Youth Risk Behavior Survey of Homeless Adolescents at Two Drop-In Centers in Portland, Oregon

by

Michael Leo Burm

A THESIS

Presented to the Department of Public Health and Preventive Medicine

and the Oregon Health Sciences University

School of Medicine

in partial fulfillment of

the requirements for the degree of

Master of Public Health

June 1999

School of Medicine

Oregon Health Sciences University

CERTIFICATE OF APPROVAL

This is to certify that the Master's thesis of

Michael Leo Burm

has been approved

[redacted]

Tom Becker, M.D.

[redacted]

Jodi Lapidus, Ph.D.

[redacted]

Wayne Sells, M.D.

[redacted]

Bruce Goldberg, M.D.

[redacted]

Richard Maurer, M.D.

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Acknowledgements

The author would like to thank the following people for their assistance and guidance: Tom Becker, Jodi Lapidus, Bruce Goldberg, Wayne Sells, John Duke, Irene Falvey, Jeff Graham, and the staff at Outside In and New Avenues for Youth.

Precis

I first became interested in working with at risk adolescents while I was working as a high school teacher in Greenwood, Mississippi. I taught Biology and Human Anatomy classes and was often asked many health-related questions by my students. I soon came to discover that my students were participating in very risky behaviors including gang activity, drug abuse, and risky sexual behavior. Through my classes and interactions I attempted to provide information to my students and to try and guide my students away from such risky practices. I realized that I could not necessarily convince my students to stop these behaviors entirely, but I could teach them how to do them more safely. Thus, my entry into the world of adolescent health.

While studying at OHSU, I took an internship position at Outside In. Outside In is an organization that provides health care, social support and mental health services to homeless adolescents in downtown Portland. Along with a fellow MPH student, I was given the task of developing a protocol examining telephone notification as a way to increase the number of youth who receive their HIV test results. To do this, I had to become familiar with the environment at Outside In, become involved with the youth, and begin to understand the needs of this population. It also allowed me to become exposed to individuals working to improve the health of the homeless youth population and to learn some of the research needs in this area. I discovered that very little information exists on the risk behaviors of homeless youth. I also discovered the Youth Risk Behavior Survey, a tool that is commonly used to gather information on the health behaviors of adolescents in the United States. With the guidance of Tom Becker, Wayne Sells, Jodi Lapidus and Bruce Goldberg, I developed the study presented below which

uses the YRBS to gather information on the health behaviors of the homeless adolescent population in Portland, Oregon.

Abstract

Published data that describe the health risk behaviors and health care needs of homeless adolescents are limited. Because they are a "hidden" or forgotten population, homeless adolescents are not captured by traditional sampling strategies for risk factor surveys. I collected self-reported data from 133 homeless adolescents attending two drop-in centers in Portland, Oregon using a modified version of the 1997 Youth Risk Behavior Survey (YRBS) called the Homeless Youth Risk Behavior Survey (HYRBS). I identified the prevalence of different health risk behaviors in homeless adolescents, compared the prevalence of risk behaviors in homeless and non-homeless adolescents, and identified risk behaviors associated with injection drug use, attempting suicide, and carrying a weapon. The age-adjusted prevalence of most health risk behaviors was higher in homeless youth than in non-homeless youth from Multnomah County, Oregon and from the State of Oregon. Condom use was similar in all three populations (approximately 60% report use with last sexual intercourse). Injection drug use was associated with fighting in the past year (Odds ratio (OR) = 3.8, 95% Confidence Interval (C.I.) = 1.5, 9.4) and smoking every day in the past month (OR = 3.6, C.I. = 1.4, 9.0). Attempting suicide in the past year was associated with carrying a weapon other than a gun in the past month (OR = 3.0, C.I. = 1.3, 6.6). Carrying a weapon in the past month was associated with fighting in the past year (OR = 4.5, C.I. = 1.9, 11.1) and drinking ≥ 5 drinks in a row in the past month (OR = 3.9, C.I. = 1.8, 8.4). These findings provide much need information on the risk behaviors of homeless adolescents and provide evidence confirming that homeless adolescents are more likely to engage in high risk health behaviors than non-homeless youth. Such information will be useful for planning

services to meet the needs of this population and will be useful in assessing the efficacy of programs currently in place.

