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Who is Supporting Homeless Youth? Predictors of Support in Personal Networks

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Abstract

Homeless youth lack the traditional support networks of their housed peers, which increases their risk for poor health outcomes. Using a multilevel dyadic analytic approach, this study identified characteristics of social contacts, relationships, and social networks associated with the provision of tangible and emotional support to homeless youth ($N = 419$, M age = 20.09, $SD = 2.80$). Support providers were likely to be family members, sex-partners, or non-street based contacts. The provision of support was also associated with contacts' employment and homelessness status, frequency of contact, shared risk behaviors, and the number of network members that were homeless and employed. The results provide insights into how homeless youth could be assisted to develop more supportive social networks.

Keywords

homeless youth; social networks; social support; dyadic analysis

In a given year, an estimated 1.6 million American adolescents experience one night or more of homelessness (Toro, Dworsky, & Fowler, 2007). These youth come to be homeless as a consequence of many circumstances, such as being forced out of their homes, willfully leaving family or foster care environments, or alongside other family members who have also become homeless (Robertson & Toro, 1999). In any of these situations, the experience of homelessness typically disconnects these youth from the family, peer, school, and

community social systems that surround and support their housed peers. In the face of diminished financial and social capital, the experience of being homeless exposes these youth to stressful environments characterized by crime, violence, and a scarcity of resources to meet basic needs.

Protective effects of social support for homeless youth

A lack of social assets is an important and potentially modifiable risk factor for homeless youth. Those who lack social ties are more likely to engage in substance use and risky or “transactional” sex (Ennett, Bailey, & Federman, 1999; Gwadz et al., 2009; Kipke, O’Connor, Palmer, & MacKenzie, 1995), whereas access to social support has been associated with better physical and mental health outcomes (Unger et al., 1998). Support has also been found to protect at-risk youth from becoming homeless (Tavecchio, Thomeer, & Meeus, 1999) and so may be an important factor in helping youth transition from, and remain off the street.

Social support is known to benefit individuals by buffering the negative health effects of stressful events (both biological and behavioral) (Cohen, 2004). Homeless youth who can access tangible support such as money, food, or basic resources may be less likely to experience stress, and those who receive emotional support (which fosters the experience of belonging and being valued) may have more positive self-evaluations and stronger self-efficacy (Cohen & McKay, 1984). However, homeless youth are likely to seek support from their street-based peers: affiliations that can also promote risky behaviors (Rice, Milburn, & Rotheram-Borus, 2007; Rice, Milburn, Rotheram-Borus, Mallett, & Rosenthal, 2005; Wenzel, Tucker, Golinelli, Green, & Zhou, 2010) and so may not have the same protective effects. Indeed, studies looking explicitly at the relationship between risk behaviors and perceived social support in this population have found mixed results: some found no evidence of an association between support and substance use (Unger et al., 1998; Wenzel et al., 2010), whereas others found a *positive* association between support and substance use (Ennett et al., 1999; Falci, Whitbeck, Hoyt, & Rose, 2011). The latter association may be partially explained by support providers also being partners for drug use: a type of *multiplex* relationship, referring to a relationship with multiple dimensions, that could be both protective and risky. Together, these findings suggest that to better understand the impact of social support among homeless youth and how interventions can best promote relationships of support, the important questions are not only *if* support is available, but also *who* is providing it.

The provision of support in homeless youths’ social networks

Although studies have identified characteristics of homeless youth that predict the *receipt* of support (e.g. Bao, Whitbeck, & Hoyt, 2000; Ennett et al., 1999; Falci et al., 2011; Johnson, Whitbeck, & Hoyt, 2005), there is a sparse literature examining the characteristics of people providing that support, or the relational or social contexts in which it is provided. Research has increasingly shown that the social networks of homeless youth are diverse, and often include varying proportions of family, street and home-based peers, service providers, and sexual partners (Johnson et al., 2005; Rice 2010; Tyler & Melander, 2011; Wenzel et al., In press; Wenzel et al., 2010). Wenzel et al. (In press) identify family members, non-street based contacts, and sex partners as important providers of social support among homeless young adults (aged 18–24), based on a subsample of data utilized in the current study. Having multiple sex partners in ones’ social network has also been positively correlated with greater availability of support, and negatively correlated with having family members in the network, which may be indicative of youth whose families are unable to provide support turning to sex partners to meet these needs (Ennett et al., 1999). However, a handful of

studies suggest that differentiating between different types of social support is important as these are provided by different types of social ties. For example, family members, friends, and romantic partners appear to be important sources of tangible support (Falci et al., 2011; Gwadz et al., 2009; Johnson et al., 2005). However, emotional support appears to be sought from friends more so than family (Whitbeck & Hoyt, 1999), which is not surprising given reports of family conflict and abuse in this population (Robertson & Toro, 1999). Research also indicates that tangible and emotional support are more likely to come from females and home-based contacts (Johnson et al., 2005).

