



Does the source matter? Social support and suicide attempts among homeless youth

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ABSTRACT

The impact of social support on suicide is understudied among youth experiencing homelessness (YEH). This is problematic because assumptions about the protectiveness of relationships may not generalize to conflictive YEH environments. This study, which included 1047 YEH, used path modeling with a logistic regression estimator to examine associations between social support from family, home-based friends, and street-based friends and past-year suicide attempt. Social support from home-based friends but not family or street-based friends decreased suicide attempt risk. Moreover, social support from home-based friends moderated the association between depression and attempt risk. Targeted programming strengthening home-based-friend relationships represents a valuable endeavor.

Suicide is a major public health and social justice issue among youth experiencing homelessness (YEH). Suicide attempts are particularly worrisome behavioral markers because a history of suicide attempt is associated with an elevated risk for suicide across the lifespan (Runeson, Haglund, Lichtenstein, & Tidemalm, 2016). Anywhere from 7 to 26% of YEH endorse making a suicide attempt in the past year (Barr, Fulginiti, Rhoades, & Rice, 2017; Yoder, Hoyt, & Whitbeck, 1998), and one out of every two to five of them have done so in their lifetime (Kidd & Carroll, 2007; Leslie, Stein, & Rotheram-Borus, 2002). With 41,000 YEH in the United States on any given night (HUD, 2017), it is clear that many of these youth need support to prevent and promote recovery from suicidal behavior.

Distinct in a risk-centric field of suicidology, social support is a protective factor that has been widely integrated into suicide-related prevention strategies (Calear et al., 2016). Social support can decrease the adverse impact of distress (Bryan & Hernandez, 2013) and depression (McLaren & Challis, 2009) as well as increase a sense of belongingness (He, Fulginiti, & Finno-Velasquez, 2015), self-esteem (Kleiman & Riskind, 2013) and exposure to adaptive coping norms (Whitlock, Wyman, & Moore, 2014). Furthermore, the mechanisms whereby social support may confer protection are grounded in much theoretical and

empirical work. For example, prior theory posits that social support moderates the suicidogenic effect of entrapment (O'Connor, 2011) and minority stress (Meyer, Frost, & Nezhad, 2015). Moreover, a robust body of literature links social support to suicide attempts (e.g., Bell et al., 2018; Kleiman & Liu, 2013; Miller, Esposito-Smythers, & Leichtweis, 2015).

At first glance, including social support in prevention programming for YEH comes across as a natural fit. Yet, programming that promotes social support often contains a positivity bias about relationships (e.g., Thoits, 2011) that may inadvertently privilege housed youth. For instance, comparative work indicates more robust evidence for the protective effects of support from family (particularly caregivers) than friends or schools (e.g., Wang, Wong, Tran, Nyutu, & Spears, 2013; Whitlock et al., 2014). Unfortunately, many YEH have highly conflictive relationships with their family, which can compromise access to and quality of family support (e.g., Falci, Whitbeck, Hoyt, & Rose, 2011). Additionally, research has shown that youth in suicidal crisis often seek out friends for support (Pisani et al., 2012) and that having friends who are disconnected from school, delinquent, or depressed can elevate suicide risk (Fulginiti, Rice, Hsu, Rhoades, & Winetrobe, 2016; Winterrowd & Canetto, 2013). Regrettably, YEH are often embedded in social networks that are disproportionately

comprised of friends who possess these suicidogenic attributes (Fulginiti et al., 2016). Overall, the sources of social support and the networks delivering that support are likely to differ between YEH and their housed counterparts, but we do not know the consequences of those differences on suicide risk among YEH.

