Homeless Women's Personal Networks: Implications for Understanding Risk Behavior

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Abstract

The goal of this exploratory study was to examine the composition of homeless women's personal networks in order to better understand the social context of risk behavior in this vulnerable population. Twenty-eight homeless women residing in temporary shelters in Los Angeles County provided detailed information about their extended personal networks. Women named 25 people with whom they had contact during the past year, and then were asked a series of questions about each one of these named network members. Results indicate that the personal networks of homeless women are larger and more diverse than suggested by previous research. About one-third of women's relationships were with high-risk individuals (i.e., people perceived to drink heavily, use drugs, or engage in risky sex). However, most women also reported having relationships that could be characterized as both "low risk" (e.g., involving individuals perceived as not drinking heavily, using drugs, or engaging in risky sex) and "high quality" (e.g., long-term, emotionally close, or supportive), although these relationships tended to be rather tenuous. Our results suggest a need to assist homeless women in strengthening these existing low-risk/high-quality relationships, and extending the diversity of their networks, in order to increase women's exposure to positive role models and access to tangible support and other needed resources.

Keywords

personal networks; homeless women; sexual behavior; drug and alcohol use

Introduction

Los Angeles County has one of the largest concentrations of homeless women in the country. According to the 2007 Greater Los Angeles homeless count, there are an estimated 20,000 sheltered and unsheltered homeless women in the County on any given night (Los Angeles Homeless Services Authority, 2007). Compared to impoverished women with stable housing, those who are homeless are significantly more likely to be affected by substance abuse, HIV/ AIDS, and violence (Bassuk, Weinreb, Buckner, Salomon, & Bassuk, 1996; Milburn & D'Ercole, 1991; Nyamathi, Stein, & Swanson, 2000; Padgett & Struening, 1992). Our own research has compared probability-based samples of women living in temporary shelters versus low-income (Section 8) apartments in Los Angeles County (Wenzel, Tucker, Elliott,

Hambarsoomians, Perlman, Becker, Kollross, & Golinelli, 2004); this work has shown striking group differences, for example, in rates of past year physical or sexual victimization (35% vs. 13%, respectively), alcohol dependence (16% vs. 1%), drug dependence (30% vs. 2%), having multiple sex partners (35% vs. 18%), engaging in unprotected sex with casual partners (19% vs. 6%), and trading sex (18% vs. 2%). Given that substance use, high-risk sexual behavior, and violence all occur in a social context, gaining a better understanding of the personal networks of homeless women will likely prove fruitful in addressing the seemingly intractable health threats that they face.

Social Networks and Risk Behavior

Social network analysis provides an important tool for understanding the social and contextual factors relevant to engagement in risk behavior. It has been widely used to understand patterns of disease transmission, particularly for HIV/AIDS and other sexually transmitted diseases, but only relatively recently has been applied more broadly to understanding different types of risk behavior (Luke & Harris, 2007). Social networks are naturally occurring groups within which members may influence each other's behaviors through social comparison processes, social sanctions and rewards, information exchange, and socialization of new members (Fisher, 1988; Latkin et al., 1995). Within formal network theory, the term "network" refers to the ties that connect a specific set of nodes, with these nodes typically representing individuals (Scott, 1991). Personal or ego-centric networks, the focus of this study, encompass the ties surrounding a single focal individual (Campbell & Lee 1991; McCarty, Bernard, Killworth, Johnsen, & Shelley, 1997). Network analysis is a quantitative means of describing the composition of and relationships among one's network members.

The structure and composition of homeless women's personal networks are not well understood, although a number of studies have examined homeless women's perceptions of social support within their networks. Much of this work has focused specifically on women with children. One study of homeless mothers, for example, found that 26% reported not having a support person in their network and an additional 18% reported that they had only one such person (Bassuk, Rubin, & Lauriat, 1986). A small study of 10 homeless women in Manchester, England collected information on each of (up to) 20 alters in the women's networks: frequency of contact, self-defined "closeness" of the relationship, emotional and tangible support provided by the alter, and whether they got together for sociable or convivial purposes (Mitchell, 1987). Based on this information, 65% of the ties were characterized as overall weak relationships, whereas only 19% were characterized as strong relationships. Compared to consistently housed poor mothers, those who are homeless report less support in their networks (Bassuk & Rosenberg, 1988; Litiecq, Anderson, & Koblinsky, 1998; Wood, Valdez, Hayashi, & Shen, 1990) and less trust in their relationships with others (Goodman, 1991). Although most homeless women have living relatives, the majority of these women do not maintain meaningful contact with them (North & Smith, 1993; Rossi, Wright, Fisher, & Willis, 1987). What close relationships homeless women do maintain may not provide them with the tangible assistance that they need. Comparing the networks of 251 homeless mothers entering a shelter to 291 consistently housed poor mothers, Toohey and colleagues found that the homeless mothers were actually more likely to have a mother/grandmother, close relative, and close friend in their network; however, the homeless mothers were less likely to report that these key members of their network could provide them with shelter (Toohey, Shinn, & Weitzman, 2004).

In general, the existing literature on social support suggests that the personal networks of homeless women are small, comprised primarily of weak ties, and provide little tangible assistance. However, there are some hints that this may be an overly simplistic portrayal. An interesting ethnographic study of women living on the streets of Skid Row in Los Angeles, for

example, illustrated the ways in which homeless women seek to replace the functions of home and workplace by establishing both peer and "homed" networks that can afford them some flexibility in satisfying their subsistence needs (Rowe & Wolch, 1990). These networks are varied and include friends, family, or a lover/spouse; encampment communities; panhandling patrons; and social service providers. A study of women on methadone – which was not restricted to homeless women, but is one of the few studies to obtain detailed information on the networks of low-income women – found that women named an average of six individuals with whom they had frequent contact and generally characterized their relationships as long-term, close, and with high density and proximity (El-Bassel, Chen & Cooper, 1998).