Although this work provides insights into sources of social support for homeless youth, there are methodological and analytic limitations that hinder a more precise account of the relational and network characteristics associated with support provision. For example, many of these studies treat the receipt of support as a characteristic of the recipient, by devising measures of whether or not recipients receive a particular type of support, by quantifying the amount of support they receive (e.g., how many people provide this type of support), or by summarizing the types of people that provide them with support (e.g., Bao et al., 2000; Johnson et al., 2005). However, social support is a phenomenon that emerges between two people – the provider and the recipient – whose relationship is distinct from others shared by that homeless youth and that is embedded in a particular social setting. Complex systems and social network theories emphasize that there are *emergent properties* of dyads and social groups that cannot be captured by investigating parts (i.e., individuals) of the larger system (Newman, 2011; Wasserman & Faust, 1994). Thus, there are likely to be factors unique to the support recipient, the support provider, the nature of the relationship that the two share, and the social context in which the dyad is embedded (i.e., local network), that facilitate or hinder support exchange between two people.

Examples of dyadic and network characteristics that may be relevant to support provision are apparent in the research summarized above, and in the existing social network literature. At the level of the dyad, the source of the relationship (family member, met on the street, etc.) appears to be associated with support provision in this population (Gwadz et al., 2009; Johnson et al., 2005; Wenzel et al., In press; Whitbeck & Hoyt, 1999). Relationship strength is also an important dyadic characteristic associated with social support (Wellman & Wortley, 1990); captured by quantifying various aspects of relationship closeness or relationship multiplexity. A further advantage of examining support as a dyadic phenomenon is to assess the importance of multiplex relationships, as street-based peers may both provide support (e.g., Gwadz et al., 2009) and encourage risk behaviors such as substance use (Wenzel et al., 2010). Examining the extent to which supportive and risky relationships overlap will be important in understanding predictors and outcomes of support in this population. Finally, at the level of the network, the role of individuals in the network (e.g., their position relative to other network members), and the features of the network *as a whole* (e.g., characteristics of the network structure, or composition based on combined attributes of its members) are potentially important constructs that influence interpersonal processes (Wasserman & Faust, 1994). Unfortunately, much of these partner, relational, and network attributes are lost when characteristics of support provision are collapsed to respondent-level variables.

To summarize, many of the studies looking at predictors of support provision for homeless youth do not distinguish between characteristics of social contacts (e.g., their demographics, social role, behaviors), characteristics of dyads (e.g., the quality or nature of their relationship), or characteristics of networks, made up of many social contacts and dyadic relationships. As a result, interventions have been informed by a predominantly individualistic perspective, lacking potentially valuable information about relationships and

social settings that are important to consider in assisting homeless youth in building prosocial, supportive relationships.

A personal networks approach to data collection (McCarty, 2002; McCarty, Killworth, & Rennell, 2007), combined with a dyadic analytic perspective (Kenny, Kashy, & Cook, 2006), overcomes many of the analytic issues mentioned above. Personal network data collection focuses on a focal participant from a target population (called *ego*), as well as individuals to whom the ego shares a relationship (called *alters*), so that the population being studied is the respondent *and* their social connections, based on ego reports (McCarty, 2002; McCarty et al., 2007). If the dependent variable of interest is a feature of these relationships, such as the provision of support, multilevel models for dyadic analyses (Snijders, Spren, & Zwaagstra, 1995) can deal with the nested and interdependent nature of this data. Thus, we can test if characteristics of egos, alters, dyads, and personal networks independently predict supportive relationships from potential support providers.

Aims of the current study

In the current study, we view social support as a dyadic phenomenon embedded in local social networks, with the aim of gaining a more accurate account of who is supporting homeless youth and the conditions under which this support is provided. Specifically, we apply multilevel dyadic models to personal network data and, controlling for individual-level demographic attributes, examine characteristics of alters, relationships, and personal networks that are associated with the provision of tangible and emotional support. Based on the literature reviewed above, as well as broader social network theory, we test for effects of demographic and “role-based” attributes of alters that we anticipate will be associated with support provision. These attributes include gender, homeless status, school attendance, employment, risk behaviors, and alters’ structural position in the network. Additionally we test for dyadic-level characteristics, including gender similarity, the source of the relationship (family member or place of meeting), frequency of contact, and shared risk behaviors. Finally, attributes of respondent’s local network are considered, including characteristics of the network structure, as well as a range of variables that summarize the composition of the personal network.

Based on the extant literature, we hypothesize that family members and sex partners will be the primary providers of tangible support (Gwadz et al., 2009; Johnson et al., 2005; Wenzel et al., In press), while friends will be the primary providers of emotional support (Whitbeck & Hoyt, 1999). We also hypothesize that females will be more likely than males to provide both tangible and emotional support (Johnson et al., 2005). All other effects included in the models are considered exploratory.

Method

Study participants

Data stem from a study of homeless youth in Los Angeles with a larger focus on substance use and HIV risk in this population. Between October 2008 and August 2009, potential participants were randomly sampled from 41 shelters, drop-in centers, and street sites in Los Angeles County. Youth were approached by trained research staff, and deemed eligible if they met the following criteria: a) were between the ages of 13 and 24; b) were not currently living with a parent or guardian; c) were not getting most of their food and housing support from family or a guardian; d) had spent the previous night in a shelter, outdoor or public place, hotel or motel room rented with friends (because they had no other alternative), or other place not intended as a domicile; and e) were English speaking. Of the 582 youth approached, 446 screened eligible and 437 completed the interview (4 declined to participate

and 5 were break-offs). Eighteen youth who completed the interview were later deemed to be ineligible (they did not meet the eligibility criteria, or had completed the interview previously) resulting in a total sample of 419, representing 97.9% of eligible youth approached.