Introduction

Homeless and runaway adolescents are an especially vulnerable population and are likely to be in need of medical, psychological, and social support. Because they are often a "hidden" or forgotten population, homeless adolescents are not captured by traditional research tools such as the census and the Centers for Disease Control and Prevention's Youth Risk Behavior Survey (YRBS). Thus, information describing the demographics, behaviors, and health care needs of homeless adolescents is limited. The prevalence of homelessness among adolescents is high: estimates range between 500,000 and 2 million youth [Council on Scientific Affairs, 1989]. In addition, the annual prevalence of homeless episodes among US youths between the ages of 12 and 17 is reported to be approximately 5% [Ringwalt et al, 1998]. Thus, this group represents a substantial portion of the nation's youth and is clearly a group with unmeasured health care needs.

Etiology of Adolescent Homelessness

The most common reason teens report leaving home is family conflict. In one survey of homeless youth, 59% percent reported that they had left home as a result of family conflict [Kral et al, 1997]. Other reasons include physical abuse, sexual abuse, neglect/abandonment, parental drug or alcohol abuse, wanting to travel, and not liking home [Kral et al, 1997, Ensign & Santelli, 1997, and Janus et al, 1995]. Physical and sexual abuse is frequently reported by homeless teens. Rotheram-Borus, et al found that among youth in residential shelters in New York City, 37.4% reported a history of sexual abuse [Rotheram-Borus et al, 1996]. Nearly 28% of shelter based youth in Baltimore and

31% of homeless youth in Denver reported a history of physical abuse [Ensign & Santelli, 1997, Kral et al, 1997]. Other factors, outside of the home, may also be driving a youth to homelessness such as drug or alcohol use or addiction. Thus, the etiology of homelessness among adolescents is multifaceted and often involves physical or sexual abuse factors.

Risk Behaviors

Data on the health behaviors of homeless adolescents have shown a high prevalence of health risk behaviors such as use of tobacco, alcohol, illicit drugs, and unsafe sexual practices. It is unclear, however, whether these behaviors are a result of a youth's homelessness or whether these behaviors led to his or her homeless situation. Most data were obtained through surveys specifically designed for homeless youth. The reliability of the tools used to gather this information is often not outlined by the authors nor is there much detail in the literature regarding the development of the measurement tools. Thus, the reliability of existing data on homeless adolescents is unclear. However, the external consistency among most studies on the prevalence of risk behaviors in homeless youth upholds the validity of existing information, allowing researchers to use these data when exploring risk behaviors in the homeless adolescent population. The following is a brief description of the prevalence of health risk behaviors in the homeless youth population.

Substance Abuse

A high prevalence of substance abuse has been reported in populations of homeless adolescents. The most commonly used substances are tobacco, alcohol, and marijuana. Between 43 and 81% of homeless youth have recently smoked or currently smoke cigarettes [Greene et al, 1997, Kipke et al, 1995, Yates et al, 1988, Ensign & Santelli, 1997]. The prevalence of smoking is higher in homeless youth than in non-homeless youth. The 1997 national Youth Risk Behavior Survey of in-school adolescents reports that 58.8% of respondents had ever smoked cigarettes and 36.4% currently smoke cigarettes [US Dept. of Health & Human Services, 1998]. Alcohol consumption is another behavior of high prevalence in the homeless teen population as well as the general adolescent population. Approximately 71 to 81% of homeless youth report having consumed alcohol in their lifetime [Greene et al, 1997, Ensign & Santelli, 1997] while as many as 50% report consumption of alcohol within the past week [Yates et al, 1988]. These numbers are similar to those found in the general adolescent population. The 1997 YRBS reports that 79.5% of students had ever consumed alcohol in their lifetime and nearly 51% had consumed alcohol within the past 30 days [US Dept. of Health & Human Services, 1998]. Between 55% and 75% of homeless youth report the use of marijuana [Greene et al, 1997, Ensign & Santelli, 1997, 1998]. Among the general, non-homeless adolescent population, 47% of all students had used marijuana at least once in their lifetime [US Dept. of Health & Human Services, 1998]. Homeless adolescents also frequently use other drugs. Greene et al report that among street youth in 10 U.S. cities, 54.7% have used other drugs such as crack or cocaine (25%), inhalants (25.7%), hallucinogens (38.2%), methamphetamines (7.5%), stimulants (32.1%), sedatives