To date, research on the relationship between social support and suicide among YEH is exceedingly rare (e.g., Fulginiti et al., 2016), and no known studies have explored the relative impact of social support from different sources on suicide outcomes among YEH. This is a major gap because YEH depends on support from family as well as support from both home-based friends and street-based friends (Barman-Adhikari, Bowen, Bender, Brown, & Rice, 2016). Moreover, behavioral health outcomes among YEH are linked to differential engagement with these potential sources of support. For example, engagement with street-based friends has been associated with greater substance use (Rice, Milburn, & Monro, 2011) and depressive symptoms (Rice, Kurzban, & Ray, 2012) whereas the converse is true for engagement with home-based friends (Rice et al., 2011). Relatedly, connections to family have been associated with reductions in certain kinds of risk-taking behavior (Rice, 2010). Therefore, we hypothesize that greater social support from home-based friends and family will decrease the risk of suicide attempt but greater social support from street-based friends will increase the risk of suicide attempt. Relatedly, we hypothesize that support from home-based friends and family will attenuate the effect of risk factors on suicide attempt whereas support from street-based peers will amplify it.

Method

Participants

The present study included 1047 homeless youth aged 14–24 years recruited from one of three drop-in centers located in Santa Monica, Hollywood, and Venice, California between October 2011 and June 2013. Youth were, on average, 21 years of age, mostly male (72%), and belonging to a racial or ethnic minority group (61%). Roughly one-quarter of them identified as lesbian, gay, bisexual, transgender or questioning.

Procedure

We invited all youth who accessed services at a partnering agency to participate in the study (80%

participation rate). Two research team members stationed themselves near the sole main entrance at the collaborating agencies to ensure that everyone who signed in for services during operating hours received an invitation to participate. Data collection involved two procedures: a personal survey and a social network interview. The personal survey used audio computer-assisted interviewing that allowed youth to privately input survey data: the personal survey assessed participant demographic characteristics (i.e., age, race, gender, sexual orientation) and psychosocial risk factors (i.e., depression, trauma, drug use). The social network interview was completed using a face-to-face interview and script administered by trained interviewers; the social network interview assessed the size and sources of support in participant networks. A senior social network researcher provided training to all interviewers to increase consistency in the administration of the network interview. All interviewers had a graduate-level master's degree and received approximately 40 hr of training. Both the personal survey and social network interview could be completed in English or Spanish. All interviews were one-on-one at the partnering agencies where youth sought services. All participants received a \$20 cash or gift card incentive. The study was approved by the Institutional Review Board at the University of Southern California.

Materials

Suicide attempt

This outcome was assessed with a single question that asked about the number of suicide attempts in the past 12 months. Given the skewed nature of the variable and to aid comparisons with prior YEH work, we dichotomized the responses based on the presence (coded 1) or absence (coded 0) of an attempt.

Social support variables

Social support was assessed in a social network interview that involved a two-step process (Rice, 2010). First, the interviewer asked participants to name all the people in their social network with whom they interacted in the past month. Second, the interviewer asked participants about their relationship with each person (i.e., family member; home-based friend; street-based friend) and whether or not each person was a source of emotional support (*Who can you count on to listen to you when you need to talk, or is someone you can confide in?*). The support question was adapted from the Medical Outcomes Study Social

Support survey (Sherbourne & Stewart, 1991). With this information, we summed the number of family members, home-based friends, and street-based friends who were sources of emotional support. The number of people functioning as sources of support in each of the three groups could range from 0 to the group size in the network (e.g., if I have 5 people in my network and all of them are family members then 0–5 of them may be sources of support).

Psychosocial risk factors

Depressive symptoms were assessed with the 10-item Center for Epidemiological Studies Depression Scale (Cronbach's $\alpha = 0.74$; CES-D; Radloff, 1991); items are rated from 0 (*rarely or none of time*) to 3 (*most of all of the time*). Trauma history was assessed with the 8-item UCLA PTSD Index for DSM IV (Steinberg, Brymer, Decker, & Pynoos, 2004); items are rated with dichotomous responses based on exposure to particular types of trauma (e.g., physical abuse, witnessing domestic violence, sexual abuse/rape). Lifetime hard drug use was a dichotomous variable about whether or not the participant previously used any cocaine, crack, methamphetamines, or heroin (Fulginiti et al., 2016).

