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Substance Abuse Disorders Among Homeless and Runaway Adolescents

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Abstract

This paper presents lifetime and 12-month prevalence rates and comorbidity data for substance abuse disorders among homeless and runaway adolescents. Data are from baseline interviews of a longitudinal diagnostic study of 428 (187 males and 241 females) homeless and runaway adolescents aged 16 to 19 years (mean age = 17.4 years, SD = 1.05). The data were collected by full-time interviewers on the streets and in shelters in eight Midwestern cities of various populations. About two thirds (60.5%) of the runaways met lifetime criteria for at least one of three substance disorders (alcohol abuse, alcohol dependence, drug abuse), and nearly one half (48.1%) met 12-month criteria for at least one of the disorders. Nearly all of the adolescents (93%) who met criteria for a substance disorder met criteria for at least one other mental disorder. Those factors most predictive of meeting lifetime criteria include parenting practices, experience of abuse, and association with deviant peers.

Introduction

The majority of adolescents experiment with alcohol and drugs during their high school years. (Kandel, 1983; Oetting & Beauvais, 1983). Among seniors in high school, 80% report having used alcohol, 49% have used marijuana, and close to a third (30%) report having used some drug besides marijuana at least once. Many have already made the transition to regular use. Thirty-two percent of 12th graders, 24% of 10th graders, and 14% of 8th graders reported drinking five or more drinks in the last two weeks (Johnston, O'Malley, & Bachman, 2002).

Although adolescent experimentation with alcohol and drugs is common, homeless and runaway adolescents use substances earlier and more often than their nonrunaway counterparts. Kipke and colleagues in a study of Hollywood street youths found 93% had used marijuana, 66% had used speed, 61% LSD, and 50% had used cocaine. Eighty-nine percent had used alcohol, 45% mushrooms, 44% inhalants, and 41% crack cocaine (Kipke, Montgomery, & Mackenzie, 1993). Whitbeck and Hoyt (1999) found similar, though slightly more moderate numbers in a recent study of Midwest homeless and runaway youths. Based on respondents reporting of use in the last year, they found 81.2% of youths had used alcohol, 69.4% marijuana, 16.1% crack, 27.2% amphetamines, 14.7% cocaine, 6.4% opiates, 25.8% hallucinogens, 6.8% tranquilizers, 9.2% barbiturates, and 16.8% inhalants. A study of runaways and nonrunaways seeking treatment in a Hollywood outpatient clinic indicates drug abuse was four times more likely among runaways (Yates, Mackenzie, Pennbridge, & Cohen, 1988).

Diagnostic Studies of Substance Abuse among Homeless and Runaway Adolescents

In Kipke and colleague's (1997) sample of youths recruited from both homeless service agencies and the streets of Los Angeles, 71% of youths met DSM-III criteria for alcohol and/or illicit drug use disorder (Kipke, Montgomery, Simon, & Iverson, 1997). Feitel and colleagues using DISC-R criteria with 150 shelter adolescents reported 41% of youths met the clinical cutoff for alcohol and drug abuse (Feitel, Nell, Chamas, & Lipman, 1992). Among 96 youths from shelters and the streets of Los Angeles interviewed by Mundy and associates, 39% met DSM III diagnostic criteria for drug use or dependency, and 48% met criteria for alcohol abuse or dependency (Mundy, Robertson, & Robertson, 1990). A Detroit area study (McCaskill, Toro, & Wolfe, 1998) that compared diagnostic assessments of 118 housed and 118 "homeless" adolescents reported prevalence rates based on the DISC-R (DSM-III-R criteria): 24% drug abuse/dependence and 21% alcohol abuse/dependence for the "homeless" adolescents. This sample was made up of short-term shelter youths who had never been on the streets and some of whom had not run away from home.

In summary, studies using diagnostic criteria for substance abuse among homeless and runaway adolescents report prevalence rates ranging from 71% to 24% for drug abuse. Some studies report only drug abuse, some both alcohol and drug abuse, some both abuse and dependence, most report only lifetime prevalence. This study addresses these inconsistencies in the literature in two ways. First, it documents the prevalence of substance abuse disorders among a sample of homeless and runaway youths in small and moderate sized metropolitan areas in four Midwestern states. Second, it investigates factors related to substance use disorders among homeless and runaway adolescents.