The study sample of 419 homeless youth were 66.4% male, ranged in age from 13 to 24 years ($M_{age} = 20.09$, $SD = 2.80$), and represented diverse racial and ethnic backgrounds (23.9% African American, 20.0% Hispanic, 34.0% white, and 22.1% Asian or other). Trained male and female interviewers conducted individual, computer-assisted face-to-face interviews with participants. After providing informed consent, interviews lasted on average 60 minutes and participants were paid \$25 for their time. The research protocol was approved by the institutional review board of RAND. A certificate of confidentiality was also obtained from the National Institutes of Health.

Study design

A multi-stage design was used to recruit the probability sample of homeless youth. First, a comprehensive list of 22 service sites (15 shelters and 7 drop-in centers) and 19 street sites (e.g. parks, alleys) that homeless youth frequented in Los Angeles County were identified. Service sites were included if their clientele were between the ages of 13 and 24 and English speaking, or if they had a specific program tailored to youth. Sampling frames were developed for these two location types based on an estimate of the number of youth that frequent each venue or location in a given day (obtained through observations), and the subsequent assignment of interview quotas for each site. A random sample of homeless youth was then drawn from these sites. To deal with differences between youth in the frequencies that they visited the sites, the frequency that the respondent had attended the site in the previous 30 days was assessed during the interview, and this was used to correct for differential inclusion probabilities using sampling weights. For additional details of each design phase, see Wenzel et al. (2010).

Measures

Survey items assessed respondents own attributes and behaviors, as well as characteristics of their personal social network. The personal network measures were developed based on established procedures (McCarty, 2002; McCarty, Bernard, Killworth, Shelley, & Johnsen, 1997), as well as investigators' past experience with homeless populations (Kennedy et al., 2010; Tucker et al., 2009). Respondents were asked to enumerate the first names of 20 individuals aged 13 years and over who they knew, who knew them, *and* with whom they had contact with (face-to-face, phone, mail, or online) in the previous 3 months. Previous research has shown that variability in the structure and composition of personal networks is reliably captured with 20 alters (McCarty et al., 2007; Tucker et al., 2009), and enforcing this quota enabled us to compare network characteristics between respondents. Once this list was established, they answered a series of questions about each alter. Respondents also reported on the frequency of contact in the past three months between each pair of alters, and alters who interacted "often" were coded as sharing a relationship (1 = dyad relationship). Calculations of network structure were based on relationships among alters, excluding their relationships with the respondent (i.e., ego) (McCarty, 2002; McCarty & Wutich, 2005).

Dependent variable: Relationships of support—Respondents identified which of their 20 alters could be counted on to lend them money, give them food, or give them a place to stay without asking for anything in return (tangible support), and which alters could be counted on to really care about them no matter what (emotional support) (Johnson et al., 2005). As we were interested in sources of potential support, we focus on perceived support

rather than received support, with the former tending to be a stronger predictor of adjustment to negative life events (Wethington & Kessler, 1986). Relationships of support between respondents and alters were coded into one of four mutually exclusive categories: 1) no support, 2) tangible support only, 3) emotional support only, and 4) tangible and emotional support.

Respondent characteristics—Analyses controlled for a range of respondent attributes that have been associated with the receipt of support or network composition among homeless youth. These are summarized in Table 1. On average, these youth had been homeless for 4.57 years and had lived in an average of 3 different states (outside of California). The majority of these youth (68.8%) had experienced verbal, physical or sexual abuse prior to leaving home from a parent, guardian or other adult in a position of care. Depression was assessed with a 4-item version of the CES-D (Perreira, Deeb-Sossa, Harris, & Bollen, 2005), and the average score in this sample was 0.95 (alpha = 0.80).

Alter characteristics—Respondents reported on the gender of each alter (male or female), and their perceptions about whether or not the person attended school regularly, held a regular or steady job, and if they had been homeless in the previous three months. From among the list of alters, respondents identified those that they believe had consumed alcohol to the point of being drunk in the previous three months (alter drug use was also assessed, but was excluded from these analyses as it was highly correlated with alcohol use), and those that had engaged in risky sex practices in the previous three months (including having multiple sex partners, having sex with someone they did not know, or having not used a condom with a new partner). Based on respondents' reports of relationships between the members of their personal network, alters who were *network isolates* (i.e., who shared no relationships with other members of the respondent's network) were identified.

Dyadic characteristics (edge attributes)—To capture the origin of the relationship, dyads were coded as being family members if the alter was identified as a relative (including first and second degree biological or non-biological relatives) or a guardian. For non-kin alters only, we focus on dummy variables that represent the three most common meeting places: on the street; at a job or at school; and in a shelter, group home, drop-in center or other service site.

Frequency of contact for each dyad was coded on a 5-point scale, where 0 = almost never and 4 = daily or almost daily. Respondents also identified alters with whom they had drunk alcohol in the previous three months (1 = drink together), and alters (not including family members) who had ever been sex partners (1 = sex partners).