Covariates

Demographic characteristics (i.e., age, gender, sexual orientation, and race) were included as covariates in the analysis. These variables have been associated with suicidal ideation or behavior in prior YEH work (e.g., see Fulginiti et al., 2016 for review).

Data analysis

The primary data analysis strategy included two common modeling approaches for protective factors (e.g., Rueger, Malecki, Pyun, Aycocock, & Coyle, 2016). For the main effect approach, we entered all variables into a path model; this included our focal social support variables, psychosocial risk factors, and demographic covariates. A significant inverse association between social support and suicide risk can be interpreted as a protective effect. For a moderation approach, we tested three path models including the covariates, main effects, and interaction effects. Model 1 included interaction effects between depression and the three social support variables. Model 2 included interaction effects between trauma and the three social support variables. Model 3 included interaction effects between hard drug use and the three social support variables. A significant interaction term that shows the effect of

a psychosocial risk factor on past-year suicide attempts is attenuated at higher levels of social support can be interpreted as a protective effect. We mean-centered all continuous variables to enhance interpretability. Analyses were performed in Mplus.

Of the 1047 participants in the study, all had missing data on one or more variables. With the exception of depression (16.2%) and social support (10.6%), all variables had less than 5% missing information. To address missingness, we used multiple imputation but did not impute depression scores if *no* depression items were answered or social support scores because consensus does not yet exist about the treatment of missing social network data. The final analytic sample size was 859.

Results

Twelve percent of youth reported attempting suicide in the past year. Youth, on average, scored an 11.99 on the depression scale; this suggests that youth were experiencing depressive symptoms roughly 1–2 days in the previous week, which exceeds a common threshold for clinically relevant depressive symptoms (e.g., Andresen, Malmgren, Carter, & Patrick, 1994). The average youth in our sample experienced approximately three types of trauma; this level of trauma exposure is consistent with findings based on the National Child Traumatic Stress Network, which linked multiple traumas with more severe PTSD symptoms (Steinberg et al., 2013). Seven out of every ten youth (71%) endorsed lifetime hard drug use. Youth reported an average of 10.49 people in their social network. On average, youth reported that emotional support was available from 1.11 family members and 2.98 friends ($M = 1.57$ home-based friends and $M = 1.41$ street-based friends) in their networks.

See Table 1 for bivariate correlations. All psychosocial risk factors (trauma, depression, and hard drug use) were significantly positively associated with a past-year suicide attempt. Home friend support but not street friend or family support was significantly negatively associated with past-year suicide attempt. All psychosocial risk factors were significantly positively correlated with one another. All support variables were also significantly positively correlated with one another.

In the main effects model (Table 2), the only significant demographic variable was race; youth who identified as mixed-race had higher odds of past-year suicide attempts than youth who identified as White (OR = 2.49; 95% CI = 1.41–4.38, $p = 0.01$). Higher

Table 1. Bivariate correlations between study variables.

	Trauma	Depressive symptoms	Any lifetime hard drug use	Total number in network	Family emotional support	Friend home emotional support	Friend street emotional support	Suicide attempt
Trauma	1.00							
Depressive symptoms	0.34**	1.00						
Any lifetime hard drug use	0.30**	0.25**	1.00					
Total number in network	0.12**	0.05	0.11**	1.00				
Family emotional support	0.01	0.02	-0.01	0.30**	1.00			
Friend home emotional support	-0.01	0.04	0.05	0.29**	0.54**	1.00		
Friend street emotional support	0.06	0.18**	0.14**	0.21**	0.16**	0.18**	1.00	
Suicide attempt	0.23**	0.18**	0.10**	0.01	-0.02	-0.02	-0.02	1.00
Age	0.04	0.02	0.10**	-0.05	0.08**	-0.04	-0.04	-0.06
Gender	0.08*	0.05	-0.02	0.04	0.01	0.01	0.02	0.02
Sexual orientation	0.07*	0.11**	0.10**	0.08*	-0.07*	-0.03	0.04	0.06*
Race	-0.01	-0.01	-0.18**	-0.03	0.03	-0.03	-0.17**	0.06

Note. For the correlational analyses, the following variables were dichotomized: Gender coded male = 0 female = 1. Sexual orientation coded 0 = heterosexual 1 = other. Race coded 0 = Non-Hispanic White 1 = person of color. The appropriate correlational analyses are conducted based on the levels of measurement of the variables (i.e., Pearson's correlation coefficient for two continuous variables; Point-biserial correlation coefficient for one continuous and one dichotomous variables; Phi coefficient for two dichotomous variables). ** $p < 0.01$; * $p < 0.05$.

