# **Emotional Distress and Mental Health Service Use Among Urban Homeless Adolescents**

M. Rosa Solorio, MD, MPH Norweeta G. Milburn, PhD Ronald M. Andersen, PhD Sharone Trifskin, MA Michael A. Rodríguez, MD, MPH

## **Abstract**

The Expanded Behavioral Model for Vulnerable Populations was used to examine the predisposing, enabling, and need factors associated with mental health service use in a homeless adolescent sample (N=688). Among all youth, 32% perceived a need for help with mental health problems and 15% met Brief-Symptom Inventory (BSI) criteria for emotional distress. The rate of mental health service use in our sample was 32%. One enabling factor, having a case manager/discussed mental health concerns, and one need factor, which met criteria for BSI, were found to be associated with mental health service use in the past 3 months. The majority of youth who used mental health services had obtained services from crisis centers. Among those who perceived a need for help with mental health problems but who did not use services, the most common barrier was not knowing where to go or what service to use (57%). These findings suggest that due to the high prevalence of mental health problems among homeless youth, it would be helpful for service providers coming into contact with youth to make them aware of existing community resources for

Address correspondence to M. Rosa Solorio, MD, MPH, Assistant Professor, Department of Family Medicine, David Geffen School of Medicine at University of California, Los Angeles, 10880 Wilshire Boulevard, Suite 1800, Los Angeles, CA 90024-4142, USA. Phone: +1-310-7942877. Fax: +1-310-7946097. E-mail: rsolorio@mednet.ucla.edu.

Norweeta G. Milburn, PhD, Associate Research Psychologist, NPI-Semel Institute for Neurosciences, Center for Community Health, University of California, Los Angeles, 10920 Wilshire Boulevard, Suite 350, Los Angeles, CA 90095-7051, USA. Phone: +1-310-7943773. Fax: +1-310-7948297. E-mail: nmilburn@mednet.ucla.edu.

Ronald M. Anderson, PhD, Wasserman Professor Emeritus, Department of Health Services, Center for Health Sciences, The University of California, Los Angeles School of Public Health, Box 951772, 61-243B, Los Angeles, CA 90095-1772, USA. Phone: +1-310-2061810. Fax: +1-310-8253317. E-mail: randerse@ucla.edu.

Sharone Trifskin, MA, Research Assistant, Department of Family Medicine, David Geffen School of Medicine at University of California, Los Angeles, 10880 Wilshire Boulevard, Suite 1800, Los Angeles, CA 90024-4142, USA. Phone: +1-310-7943172. Fax: +1-310-7946097. E-mail: strifskin@mednet.ucla.edu.

Michael A. Rodríguez, MD, MPH, Associate Professor, Department of Family Medicine, David Geffen School of Medicine at University of California, Los Angeles, 1880 Wilshire Boulevard, Suite 1800, Los Angeles, CA 90024-4142, USA. Phone: +1-310-7940394. Fax: +1-310-7946094. E-mail: mrodriguez@mednet.ucla.edu.

Research was conducted in collaboration with the David Geffen School of Medicine at University of California, Los Angeles, Department of Family Medicine (Dr. M.R. Solorio, Mr. S. Trifskin, and Dr. M.A. Rodríguez); NPI-Semel Institute for Neurosciences, Center for Community Health, University of California, Los Angeles (Dr. N.G. Milburn); and School of Public Health, Department of Health Services, University of California, Los Angeles (Dr. R.M. Andersen).

Journal of Behavioral Health Services & Research, 2006. © 2006 National Council for Community Behavioral Healthcare.

mental health services; making youth aware of these resources may in turn decrease the rate of crisis center use and instead allow youth to receive mental health services in outpatient settings that provide continuity of care.

## Introduction

Homeless youth have high rates of mental health problems, such as depression, with rates ranging from 19% to 39%. <sup>1-3</sup> By comparison, depression rates for domiciled adolescents range from 8% to 13%. <sup>4</sup> Depression among homeless adolescents is associated with risky sexual behaviors <sup>2</sup> and substance use. <sup>3</sup> Yet, a previous study indicates that only about one third of homeless youth who meet criteria for mental illness use mental health services. <sup>5</sup>

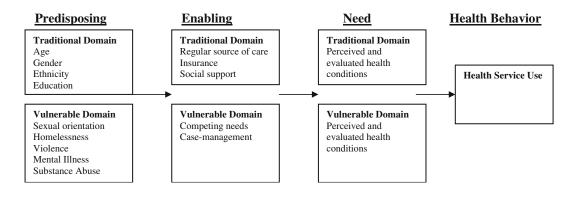
An important policy issue is that although need is associated with utilization of services, there is a large amount of evaluated need for mental health services in the homeless adolescent population that does not lead to service use. This highlights the importance of examining additional factors, in addition to need, that are associated with mental health service use among homeless adolescents. The Expanded Behavioral Model for Vulnerable Populations provides a way in which to examine predisposing, enabling, and need factors that may be associated with mental health service use (Fig. 1).<sup>6</sup>