An important question for the field of public health is how the characteristics of homeless women's personal networks may influence their engagement in risk behavior, such as substance use or sexual behaviors associated with the transmission of HIV. Much of our understanding of these associations comes from studies of illicit drug users. Drug using women tend to have considerable overlap in their risk and support networks (e.g., those who provide them with support also engage in high-risk behavior), which may hinder their efforts to adopt safer drug use or sexual practices (Miller & Neaigus, 2001; Montgomery et al., 2002; Suh, Mandell, Latkin, & Joohyung, 1997). Indeed, drug using women are significantly more likely than drug using men to have a primary partner who is also involved in drug use (Hartel, 1994). Individuals who have a larger and denser drug network (Latkin et al., 1995; Neaigus et al., 1996), including more alcohol and crack users (Latkin, Mandell, & Vlahov, 1996), tend to have a greater number of sex partners. However, there is little understanding of the processes through which these networks may influence members' engagement in high-risk sexual behavior (Frey et al., 1995; Friedman, Curtis, Neaigus, Jose, & DesJarlais, 1999; Sherman, Latkin, & Gielen, 2001). One study of drug using women highlighted the potential importance of social norms, finding that women with larger drug networks reported having fewer friends who talked about condoms and encouraged condom use (Latkin, Forman, Knowlton, & Sherman, 2003).

The Present Study

In this exploratory study, we interviewed 28 homeless women residing in temporary shelters in Los Angeles County who provided detailed information about their extended personal networks. The goal of this study was to examine the composition of these personal networks. Women named 25 people with whom they had contact during the past year, and then were asked a series of questions about each one of these named network members, or alters: how the woman first met the alter, the quality of her relationship with the alter (e.g., amount of contact, emotional closeness, tangible support, disagreements), whether she perceives the alter as engaging in substance use and risky sex, and whether she has actually engaged in these behavior with the alter. To the best of our knowledge, this is the first study to collect such detailed information on the personal networks of homeless women in order to better understand the social context of risk behavior in this highly vulnerable, yet understudied population.

Methods

Participants

Participants were recruited for a study examining the social context of alcohol use and sexual behaviors among homeless women. The study area was the central region of Los Angeles County, California. Women were eligible for the study if they were age 18 or older, had sex with a male sexual partner within the past 6 months, and were able to complete the interview in English. On average, the 28 women who participated in this study were 37 years old ($SD =$ 9.75) and had been homeless for 3.8 years ($SD =$ 3.76). Most of them (79%) had completed high school or earned a GED. The sample was ethnically diverse (46% African American, 21%

Hispanic, 21% non-Hispanic white, 11% were multi-racial or mixed race). During the past 6 month, 61% of women reported drinking alcohol, 7% binge drinking, and 50% using illicit drugs.

Individual computer-assisted face-to-face structured interviews were conducted by trained female interviewers. Women were paid $20 for their participation. The research protocol was approved by the institutional review board of RAND and a certificate of confidentiality was obtained from the US Department of Health and Human Services to help protect participants' privacy.

Procedure

Given the exploratory nature of this study, we used a purposive sampling design to ensure that we captured as wide a range of experiences as possible. We compiled a list of all shelters in Los Angeles County within an approximate 15-mile radius from the downtown area to use as a sampling frame. We excluded domestic violence shelters, but included shelters that serve a majority homeless population and that allow women to stay an average of 12 months or less. We initially identified 165 shelters, of which 9 were later excluded (4 had closed or were no longer a shelter serving homeless persons, 3 served men only, and 2 served exclusively gay and lesbian clients). In order to make our data collection more cost-effective, we additionally excluded 12 shelters that had fewer than 8 beds or for which information on the number of beds could not be obtained. These exclusions resulted in a total of 144 eligible shelters.

To ensure that we drew women from as many kinds of sheltered environments as possible, we next stratified these 144 shelters by region (Metro, San Fernando Valley, and West) and size (small = 8–30 beds vs. large = ≥ 31 beds). We then randomly sampled 12 shelters, two from each of the six region-by-size combinations. Shelters were contacted by a team member using a script, screened again for eligibility, and then recruited to participate in the study. Once we were in the field, we were not able to obtain the collaboration of two selected large shelters and one selected small shelter; thus, the reported data collection is based on recruitment from a total of nine shelters.

Our goal was to complete approximately 30 interviews for this exploratory study. During the field period we sampled 66 women, typically from shelter bed lists. A trained female interviewer approached each sampled woman and sought oral consent to administer a brief eligibility screener for the study. Of the 66 sampled women, 64 (97%) completed the screener and 34 (53%) screened eligible. Most of the ineligibility (87% of cases) was due to not having sex with a male partner during the past six months. Twenty-eight of the 34 eligible women ultimately completed the interview (82% participation rate). Women provided written consent before completing the interview.

Study Variables

Background Characteristics—We collected demographic information on women's age, years of education, race/ethnicity, length of time homeless, alcohol use in the past 6 months (e.g., any use, any binge drinking), and drug use in the past 6 months (e.g., any use, any hard drug use).

Network Elicitation—We asked participants to name 25 people in their life who were important to them in some way. They were instructed to think about people they have had contact with sometime during the past year or so – either face-to-face, by phone, mail or e-mail – and to start by naming the people who were most important to them and then to "work outwards." They were told that they could name "anybody you know no matter who they are or where they live" and received no further prompt until after they named the 20th alter. At this

point, they were told that they had 5 more people to name and asked whether there are people they had sex with, or used drugs or alcohol with, that they would like to name. Based on this list of 25 alters, we asked follow-up questions to assess personal network structure and composition, as described next. *EgoNet* software, which is specifically designed to collect and analyze personal network data (developed by Medical Decision Logic and designed by Christopher McCarty; available at www.mdlogix.com), was used to obtain the personal network data.