Finally, respondent and alter gender were used to create four categories of dyads: 1) ego male – alter male, 2) ego male – alter female, 3) ego female – alter male, and 4) ego female – alter female.

Personal network characteristics—The composition of respondents' personal networks was characterized based on alter attributes. These variables represent features of the local context that we believe may be relevant to fostering or hindering relationships of support between dyads. Variables were calculated for the total number of alters (out of 20) in the respondent's network who a) attended school, b) were employed, c) were homeless, d) drank to intoxication, e) engaged in risky sex, f) were family members, g) were met on the street, and h) were sex partners.

Analyses controlled for differences in personal network structure using a measure of density. The density index ranges from 0 to 1, representing the number of connections among alters relative to the total number of possible connections.

Analytic approach

The analytic aims were to explore a range of possible explanatory variables at the level of the alter, dyad, and network that predicted provision of support (a relational variable). Because of the one-to-many design, where each respondent has nominated 20 alters and thus each ego appears in 20 dyads, the relational level dependent variables are not independent. A multilevel analytic approach where dyads are nested within individuals, and that allow for a dyadic dependent variable, was therefore required. Snijders et al. (1995) distinguishes between two levels of data in studies of personal networks, which apply to the multilevel modeling of these data. The level of the relation (dyad) is the first and lowest level (level I), and includes attributes of dyads and attributes of alters within these dyads. The level of the individual is the second and highest level (level II), and includes attributes of the respondent (ego), including personal attributes and summary characteristics of their personal network. Hierarchical linear models for multilevel analysis, implemented in the ‘gllamm’ component of Stata 11 (StataCorp, 2009), are appropriate for this analysis and can accommodate both individual level (level 2) and dyadic or alter level (level 1) explanatory variables in predicting dyadic (level 1) outcomes (Raudenbush & Bryk, 2002). These HLMs can be applied like regression analyses for personal network data if the following assumptions are met: there is minimal overlap between personal networks; and egos are randomly sampled from a population (Snijders et al., 1995).

For the current analyses, the dependent variable included four categories of dyadic support (no support, tangible support only, emotional support only, and tangible and emotional support). Because the four categories are unordered, we fit a multinomial model with a series of odds ratios comparing each support category with the reference category (no support) simultaneously. Because we adopted an exploratory approach and included a larger number of potentially relevant predictor variables, a forward selection approach to model specification was used (e.g., Kennedy et al., 2010). Correlation matrices among predictor variables were first explored to identify collinearity and a moderate to strong correlation threshold (where $r > .40$) resulted in two variables being excluded: alter “drinks to intoxication” was excluded as it was correlated with the dyadic variable “drank together” (dyadic variables were prioritized); and ego “number of years homeless” was excluded as it was highly correlated with ego age.

Preliminary models were then fit to blocks of similar explanatory variables: ego demographics, ego depression and experience of abuse, alter demographics, alter risk behavior, dyadic attributes, dyad shared risk behavior, network structure, and network composition. Variables identified as being statistically (or marginally) significant predictors ($p < .10$) of any of the three dependent categorical outcomes in these blocked models were retained and estimated in a final model. One non-significant dyadic variable – “met at a job or at school” – was excluded at this stage, as were two non-significant network-level variables: number of alters who were met on the street, and number of alters who attended school. The majority of ego-level control attributes were not significant predictors of support: variables dropped included ego race or ethnicity, education, sexual orientation, employment status, and number of states lived in. Significant ego-level variables retained as controls included age, experience of childhood abuse, and depression score. The final multivariate model tested for significant alter, dyad, and network level predictors of the categorical support dependent variable (the referent being no support), controlling for significant ego-level characteristics.

A potential issue with these final models is that they utilize attributes of alters or dyads at two levels: the level of the alter or dyad (level 1) and the level of the ego as network composition variables (level 2). To determine if this “double counting” of an alter attribute in predicting a dyad-level dependent variable was problematic, we also created network composition variables that were alter attributes, and represented ‘the number of *other alters* in the network with attribute *x*’. These alter-level network composition variables were estimated as level 1 (alter or dyad) variables. A model was specified using the same process described here, and the results were essentially the same as those presented in the results section (i.e., the statistically significant effects were the same, and there was little difference in the parameter estimates). This indicates that our original model was not biased by our treatment of the multiple levels of data. We therefore present the analysis in line with the approach taken by Snijders et al. (1995), treating network composition as a level 2 variable, nested at the level of the ego.

Results

Descriptive characteristics of homeless youths’ personal and support networks

Of the 8,380 dyads identified in this sample, 56.2% of relationships provided no support, 8.0% provided only tangible support, 13.8% provided only emotional support, and 22.0% provided both tangible and emotional support.

The characteristics of alters and dyads are summarized in Table 2, and highlight the diversity in the types of people and relationships that comprise homeless youths’ personal networks. Approximately one third of these alters were homeless (31.3%), one third were employed (32.0%), and one in five attended school (21.4%). A substantial proportion of these alters had engaged in risky health behaviors in the previous three months, with 44.0% drinking to intoxication and 21.4% engaging in risky sex. One third (32.2%) were identified as isolates in the respondent’s personal network.