The purpose of this study is to examine the association between predisposing (duration homeless, race/ethnicity, gender, sexual orientation, mother's education, housing situation, substance use, history of victimization), enabling (having a case manager, social support from family), and need factors (perceived need and evaluated need, using the BSI<sup>7</sup>), and mental health service use in a large homeless adolescent sample. The authors hypothesize that housing situation (being housed vs. living on street), case management, and need factors (both perceived and evaluated need) will be associated with the use of mental health services.

#### Methods

#### Data sources

This study was conducted using the baseline data provided by an on-going longitudinal study of homeless adolescents that focused on their pathways into and out of chronic homelessness and risk for HIV. The homeless adolescents in the study represent youth who were recruited from 30 community sites and outdoor congregating areas in Los Angeles County. To be included in the longitudinal study, the homeless youth had to meet the following criteria: (1) age ranging from 12 to 20 years and (2)



spent at least two consecutive nights away from home without parent's or guardian's permission if under age 17 years or been told to leave home. Two subgroups of homeless youth were identified: (1) newly homeless youth who had been living away from home for less than 6 months in total and (2) experienced homeless youth who had been living away from home for >6 months.

Interviewers were sent out in pairs to predetermined sites, including shelters, drop-in centers, and street hang-outs, throughout Los Angeles County (Santa Monica, Venice Beach, Hollywood, West Hollywood, East and West Los Angeles, Downtown Los Angeles, Pasadena/Glendale, South Bay/Long Beach, and San Fernando Valley) to screen and recruit homeless adolescents. All of the potential recruitment sites were identified by interviewing line and supervisory staff in agencies that served homeless adolescents throughout Los Angeles County. Thirty sites were identified, including 17 shelters and drop-in centers and 13 street hang-out sites. These sites were audited at preselected times and days per week over three different week-long periods to determine the number of homeless adolescents that could be found at each site. A previous paper reports on the sampling scheme.<sup>8</sup>

Using a 13-item screening instrument, interviewers determined adolescent eligibility for study participation. This instrument was designed to confirm eligibility and establish the length of time the adolescent had been away from home and determine whether the youth was newly or experienced homeless. All newly homeless adolescents who were eligible and agreed to participate were included in the study; the refusal rate for newly homeless adolescents was 2%. Those who refused to participate tended to be European American and older youth. Experienced homeless adolescents were randomly selected for recruitment. The refusal rate for experienced homeless adolescents was 5.1% and these youth did not differ significantly in race/ethnicity, gender, or age from youth who agreed to participate. The newly and experienced homeless youth were recruited over an 18-month period, from 2001 to 2002.

Study participants were assured confidentiality and the informed consent process was reviewed. All study participants were made aware that study participation was voluntary and that all information provided would be confidential. Participants were made aware that interviewers were required by law to report physical or sexual abuse and serious suicidal or homicidal feelings.

Interviewers received approximately 40 h of training, which included lectures, role playing, mock surveys, ethics training, emergency procedures, and technical training. Interviewers conducted the adolescent interviews face-to-face and collected data using an Audio Computer-Assisted Self-Interview (audio-CASI). Previous studies show that the use of audio-CASI increases the amount of information obtained compared with self-administered questionnaires. <sup>9,10</sup> Interviews were conducted in English (94%) or Spanish (6%). After obtaining informed assent/consent from the youth, and the parents if available, participants were interviewed. Each youth was paid \$25 to participate in the assessment.

## Expanded behavioral model for vulnerable populations

According to the Expanded Behavioral Model for Vulnerable Populations, predisposing (e.g., demographic and social characteristics), enabling (e.g., health insurance, income, availability of health care facilities, social support), and need factors (e.g., health or illness as perceived by lay persons or evaluated by health care professionals) are associated with health service use (Fig. 1). The Expanded Behavioral Model for Vulnerable Populations takes into account factors that render certain populations (such as the homeless population) especially vulnerable (duration homeless, housing situation, victimization, mental illness, substance use, case management), and explores whether the vulnerable factors are associated with health care use. Although this model has been previously used to examine health service use among homeless adults, it has not been used as extensively with homeless adolescents. To date, no studies in the literature were found that examined factors associated with mental health service use among homeless youth using this model.