(25.7%), and heroin (13.6%) [Greene et al, 1997]. These estimates are much higher than those reported in the general adolescent population. Among high school students surveyed in 1997, 8.2% reported having ever used cocaine, 16% reported having ever used inhalants and 17% reported having ever used hallucinogens, methamphetamines, "ecstasy", or heroin [US Dept. of Health & Human Services, 1998]. Injection drug use (IDU) is also frequently reported by homeless youth. Previous studies show that the prevalence of IDU ranges from 3.6% to 43% in this population [Greene et al, 1997, Kral et al, 1997, Kipke et al, 1995, Yates et al, 1988,]. Kral et al found regional differences in the prevalence of IDU, reporting that 43% of homeless youth in San Francisco had used injection drugs while only 12% reported this behavior in Denver and 1% in New York City [Kral et al, 1997]. The use of injection drugs is considerably lower in the non-homeless population. The 1997 YRBS reports that 2.1% of students reported having injected drugs in their lifetime [US Dept. of Health & Human Services, 1998].

Sexual Behaviors

Teenagers place themselves at risk for many adverse health outcomes through their sexual activity and practices. Homeless youth appear to be at increased risk for both unintended pregnancies and exposure to sexually transmitted diseases. The majority (over 95%) of homeless adolescents have experienced sexual intercourse at least once in their lifetime [Kral et al, 1997, Kipke et al, 1995, Yates et al, 1988, Ensign & Santelli, 1998]. In addition, a large proportion of these youth (between 80 and 85%) are currently sexually active [Kral et al, 1997]. These estimates are much higher than those reported by adolescents in the 1997 YRBS, which showed that 48.4% of high-school students have

had sexual intercourse in their lifetime and 34.8% reported having had sexual intercourse during the 3 months preceding the survey [US Dept. of Health & Human Services, 1998]. Sexually active homeless adolescents also frequently report multiple sexual partners. Kral et al report that among sexually active homeless youth in San Francisco, Denver, and New York City, females reported an average of 6.9 male sexual partners in the past 3 months while males reported an average of 7.8 female partners in the past 3 months [Kral et al, 1997]. In addition, 77% of females and 74% of males report that they had had sex while drunk or high [Kral et al, 1997]. Finally, as many as 39% of homeless girls have been pregnant at least once [Ensign & Santelli, 1997]. The 1997 YRBS showed that 1.3% of youth reported having 6 or more sexual partners in the past 3 months, 24.7% reported using drugs or alcohol the last time they had sex, and 6.5% had been pregnant or had gotten someone else pregnant [US Dept. of Health & Human Services, 1998].

Homeless adolescents use condoms less frequently than non-homeless adolescents do. Sherman found that in San Francisco more than 60% of youth who had engaged in vaginal sex did not use a condom during their last sex act [Sherman, 1991]. Kral et al report that 66% of females and 53% of males report that they do not consistently use condoms when engaging in vaginal sex [Kral et al, 1997]. In contrast, the 1997 YRBS reports that among currently sexually active teens, approximately 43% did not use a condom with their last sexual encounter [US Dept. of Health & Human Services, 1998].

Violence

Physical and/or sexual abuse are frequently reported by homeless youth, as are exposures to other violent acts such as shootings, stabbings, and fighting. Few published data describe the prevalence of these behaviors among homeless youth. Ensign and

Santelli report that over 85% of street youth in Baltimore, Maryland report having witnessed a shooting or stabbing [Ensign & Santelli, 1997]. Other studies have shown high prevalence of current and past exposures to violence or histories of severe aggressive behavior [Booth & Zhang, 1996, Kipke et al, 1997]. Homeless youth also report a high prevalence of suicide attempts. Molnar et al found that 48% of homeless girls and 27% of homeless boys had attempted suicide at some time in their lives [Molnar et al, 1998]. No published data indicate the prevalence of weapon carrying and use among homeless youth.

Homeless adolescents participate in a number of risky health behaviors and as a result are at increased risk for sexually transmitted diseases, pregnancy, violence and for the long-term effects of drug, alcohol, and tobacco abuse. While it is unclear whether these behaviors are the cause of their homelessness or whether being homeless led to these behaviors, it is obvious that homeless youth are putting themselves at risk for adverse health consequences. The data on homeless adolescents presented above were gathered primarily through surveys directed at homeless youth. Because of this, the results of these studies may not be comparable to similar studies of the general (non-homeless) adolescent population. The administration of a similar survey to homeless and non-homeless adolescents will allow the comparison of the prevalence of the health risk behaviors of these two groups.