Almost 1 in 5 alters (18.3%) were family members, and of the alters who were not family, 23.5% were met on the street, 13.4% were met at a shelter or drop-in center, and 12.8% were met at school or a job. Contact with these alters ranged from almost never to daily, with the average being between a few times a month and a few times a week. Almost one in ten alters were past or current sex partners (8.3%), and 24.6% of dyads had recently drunk alcohol together.

Table 2 also summarizes structural and compositional features of respondents’ personal networks. Networks comprised of an average of 4 family members, 6 homeless contacts, and 2 sex partners. However, the large standard deviations and range of these network characteristics indicate that network composition varied greatly across respondents.

Predictors of support

Results of the final multivariate models predicting tangible and emotional support are summarized in Table 3.

Tangible support, without emotional support—Relative to dyads in which no support was provided, tangible support, in the absence of emotional support, was more likely to be provided by family members than alters who were not family ($OR = 2.61, p < .01$). Among non-kin alters, tangible support was more likely to be provided by sex partners than non-sex partners ($OR = 1.98, p < .01$), and was less likely to be provided by alters met in a shelter or drop in center compared to those met elsewhere ($OR = 0.54, p = .019$). Alters who were employed were more likely to provide tangible support relative to those who were

unemployed ($OR = 1.71, p < .01$), whereas homeless alters were less likely to provide support compared to those who were housed ($OR = 0.58, p < .01$).

Relationships characterized by shared drinking behaviors, and higher frequency of contact, were significantly more likely to provide tangible support ($OR = 1.89, p < .01$ and $OR = 1.33, p < .01$, respectively). Network composition also predicted tangible support: dyads were more likely to share support if they were embedded in networks with a greater proportion of alters who were employed ($OR = 1.12, p < .01$), and a greater proportion of alters who were homeless ($OR = 1.09, p = .011$).

Emotional support, without tangible support—Compared to dyads that provided no support, homeless youth were more likely to receive emotional support, but not tangible support, from family members than non-kin alters ($OR = 9.81, p < .01$), and from sex partners as opposed to non-kin alters who were not sex partners ($OR = 3.64, p < .01$). They were also more likely to receive emotional support from alters who were employed ($OR = 1.89, p < .01$), or attended school ($OR = 1.78, p < .01$) compared to alters who did not have these attributes. As with the provision of tangible support, alters with whom respondents had frequent contact and with whom they drank alcohol, were more likely to provide emotional support ($OR = 1.46, p < .01$ and $OR = 1.50, p = .033$, respectively). Male respondents were also more likely to receive emotional support from female alters than male alters ($OR = 1.36, p = .020$), whereas female respondents were less likely to receive emotional support from male alters ($OR = 0.59, p = .015$). Emotional support was not predicted by alter homelessness, however the receipt of emotional support was more likely in networks with a greater concentration of homeless alters ($OR = 1.09, p < .01$). Dyads in networks with a greater number of employed alters were also more likely to share emotional support ($OR = 1.08, p < .01$).

Combined emotional and tangible support—In dyads that provided homeless youth with both emotional and tangible support (relative to those that provided no support), support was much more likely to come from family members than non-kin ($OR = 12.47, p < .01$), and from sex partners as opposed to non-kin alters who were not sex partners ($OR = 5.44, p < .01$). Among non-kin alters, support was less likely to be provided by alters who had been met on the street, or those met at shelters and drop-in centers, relative to alters met in other locations ($OR = 0.67, p = .033$, $OR = 0.61, p < .01$, respectively)

Participants were also significantly more likely to receive this combined support from alters who were employed ($OR = 2.62, p < .01$), and were less likely to receive this support from alters who were homeless ($OR = 0.64, p < .01$). Alters who engaged in risky sex were also unlikely to be providers of combined support ($OR = 0.57, p < .01$). Relationships characterized by frequent contact and shared drinking behaviors were likely to entail the provision of both tangible and emotional support ($OR = 1.63, p < .01$, and $OR = 2.80, p < .01$ respectively). Male respondents were more likely to report receiving this combined support from female alters than male alters ($OR = 1.53, p < .01$). Dyads who were both female were also more likely to have this type of supportive relationship compared to dyads where both members were male ($OR = 2.32, p < .01$). Finally, combined support was more likely among dyads that were embedded in networks with a greater number of alters who were employed ($OR = 1.15, p < .01$) and a greater number of alters who were homeless ($OR = 1.11, p < .01$).

Post hoc analyses—The results above show that tangible support, and combined tangible and emotional support, were less likely to be provided in dyads in which the alter was homeless, but were *more likely* to be provided in dyads that were embedded in networks with many homeless alters. Although this seems somewhat contradictory, we

postulated that *non-homeless* alters may recognize that youth whose networks are comprised largely of homeless peers are particularly destitute, and respond by increased support provision. To test this, we included an interaction between “alter homelessness” and the effect of “number of homeless alters in the network”. We found that in both instances this interaction was not statistically significant (tangible support only vs. no support: interaction $OR = 0.99$, 95% CI 0.91, 1.08; tangible and emotional support vs. no support: interaction $OR = 0.96$, 95% CI 0.90, 1.03). Although strong conclusions should not be drawn from this null finding, it suggests that both homeless and housed alters increased their support provision in networks comprised of many individuals who are homeless.