Previous studies on homeless adolescents that have examined factors associated with general health care service use have found that housing 11 and case management 12 are associated with service use. According to the Behavioral Model for Vulnerable Populations, need is a major determinant of health care service use, even among vulnerable populations. Based on these studies, the authors hypothesize that housing, case management, and need factors are associated with mental health service use among homeless adolescents.

#### Measures

The homeless adolescent interview collected data on sociodemographic characteristics, emotional distress, and mental health service use in the past 3 months. The variables described below represent the various domains of the Behavioral Model for Vulnerable Populations that are expected to influence homeless adolescents' mental health care service use: predisposing, enabling, and need factors.

## **Predisposing factors**

Predisposing vulnerable domain factors include sociodemographic characteristics, such as time spent homeless (newly vs. experienced), race/ethnicity, gender, age, sexual orientation (heterosexual vs. gay/lesbian/bisexual), parental education (used as proxy for family income), housing, substance use, and history of victimization (ever had unwanted sex). The amount of time youth spent away from home varied; however, for this study, youth were categorized as either newly homeless (if had spent less than 180 days away from home) or experienced homeless (had spent more than 180 days away from home).

Housing situation was assessed by asking youth, "Where are you currently living?" Youth were asked to choose one of the following: birth (biological) family home, adoptive family home, foster family home, step-family home, grandparent's home, relative's home, friend's house, family group home, own apartment, boarding school, medium-term accommodation, refuge/shelter, hotel/motel, juvenile detention center/jail, Job Corps facility, psychiatric facility, caravan park (trailer park), street/squat/abandoned building, and other. Housing categories were collapsed into five broad domains: living with birth/foster/adoptive family, living with friends/relatives, living in a shelter/refuge, living on the street, and other housing situations.

Substance use (alcohol, hallucinogens, inhalants, amphetamines, cocaine/crack, heroin/intravenous drug use) was assessed using measures from the National Institute of Drug Abuse. Based on responses to the question, "About how many days have you used [drug] in the past 3 months, 90 days?" participants were categorized as substance users or nonusers (used on zero days) for each of the six substances. For alcohol abuse, abusers were categorized as those who reported drinking an excessive amount of alcohol that made them sick or lose consciousness in the past 3 months. This alcohol measure has been previously used. Youth who have used any of the following substances in the past 3 months were further categorized into the category of substance users: drinking an excessive amount of alcohol that made them sick or lose consciousness; used any hallucinogens, inhalants, amphetamines, or crack/cocaine; or heroin/intravenous drug use.

For victimization, adolescents were asked "Have you ever had sex when you did not want to?" If response was affirmative, youth were asked if the following situations applied: you were too drunk at the time, you were high at the time, you felt unable to say no, you said no but the person did not listen, and not applicable. In addition, youth were asked, "Have you ever traded sex for money, drugs, food, or a place to stay (engaged in hustling)?"

All behaviors, including sexual history and substance use, were assessed for the previous 3 months only. Previous studies have found reliability of self-reported sexual behavior is higher when the period of recall is shorter. 15,16

#### **Enabling factors**

Enabling vulnerable domain factors include having a case manager to discuss mental health concerns and receiving social support from family. Youth were asked, "Do you have a case manager (i.e., a youth/social worker who coordinates what services you get?)" This measure has been previously used. <sup>12</sup> In addition, adolescents were asked "What issues do you and your case manager deal with?" The participants were asked to choose among the following categories: mental health, medical or dental care, shelter, residential living, foster care, assistance with food/clothing/financial aid, sexually transmitted disease counseling, HIV counseling, school support, emergency services, services for gay-identified youth, and advocacy for legal services. Responses to these items were used to categorize youth as having a case manager to discuss mental health concerns or not having a case manager to discuss mental health concerns. To assess social support from family, youth were asked about the people in their life (father, mother, siblings), who they could talk to about problems or go to for help. For each of the people (father, mother, siblings), youth were asked to respond with "yes" if they are available to talk to and "no" if they are not. This assessment of social support has been previously used. <sup>17</sup>

#### **Need factors**

Need vulnerable domain factors included youth's perceived need for help with depression/anxiety/other mental health problem and an evaluated mental health status assessment, using the BSI criteria for emotional distress. Perceived need was assessed for the past 3 months by asking youth, "In the last 3 months, did you feel you needed help with depression/anxiety/other mental health problem?" Evaluated need was assessed using the BSI, which assesses emotional distress in the past week. The BSI includes 54 questions about emotional distress that includes subscales for depression, anxiety, somatization, obsessive—compulsive disorder, interpersonal sensitivity, hostility, phobic anxiety, paranoid ideation, and psychoticism. The BSI subscales were scored according to standard scoring methods, and norms were used to determine whether participants had reached the appropriate cutoff scores for any of the subscales. For the analysis sample, the Cronbach  $\alpha$  was 0.83 for the depression scale and 0.77 for the anxiety scale. The BSI has been previously validated in adult and adolescent populations.  $^{7,18}$ 

#### Mental health service use

To assess mental health service use, adolescents were asked whether they had used mental health services in the past 3 months by asking them, "Did you go for help [for depression/anxiety/other mental health problem]?"