Network Composition—The composition of each woman's personal network was assessed by asking a series of questions about each alter. We asked about the alter's gender, history of incarceration, and whether the alter was a relative or sex partner (current or former). If the alter was not a relative, the participant indicated how she first met the alter and these responses were coded by the interviewer into one of 12 categories (service provider, in a shelter, at a job, at school, on the street, through a religious organization, through a non-religious organization, as a neighbor, through using or selling drugs, because of the participant's alcohol use, through somebody else, or "other").

Relationship Characteristics—Participants answered several questions about their relationship with each alter: frequency of contact (1 = *1 or 2 days in the past year* to 9 = *every day*), emotional closeness (1 = *not at all* to 5 = *extremely*), frequency of tangible support in the past 6 months (defined as providing participant with food, money, clothes, or a place to stay because she needed it; 1 = *never* to 5 = *very often*), and frequency of unpleasant disagreements or getting angry/upset during the past 6 months (1 = *never* to 5 = *very often*). For non-relatives, we obtained information on relationship length (in months). Finally, we asked separate questions about whether the participant had used alcohol or drugs with each alter during the past 6 months (*yes/no*). To facilitate the correspondence analysis, we trichotomized the contact variable (infrequent contact; response options 1–3; regular contact: options 4–6; frequent contact: options 7–9) and dichotomized the closeness, tangible support, and disagreements variables (low: options 1–3; high: options 4–5) for this analysis only.

Social Norms—To assess social norms, participants were asked the following three questions of each of the 25 alters: During the past 6 months, how likely is it that this person has drunk alcohol to the point of being high, drunk or intoxicated; used marijuana or other drugs; and had risky or unsafe sex (e.g., multiple partners, sex with strangers, not using condoms with casual partners, trading sex). Each of these three items was rated on a 4-point scale (1 = *extremely unlikely* to 4 = *extremely likely*). To facilitate the correspondence analysis, we dichotomized each of these variables (likely vs. unlikely) for this analysis only.

Results

Network composition

Each participant named 25 members of her personal network, resulting in a total of 700 named alters. Relatives, which included blood relatives and in-laws (but not spouses), comprised 37.6% of the 700 alters. On average, women named 9.4 relatives. For alters who were not relatives, the interviewer asked how the participant met the person and categorized their response. The most common alter types were individuals met at a shelter (17.3% of all 700 alters; average of 4.3 per woman), met through someone else (e.g., "a friend of a friend"; 13.6% of all alters; average of 3.4 per woman), met on the street (6% of all alters; average of 1.5 per woman), and service providers (4.4% of all alters; average of 1.1 per woman). Nearly 8% of alters were linked some way with the participants' substance use, either met through their drinking (4.6% of all alters), drug use or selling (1.6% of all alters), or rehab/recovery efforts (2.1% of all alters). Women also mentioned alters met at jobs and school, as neighbors, and

through religious and non-religious organizations; each of these categories represented less than 3% of the 700 named alters. On average, women had 5.5 different types of alters in their network (*SD* = 1.40), which provides some indication of network diversity.

Figure 1 shows the order in which different types of alters were named (e.g., alters 1–5, 6–10, 11–15, 16–20, 21–25). For presentation clarity, only the alter types comprising at least 5% of alters at any of the five naming positions are shown. There was a linear inverse association between emotional closeness and the order in which alters were named, likely a function of the instructions women were given for naming alters (i.e., to begin with the people who are most important and then "work outwards"): the average emotional closeness rating for the first five alters was 4.41 (on a scale from 1–5), but declined to 2.95 for the last five alters named. As shown in Figure 1, relatives were more likely to be named at the beginning than toward the end of the task, comprising 65% of the group named in positions 1–5, but only 30% of the group named in positions 16–20. Service providers and individuals met in a shelter were more likely to be named as the task went on, comprising 1% and 8% (respectively) of the group named in positions 1–5, but 8% and 23% (respectively) of the group named in positions 16–20. The prompt that occurred after naming the 20th alter corresponded with a increase in alters who were met on the street or through somebody else.

Relationship Quality with Alters

To explore the relationship between various types of alters and the characteristics of their relationships with the women, we conducted several correspondence analyses on multiway data formed by stacking multiple two-way contingency tables (Weller & Romney, 1990). We examined the graphs for patterns in the relationship between alter types and other categorical variables (Watts, 1997). Note that duration of the relationship (standardized as number of months) was not included in the correspondence analysis because it is measured on an interval level and thus is not appropriate for this categorical analysis technique. Figure 2a shows results from the first correspondence analysis, which is a graphical display of the first two non-trivial factors in the association between alter types and four ordinal variables measuring relationship characteristics: frequency of contact, emotional closeness, tangible support, and disagreements. The variance explained by these first two non-trivial factors is 64.5%.

Each relationship category and type of alter are displayed in Figure 2a as labeled points, with each point representing either a column or row in the "Type of Alter by Relationship Characteristics" contingency table. The graph is interpreted by noting the points that are either close together or far apart, clusters of points, and distributions of points along a dimension. The objective of the analysis is to generate insight into patterns of associations among the variables that can be tested for statistical significance with other techniques. Figure 2a indicates that frequency of contact and emotional closeness are the key relationship characteristics associated with alter type. There is an obvious dimension of higher to lower frequency of contact from the upper left hand corner to the lower right hand side of the graph. Alters who are most associated with high contact are those met through rehab/recovery programs, met in homeless shelters, and (to a lesser extent) service providers. Alters who are most associated with high emotional closeness dimension are relatives and those met through religious organizations. Most of the alter types are clustered in the quadrant that represents low emotional closeness and low frequency of contact. The high and low tangible support and disagreement categories are clustered almost on top of each other in the center of the graph, indicating that they are not strongly associated with the alter types in this analysis.