The purpose of this study was to determine the prevalence of health risk behaviors among homeless adolescents attending two drop-in centers in Portland, Oregon. In addition, I identified variables associated with individuals using injection drugs, attempting suicide, and carrying a weapon. Finally, I compared the health risk behaviors

of homeless adolescents to non-homeless adolescents in the same state and county. This study addresses the following research questions:

- What are the frequencies of health risk behaviors of homeless adolescents in Portland, Oregon?
- How do the frequencies of the reported risk behaviors of homeless adolescents' compare to those in non-homeless adolescents?
- What factors are associated with an individual's participation in injection drug use, attempting suicide, and weapon carrying?

Methods

Study Sites and Sample

I administered surveys at two drop-in centers frequently utilized by homeless youth in Portland, Oregon between February 1 and April 15, 1999. The drop-in centers provide a place for homeless youth to rest, socialize, make phone-calls, and receive mail. Both sites employ caseworkers that work with the youth to connect them with social services, shelters, employment opportunities, and provide counseling. Site A provides services for youth under the age of 21 years and serves approximately 1000 clients per year; providers see between 20 and 30 youth per day. Site B works with youth 18 years and younger and provides services to between 20 to 30 youth per day, serving nearly 900 clients per year.

Subject Recruitment

I recruited subjects from both drop-in centers. Every client entering the drop-in center was considered for recruitment. Survey administrators approached potential

subjects and asked them if they would be interested in completing a health behavior survey. Subjects in emotional distress or under the influence of alcohol or drugs were not recruited. Subjects who had previously refused to participate or had not been recruited were re-recruited on a different day to allow youth another opportunity to join the study. Days of the week and time of drop-in center recruitment varied to capture individuals who attend the drop-in centers on different days of the week or at different times of the day.

Survey

All study participants completed the 1999 Homeless Youth Risk Behavior Survey (HYRBS) (Appendix A). The HYRBS consists of 62, multiple-choice questions and is a revised version of the 1997 Oregon Youth Risk Behavior Survey (OR YRBS) [Oregon Health Division, 1998]. The OR YRBS was developed by the Centers for Disease Control and Prevention (CDC) and has been administered to youth in the State of Oregon every other year since 1991. The YRBS has been shown to be a reliable tool for the measure of health risk behaviors [Brener et al, 1995]. The HYRBS was developed for this study and contains 60 questions extrapolated directly from the YRBS and 2 additional questions added to the end of the survey by the author concerning self-perceived homeless status and where subjects slept the previous night. Unlike the YRBS, the HYRBS does not contain questions relating to: activities on school property or the home, diet, steroid use, motorcycle riding, bicycle riding, drinking and driving, purchasing cigarettes, physical education classes, and the use of school based health centers. Such

questions were felt to be beyond the scope of this study and that their removal would not significantly reduce the reliability of the tool.

Survey Administration

Subjects completed surveys in an area away from the main room of the drop-in center to ensure privacy and to minimize interruptions. I informed subjects of the purpose of the study and ensured them that all information would remain confidential and that the surveys were anonymous. Subjects read a standardized consent form and gave consent for participation in the study. Subjects were also asked to read and sign a statement that informally verified a subject's independence from their parents.

After obtaining informed consent, I briefly outlined the instructions for the completion of the survey. Subjects were asked to mark answers on the survey form and to circle only one answer unless otherwise indicated in the question. In addition, I informed subjects that they did not have to answer questions that made them uncomfortable and that drop-in center counselors were available, if they desired. I was available to answer questions subjects had while completing the survey. Subjects completed surveys in between five and 30 minutes. Upon completion, subjects placed completed surveys in a letter-sized envelope to ensure anonymity. I compensated subjects for their participation through $5 gift certificates from a local supermarket. Consent forms were kept separate from completed surveys, and were not linked to completed surveys.

Data Management and Analysis

I conducted data entry and analysis using SPSS version 8.0 [SPSS Inc., Chicago, IL] and EpiInfo 6.04 [Dean et al, 1995]. I coded all responses to the survey to expedite data entry. Missing data or multiple answers were coded as missing and were not

County. I examined differences between the homeless sample and in-school sample risk factors associated with violence, substance abuse, and sexual behaviors.