Adolescents were also asked to describe the place and/or person who provided them with mental health services: hospital, clinic/mental health, crisis center, shelter, case manager, doctor, psychiatrist, psychologist, family/friends.

#### Barriers to mental health service use

Adolescents who reported they felt a need for help with depression/anxiety/other mental health problem (perceived need), but who had not used mental health services, were asked about reasons that kept them from getting help: (1) not knowing where to go/what service to use; (2) the service cost too much money; (3) the service was too far away; (4) I had a bad experience with the staff last time; (5) I thought the service couldn't help me; (6) I had no money to get there; (7) I had to wait a long time for

Variables	Total <i>N</i> =688	Meet BSI criteria, n=100 (%)	p
Туре			
Experienced homeless	440	75 (17%)	0.01
Newly homeless	248	25 (10%)	
Race/ethnicity		, ,	
White	186	21 (11%)	0.46
African American	137	24 (18%)	
Latino	239	35 (15%)	
Mixed race	126	20 (16%)	
Gender		,	
Male	356	50 (14%)	0.71
Female	332	50 (15%)	
Age (years)			
13–17	379	34 ( 9%)	0.001
18–20	309	66 (21%)	0.001
Sexual orientation	30)	00 (2170)	
Gay/lesbian/bisexual	169	32 (19%)	0.06
Heterosexual	519	68 (13%)	0.00
Mother high school graduate	31)	00 (13 %)	
Yes	417	58 (14%)	0.56
No	271	42 (15%)	0.50
Housing	2/1	42 (1370)	
Birth/foster/adoptive family	55	5 (9%)	0.02
Friend's/relative's home	73	16 (22%)	0.02
Refuge/shelter	285	31 (11%)	
Street	154	32 (21%)	
Other	121	16 (13%)	
Alcohol abuse <sup>a</sup>	121	10 (13%)	
Yes	204	37 (18%)	0.08
	484		0.08
No Hallanian and man	404	63 (13%)	
Hallucinogen use	160	21 (10%)	0.05
Yes	160	31 (19%)	0.05
No Laboratoria	528	69 (13%)	
Inhalant use	06	10 (100%)	0.21
Yes	96 502	18 (19%)	0.21
No	592	82 (14%)	
Amphetamine use	100	20 (20%)	0.02
Yes	192	38 (20%)	0.02
No	496	62 (13%)	
Cocaine/crack use			
Yes	155	31 (20%)	0.03
No	533	69 (13%)	
Heroin/intravenous drug use			_
Yes	66	17 (26%)	0.01
No	622	83 (13%)	

Table 1 (Continued)

Variables	Total <i>N</i> =688	Meet BSI criteria, n=100 (%)	р
Any substance use <sup>b</sup>			
Yes	313	56 (18%)	0.02
No	375	44 (12%)	
Ever had sex			
Yes	587	88 (15%)	0.41
No	101	12 (12%)	
Victimization (ever had	unwanted sex)		
Yes	317	54 (20%)	0.62
No	195	30 (18%)	
Ever traded sex for mor	ney		
Yes	82	26 (32%)	0.001
No	505	62 (12%)	
Have a case manager/di	scussed mental health cond	cerns	
Yes	153	26 (17%)	0.33
No	535	74 (15%)	
Social support			
Contact with mother			
Yes	318	42 (13%)	0.50
No	332	50 (15%)	
Contact with father			
Yes	140	18 (13%)	0.52
No	452	68 (15%)	
Contact with siblings			
Yes	315	26 (8%)	0.001
No	343	69 (20%)	
Felt needed help with d	epression/anxiety/other me	ntal health problem	
Yes	218	63 (29%)	0.001
No	470	37 (8%)	
Mental health service us	se		
Yes	95	30 (32%)	0.001
No	593	70 (12%)	

The following data were missing: contact with mother (38), contact with father (96), contact with siblings (30), ever had unwanted sex (75); because of missing data, the column numbers for BSI for these variables do not add to 100.

an appointment; (8) I was scared they would contact my social worker/police; (9) I was scared they would contact my family; (10) the service wasn't open when I needed it; (11) I didn't fit the eligibility criteria for the service (I was the wrong age, I'd used it too many times); (12) I felt too nervous/embarrassed to talk about the problem; and (13) other. These types of measures that assess barriers to health service use have been previously used with homeless adolescents.<sup>19</sup>

<sup>&</sup>lt;sup>a</sup>For alcohol abuse, we categorized as abusers those who reported drinking an excessive amount of alcohol that made them sick or lose consciousness, in the past 90 days.