Method

Sample

To be eligible to participate, the young person had to be between the ages of 16 and 19 years and homeless. Our definition of "homeless" was that the adolescent had to reside in a shelter, on the street, or living independently (e.g., friends, transitional living) because they had run away, been pushed out, or drifted out of their family of origin. Based on interviewer reports, approximately 90% of the 505 homeless and runaway adolescents who were approached for an initial interview and who met study criteria agreed to participate in the study. Of the 455 respondents who completed the first baseline interview, 94.3% or 428 (187 males and 241 females) completed the second baseline diagnostic interview. Twenty-six of the 455 original respondents did not complete the diagnostic interview. Those who did not complete the interview had a significantly higher age at first run away (14.84 years vs. 13.41 years). They were more likely to report that they were heterosexual (100% vs. 85% of completers) and less likely to report having been physically victimized when on their own than were completers.

The respondents were interviewed by full time, specially trained interviewers directly on the streets and in shelters in eight Midwestern cities (St. Louis, Kansas City, Omaha, Lincoln, Des Moines, Cedar Rapids, Iowa City, and Wichita). The adolescents ranged in age from 16 to 19 years with an average age of 17.4 years ($SD = 1.05$). Fifty-nine percent were European American, 22% were non-Hispanic African American, 5% were Hispanic, with the remaining self-identified as American Indian, Asian or Pacific Islander, or biracial. Fifteen percent identified themselves as gay, lesbian, or bisexual. Sixty-two percent of the adolescents reported that the population of their city of origin was 100,000 or greater, 10% said they were from a suburb of a large city, eight percent were from a medium sized city (50,000 to 100,000), eight percent were from a small city (10,000 to 50,000), and 12% were from small towns or rural communities of 10,000 or less.

The adolescents were informed that this was a longitudinal study and the tracking protocols were explained. Informed consent was a two-stage process. First, the study was explained, and informed consent was obtained from the adolescent. They were assured that refusal to participate in the study, refusal of any question, or stopping the interview process would have no effect on current or future services provided by the outreach agency in which the interviewer was placed. Second, all adolescents were asked if we could contact their parents. If permission was granted, parents were contacted, and informed consent to talk to a minor less than 18 years was verbally obtained. The parents also were asked to participate in a computer assisted telephone interview. Results from the parent interviews are not discussed in this study. If the adolescent was sheltered, we followed shelter policies of parental permission for placement and guidelines con-

cerning *in loco parentis* for granting such permissions. These policies were always based on state laws. In the few cases where the adolescent was under 18 years, not sheltered, and refused permission to contact parents, the adolescents were treated as emancipated minors in accord with National Institute of Health guidelines (Department of Health and Human Services, 2001). The consent process and questionnaires were approved by the University of Nebraska-Lincoln Institutional Review Board (#2001-07-333 FB). A National Institute of Mental Health Certificate of Confidentiality was obtained to protect the respondent's statements regarding potentially illegal activities (e.g., drug use).

The street interviewers underwent two weeks of intensive training regarding computer assisted personal interviewing (CAPI) procedures and administering the four University of Michigan Composite International Diagnostic Interview (UM-CIDI) indices (major depressive episodes, post-traumatic stress disorder, alcohol use/abuse, and drug use/abuse) and one Diagnostic Interview Schedule for Children-Revised (DISC-R) (conduct disorder) index. They then returned to their shelters and administered several "practice" interviews with staff and respondents 20 years or older. After completing their practice interviews the interviewers returned to the university for a second week of training. All interviews were conducted on laptop computers and downloaded electronically to a special secure university server.