I fit three separate logistic regression models for risk factors associated with injection drug use, attempting suicide, and carrying a weapon. First, I identified risk factors that were significantly associated with each outcome using univariate logistic regression analysis and $p<0.05$ as the level of significance. Next, I added a dichotomized age variable (age $\geq$ 18 years, yes or no) to the univariate logistic regression models to determine whether this variable changed the significance of the variables. Finally, I fit multiple logistic regression models by entering the most significant variables from the age-adjusted models one at a time and comparing the likelihood ratio test statistics to fit the best possible model with the data available.

Results

Of the 138 youth recruited, 133 agreed to complete the survey. Five individuals refused to participate in the study. Reasons for refusal included lack of time (2), not interested (1), inability to read (1), and Attention Deficit Hyperactive Disorder (1). Table 1 shows the gender and age distribution of those surveyed, along with information regarding race, education, and homeless status. Of the 133 respondents, 72 (54%) were male and 61 (46%) were female. Overall, 50.4% were 18 years of age or older (63.9% of males and 34.4% of females, $p<0.001$) (Table 1).

Table 1. Demographic characteristics of homeless and high-risk youth by gender, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon, 1999.

Characteristic	Male (N=72) No. (%)	Female (N=61) No. (%)	Total (N=133) No. (%)	p-value
Age (years)				<0.001
14	0 (0)	3 (4.9)	3 (2.3)	
15	2 (2.8)	2 (24.6)	17 (12.8)	
16	10 (13.9)	11 (18.0)	21 (15.8)	
17	14 (19.4)	11 (18.0)	25 (18.8)	
≥ 18	46 (63.9)	21 (34.4)	67 (50.4)	
Race				n.s.
White	44 (61.1)	39 (63.9)	83 (62.4)	
Black	2 (2.8)	1 (1.6)	3 (2.3)	
Hispanic	3 (4.2)	2 (3.3)	5 (3.8)	
Asian/Pacific Islander	0 (0)	0 (0)	0 (0)	
Amer. Indian/Native AK	5 (6.9)	2 (3.3)	7 (5.3)	
Other	18 (25.0)	17 (27.9)	35 (26.3)	
Last Grade Completed				0.05
8th or less	12 (16.7)	17 (27.9)	29 (21.8)	
9th	14 (19.4)	19 (31.1)	33 (24.8)	
10th	14 (19.4)	10 (16.4)	24 (18.0)	
11th	10 (13.9)	7 (11.5)	17 (12.8)	
12th	16 (22.2)	3 (4.9)	19 (14.3)	
Other†	6 (8.3)	5 (8.2)	11 (8.3)	
Homeless Residence Status				n.s.
Yes	51 (70.8)	39 (63.9)	90 (67.7)	
No	17 (23.6)	20 (32.8)	37 (27.8)	
Don't know	4 (5.6)	2 (3.3)	6 (4.5)	
Where slept previous night				n.s.
House/apartment	17 (23.6)	18 (29.5)	35 (26.3)	
Hotel/motel	3 (4.2)	1 (1.6)	4 (3.0)	
Shelter	24 (33.3)	25 (41.0)	49 (36.8)	
Street	20 (27.8)	10 (16.4)	30 (22.6)	
Don't know	2 (2.8)	1 (1.6)	3 (2.3)	
Did not sleep last night	5 (6.9)	5 (8.2)	10 (7.5)	
Multiple places	1 (1.4)	1 (1.6)	2 (1.5)	

† includes GED, ungraded schooling, and college.

Overall 19.5% of respondents reported carrying a gun in the past month and 45.1% reported carrying a weapon other than a gun in the past month (Table 2). Of those who reported fighting, nearly one-third reported that they fought with a stranger and one-third reported a fight with a family member. Approximately 63% of youth who reported a history of physical abuse had last been abused within the past 5 years and nearly half had gotten help for their abuse. A significantly greater proportion of females than males reported having a history of sexual abuse ($p<0.0001$, Table 2). Of those who reported sexual abuse, 71% of females and 44% of males reported abuse within the past 5 years ($p<0.03$). Approximately 43% had received help for their sexual abuse. Over 33% of respondents reported at least one suicide attempt in the past year (Table 2). Nearly 20% of those who had attempted suicide in the past year reported that an attempt had resulted in injury. The majority of the youth reported smoking, drinking and drug use behaviors. A significantly greater proportion of females than males reported smoking at least one day in the past month ($p<0.01$, Table 2). Among those who currently smoke, 95% reported smoking 2 or more cigarettes on days that they did smoke. Of youth who had ever consumed alcohol, 62% reported their first drink other than a few sips before the age of 13 years. Of those who had smoked marijuana, 66% reported first use before age 13 years. Among those who had ever used cocaine, 31% reported using the drug before age 13 years. Finally, over 44% of subjects reported injection drug use (IDU) at least one time in their life.