<sup>&</sup>lt;sup>b</sup>Substance users included youth who had used alcohol, hallucinogens, inhalants, amphetamines, cocaine/ crack, heroin/intravenous drug use in the past 90 days. Based on responses to the question, "About how many days have you used [drug] in the past 3 months, 90 days?" Participants were categorized as substance users or nonusers (used on zero days) for each of the six substances.

## **Results**

All of the newly and experienced homeless youth who were recruited at baseline were selected (N=707). Nineteen cases were excluded due to an absence of established norms for BSI data: youth younger than age 13 years (13 cases), transgender youth (5 cases), and missing BSI data (1 case). First, the characteristics of adolescents who met BSI criteria for emotional distress were compared with those who did not by using  $\chi^2$  tests (p values are shown on Table 1).

Bivariate analyses were conducted to describe the association between each individual predisposing (newly vs. experienced homeless, race/ethnicity, gender, age, sexual orientation, mother high school graduate, housing, substance use, history of victimization), enabling (have a case manager/discussed mental health concerns, family closeness), and need factors (evaluated need) of homeless youth with the outcome of mental health service use in the past 3 months. Then, a multivariate logistic regression model was built, where all predisposing, enabling, and need variables were considered together in a single large model. Variables that were correlated or not predictive at the p < 0.05 level (family closeness, ever had sex, ever traded sex for money) were deleted from model.

Last, the barriers to mental health service use among youth who reported they perceived a need for help with depression/anxiety/other mental health problem but who had not used services were examined.

The study sample was ethnically diverse—included 35% Hispanic, 27% White, 20% African American, and 18% mixed-race youth—and was 48% female (Table 1). All youth were living away from home at the time of assessment, although some youth identified the family home as the most recent place of residence (10% of newly homeless youth and 8% of experienced youth). Fifteen percent of the adolescents met the BSI criteria for emotional distress; 70% of these met the BSI criteria for depression and/or anxiety; and 30% met criteria for somatization, obsessive—compulsive disorder, interpersonal sensitivity, hostility, phobic anxiety, paranoid ideation, or psychoticism.

In examining the characteristics of youth who met BSI criteria for emotional distress versus those who did not, it was found that youth who met criteria were more likely to be experienced homeless vs. newly homeless (17% vs. 10%, p<0.01); were age 18 years or older vs. 17 years or younger (21% vs. 9%, p<0.001); and were more likely to use substances such as amphetamine (20% vs. 13%, p<0.05), cocaine/crack (20% vs. 13%, p<0.05), and heroin/intravenous drugs (26% vs. 13%, p<0.01) as shown on Table 1.

Upon examining history of ever having sex, it was found that 587 youth had ever had sex (85%), and of these 317 (54%) reported to ever being victimized (ever had unwanted sex). Among those who had been victimized, 65% reported having had sex when they didn't want because they were too drunk at the time, 19% were too high at the time, 10% felt unable to say no, and 5% said no but the person did not listen. Thirteen percent of the youth did not respond to the question of victimization. In addition, among the youth who had ever had sex, 79 youth (13%) reported to ever having traded sex for money; the percentage who did not respond to this question was 12%. In a cross-tabulation of youth who had ever been victimized and who had ever traded sex for money, it was found that the majority of those who had ever traded sex for money also reported to ever being victimized (78%).

Perceived and evaluated need for help with depression/anxiety/other mental health problem was examined next. Evaluated need was assessed by using the BSI criteria for emotional distress. It was found that among all youth in the sample, 218 (32%) perceived a need for help with depression/anxiety/other mental health problem. Among all youth in the sample, 100 (15%) met BSI criteria for emotional distress. Among youth who perceived a need for help, only 63 (29%) met BSI criteria for emotional distress, as shown on Figure 2.

Mental health service use (outpatient and inpatient) was examined among youth and it was found that 95 youth had used mental health services in the past 3 months; of these youth, 32% met BSI criteria for emotional distress.