We designed a sampling strategy for the current study that incorporated sampling units of fixed and natural sites similar to the design Kipke used in her Los Angeles study of homeless youths (Kipke, O'Connor, Nelson, & Anderson, 2000) with a year-long window of sampling to capture the time dimensions. The sampling design involved repeatedly checking location where homeless youths were likely to be found in each of the target cities. Locations included shelters and outreach programs serving homeless youths, drop-in centers, and various street locations where young homeless people were most likely to be located. Research has demonstrated that using sampling designs that involve multiple points of entry to homeless populations are most effective in generating a diverse sample (Burt, 1996; Koegel, Burnam, & Morton, 1996). The interviewers all had prior experience in their respective cities as youth outreach workers and brought considerable knowledge regarding optimal areas of the city for locating youths on their own. The sampling protocol included going to these locations in the cities at varying times of the day on both weekday and weekends over the course of 12 months. Since episodes of homelessness are of varying duration, a one year time frame provided an increased probability of capturing youths who have short-term exposure to homelessness. The interviewers were instructed to continue recruiting until their caseload reached 60 adolescents whom they would then track and re-interview at three-month intervals.

The baseline interview on which the following reports are based was in two parts. The first consisted of a social history and symptom scales. The respondent was then asked to meet for a second interview during which the diagnostic interviews were conducted. These two interviews made up the baseline assessment for the study and usually were completed within one or two days so that no significant time lapsed between the first part of the baseline interview and the second diagnostic interview. The respondents were paid \$25 for each interview.

Diagnostic Measures

Modules from two diagnostic interview schedules were used to assess the study participants. The University of Michigan Composite International Diagnostic Interview (UM-CIDI) was used to assess major depressive episode, post-traumatic stress disorder, alcohol abuse, and drug abuse. The UM-CIDI is based on Diagnostic and Statistical Manual-III-R (DSM-III-R) criteria and represents the University of Michigan revision of the CIDI (World Health Organization, 1990) used in the National Comorbidity Survey (NCS) with young people in the same age ranges as those in the present study (Kessler, 1994a; Kessler, 1994b; Wittchen & Kessler, 1994). The CIDI, from which the UM-CIDI is derived, is a well-established diagnostic instrument (Wittchen & Kessler) that has shown excellent interrater reliability, test-retest reliability, and validity for the five diagnoses that were used in this study. The UM-CIDI diagnostic interview schedule has been used extensively with trained interviewers who are not clinicians.

To assess behavioral problems, the conduct disorder module was used from the Diagnostic Interview Schedule for Children-Revised (DISC-R). The DISC-R is a highly regarded, structured interview intended for use with trained interviewers who are not clinicians. It has been shown to have from good to excellent interrater and test-retest reliability (Jenson et al., 1995; Shaffer et al., 1993).

In addition to assessing prevalence and comorbidity of five diagnostic categories, various risk factors known to be associated with the psychological well-being of adolescents also were considered.

The age of the adolescent at time of interview was calculated using the date of birth of the respondent and the date of the baseline interview. Age ranged from 16 to 19 years with a mean age of 17.4 years (SD 1.05).

Adolescents were asked to report the number of times they had left home since the first time they ran. While some individuals were contacted during their first run episode, the majority had numerous experiences with running from home. The total number of runs ranged from 1 to 51 with the mean number of runs of 8.33 (SD 11.28).

Sexual orientation was assessed by a question in which the adolescents identified themselves as straight, heterosexual, gay/lesbian, bisexual, never thought about it, something else, or confused or unsure. The variable was recorded so that any individual listing a nonheterosexual or unsure sexual identity was coded as nonheterosexual.

Adolescents were asked if they had ever spent one or more nights on the street, in an abandoned building, or another place out in the open. Those individuals who had not spent at least one night on the street were coded as 0. Roughly 49% of the sample had spent at least one night on the street.

Victimization when the adolescents were on their own was measured with a series of questions in which the adolescents were asked to report how often they had been beaten up, robbed, asked to do something sexual, sexually assaulted or raped, threatened with a weapon, or assaulted with a weapon. Response categories were never, once, two to five times, and more than five times. The mean scale has an alpha reliability of .72 and ranges from 0 to 3 with higher scores indicating more frequent victimization.