Table 2. Selected risk behaviors by gender, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon, 1999

Characteristic	Male (N=72) No. (%)	Female (N=61) No. (%)	Total (N=133) No. (%)	p-value
Carried gun past 30 days	18 (25.0)	8 (13.1)	26 (19.5)	
Carried other weapon past 30 days	35 (48.6)	25 (41.0)	60 (45.1)	
Physical fight past 12 months	52 (72.2)	41 (67.2)†	93 (69.9)	
History of physical abuse	53 (73.6)††	49 (80.3)††	102 (76.7)	
History of sexual abuse	25 (34.7)†	44 (72.1)	69 (51.9)	<0.0001
Attempted suicide past year	27 (37.5)	18 (29.5)	45 (33.8)	
Smoked past 30 days	64 (88.9)	60 (100)†	124 (93.9)	<0.01
Smoked ≥ 10 days, past 30 days	58 (80.6)	55 (91.7)†	113 (85.6)	
Drank alcohol past 30 days	53 (73.6)	55 (63.9)†	113 (69.2)	
Drank ≥ 5 drinks in row, 30 days	43 (59.7)	28 (45.9)†	71 (53.4)	
Drank alcohol ≥ 10 days, 30 days	20 (27.8)	9 (15.3)††	29 (22.1)	
Smoked marijuana past 30 days	51 (70.8)†	41 (67.2)†††	92 (69.2)	
Smoked marijuana ≥ 10 times, 30 days	36 (50.7)†	25 (43.1)†††	61 (47.3)	
Used cocaine past 30 days	18 (25.0)	17 (27.9)	35 (26.3)	
Used inhalants past 30 days	6 (8.3)	6 (9.8)	12 (9.0)	
Ever used other drugs‡	57 (79.2)	51 (86.4)††	108 (82.4)	
Ever injected drugs	29 (40.8)†	30 (49.2)	59 (44.7)	
Ever had sexual intercourse	62 (88.6)††	55 (91.7)†	117 (90.0)	

† missing 1 response, †† missing 2 responses, ††† missing 3 responses

‡ lysergic diethyl amine (LSD), phencyclidine (PCP), methylenedioxymethamphetamine ("ecstasy"), pscillocybin (mushrooms), methamphetamine ("speed", "ice"), heroin.

One-hundred-seventeen of the 133 youth surveyed (90%) reported previous sexual intercourse (Table 3). Nearly 77% of youth who had previously engaged in sexual intercourse first did so before the age of 15 years and most (88%) reported that they are currently sexually active. Nearly half of the youth used a condom and one-third used drugs or alcohol the last time they had sexual intercourse.

Table 3. Sexual behaviors among sexually active homeless and at risk youth by gender, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon, 1999.

Characteristic	Male (N=62) No.	(%)	Female (N=55) No.	(%)	Total (N=117) No.	(%)	p-value
Ever had sexual intercourse	62	(88.6)†	55	(91.7) ††	117	(90.0)†††	
Sexual intercourse before age 13 years	31	(50.0)	17	(31.0)	48	(27.1)	<0.05
Sexual intercourse before age 15 years	43	(69.4)	47	(85.5)	90	(76.9)	<0.05
Been pregnant/gotten someone pregnant	22	(35.5)	32	(58.2)	54	(46.2)	<0.01
Greater than 5 lifetime sex partners	44	(72.1)	35	(63.6)	79	(67.5)	
Sexual intercourse in the past 3 months	51	(82.3)	52	(94.5)	103	(88.0)	<.05
Greater than 3 sexual intercourse partners during past 3 months	21	(33.9)	17	(30.9)	38	(32.5)	
Used drugs or alcohol with last sexual intercourse	25	(40.3)	17	(30.9)	42	(35.9)	
Used a condom with last sexual intercourse	32	(51.6)	22	(40.0)	54	(46.2)	
Used birth control last sexual intercourse	37	(59.6)	36	(65.5)	73	(62.4)	

†= percentage of all male respondents (N=70); ††= percentage of all female respondents (N=60)
†††= percentage of all respondents (N=130)

Eighty-eight percent of all youth reported having at least one health care need in the past year. Females were more likely than males to report two or more health care needs in the past year ($p<0.01$) (Table 4). Female respondents were more likely to report reproductive health needs or pregnancy / STD testing than males ($p<0.001$).