Among those who had used mental health services in the past 3 months, the most common site reported for service use was a crisis center (37%) and the rest had used a spectrum of other forms of outpatient services, including mental health clinics, case managers, counselors, psychiatrist, psychologist, and shelters. Nine percent of all youth who had used mental health services reported receiving mental health services from a hospital.

A subanalysis of housing situation among newly and experienced homeless youth showed that experienced youth had higher rates of living on the street than newly homeless youth (20% vs. 7%, p < 0.01).

Table 2 shows the bivariate and multivariate association between adolescents' mental health service use and each predisposing (duration homeless, race/ethnicity, gender, age, sexual orientation, mother high school graduate, housing status, substance use, history of victimization), enabling (have a case manager/discussed mental health concerns), and need factors (evaluated need). It was found that adolescents who had a case manager/discussed mental health concerns [odds ratio (OR), 2.9; 95% confidence interval (95% CI), 1.8–4.8] and met BSI criteria for emotional distress (OR, 3.9; 95% CI, 2.2–6.7) were more likely to have used mental health services than youth who did not have these characteristics. Because 10% of the newly homeless

Figure 2
Flow diagram of perceived need for help with mental health problems, meeting BSI criteria for emotional distress, and mental health service use.

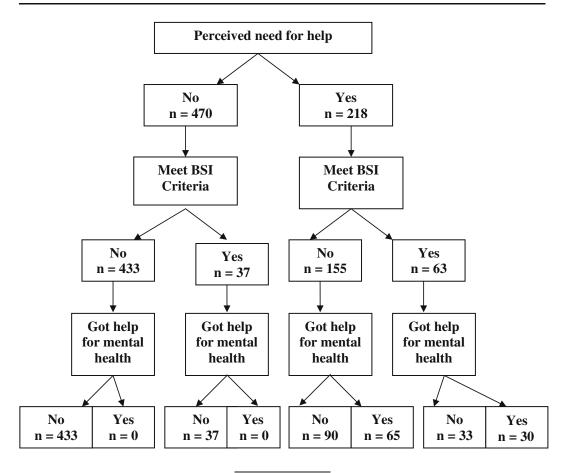


Table 2 Multivariate logistic regression of factors associated with mental health service use among homeless youth (N=688)

Variables	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Predisposing		
Type		
Experienced homeless	1.0	1.0
Newly homeless	1.3 (0.9–2.1)	1.4 (0.8–2.5)
Race/ethnicity	` '	` ,
White	1.0	1.0
African American/Hispanic/mixed race	1.2 (0.7–2.0)	1.0 (0.6–1.8)
Gender	` ,	` ,
Male	1.0	1.0
Female	1.5 (1.0–2.3)	1.4 (0.8–2.2)
Age (years)	` '	` ,
13–17	1.0	1.0
18–20	0.8 (0.5–1.2)	0.7 (0.4–1.2)
Sexual orientation	` ,	` ,
Gay/lesbian/bisexual	1.0	1.0
Heterosexual	0.7 (0.5–1.2)	0.9 (0.5–1.6)
Mother is high school graduate	` '	` ,
No	1.0	1.0
Yes	0.8 (0.5–1.3)	0.9 (0.6–1.5)
Housing	•	
Parents/friends/relatives/shelter	1.0	1.0
Street	0.7 (0.4–1.3)	0.9 (0.5–1.7)
Substance use	•	
No	1.0	1.0
Yes	1.3 (0.8–2.0)	1.2 (0.7–1.9)
Victimization (ever had unwanted sex)		
No	1.0	1.0
Yes	1.5 (1.0–2.3)	1.4 (0.8–2.2)
Enabling		
Have a case manager/discussed		
mental health concerns		
No	1.0	1.0
Yes	2.8 (1.8–4.4)***	2.9 (1.8-4.8)***
Need		
Met BSI criteria		
No	1.0	1.0
Yes	3.4 (2.1–5.7)***	3.9 (2.2-6.7)***

<sup>\*</sup>*p*<0.05. \*\**p*<0.01.

<sup>\*\*\*</sup>*p*<0.001.

youth and 8% of the experienced homeless youth reported the most recent place of residence being the birth/foster/adoptive parent, separate multivariate logistic regression analysis were conducted, excluding these youth, to see if the variables associated with mental health service use would change but the model remained the same.

Multiple barriers to mental health service use were found among youth who perceived a need for help with depression/anxiety/other mental health problem but who had not used mental health services. The barriers identified were as follows: didn't know where or what service to use (53%), felt too nervous/embarrassed to talk about the problem (47%), had no money to get there (36%), thought the service couldn't help (33%), was scared they would contact family (36%), was scared they would contact social worker/police (36%), the service was too far away (14%), the service cost too much money (14%), the service wasn't open when needed (17%), had a bad experience with the staff the last time (14%), had to wait a long time for an appointment (11%), and didn't fit the eligibility criteria for the service (6%).