Caretaker abuse was assessed by questions adapted from the Conflict Tactics Scale (Straus & Gelles, 1990). The youths were asked to report how often they had been punished by being made to go a day without food or water; been abandoned for at least 24 hours; had something thrown at them in anger; been pushed, shoved, or grabbed in anger; been slapped in the face or head with an open hand; been hit with some object; been beaten with fists; been verbally or physically threatened with a gun or knife; been wounded with a gun or knife; been asked to do something sexual; or been forced to do something sexual. Response categories were never, once, two to five times, and more than five times. The mean scale has an alpha reliability of .84 and a range of 0 to 3 with higher numbers indicating a greater frequency of experiencing abuse.

Participation in deviant subsistence strategies was measured by adolescent self-reports concerning the ways they obtained money and how they got food. A list of ways people typically get money and food were presented to the youths, and they were asked if they had used any of these strategies. Among those strategies were some that were considered deviant subsistence strategies. Adolescents were asked to report if they had ever spare-changed for money or for food, broken in and taken things from a store, house, etc., for money, engaged in prostitution for money or for food, sold drugs for money, stole or shoplifted food, or engaged in dumpster diving for food. The summated scale has an alpha reliability of .63 and ranged from 0 to 6 with higher values indicating engaging in more deviant subsistence strategies.

Association with deviant peers was measured using a 12-item scale that asked adolescents if any of their friends had engaged in deviant behaviors. Deviant behaviors included running away, selling drugs, using drugs, sus-

pension from school, dropping out of school, shoplifting, breaking and entering, stealing, selling sex, being arrested, and threatening or assaulting someone with a weapon (Whitbeck & Simmons, 1990). The response categories for each item was 0 = no and 1 = yes. The composite scale ranged from 0 to 12. High scores indicate association with peers who engage in more deviant behaviors. Cronbach's alpha for this scale of deviant peers was .87.

Elliott's parental rejection scale (Elliott, Huizinga, & Ageton, 1985) measured the quality of the parent-child relationship. The five-item scale assessed the perceived amount of care and trust the parent expressed for the adolescent and the extent to which the parent blames the adolescent. Response categories ranged from 1 (strongly agree) to 5 (strongly disagree). Cronbach's alpha for the measure was .82.

Thornberry's parental monitoring scale (Thornberry, Huizinga, & Loeber, 1989) measured the adolescent's perceived amount of caretaker supervision. The youths were asked to report how often a caretaker knew where they were, how often a caretaker knew whom they were with, how often a caretaker set a time for the adolescent to be home at night, and how often a caretaker knew if the adolescent came home by a set time. Response categories were always, almost always, half the time, almost never, and never. Variables were reverse codes so that higher values indicate greater monitoring. Cronbach's alpha for the measure was .72.

Caretaker substance treatment was assessed using a series of questions asking the adolescent if any of their biological mother, father, or any other adult they had lived with ever received treatment for a drug or alcohol problem. Forty-six percent of the participants report that at least one caretaker received treatment for their drug or alcohol problems.

Results

Prevalence

The UM-CIDI includes indices for alcohol abuse, alcohol dependence, and drug abuse. Prevalence rates for each of these disorders are reported in Table 1. Taking into account the entire sample of adolescents, 60.5% met lifetime criteria for at least one of the three substance abuse disorders. Males (67.4%) were significantly more likely than females (55.2%) to meet lifetime criteria for at least one of the three substance abuse disorders. Nearly one half (48.1%) of the adolescents met 12-month diagnostic criteria for at least one of the three substance use disorders. Males (52.9%) were significantly more likely than females (44.4%) to meet 12-month criteria for at least one of the substance use disorders.

Forty-four percent of the adolescents met lifetime criteria for alcohol abuse (48.1% males; 40.2% females). Thirty-three percent of the adolescents

Table 1. Substance Abuse and Dependence Lifetime and 12 Months Diagnosis among Homeless and Runaway Adolescents ($N = 428$)

	All (%)		Male (%)		Female (%)	
	Lifetime	12 months	Lifetime	12 months	Lifetime	12 months
Any substance use disorder (includes alcohol abuse, alcohol dependence, and drug abuse)	60.5	48.1	67.4**	52.9*	55.2	44.4
Alcohol abuse	43.7	32.7	48.1	35.8	40.2	30.3
Alcohol dependence	29.9	21.5	31.0	23.0	29.0	0.3
Drug abuse	40.4	25.7	47.1**	32.6**	35.3	20.3

* $p < .05$ between males and females

** $p < .01$ between males and females

(35.8% males; 30.3% females) met criteria for 12-month prevalence of alcohol abuse. Thirty-one percent of males and 29% of females met lifetime criteria for alcohol dependence. Twenty-two percent of the adolescents met 12-month criteria for alcohol dependence (23.0% male; 20.3% female).

