1 and T2)	104	3.93 (±0.40)	1	8
Total core ties	280	10.33 (±0.41)	3	16
Core stability (stable ties by total ties)	—	0.39 (±0.05)	0.13	0.89

Note. T1 = Time 1; T2 = Time 2.

Table 4.

Participant Reasons for Network Turnover.

Reason	Number of Ties
T1 ties that were not named at T2 (*n* = 78, two missing responses)	
No longer in same class or job, moved away, other circumstantial reason	21 (27% of T1-only ties)
Not close like they were/fell out of touch/no reason indicated	19 (24%)
Not case worker/case manager/teacher/advisor/youth worker anymore	15 (19%)
Had a falling out/conflict indicated	10 (13%)
Don’t remember who this person is	5 (6%)
Forgot to mention this person at T2	3 (4%)
Ran out of room on network grid at T2	3 (4%)
T2 ties that were not named at T1 (*n* = 97, one missing response)	
”Closer now” or “more supportive” or “talk more now”	35 (36% of T2-only ties)
New friend/coworker/classmate	20 (21%)
New case worker/case manager/teacher/advisor/mentor	19 (20%)
Forgot to mention this person at T1	6 (6%)
Resolved conflict (three of these were conflict with biological family)	6 (6%)
Family member newly in contact	5 (5%)
Person moved back to the area	5 (5%)

Note. T1 = Time 1; T2 = Time 2.

Table 5.

Tie-Level Stability by Relational Qualities.

Variable Type	T1-only (n = 78) M (CI)	T2-only (n = 98) M (CI)	Stable (n= 104) M (CI)	Test Statistic	P Value	Effect Size
Tie-level relational characteristics						
Overall tie strength (1—3)	2.10 (±0.11)$_3$	2.18 (±0.10)	2.34 (±0.10)$_1$	F = 5.889	.003	.041
Tie frequency (1–3)	1.96 (±0.16)	2.21 (±0.14)	2.10 (±0.16)	F = 2.459	.087	.017
Tie closeness (1–3)	2.19 (±0.14)$_3$	2.21 (±0.12)$_3$	2.52 (±0.12)$_{1,2}$	F = 8.440	.000	.057
Tie duration (1–3)	2.14 (±0.16)$_3$	2.09 (±0.16)$_3$	2.44 (±0.12)$_{1,2}$	F = 6.833	.001	.047
Total support provided by tie (0–12)	6.47 (±0.70)	6.89 (±0.65)	7.10 (±0.68)	F = 0.772	.463	.006
Emotional support (0–4)[a]	2.79 (±0.32)	3.18 (±0.22)3	2.71 (±0.25)$_2$	F = 3.840	.023	.027
Informational support (0–4)[a]	2.10 (±0.32)	2.11 (±0.30)	2.30 (±0.27)	F = 0.563	.570	.004
Concrete support (0–4)[a]	1.55 (±0.31)$_3$	1.61 (±0.29)	2.06 (±0.27)$_1$	F = 3.546	.030	.025
Support multiplexity (1–3 types)[b]	2.44 (±0.18)$_3$	2.46 (±0.18)3	2.74 (±0.11)$_{1,2}$	F = 5.168	.006	.036
Tie-level category and role						
Categorized as family (n = 92)	18 (20%)	25 (27%)	49 (53%)			
Categorized as friend (n =102)	32 (31%)	41 (40%)	29 (28%)	χ^2 = 15.547	.004	.167
Categorized as other (n = 86)	28 (33%)	32 (37%)	26 (30%)			
Parent figure role (n = 54)	10 (19%)	1 1 (20%)	33 (61%)			
Service provider role (n = 52)	19 (37%)	15 (29%)	18 (35%)	χ^2= 19.525	.001	.187
Other core tie role (n = 174)	49 (28%)	72 (41%)	53 (31%)			

Note. n = 280. T1 = Time 1; T2 = Time 2. None of the dependent variables are normally distributed. Significance levels are for the nonparametric Kruskal–Wallis H-test for three or more independent groups. Parametric analysis of variance (ANOVA) confirmed statistically significant group differences, and the reported post hoc differences are Tukey's HSD or Games-Howell, depending on equality of variance (p < .05). For each predictor, subscript numbers refer to the category columns in the order listed in the table.

[a]This indicates the number of program domains in which the support type was provided.

[b]This indicates how many of the support types (emotional, informational, concrete) were provided, regardless of domain(s). Effect sizes: For ANOVA, η^2. For χ^2, Cramer's V. Given the number of statistical tests, a Bonferroni correction for Type I error rate would be p < .005.