Table 2. Logistic regression main effects model predicting suicide attempt.

<i>n</i> = 859	OR	CI	<i>p</i>
Demographic variables			
Age	0.90	0.81–1.00	0.04*
Gender-female (ref = male)	0.83	0.48–1.43	0.52
Gender-transgender (ref = male)	2.25	0.62–8.18	0.22
Sexual orientation (ref = heterosexual)	0.99	0.58–1.68	0.98
Race-black (ref = White)	0.92	0.47–1.81	0.82
Race-latinx (ref = White)	1.50	0.75–2.96	0.24
Race-asian/native amer/pacific islander (ref = White)	1.82	0.61–5.40	0.28
Race-mixed race (ref = White)	2.49	1.41–4.38	0.01*
Psychosocial risk variables			
Trauma	1.22	1.11–1.34	0.01*
Depressive symptoms	1.06	1.02–1.10	0.01*
Any lifetime hard drug use	2.31	1.26–4.72	0.08
Social network variables			
Total number in network	0.99	0.96–1.02	0.76
Family emotional support	1.08	0.95–1.35	0.27
Friend home emotional support	0.86	0.73–0.97	0.02*
Friend street emotional support	0.96	0.88–1.08	0.71

* $p < .05$.

Table 3. Logistic regression moderation models predicting suicide attempt.

<i>n</i> = 859	OR	CI	<i>p</i>
Model 1: Depression			
Depression*familySS	0.99	0.96–1.02	0.45
Depression*friendhomeSS	1.03	1.00–1.05	0.04*
Depression*friendstreetSS	1.00	0.98–1.02	0.81
Model 2: Trauma			
Trauma*familySS	0.97	0.91–1.03	0.30
Trauma*friendhomeSS	1.02	0.96–1.08	0.57
Trauma*friendstreetSS	1.09	1.03–1.16	0.01*
Model 3: Hard drug use			
Hard drug use*familySS	0.79	0.52–1.20	0.22
Hard drug use*friendhomeSS	1.00	0.68–1.47	0.99
Hard drug use*friendstreetSS	0.91	0.69–1.20	0.50

* $p < .05$.

Note. All 3 models include all control variables (age, gender, sexual orientation, and race) as well as all main effects (depression, trauma, hard drug use, family emotional support, friend home emotional support, friend street emotional support). The only differences between the 3 models are the interactions detailed in the table. Model 1 focuses on whether the effect of depression is moderated by our three different sources of support. Model 2 focuses on whether the effect of trauma is moderated by our three different sources of support. Model 3 focuses on whether the effect of hard drug use is moderated by our three different sources of support.

scores on two psychosocial risk factors—trauma (OR = 1.22; 95% CI = 1.11–1.34, $p = 0.01$) and depressive symptoms (OR = 1.06; 95% CI = 1.02–1.10, $p = 0.01$)—were associated with greater odds of past-year suicide attempt. In terms of social support, youth with a greater number of home-based friends who provided them with emotional support had lower odds of past-year suicide attempts (OR = 0.83; 95% CI = 0.72–0.96, $p = 0.01$). Notably, we observed null findings for family and street-based support.