Forty percent of the adolescents met lifetime criteria for drug abuse. Males (47.1%) were significantly more likely than females (29.5%) to meet lifetime drug abuse criteria. Twenty-six percent of the youths met 12-month criteria for drug abuse, with males (32.6%) significantly more likely than females (20.3%) to meet 12-month criteria.

Table 2 reports the lifetime and 12-month prevalence for criteria for drug abuse of the major drug categories. Marijuana was clearly the drug of choice with 34% of all adolescents meeting criteria for lifetime marijuana abuse. Males (40.6%) were significantly more likely than females (35.3%) to meet criteria for lifetime marijuana abuse. Twenty percent of adolescents meet criteria for 12-month marijuana abuse with males (24.1%) significantly more likely than females (16.2%) to meet 12-month criteria.

Comorbidity

Nearly all of the adolescents (93%) who met criteria for a substance disorder met criteria for at least one other mental disorder. Of these, 43% of the adolescents who met criteria for one of the substance disorders also met criteria for one other disorder; 50% met criteria for two or more other disorders. Table 3 reports the comorbidity of substance use disorders with major depressive episode (MDE), conduct disorder (CD), and post-traumatic stress

Table 2. Drug Abuse Lifetime and 12 Months Diagnosis among Homeless and Runaway Adolescents ($N = 328$)

	All (%)		Male (%)		Female (%)	
	Lifetime	12 months	Lifetime	12 months	Lifetime	12 months
Marijuana abuse	34.3	19.6	40.6(**)	24.1(*)	29.5	16.2
Stimulant abuse	1.4	1.2	2.7	2.1	0.4	0.4
Sedative abuse	7.2	3.5	9.1	3.7	5.8	3.3
Opiates abuse	4.4	2.8	5.9	3.7	3.3	2.1
Cocaine abuse	8.2	5.8	8.6	7.0	7.9	5.0
PCP abuse	0.5	0.5	1.1	1.1	—	—
Psychedelics abuse	3.0	2.3	3.7	3.2	2.5	1.7
Inhalants abuse	2.8	1.2	4.3	1.6	1.7	0.8
Other drug abuse	7.7	—	9.6	—	6.2	—

* $p < .05$ between males and females

** $p < .01$ between males and females

Table 3. Comorbidity Among Homeless And Runaway Adolescents ($N = 428$)

	All (%)	Substance (%)	Male (%)	Male Substance (%)	Female (%)	Female Substance (%)
Major depressive episode	20.8	34.4	19.8	29.4	21.6	39.1
Conduct disorder	53.5	88.4	60.4**	89.7	48.1	87.2
PTSD	24.1	39.8	17.6**	26.2**	29.0	52.6

* $p < .05$ between males and females

** $p < .01$ between males and females

disorder (PTSD). Taking into account only those who met criteria for a substance abuse disorder, 34.4% also met criteria for MDE. Nearly 90% of those who met the criteria for substance abuse also met the criteria for CD with no significant difference between males and females. Forty percent of all those meeting substance abuse criteria also met criteria for PTSD. Female substance abusers (52.6%) were nearly twice as likely as male substance abusers (26.2%) to meet PTSD criteria.

Age at Onset

The UM-CIDI is designed to determine the approximate age of onset of diagnostic disorders. This made it possible to estimate the age (based on self-reports) at which the adolescents first met diagnostic criteria for alcohol abuse and alcohol dependence. Based on the age of onset estimates, we calculated the percentage of those meeting lifetime diagnostic criteria for alcohol abuse and dependence (1) before first runaway and (2) concurrent with or after their first runaway experience. Eighty-four percent of adolescents met diagnostic criteria for alcohol abuse (85.4% male and 83.5% female) concurrent with or after the first run experience. Ninety-one percent of adolescents met criteria for alcohol dependence (92.3% male and 90.6% female) concurrent with or after their first run experience.