## Discussion

The present study found that homeless youth's perceived need for help with mental health problems and evaluated need (using the BSI to assess emotional distress) is high, 32% and 15%, respectively. However, mental health service use was low in this sample of homeless youth; only 32% of those who met BSI criteria for emotional distress used mental health services. In using the Behavioral Model for Vulnerable Populations to examine factors associated with mental health service use, one enabling factor, having a case manager/discussed mental health concerns, and a need factor (met BSI criteria for emotional distress) were found to be significantly associated with use of mental health services; thus, the hypothesis suggested was confirmed. In this study, however, housing situation was not found to be associated with mental health service use. These findings are similar to studies on homeless adults that show need is an important determinant of mental health service use. As for case management, this may be especially needed by homeless adolescents, who, due to their young age and lack of experience, may be less aware of community resources; this association is a new finding for homeless adolescents' use of mental health services.

Housing situation was not associated with mental health service use in this study. Although a previous study on homeless youth had found that housing (e.g., shelter) was associated with general health service use, <sup>11</sup> no study to date had examined if the housing situation was associated with mental health service use. In this study, a comparison of the housing situation of youth living in the street and those living with birth/foster/adoptive parents/friends/relatives/shelter/other type of housing were made and similar rates of mental health service use were found among the two groups. However, the stability of the housing situation was not assessed in this study. Many of the youth who reported living with family, friends, and in shelters may have only been temporarily housed. Future research needs to evaluate the stability of the housing situation for homeless youth and its association with mental health service use.

In examining need for mental health services, it was found that 15% of the sample of homeless adolescents met criteria for emotional distress and the majority of these met criteria for depression/anxiety. In examining emotional distress among newly homeless and experienced youth, it was found that experienced youth had higher rates than newly homeless youth, 17% vs. 10%. The rates of emotional distress for experienced youth are comparable with previous studies of homeless youth, which have included large samples of experienced homeless youth. Rates of emotional distress for newly homeless youth appear to be comparable with domiciled youth. Some newly homeless youth maintain strong familial bonds and this, in turn, may decrease emotional distress. In this study, youth who reported having social support from siblings were less likely to meet criteria for emotional distress. In addition, housing situation among newly homeless and experienced youth may affect rates of emotional distress; experienced youth were more likely

to be living in the street in this study. The finding of the association between substance use and emotional distress among homeless adolescents is similar to a previous study.<sup>3</sup>

Because rates for perceived and evaluated need varied in this sample (32% vs. 15%), more research is needed that measures emotional distress with multiple mental health instruments so that it can be determined which instruments might be better able to capture emotional distress among homeless youth and/or if multiple instruments are always needed for a complete assessment of emotional distress.

The rate of mental health service use among youth who met BSI criteria for emotional distress (evaluated need) was 32%. This rate is similar to a previous report that examined mental health service use among homeless youth who met criteria for mental illness (33%).<sup>5</sup> Among the youth who did use mental health services, the majority had received services from a crisis center. This finding among this sample of homeless adolescents is consistent with a previous study on homeless adults that showed that the type of mental health service used was typically emergent care.<sup>22</sup> Emergent mental health services may be the only services that homeless populations perceive to be available. In this study, the most common barrier for mental health service use among those who perceived a need for help but who did not use services was not knowing where to go or what service to use (57%). Only 14% reported services costing too much money as a barrier. These findings indicate that it would be helpful for service providers coming into contact with homeless youth to make them aware of existing community resources for mental health to decrease the rate of emergent care use.

The strength of the present study is the large sample of homeless youth and the ethnically diverse study sample. However, several limitations need to be acknowledged. First, the relatively small sample of adolescents living in the street limited the possibility of making comparisons between youth living on the street and youth living in other places. Second, all data are based on self-report and therefore may be subject to reporting bias. Third, 13% of youth did not respond to the question on victimization (ever had unwanted sex); had the response rate been higher, an association between victimization and mental health service use may have been found.

# Implications for Behavioral Health

Due to the high prevalence of perceived need for help with depression/anxiety/other mental health problem and significant rates of emotional distress as measured by the BSI, especially among experienced homeless youth, a need exists for service providers coming into contact with homeless youth at shelters, drop-in centers, or in health clinics, to inquire about perceived need for help with mental health problems at agency intake and to assist youth in finding needed mental health services in the community. This might prevent youth from using crisis centers for mental health care needs and may instead allow for use of regular outpatient mental health services and continuity of care.