Correspondence analysis is an exploratory, descriptive technique that cannot determine statistically significant associations and thus we conducted bivariate ordered logistic regression analyses to test the associations between alter type and the relationship quality and length variables (and thus confirm the significance of the associations noted in the correspondence

analysis). Each alter type was compared with all other alters to determine if they were significantly more or less likely to be rated as having higher quality relationships, more contact and longer relationships. We used the SAS procedure PROC GENMOD with a multinomial distribution and a cumulative logit link option to test the null hypothesis that one type of alter was not more likely to be rated higher or lower on these ordinal response options than alters who were in some other category. Below we highlight group differences that are statistically significant at $p < .05$.

On average, women had contact with the named alters once a week ($M = 5.00$). Confirming results from the correspondence analysis, women had more frequent contact with alters met through a rehab/recovery program ($M = 7.13$), alters met in a shelter ($M = 7.68$), and service providers ($M = 6.48$) compared to other alters. Women had relatively less contact with relatives ($M = 4.01$) and alters met through somebody else ($M = 3.89$), school ($M = 2.53$), or using or selling drugs ($M = 3.09$). Overall, participants felt "somewhat" emotionally close to their network members ($M = 3.53$). Closeness was higher with relatives ($M = 4.19$) and individuals met through religious organizations ($M = 4.25$), but lower with individuals met at a shelter ($M = 3.21$), through somebody else ($M = 3.07$), on the street ($M = 2.71$), through alcohol use ($M = 2.88$), or as a service provider ($M = 2.29$). The overall frequency of tangible support ($M = 1.93$) and disagreements ($M = 1.76$) from network members was "almost never." Alters met through using alcohol provided particularly low levels of tangible support ($M = 1.34$) and disagreements ($M = 1.16$) compared to other alters. Finally, women knew the non-relative members of their network for an average of 3.91 months. Longer-term relationships were those with alters met through somebody else ($M = 6.47$), as a neighbor ($M = 13.89$), or at school ($M = 11.28$), whereas shorter-term relationships were with alters met at a shelter ($M = 1.05$) or through the participants' alcohol use ($M = 1.54$).

Perceived Risk Behavior of Alters

Women were asked their perceptions of whether each alter was likely to have drunk to intoxication, used drugs, or engaged in risky sex during the past 6 months. In addition, they were asked to identify those alters whom they knew had ever been to jail or prison. On average, women had 11.71 members of their network who could be considered "low risk" – that is, perceived by the women as abstaining from drug use and heavy drinking, not engaging in risky sex, and not having a history of incarceration. Nonetheless, the vast majority of women named at least one alter who was perceived as "extremely likely" or "somewhat likely" to drink to intoxication (93%), use drugs (96%), or have risky sex (93%). More than one-half of the women (57%) named at least one alter who had been incarcerated. About one-half of women reported that 8 or more alters, nearly one-third of their personal network, were "extremely likely" or "somewhat likely" to drink to intoxication (54%), use drugs (46%), or have risky sex (57%) during the past 6 months. Eighteen percent of women named 8 or more alters with a history of incarceration. Among the 700 named alters, about one-third were perceived as "extremely likely" or "somewhat likely" to drink to intoxication (32%), use drugs (31%), and have risky sex (31%).

We conducted another correspondence analysis similar to that described in the previous section, with the goal of understanding perceptions of risky behaviors and incarceration history as being normative among certain types of alters. Figure 2b is the graphical output of a the first two non-trivial factors from a correspondence analysis on the "Types of Alters by Participant Rated Likelihood to Engage in Risky Behavior and Incarceration History" multiway data created from stacked two-way contingency tables. These first two factors explain 73.8% of the variance and the graph shows a clear division between two clusters of variables. On the left hand side, the four non-risky alter attributes are closely clustered together. Surrounding them are categories of alters that appear to be strongly associated with an absence of risky behaviors.

The risky behavior attributes appear along the right hand side of the graph with a set of alter categories clustering around the drinking, drugs, and risky sex variables. The incarceration variable is somewhat removed from the rest of the risk variables. The only two alter-type variables that do not appear strongly associated with either the risky or non-risky clusters are variables representing alters met through drinking and alters met through rehab/recovery. In addition to the risky/non-risky clustering, there appears to be a dimension of incarceration stretching from the upper right hand to the lower left hand of the graph and a dimension that is mostly driven by drinking and non-drinking alter behaviors stretching from the lower right hand side to the upper left hand side. If two lines were drawn to represent these dimensions, most alters would fall into either the drinking and incarceration quadrant or the non-drinking, no incarceration quadrant. Alters who were met through drinking and rehab are the only alters in the upper left hand quadrant representing non-drinking and incarceration.

Findings from a bivariate ordered logistic regression confirmed that certain alter types were consistently rated as more or less likely to engage in risky behaviors across the behavior types. Overall, alters were rated as somewhat unlikely to engage in heavy drinking ($M = 1.84$), drug use ($M = 1.84$), and risky sex ($M = 1.81$), and 14.6% of all alters were believed to have a history of incarceration. Alter types perceived as being less likely to engage in each of these behaviors compared to other alters included relatives ($M = 1.68, 1.54, 1.43; 6.1\%$, respectively), service providers ($M= 1.19, 1.10, 1.21; 3.2\%$, respectively), and alters met through religious organizations ($M = 1.0, 1.0, 1.2; 0\%$, respectively). In contrast, alters met through somebody else ($M = 2.47, 2.61, 2.54; 30.5\%$, respectively) were perceived as more likely to engage in each of these behaviors. For other alter types, the associations with risk behavior were less consistent: alters met on the street were perceived as more likely to engage in drug use ($M = 2.34$) and risky sex ($M = 2.85$), and have been incarcerated (28.6%), than other alter types; however, they were not significantly more or less likely to engage in heavy drinking. Alters met through the participants' alcohol use were perceived as less likely to use drugs ($M = 1.23$), but more likely to have an incarceration history (34.4%). Alters met through a job were perceived as more likely to engage in heavy drinking ($M = 2.60$). Finally, those met as a neighbor were perceived as more likely to engage in heavy drinking ($M = 2.78$) and risky sex ($M = 2.83$), where as those met through using/selling drugs were perceived as more likely to engage in drug use ($M = 2.64$) and risky sex ($M = 2.82$).