Multivariate Analyses

Logistic regression was used to investigate the likelihood of meeting lifetime diagnostic criteria for alcohol dependence, alcohol abuse, and drug abuse. Separate analyses were run for each of the three diagnoses.

Alcohol Dependence

Table 4 reports the regression coefficients for meeting the lifetime diagnostic criteria for alcohol dependence. The control variables of age of adolescent, gender, and sexual orientation were entered in Model 1. The variable for age was statistically significant in this model. When controlling for gender and sexual orientation, we found that older adolescents were more likely to meet diagnostic criteria for alcohol dependence.

Variables related to the adolescents' home environment were added in Model 2, significantly improving the model fit. The control variable of age of adolescent remained significant. The added variables of parental rejection, parental monitoring, caretaker abuse, and caretaker substance treatment were statistically significant. Adolescents who experienced more parental rejection (these items have to do with parental trust and blame, both of which may have resulted from adolescent substance abuse behaviors) and who experience more parental monitoring were significantly less likely to meet the lifetime diagnostic criteria for alcohol dependence. Adolescents that reported greater caretaker abuse and adolescents who had a caretaker who received treatment for substance abuse were significantly more likely to meet criteria for lifetime alcohol dependence.

Variables related to the adolescent's street experience were added in Model 3, significantly improving the model fit. With the background, home environment, and street experience variables in the model, only having a caretaker who had been in treatment for substance abuse and association with deviant peers remained statistically significant. Those adolescents who have a family history of substance abuse treatment and those adolescents with more deviant peers are significantly more likely to meet lifetime diagnostic criteria for alcohol dependence. For each unit increase in association

Table 4. Logistic Regression Model Predicting Meeting Lifetime Alcohol Dependence Criteria ($N = 428$)

	Model 1		Model 2		Model 3	
	<i>b</i>	Exp(<i>b</i>)	<i>b</i>	Exp(<i>b</i>)	<i>b</i>	Exp(<i>b</i>)
Age	.26	1.30*	.22	1.25*	.17	1.18
Gender	.01	1.01	.05	1.06	-.05	.95
Gay/lesbian	-.24	.79	-.21	.82	-.11	.90
Parental rejection			-.01	.99*	.01	1.00
Parental monitoring			-.23	.80*	-.14	.87
Caretaker abuse			.35	1.42**	.17	1.19
Caretaker substance treatment			.84	2.30**	.77	2.15**
Age on own					-.02	.98
Ever on street					.31	1.37
Street victimization					.01	1.01
Deviant subsistence strategies					-.02	.98
Deviant peers					1.76	5.83**
Constant	-5.23	.005**	-4.53	.01	-4.79	.008*
Model chi-square	7.74*		32.14**		50.24**	
Chi-square change			24.40**		18.10**	

* $p < .05$; ** $p < .01$

with deviant peers the likelihood of meeting criteria for alcohol dependence increased 5.83 times. Having had a caretaker in treatment for substance abuse doubled the odds of meeting criteria for alcohol dependence.

Alcohol Abuse

Table 5 reports the regression coefficients for meeting lifetime diagnostic criteria for alcohol abuse. Model 1 included the control variables for age of adolescent, gender and, sexual orientation. Among the control variables, only age of adolescent was statistically significant. The older the adolescent, the greater the likelihood that they will meet the lifetime criteria for alcohol abuse.

In Model 2, the variables for the adolescent's home environment significantly increased the fit of the model. Net of the effects of home environment variables age of adolescent remained significant. The home environment variables of parental monitoring and caretaker treatment for substance abuse were statistically significant. Adolescents who experienced more parental monitoring were significantly less likely to meet lifetime criteria for alcohol abuse, and adolescents whose caretaker received treatment for substance abuse were significantly more likely to meet criteria.

The addition of the variables for adolescent street experience significantly improved the fit of Model 3. In this final model, parental monitoring remained statistically significant. The street experience variables of deviant subsistence strategies and deviant peers were also statistically significant.