In the moderation models (Table 3), we observed a significant interaction effect between depressive symptoms and social support from home-based friends (OR = 1.03; 95% CI = 1.00–1.05, $p = 0.049$) while controlling for demographic variables and main

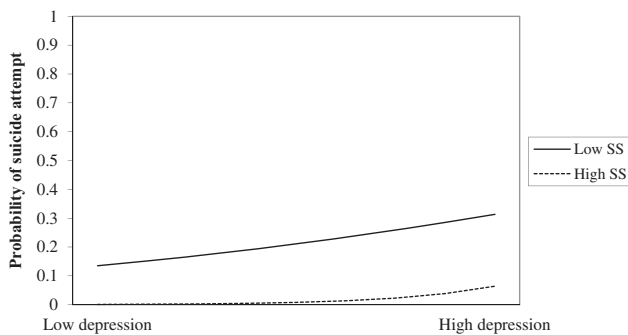


Figure 1. Interaction effect between depressive symptoms and home-based friend social support. High and low values corresponded to 1 standard deviation above and below the mean, respectively.

effects. **Figure 1** shows that a higher level of home-based friend support appears to confer protection against the risk of past-year suicide attempt at a lower level of depression but even more so at a higher level of depression. We also found a significant interaction between trauma and street-based friend social support (OR = 1.09; 95% CI = 1.03–1.16, $p = 0.01$). **Figure 2** shows that a higher level of street-based friend support appears to confer protection against past-year suicide attempt at a lower level of trauma but confer risk at a higher level of trauma. Effect sizes for these interactions are small.

With respect to missing data, Little's MCAR Test was not significant ($\chi^2 = 75.82$, DF = 63, $p = 0.13$), which suggests the data were missing at random. There were no differences in the pattern of significant and null findings between our results pre- and post-multiple imputation. There were no significant differences between participants who were included in our analytic sample and participants excluded from our models based on missing data. There were no differences in the pattern of findings between probit and logit models that did and did not use Full Information Maximum-Likelihood, respectively. These analyses demonstrate the robustness of our findings across different missing data techniques.

Discussion

Social support is often promoted as a protective factor for suicide but the extent to which it confers protection for youth experiencing homelessness (YEH) is largely unknown. Generally speaking, the major takeaway from the present study is that not all sources of social support are equivalent in terms of their protective value for YEH.

As expected, and similar to prior work on the relation of home-based friends to mental health

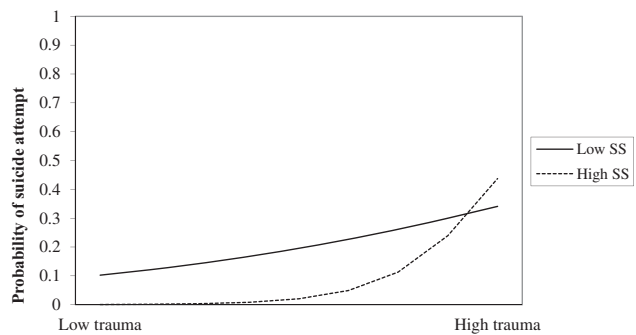


Figure 2. Interaction effect between number of traumas and street-based friend social support. High and low values corresponded to 1 standard deviation above and below the mean, respectively.

symptoms (Rice et al., 2012), having emotional support from home-based friends was associated with a decreased risk of past-year suicide attempt. Notably, we found that having more home-based friend support directly attenuated attempt risk and also that such support buffered the risk of attempt for vulnerable youth with higher levels of depression. Although research pertaining to friend connectedness or support and suicide remains equivocal (Whitlock et al., 2014; Winterrowd & Canetto, 2013), our results are congruent with work showing that YEH who maintain relationships with home-based or prosocial friends engage in less risk-taking behavior (e.g., risky sex; Rice, 2010; Rice et al., 2011). Home-based friends who are providing social support may help YEH to keep greater distance from specific suicidogenic behaviors (e.g., substance use; Rice et al., 2011). Moreover, these home-based friends are more likely to model adaptive coping skills than self-destructive alternatives, which may undergird prior findings showing associations between home-based friend engagement and reduced levels of depressive symptoms (Rice et al., 2012). In any case, this implies that suicide prevention efforts should intentionally seek to bolster home-based friend social support among YEH.