Women's Engagement in Risk Behavior with Alters

Fifty-seven percent of the women drank alcohol with at least one person in their network during the past 6 months and 11% drank with roughly one-third (i.e., 8 or more) of their network members. The average number of drinking partners was 3.0. In the case of drugs, 39% of the women used with at least one person and 21% used with roughly one-third of their network members during the past 6 months. The average number of drug-using partners was 3.32. Overall, 11% of the named alters had used alcohol and 13% had used drugs with the participant during the past 6 months. In terms of sex partners, all women named at least one sex partner during the network elicitation task, with an average of 3.7 sex partners named by each woman. One-quarter of women had engaged in substance use with a sex partner in the past 6 months.

Figure 2c shows the first two non-trivial factors resulting graph from a correspondence analysis of the "Type of Alter by Risk Behavior With Participant" multiway contingency data. The factors represented in the graph depict 86.2% of the variance. There is a clear division between the risk and non-risk relationships, with the risk relationships (drug use partner, drinking partner, sex partner) falling on the right-hand side of the graph and the non-risk relationships (not a drug use partner, not a drinking partner, not a sex partner) falling on the left-hand side of the graph. The non-risk relationships are clustered with a group of alter types that includes relatives and service providers, as well as people met through homeless shelters, rehab/recovery

programs, religious organizations, and the participants' alcohol use. Among the risk relationship variables, there is a clear contrast between the "drug use partner" and "drinking partner" variables and the "sex partner" variable suggesting a dimension of types of risk from substance abuse to risky sexual behavior. The alters met through the participants' drug use are located highest on the substance use end of this dimension and the alters categorized as "Other" fall furthest along the sexual activity end of this risk behavior dimension. Most of the remaining alter types cluster between the substance abuse and sex partner ends of this dimension.

Results of a chi-square test of independence between the alter type variables and the dichotomous risk behavior variables for the most part confirmed that the alter types that appeared to be associated with risk or non-risk behaviors in Figure 2c were significantly related. Overall, 48.1% of non-relative male alters were sex partners, 11.4% of alters drank alcohol with the participant, and 13.3% of alters used drugs with the participant. Alters classified in the "other" category (100%) were significantly more likely than other alters to be a sex partner, whereas service providers (5.9%) were significantly less likely than other alters to be a sex partner. Women were more likely to use alcohol and drugs with alters met through somebody else (24.2% and 29.5%, respectively) and met on the street (21.4% and 45.2%, respectively) compared to other alters. Women were also more likely to drink with alters met as neighbors (38.9%), and to use drugs with alters met through using/selling drugs (36.4%) compared to other alters. Relatives and alters met at a shelter were less likely than other alters to use alcohol or drugs with the participant (relatives: 6.1% in each case; met in shelter: 5.8% and 7.4%, respectively), and those met through alcohol use and as service providers were less likely than other alters to use drugs with the participant (0% in each case).

Discussion

The stereotype of homeless women emerging from past research is that of relatively isolated individuals who have small personal networks, comprised mostly high-risk peers who provide little emotional or tangible support. Results from this exploratory study suggest that there is some truth to this stereotype, but that the personal networks of homeless women are larger and more diverse than suggested by this previous work. Each of the women in this study was able to name 25 people with whom she had contact during the past 6 months. Perhaps surprising, relatives were the most commonly named individuals – on average, relatives comprised slightly more than one-third of women's personal networks. In addition to relatives, women named people whom they had met in a homeless shelter, through somebody else, on the street, through their substance use or recovery, by obtaining services (i.e., service providers), at a job or school, as a neighbor, and through religious and non-religious organizations.

On average, nearly one-half of the people in women's personal networks could be considered "low risk" – that is, perceived by the women as abstaining from drug use and heavy drinking, not engaging in risky sex, and not having a history of incarceration. These individuals tended to be concentrated into three categories of people mentioned by the women: family members, service providers, and people met through religious organizations. However, each of these relationship types also appeared to be rather tenuous. Although relationships with relatives tended to be emotionally close and (by definition) long-term, the average frequency of contact with a family member was only two or three times a month. Homeless women tend to live further away from relatives than housed women (Toohey et al., 2004), which may present a significant barrier to regular contact with this potentially important source of support. Relationships with people met through religious organizations tended to be emotionally close, but these were not well-established, long-term relationships – the average relationship length was just two months. Relationships with service providers, although low risk and with relatively frequent contact, were also characterized by low emotional closeness and short duration. Importantly, none of these "low risk" groups distinguished itself in terms of providing

tangible support to these homeless women; on average, women reported receiving such support from these individuals "almost never." In interpreting the low level of perceived tangible support from service providers, it is important to point out that all women were being provided with food, a place to stay, and so forth from service providers at the time of the interview (given that women were sampled from temporary shelters that provided such support). However, women may have perceived this support as coming from agencies or organizations rather than directly from the specific service providers that they identified. It may also be the case that the limited resources of service providers pose significant challenges in terms of satisfying the considerable tangible needs of homeless women.