Table 5. Logistic Regression Model Predicting Meeting Lifetime Alcohol Abuse Criteria ($N = 428$)

	Model 1		Model 2		Model 3	
	<i>b</i>	Exp(<i>b</i>)	<i>b</i>	Exp(<i>b</i>)	<i>b</i>	Exp(<i>b</i>)
Age	.28	1.33**	.27	1.30*	.17	1.19
Gender	.31	1.36	.19	1.21	-.17	.84
Gay/lesbian	-.39	.67	-.39	.68	-.20	.82
Parental rejection			.12	1.13	.11	1.11
Parental monitoring			-.49	.61**	-.14	.66**
Caretaker abuse			.09	1.10	-.23	.80
Caretaker substance treatment			.51	1.67*	.38	1.46
Age on own					-.03	.97
Ever on street					.57	1.76
Street victimization					-.01	1.00
Deviant subsistence strategies					.22	1.24*
Deviant peers					1.84	6.28**
Constant	-5.00	.007**	-3.50	.03	-3.09	.05
Model chi-square	15.20**		50.52**		99.88**	
Chi-square change			35.31**		49.36**	

* $p < .05$; ** $p < .01$

Similar to the results in Model 2, adolescents who received greater parental monitoring were significantly less likely to meet lifetime criteria for alcohol abuse. Adolescents who participated in a greater number of deviant subsistence strategies and those who had associated with deviant peers were significantly more likely to meet lifetime criteria for alcohol abuse.

Drug Abuse

Table 6 reports the regression coefficients for meeting the lifetime criteria of drug abuse. Model 1 included the control variables for age of adolescent, gender, and sexual orientation. Age of adolescent and gender were statistically significant. Older adolescents and males were significantly more likely to meet lifetime criteria for drug abuse.

The variables for the adolescent's home environment were added in Model 2 and significantly improved the fit of the model. The control variables of age of adolescent and gender of adolescent remained statistically significant. Additionally, the home environment variables of parental monitoring and caretaker substance abuse treatment were statistically significant. Adolescents who experienced greater parental monitoring were significantly less likely to meet criteria for drug abuse. And adolescents who had a caretaker that received treatment for substance abuse had a greater likelihood of meeting the lifetime criteria for drug abuse.

The fit of the overall model was improved with the addition of the variables for adolescent street experience in Model 3. Age of adolescent remained statistically in Model 3, indicating older adolescents are more likely to meet

Table 6. Logistic Regression Model Predicting Meeting Lifetime Drug Abuse Criteria ($N = 428$)

	Model 1		Model 2		Model 3	
	<i>b</i>	Exp(<i>b</i>)	<i>b</i>	Exp(<i>b</i>)	<i>b</i>	Exp(<i>b</i>)
Age	.37	1.45**	.34	1.41**	.24	1.28*
Gender	.43	1.54*	.44	1.55*	.11	1.11
Gay/lesbian	-.42	.66	-.40	.67	-.12	.89
Parental rejection			-.02	.98	-.07	.93
Parental monitoring			-.22	.81*	-.11	.90
Caretaker abuse			.27	1.31	-.08	.92
Caretaker substance treatment		.46	1.58*	.29	1.33	
Age on own					-.01	.99
Ever on street					.31	1.36
Street victimization					.33	1.39
Deviant subsistence strategies				.32	1.38**	
Deviant peers					1.25	3.47*
Constant	-6.74	.001**	-5.90	.003**	-5.523	.004*
Model chi-square	24.75**		37.46**		89.37**	
Chi-square change			12.71*		51.90**	

* $p < .05$; ** $p < .01$

lifetime diagnostic criteria for drug abuse. The adolescent street experience variables of deviant subsistence strategies and deviant peers were statistically significant. Adolescents who have participated in more deviant subsistence strategies and who have more deviant peers were more likely to meet lifetime diagnostic criteria for drug abuse.