Discussion

Consistent with other recent research (Johnson et al., 2005; Wenzel et al., 2010), homeless youth in the current study had a diverse pool of individuals within their close personal networks. On average, youth could access support from 6 to 7 of the 20 alters that they identified, and tangible and emotional support were often sourced from the same providers. The present findings highlight that the receipt of tangible and emotional support by homeless youth cannot be understood solely from the perspective of the support recipient, but that it depended also on the types of social contacts they have, the nature of the relationship they shared with these contacts, and the social networks in which these relationships were embedded.

Family members were the most likely providers of all types of support. On average, youth had 3–4 family members in their social network. Previous research has identified family as an important source of tangible resources for homeless youth (e.g., Johnson et al., 2005). The current findings indicated that, controlling for individual-level factors such as family abuse, family ties are an important source of both tangible *and* emotional support for these displaced youth. These results suggest that assisting homeless youth in fostering or maintaining healthy relationships with family members, even when family reunification is not feasible or desirable, may substantially increase their access to social resources and assist them in coping with their living situation.

Sex partners also emerged as a key source of tangible and emotional support, and often were sources of both. On average, respondents identified 1 to 2 sex partners in their network, but this number ranged to 11 sex partners across the sample suggesting that the nature of these relationships is likely to be diverse. For example, some relationships may be characterized as committed and long-term, whereas others may entail “survival sex” or abuse (Gwadz et al., 2009; Kennedy, Tucker, Green, Golinelli, & Ewing, Under review). Homeless youths’ dependence on their sex partners for meeting tangible and emotional needs may be an important consideration for safe sex interventions, particularly if condom use is perceived as portraying a lack of trust in these highly valued relationships (Afifi, 1999). Although interventions targeting HIV prevention for youth typically focus on how to negotiate condom use (e.g., Rotheram-Borus et al., 2009), our results emphasize the importance of focusing on strategies that are less likely to threaten trust within these supportive relationships. Exploring ways to assist youth in reframing their perceptions of sexual relationships so that these partners are not so heavily relied upon for support may also empower youth in sexual encounters.

Homeless youth in this and other studies shared many social connections with other street-based peers, and both researchers and practitioners have emphasized the important role of these peers as sources of support (Gwadz et al., 2009; Whitbeck & Hoyt, 1999). However, when we considered support at the level of the dyad, and used multilevel models to tease apart specific attributes of alters, relationships, and networks, we did not find this to be the

case: alters who were also homeless, and those that were met on the street or through a service site, were less likely to be providers of tangible or emotional support. Rather, tangible and emotional support were likely to be sought from individuals who were employed, and emotional support was also sought from friends who were in school. Altogether, homeless youth receive (or may strategically seek) support from family, friends, and acquaintances that are in the best social or economic position to offer it. Further, encouraging homeless youth to distance themselves from street-based peers, which may benefit the youth in a number of ways, does not appear likely to negatively impact their access to support providers.

The dyadic analysis applied in this study also allowed us to test for the role of relationship quality and strength in predicting support provision to homeless youth, and the extent to which support overlapped with risky facets of relationships. Although our findings suggest that support is predominantly sought from relatively “low risk” alters, relationships that involve shared drinking (which was highly correlated with the alter drinking to intoxication and alter drug use, both excluded from these analyses due to collinearity) were a notable exception in that they are likely to be sources of both tangible and emotional support. Sourcing support from relationships that also promote risky substance use likely mitigates some of the beneficial effects of support: this support is unlikely to deter maladaptive behavioral responses to stress if the relationships already support or promote risky behaviors. Moreover, there is mixed evidence as to whether relationships characterized by shared risk and support potentially heighten risk behaviors. Suh, Mandell, Latkin, and Kim (1997) found that increased support was associated with greater needle sharing among intravenous drug users; however Wenzel et al. (2010) found that alters’ substance use predicted substance use among homeless youth, but that this effect was not heightened (or dampened) by shared support. Longitudinal studies could be designed to test whether support provision within contexts of “shared risk” has any beneficial effects on the physical and mental health of homeless youth. Additional research is also needed to disentangle why these risky and supportive relationships overlap: does engaging in shared risk behaviors foster relationships of support; does the exchange and sharing of alcohol and drugs occur in contexts of support exchange; or are alcohol and drugs the tangible goods they are exchanging?

Although we only explored a small number of relational attributes that predict support provision, the option for exploring a much broader set of relationship characteristics is possible. For example, future research could test a wide range of potentially relevant multiplex relationships and explore emergent properties of the dyad such as *homophily*, meaning the tendency for individuals who share a relationship to have similar characteristics (e.g., demographics, risk behaviors). Because of the large number of potential variables that could be derived at the dyad and network level, testing a broader range of model parameters was beyond the scope of the current paper, and future research should use hypothesis-driven approaches for identifying and testing these effects.