Despite having multiple low-risk individuals in their personal networks, there is clearly room for improvement in terms of the quality of these existing relationships. Family members, service providers, and individuals met through faith-based organizations have the potential to be positive role models given women's perceptions that these members of their network abstain from substance use and engage in safer sexual practices. They also have the potential to provide these women with tangible support and provide access to other needed resources. Programs to assist homeless women in strengthening their existing ties with formal and informal support providers may help these positive relationships realize their full potential in terms of having a protective influence on the lives of homeless women (El-Bassei, Gilbert, Rajah, Foleno, & Frye, 2001; Nyamathi, Leake, Keenan, & Gelberg, 2000). In addition, it may be important to consider ways to increase the size of homeless women's networks and the diversity of their relationships with others. Although we did not examine network size in this study (all women were asked to name 25 members of their network), our results suggest that women's networks are not particularly diverse in terms of the types of people that they know. On average, women identified between 5 and 6 different types of people in their personal networks (e.g., relatives, people met at a shelter, people met through jobs). Research on low-income single mothers has shown that having a larger network lowers the risk of family homelessness (Bassuk et al., 1997). In the general population, individuals with more diverse networks tend to engage in a healthier lifestyle (Cohen & Lemay, 2007), perhaps due to feeling a greater responsibility to others or receiving more social pressure to stay healthy or avoid risky behavior (Tucker, Orlando, Elliott, & Klein, 2006). Efforts to increase the breadth of homeless women's personal networks, if done in a way that increases their exposure to positive role models and resources, may have beneficial effects on the lives of these women as well.

Results from this study also highlight three alter types that are particularly associated with risk behavior: individuals met on the street, through someone else, and through using or selling drugs. Individuals in these categories were more likely than others to be perceived as being drug users and engaging in risky sex. In addition, about 30% of individuals met on the street or through somebody else were perceived to have a history of incarceration. Women's recent engagement in potentially risky behaviors with members of their network – heavy drinking, drug use, and sexual intercourse – were also primarily concentrated within these types of relationships. A greater focus on understanding women's relationships with people met through somebody else seems warranted given that this is a relatively large segment of women's networks (involving nearly 14% of all alters named), yet very little is known about these high-risk individuals in terms of who they are, the circumstances under which women met them, and the role that they play in women's lives. An important challenge for prevention programs – whether focusing on substance use or risky sex – is that program participants often continue associating with individuals who are not supportive of their efforts to adopt a healthier lifestyle. In the case of homeless women, their continued affiliation with people met through drug-related activities, high-risk individuals met on the street, and so forth makes efforts at risk reduction even more challenging. Recent efforts designed to help individuals change their support networks to be less supportive of risk behavior have been encouraging (e.g., Litt, Kadden, Kabela-Cormier, & Petry, 2007; see also Valente, Gallaher, & Mouttapa, 2004), although to

the best of our knowledge no such programs have yet been developed to address the unique needs of homeless women.

Although it was time-consuming to ask women to name 25 alters and then to answer a series of questions about each alter, our findings suggest that this approach (combined with a prompt to name higher-risk alters) can be successful in obtaining a more complete picture of the diversity of homeless women's personal networks. For example, El-Bassel et al. (1998) asked women on methadone to name individuals with whom they had regular contact over the past 3 months, finding that women named an average of 6 people. When we asked women more broadly who they had contact with during the past year, but prompted them to name 25 individuals in total, women named an average of 9–10 people with whom they had frequent contact (at least once per week; results not shown). Not only did they name more individuals with whom they had frequent contact, but our method increased the likelihood that women would name peripheral and weaker ties as well. These weaker ties may be important in terms of increasing women's access to resources and opportunities (Granovetter, 1973), and thereby perhaps indirectly influencing their engagement in substance use and sexual risk behavior.

Several important limitations of this exploratory study warrant mention. First, our results are based on a sample of only 28 women. Although our sampling methods were devised to obtain a fairly representative sample of women living in shelters in Los Angeles County, the small sample limited our analytic options. For example, with a larger sample we would have been able to control for the possible clustering of types of alters and characteristics of these alters within individual participants. The significant associations we have identified will have to be confirmed in future studies with sufficiently large samples to account for non-independence among alters nominated by the same participants. Second, our results are based on women residing in shelters in Los Angeles County and thus may not generalize to women living on the streets or in other geographic areas. Third, our decision to cap the number of alters at 25 people was guided by the need to limit the length of the interview and it may be the case that by not asking about additional alters we have missed some weak or peripheral social ties that nonetheless have an important impact on the health and well-being of homeless women. Finally, it is a limitation that the risk behavior of alters is assessed solely in terms of women's perceptions; although these perceptions are likely an important determinant of women's own cognitions and behaviors, it would be useful to know the extent to which these perceptions are accurate. Despite these limitations, this work provides some of the most detailed information to date on the composition of homeless women's personal networks. Our next step in this line of research is to investigate, in a larger probability-based sample, the ways in which these compositional characteristics are related to women's patterns of alcohol and illicit drug use, as well as HIV-related attitudes and behaviors.