Discussion

Runaway and homeless adolescents are reporting serious substance abuse problems early in life, and these substance abuse disorders almost always occur with another mental disorder. Sixty-one percent of the homeless and runaway adolescents in our study met lifetime diagnostic criteria for at least one substance abuse disorder. Nearly half (48.1%) of the adolescents met 12-month criteria for one of the three major substance disorders included in our study. Of those who met criteria for a substance abuse disorder, more than 90% met criteria for another mental disorder.

Based on the adolescents' reports of onset, over 85% of alcohol abuse and dependence occurs concurrent with or after the first runaway episode. Although we cannot imply causation without longitudinal data, this implies that by their perceptions at least the adolescents are not leaving home because of prior alcohol abuse or dependence. Rather, criteria appear to be met when they are independent, that is, at the point of or after they leave home.

Multivariate analyses concerning the likelihood of meeting lifetime diagnostic criteria for substance abuse suggest several trends. Net of street factors, parenting practices, and family history have a significant impact on the likelihood of meeting lifetime substance disorder criteria. Parental monitoring significantly reduced the likelihood of meeting criteria. Adolescents whose caretakers were more aware of where they were when away from home, who they were with, and when they were at home (e.g., whether and what time they came in at night) seem to have benefited from this attention. Adolescents who experienced higher levels of caretaker physical or sexual abuse were more likely to meet criteria for alcohol dependence. Net of street factors, adolescents who had a caretaker that received treatment for substance abuse were significantly more likely to meet the criteria for substance abuse themselves. This supports evidence pertaining to family risk factors in relationship to substance abuse (Anderson & Henry, 1994; Brown, Tate, Vik, Haas, & Aarons, 1999; McMorris, Tyler, Whitbeck, & Hoyt, 2002).

The most important street factors involved participation in deviant subsistence strategies and association with deviant peers. When entered into our multivariate analyses, these street factors decreased the significance of family and background factors. With the exception of the alcohol dependence model, participation in deviant subsistence strategies significantly increased the likelihood of meeting lifetime criteria for substance abuse. This association between deviant subsistence strategies and substance abuse may be the result of adolescents' participation in deviant subsistence strategies to support their substance use habits.

Affiliation with deviant peers was the strongest factor associated with meeting lifetime diagnostic criteria for substance abuse disorders. This supports findings that once on the street youths may be immersed into a subculture of deviant peers who encourage a lifestyle that is conducive to substance abuse (Ennew, 1994; Kipke et al., 1997; Hagan & McCarthy, 1997; Ennett, Bailey, & Federman, 1999; Whitbeck & Hoyt, 1999). For every unit increase of deviant peer affiliation, the adolescents in our study were as much as six times more likely to meet criteria for substance abuse disorder.

Limitations

General study limitations have been addressed in Section I of this series. A limitation specific to this report concerns self-report of timing of onset. Although these reports of timing are part of the UM-CIDI, they should be regarded with appropriate caution. The adolescents' recall of the time of onset may be affected by many proximal factors such as independence, peers, and availability of alcohol and drugs.

Clinical Implications

These results have several important treatment implications. First, the prevalence and comorbidity rates suggest that a clinician working with a run-

away or homeless adolescent is highly likely to encounter substance abuse problems and that these will co-occur with other mental disorders. Second, nearly 50% of the adolescents in our study reported a caretaker had received treatment for a substance abuse disorder. This supports research linking familial factors to substance abuse disorders and underscores the importance of family histories for substance use in clinical intakes. Moreover, it suggests early intervention with youths who are or have been under the care of substance abusers to reduce the potential impact of this risk factor.

Third, the influence of deviant peer affiliations was probably the most insidious risk factor. Early interventions on several fronts could reduce the impact of deviant peers. Immediate shelter might decrease dependence on deviant peer networks for survival. Also, ongoing outreach and services that provide subsistence could ameliorate the need for peer dependence. Establishing interventions that identify more positive peer relationships (e.g., housed friends in the old neighborhood and those still attending school) may reduce the influence of deviant peer networks on the streets.

The substance use portraits that emerge from these data are disheartening. Many of these young people already present with dual diagnoses of substance abuse and another mental health disorder. Their trajectories into young adulthood will be seriously affected as a consequence. Indeed, they may be the next generation of chronically homeless adults if left untreated.

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