Assisting homeless youth to build relationships that are supportive, and that promote healthy lifestyles, could be combined with programs that focus on individual-level change (e.g., risk behaviors, mental health) or vocational change [e.g., social enterprise interventions (Ferguson & Xie, 2008)]. Indeed, interventions that focus on the family system and rebuilding family relations have been associated with positive outcomes for runaway youth (Nebbitt, House, Thompson, & Pollio, 2007), and this approach may be effectively extended to other social milieus. As frequency of contact among alters was also found to be a strong predictor of support provision in this study, technology that facilitates regular contact with “low risk” support providers such as family and prosocial peers is likely to help homeless youth in taking an active role in shaping these relationships, and the social networks in

which they are embedded. Researchers have started to investigate the role of mobile phone technology and social networking sites as a means to foster these prosocial relationships, with promising results (e.g., Rice, 2010). Empowering homeless youth to create social environments that are supportive and promote healthy lifestyles is likely to have both immediate and long-term protective effects that would hopefully sustain them in future transitions off the street.

In this study we were also able to tease apart predictors of support at the alter and dyad level, as well as the structure and overall composition of the youth's personal network. The result indicated that particular properties of these social systems, characterized by the overall make-up of people in the network, created environments that were more conducive to the provision of support. Although homeless alters were unlikely to provide support, networks that were characterized by a high *proportion* of homeless alters were more likely to foster supportive relationships. We tested a plausible explanation for this perplexing result: that *non-homeless* alters may increase their support provision to homeless youth when they recognize that their networks are largely comprised of homeless peers. However post hoc tests indicated that both housed *and* homeless alters responded with increased support provision. An alternate explanation may be that homeless youth learn from their homeless peers how to seek out and request support. Thus, requests for support may be more accepted and normative in networks with high proportions of homeless alters.

Homeless youth's relationships were also more likely to entail the provision of support if they were embedded in networks with a high proportion of alters who were employed. Employed alters were likely to provide tangible support, and this sharing of finite resources among dyads may foster broader systems of exchange in the network. Given that providers of tangible resources were also likely to provide emotional support, networks that promote the exchange of tangible goods may concurrently increase emotional support. Overall, it may be the extremes of paucity of resources (e.g., networks with many homeless alters) and relative "abundance" of resources (e.g., networks with many employed alters) in local networks that fosters the provision of support in relationships. Youth without these broader network systems that encourage shared support may be particularly vulnerable to changes in individual social ties that result in the loss of support.

Limitations

Methodological—The personal network approach applied in this study requires respondents to report on the attributes and behaviors of their alters. Although respondents may be biased in their perceptions of alters attributes and behaviors, this study was explicitly interested in *perceptions* of support as theories about the buffering effects of support on health (Cohen, 2004) view perceived support, not actual support, as the mechanism that reduces stress and impacts health. Complete or partial network methods, where alters are recruited into the study and report on their own attributes and behavior, are likely to provide more accurate data, although identifying linked individuals in this hard-to-reach population would be difficult and costly.

Analytical—These exploratory models included numerous predictor variables, and the multiple significance tests elevated the risk of Type 1 error. The decision was made to not adjust the *p*-values for multiple comparisons in these models because we wanted err on the side of making Type 1 errors in the first stage of models, so as not to inflate the risk of Type 2 errors in the final model. We believe this more inclusive approach to forward selection model building in identifying potentially relevant variables is more appropriate for our goals of theory building, as opposed to a more conservative approach typically applied in theory testing.

Additionally, the model assumes that there is little overlap in alters across the sampled networks: an assumption we cannot test explicitly because human subjects requirements specified that no identifying information on alters (apart from first names) could be collected. Given that the average density of personal networks was .16 (thus 16% of possible ties, with each alter having an average of 3 ties to other alters), the likelihood of extensive overlap across respondents' networks is small.

External validity—Although the sample is representative of the homeless youth who frequent the shelters, drop-ins, and street locations in Los Angeles County, it may not be generalizable to homeless populations outside of this context. Los Angeles attracts homeless youth from various geographic locations and so the degree of disconnect from home-based family and peers could conceivably differ from other populations of homeless youth.

Conclusion

Homeless youth regularly face stressful environments and circumstances, and the receipt of social support is likely to protect them from negative physical and mental health outcomes that are so prevalent in this population. This study has identified particular types of social contacts, types of relationships, and characteristics of local social environments that promote and hinder the provision of support. Youth who may be especially lacking in support are those whose social networks are predominantly comprised of street-based peers who are unemployed and do not attend school. We have highlighted how interpersonal and network factors might be incorporated into personal or environmental focused interventions that seek to improve the lives of homeless youth and eventually transition them to more stable living situations.