# Acknowledgment

This work was supported through National Institute of Mental Health grant R01-MH61185-03. Dr. Solorio is an RWJ Generalist Physician Faculty Scholar.

#### References

- Cauce AM, Paradise M, Ginzler J, et al. The characteristics and mental health of homeless adolescents: age and gender differences. *Journal of Emotional and Behavioral Disorders*. 1999;8:230–239.
- Rohde P, Noell J, Ochs L, et al. Depression, suicidal ideation and STD-related risk in homeless older adolescents. *Journal of Adolescence*. 2001;24:447–460.
- Whitback L, Hoyt D, Wa-Ning B. Depressive symptoms and co-occurring depressive symptoms, substance abuse, and conduct problems among runaway and homeless adolescents. Child Development. 2000;71(3):721–732.

- Birmaher B, Ryan ND, Williamson DE, et al. Childhood and adolescent depression: a review of the past 10 years. Part I. Journal of the American Academy of Child & Adolescent Psychiatry. 1996;35(11):1427–1439.
- Buckner JC, Bassuk, EL. Mental disorders and service utilization among youths from homeless and low-income housed families. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1997;36(7):890–900.
- Gelberg L, Andersen RM, Leake B. The behavioral model for vulnerable populations: Application to medical care use and outcomes. *Health Services Research*. 2000;34(6):1273–1302.
- 7. Derogatis LR. SCL-90-R: Administration, Scoring and Procedures Manual—II for the Revised Version and Other Instruments of Psychopathology Rating Scale Series. Towson, MD: Clinical Psychometric Research; 1983.
- 8. Milburn NG, Rotheram-Borus MJ, Rice E, et al. Cross-national variations in behavioral profiles among homeless youth. *American Journal of Community Psychology*. 2006;37(1):63–76.
- Turner CF, Ku L, Rogers SM, et al. Adolescent sexual behavior, drug use, and violence: increased reporting with computer survey technology. Science. 1998;(280):867–873.
- Thomberry J, Bhaskar B, Krulewitch CJ, et al. Audio computerized self-report interview use in prenatal clinics: Audio computerassisted self-interview with touch screen to detect alcohol consumption in pregnant women: application of a new technology to an old problem. Computers, Informatics, Nursing. 2002;20(2):46–52.
- 11. De Rosa CJ, Montgomery SB, Kipke, MD, et al. Service utilization among homeless and runaway youth in Los Angeles, California: rates and reasons. *Journal of Adolescent Health*. 1999;24:190–200.
- 12. Harris SK, Samples CL, Keenan PM, et al. Outreach, mental health, and case management services: can they help to retain HIV-positive and at-risk youth and young adults in care? *Maternal and Child Health Journal*. 2003;7(4):205–218.
- 13. National Institute on Drug Abuse. National Household Survey on Drug Abuse: Population Estimates. Washington, DC: U.S. Government Printing Office: 1991.
- 14. Lemming MR, Calsyn RJ. Utility of the behavioral model in predicting service utilization by individuals suffering from severe mental illness and homelessness. *Community Mental Health Journal*. 2004; 40:347–364.
- Catania JA, Chitwood DD, Gibson DR, et al. Methodological problems in AIDS behavioral research: Influences on measurement error and participation bias in studies of sexual behavior. *Psychological Bulletin*. 1990;108:339–362.
- Orr DP, Fortenberry DJ, Blythe MJ. Validity of self-reported sexual behaviors in adolescent women using biomarker outcomes. Sexually Transmitted Diseases. 1997;5:261–266.
- Milburn NG, Rotheram-Borus MJ, Batterham P, et al. Predictors of close family relationships over one year among homeless young people. *Journal of Adolescence*. 2005;28:263–275.
- Derogatis LR, Cleary PA. Factorial invariance across gender for the primary symptom dimensions of the CL-90. British Journal of Social & Clinical Psychology. 1977;16(4):347–356.
- 19. Geber GM. Barriers to health care for street youth. Journal of Adolescent Health. 1997;21:287-290.
- Koegel P, Sullivan G, Burnam A, et al. Utilization of mental health and substance abuse services among homeless adults in Los Angeles. Medical Care. 1999;37(3):306–317.
- Wenzel SL, Bakhtiar L, Caskey NH, et al. Homeless veteran's utilization of medical, psychiatric, and substance abuse services. Medical Care. 1995;33(11):1132–1144.
- 22. Folsom DP, Hawthorne W, Lindamer L, et al. Prevalence and risk factors for homelessness and utilization of mental health services among 10,340 patients with serious mental illness in a large public mental health system. American Journal of Psychiatry. 2005;162(2):370–376.