Acknowledgments

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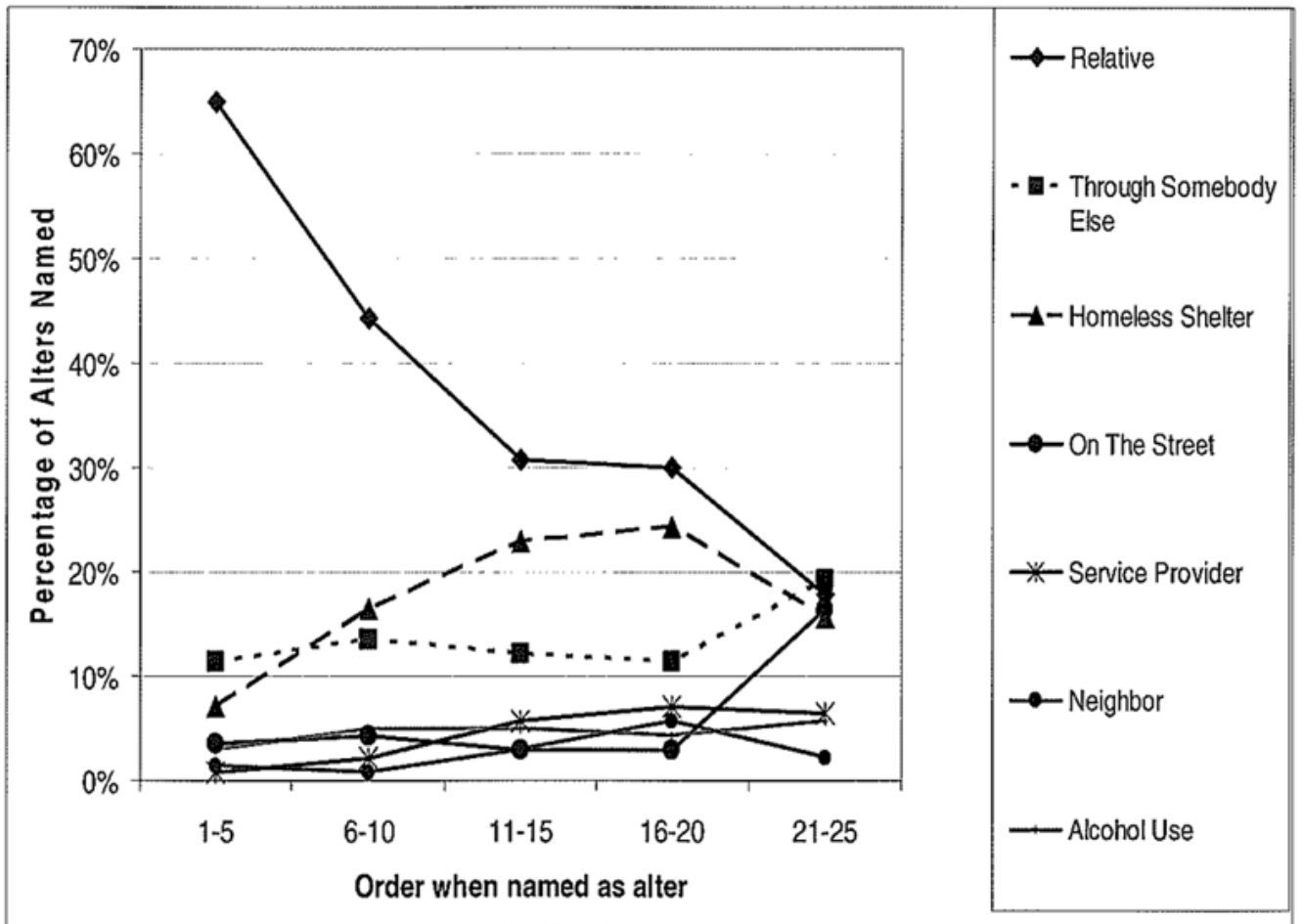
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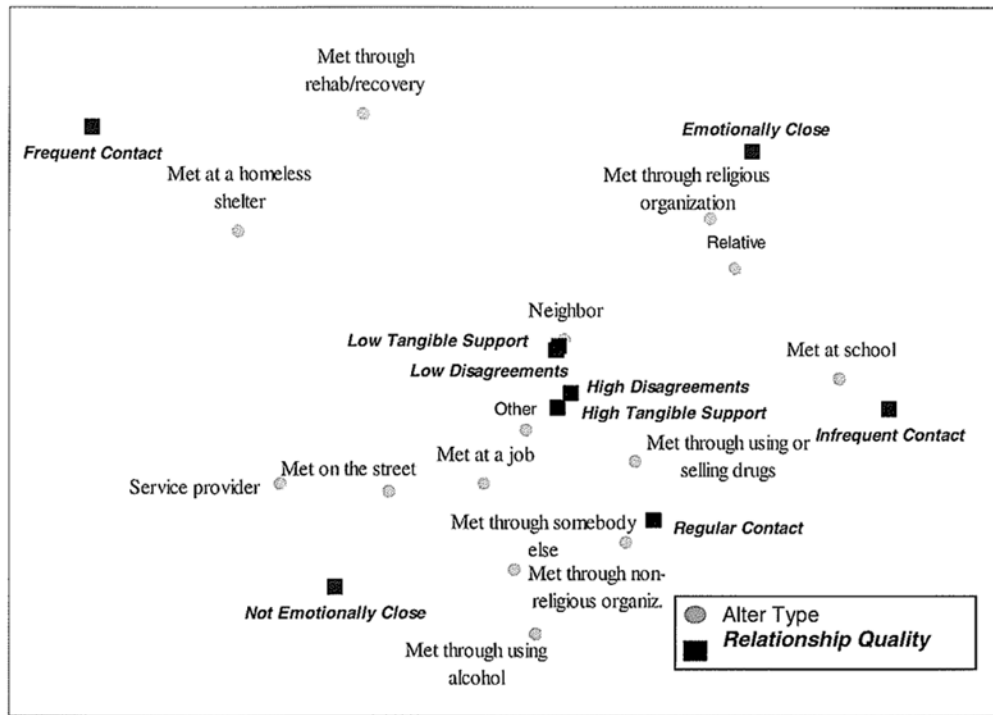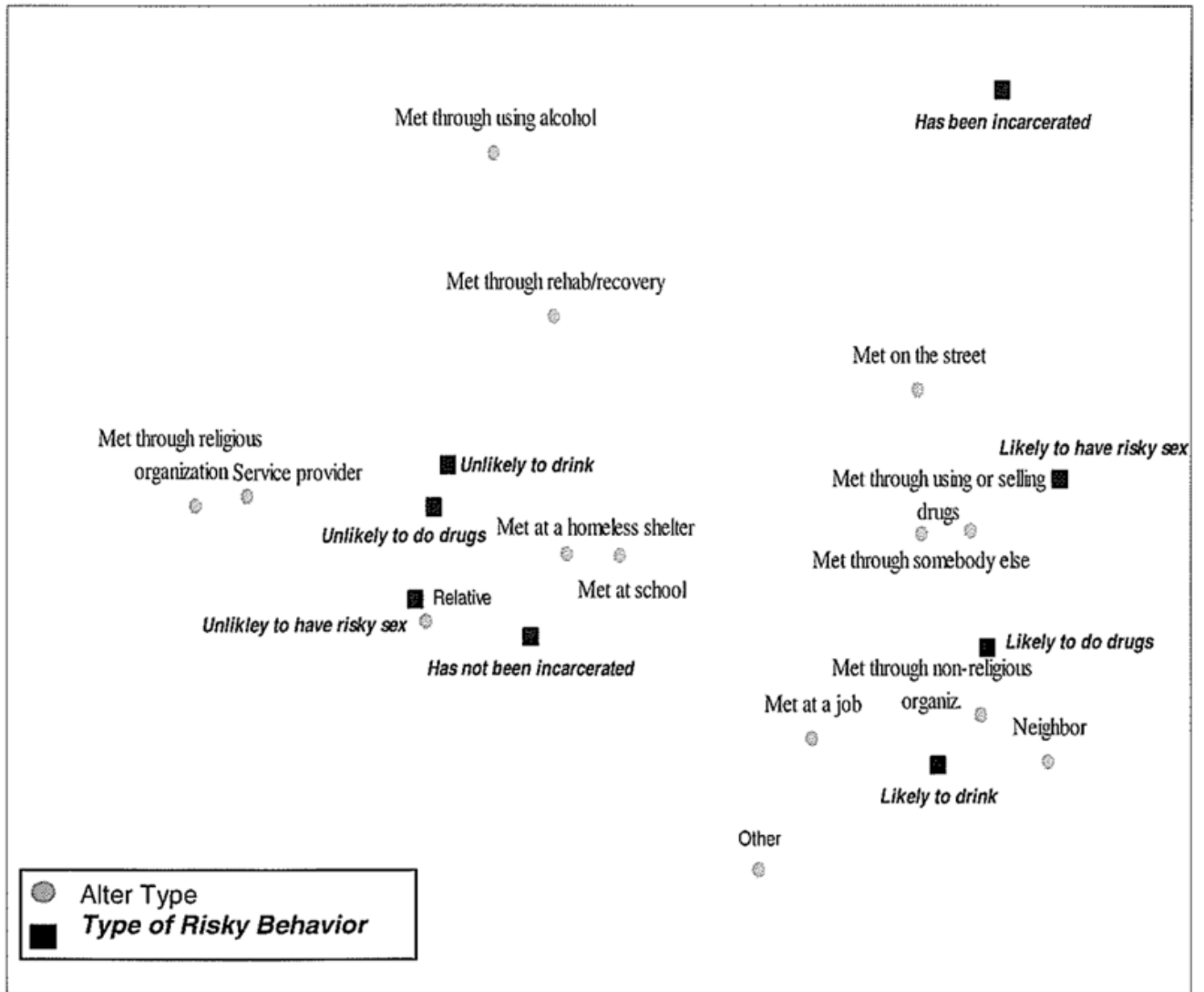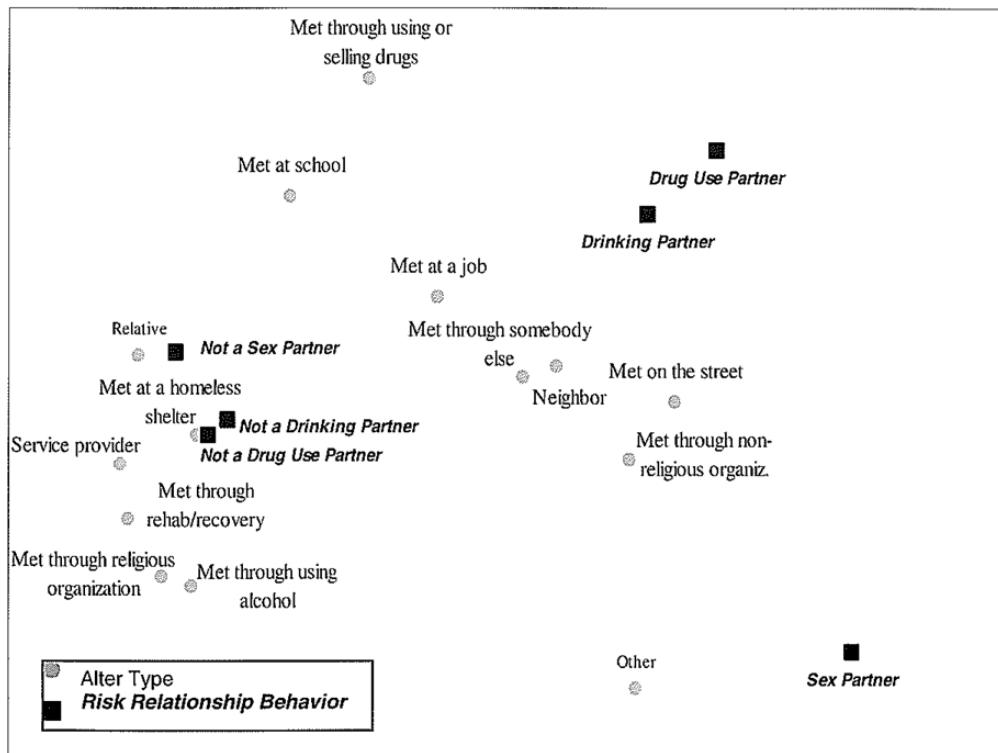Salience of Alter Types

Figure 2a

Figure 2b

Figure 2c

Figure 2.
Figure 2a. Types of Alters by Relationship Characteristics
Figure 2b. Types of Alters by Participant Rated Likelihood to Engage in Risky Behavior and Incarceration History
Figure 2c. Types of Alters by Risk Behavior with Participant