Unexpectedly, family support conferred no benefit in terms of past year suicidality. This result was unexpected because family connectedness and support have a robust track record with respect to youth suicide (Wang et al., 2013; Whitlock et al., 2014). Additionally, other behavioral outcomes research among YEH has shown positive associations between connections to family and reductions in substance use (Rice et al., 2011) and sexual risk-taking (Rice, 2010). However, YEH often report a history of family conflict, abuse, and neglect (e.g., Falci et al., 2011), and the effects of family support on mental health tend to be smaller among youth who are victims of child

abuse (Rueger et al., 2016). Familial strife may actually be the reason that youth end up living on the streets (Embleton et al., 2016). With this in mind, the potential benefits of social support may be outweighed or canceled out by the costly aspects of relationships (Thoits, 2011). In other words, when family members are sources of support *and* stress at same time, the combination may nullify the positive effects of support.

The value of street-based friend support in relation to suicide risk among YEH is complex to appraise. Although we hypothesized that reliance on more street-based friend support may signal increased vulnerability to suicide risk, a conservative point of view—based on a non-significant association in the main effect analysis and a small (albeit significant) moderation effect—may simply be that such emotional support does not carry much protective weight. A lack of protection within these relationships aligns with work showing that engagement with street friends can have deleterious effects on mental health symptoms (Fulginiti et al., 2016; Rice et al., 2012). So, as with family connections, the benefits that YEH experience from street-based friend support may be washed out by their relational costs (e.g., exposure to friend depression; Fulginiti et al., 2016). In fact, the moderation effect may relate to traumatic experiences making YEH differentially vulnerable to those relational costs; thus, there may be a net gain of social support for YEH with less trauma exposure but a net loss for YEH with more trauma exposure. This is consistent with reverse stress-buffering effects showing that support quality may be compromised when youth and their supporters share stressors and that the benefits of support are dampened in stressful contexts (Rueger et al., 2016). In any case, this deserves further examination because YEH experience high rates of trauma.

A few additional observations about our results deserve mention. With respect to risk factors, our pattern of findings was largely consistent with the literature. Depression and trauma have been repeatedly linked to suicidal ideation and behavior (Barr et al., 2017; Fulginiti et al., 2016). Our mixed findings in relation to sociodemographic variables were also consonant with extant work among YEH (Fulginiti et al., 2016; Yoder, Whitbeck, & Hoyt, 2008). Of interest, older YEH were less likely than younger YEH to attempt suicide and YEH who identified as multiracial were more likely than non-Hispanic White YEH to attempt suicide. Older YEH may acquire more adaptive coping skills and resiliency over time, which have

been associated with lower suicide risk among YEH (Cleverley & Kidd, 2011; Kidd & Carroll, 2007). The issue of multiracial identity and suicide risk has not received a great deal of attention among YEH but requires attention given that racial identity invalidation can adversely affect multiracial individuals' mental health (e.g., Franco & O'Brien, 2018). Replication of our findings in future work will strengthen confidence in our conclusions.

Our study included a large sample but several limitations demand consideration. First, the results are not necessarily generalizable to all YEH given our limited recruitment sites (e.g., drop-in centers are only one access point in the homelessness service system). Second, we only assessed one facet of social support (i.e., emotional support) but there are others (e.g., tangible support) that may influence suicide (e.g., Bryan & Hernandez, 2013). Third, we did not assess negative aspects of relationships (e.g., conflict), which made it difficult to tease out our unexpected and complex findings. Lastly, our study examined past-year suicide attempts, which cannot address the nature of the relationship between different sources of social support and future suicide attempts.

Although social support impacts mental health among adolescents (Rueger et al., 2016), claims about the preventive value of social support may be outpacing the evidence base among YEH. In fact, social support appears to be *conditionally* protective. So does the source of social support matter? Present results suggest yes, home-based friends are the best protection against suicide attempts for YEH. Thus, targeted programming that seeks to strengthen home-based social ties as well as promote social support exchange within such social groups or relationships may be a more efficient way to direct limited resources among YEH.

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