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Table 1

Characteristics of Participating Homeless Youth (N = 419)

Respondent characteristic	Percent	M (SD)	Range
Age (in years)		20.09 (2.80)	13 – 24
Gender (male)	63.4		
Race/ethnicity			
African American	23.9		
Hispanic	20.0		
White	34.0		
Asian/Other/Multiracial	22.1		
Sexual orientation			
Heterosexual	66.8		
Homosexual	11.2		
Bisexual	21.9		
At least high school education/GED	46.6		
Employed part-time or full time	14.3		
Number of years homeless		4.57 (3.25)	0 – 18
Number of states lived in (other than CA)		3.13 (7.76)	0 – 50
Experienced childhood abuse	68.8		
Depression score (CES-D)		0.95 (0.77)	0 – 3

Table 2

Characteristics of Dyadic Relationships and Personal Networks of Homeless Youth

Characteristic	Percent	<i>M (SD)</i>	Range
<i>Alter attributes (N = 8380)</i>			
Gender (male)	57.7		
Attends school	21.4		
Employed part-time or full time	32.0		
Homeless	31.3		
Drinks to intoxication	44.0		
Engages in risky sex	21.4		
Is a network isolate	32.2		
<i>Dyadic attributes (N = 8380)</i>			
Gender mix			
Male ego, male alter	38.3		
Male ego, female alter	25.1		
Female ego, male alter	19.3		
Female ego, female alter	17.3		
Family members	18.3		
Met on the street	23.5		
Met at a job or at school	12.8		
Met in a shelter / drop-in center	13.4		
Frequency of contact ^a		2.51 (1.42)	0 – 4
Drank together in past 3 months	24.6		
Sex partner	8.3		
Provides emotional support	53.1		
Provides tangible support	52.3		
<i>Personal network characteristics (N = 419)</i>			
Density		0.16 (0.17)	0 – 1
Number of alters who:			
Are in school		4.29 (4.51)	0 – 20
Are employed part-time or full time		6.39 (4.64)	0 – 20
Are homeless		6.27 (5.95)	0 – 20
Drink to intoxication		8.79 (6.75)	0 – 20
Engage in risky sex		4.52 (5.35)	0 – 20
Are family members		3.66 (3.41)	0 – 20
Were met on the street		4.70 (5.83)	0 – 20
Are sex partners		1.66 (1.89)	0 – 11
Provide emotional support		7.15 (5.46)	0 – 20
Provide tangible support		6.00 (5.72)	0 – 20

^a0=Almost never, 1=Less than 1 time a month, 2=One to three times a month, 3=1 to 3 times a week, 4=Daily or almost daily

Table 3

Odds Ratios from Multinomial Logistic Regressions Identifying Individual, Dyadic, and Network Factors that Predict Relationships of Support

Parameter	Tangible support only (vs. no support)		Emotional support only (vs. no support)		Tangible and emotional support (vs. no support)	
	OR	95% CI	OR	95% CI	OR	95% CI
<i>Alter attributes (level 1)</i>						
Attends school	0.97	0.64, 1.46	1.78**	1.33, 2.39	1.28	0.98, 1.68
Employed	1.71**	1.31, 2.25	1.89**	1.42, 2.52	2.62**	2.06, 3.33
Homeless	0.58**	0.40, 0.85	0.98	0.68, 1.42	0.64**	0.46, 0.90
Engages in risky sex	0.93	0.63, 1.38	0.78	0.56, 1.10	0.57**	0.42, 0.78
Is a network isolate	0.86	0.62, 1.20	0.92	0.69, 1.24	0.79	0.61, 1.01
<i>Dyadic attributes (level 1)</i>						
Gender mix (ref is male ego, male alter)						
Male ego, female alter	1.18	0.80, 1.74	1.36*	1.05, 1.77	1.53**	1.17, 1.99
Female ego, male alter	1.27	0.70, 2.27	0.59*	0.38, 0.90	1.35	0.82, 2.23
Female ego, female alter	1.71	0.97, 2.99	1.02	0.66, 1.58	2.32**	1.39, 3.85
Family members	2.61**	1.73, 3.92	9.81**	6.92, 13.91	12.47**	8.67, 17.92
Met on the street	0.87	0.52, 1.47	0.80	0.55, 1.15	0.67*	0.46, 0.97
Met in a shelter/drop-in center	0.54*	0.33, 0.90	1.06	0.73, 1.54	0.61**	0.43, 0.86
Frequency of contact	1.33**	1.17, 1.51	1.46**	1.31, 1.62	1.63**	1.46, 1.82
Drank together	1.89**	1.24, 2.87	1.50*	1.03, 2.16	2.80**	1.97, 3.97
Sex partner	1.98**	1.19, 3.31	3.64**	2.42, 5.47	5.44**	3.74, 7.92
<i>Network composition (# of alters) (level 2)</i>						
# Employed	1.12**	1.06, 1.19	1.08**	1.02, 1.14	1.15**	1.08, 1.23
# Homeless	1.09*	1.02, 1.16	1.09**	1.03, 1.15	1.11**	1.04, 1.18
# Drink to intoxication	1.00	0.95, 1.05	1.03	0.98, 1.07	1.01	0.97, 1.05
# Engage in risky sex	0.98	0.92, 1.04	0.96	0.91, 1.01	0.99	0.93, 1.05
# Family members	0.93	0.84, 1.02	1.02	0.95, 1.09	0.96	0.90, 1.03
# Sex partners	1.00	0.86, 1.17	1.05	0.92, 1.19	1.11	0.97, 1.28

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Note: Significant ego-level variables (age, experience of childhood abuse, depression score) were retained as controls in these models, but are not included in the table. The intercept was freed to vary across the 419 respondents in this two-level random intercept multinomial logistic regression. The variance of the random effect at level 2 was estimated as 2.99 ($SE = .35$).

* $p < .05$.

** $p < .01$