Table 4. Selected health care needs during the past year among homeless youth by gender, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon, 1999.

Reported Health Care Need	Male (N=72) No.	(%)	Female (N=61) No.	(%)	Total (N=133) No.	(%)	p-value
Two or more health care needs	43	(59.7)	50	(81.9)	93	(69.9)	<0.01
No health care needs	11	(15.3)	5	(8.2)	16	(12)	
Check-up/physical	24	(33.3)	22	(36.1)	46	(34.6)	
Injury or accident	28	(38.9)	24	(39.3)	52	(39.1)	
Immunization	20	(27.8)	23	(37.7)	43	(32.3)	
Reproductive health services	9	(12.5)	25	(41.0)	34	(25.6)	<0.001
Pregnancy test or STD test	16	(22.2)	46	(75.4)	62	(46.6)	<0.001
Alcohol or drug problem	15	(20.8)	13	(21.3)	28	(21.1)	
Personal or emotional problem	19	(26.4)	20	(32.8)	39	(29.3)	
Other need not listed	23	(31.9)	18	(29.5)	41	(30.8)	

Table 5 shows a comparison of demographic characteristics and prevalence of risk behaviors between homeless youth from the HYRBS and the 1997 Oregon YRBS.

Because the age distribution in the HYRBS was skewed towards older youth, we age-adjusted the prevalence of risk behaviors of homeless youth to match the age distribution of the Multnomah county respondents from the 1997 Oregon YRBS (Tables 6 & 7). Homeless youth report higher prevalence of most risk behaviors. Homeless youth were more likely to report current smoking, drinking, and marijuana and cocaine use (Table 6). A history of injection drug use (IDU) was reported with much greater frequency by homeless youth than Oregon YRBS respondents both within Multnomah county and statewide (39.1% vs. 1.2% and 1.5%, respectively). Homeless youth appear to be similar to non-homeless youth in their use of condoms with their last sexual intercourse, their use of alcohol or drugs with their last sexual intercourse and their use of birth control (Table 7).

Table 5. Demographic characteristics of homeless adolescents Homeless Youth Risk Behavior Survey (HYRBS) and of youth from the 1997 Oregon Youth Risk Behavior Survey (OR YRBS).

Characteristic	**1999 HYRBS (N=133)**	**1997 OR YRBS Multnomah Co (N=4047)**	**1997 OR YRBS (N=32,378)**
	%	%	%
Age (years)			
14	2.3	13	11.4
15	12.8	31.3	28.7
16	15.8	28.6	27.4
17	18.8	18.2	22.3
≥ 18	50.4	8.7	10.2
Race			
White	62.4	67.6	82.3
Black	2.3	10.4	1.9
Hispanic	4.2	4.5	5.6
Asian/Pacific Islander	0	9.7	3.3
Amer. Indian/Native AK	6.9	2.0	3.3
Other	25.0	5.7	4.3

Table 6. Age-adjusted* prevalence of selected risk behaviors of homeless adolescents, Homeless Youth Risk Behavior Survey (HYRBS) and respondents of the 1997 Oregon Youth Risk Behavior Survey (OR YRBS) in Multnomah County, Oregon, and statewide for Oregon.

Characteristic	1999 HYRBS (N=133)	1997 OR YRBS Multnomah Co. (N=4047)	1997 OR YRBS Statewide (N=32,378)
	%*	%	%*
Carried gun, past 30 days	20.0	5.4	6.1
Carried other weapon, past 30 days	43.0	16.4	17.7
Physical fight, past 12 months	67.2	32.6	29.6
History of physical abuse	81.7	28.8	28.2
History of sexual abuse	65.4	17.2	16.1
Attempted suicide, past year	34.8	9.7	9.0
Smoked cigarettes, past 30 days	95.8	23.3	23.0
Drank alcohol, past 30 days	69.1	44.1	45.4
Drank $\geq$ 5 drinks in row, past 30 days	55.5	27.7	30.4
Smoked marijuana, past 30 days	71.7	24.3	23.0
Used cocaine, past 30 days	20.0	1.5	2.7
Used inhalants, past 30 days	15.3	3.6	4.8
Ever used other drugs[Φ]	81.9	14.9	17.3
Ever injected drugs	38.0	1.2	1.5

* Adjusted by age to match the age distribution of respondents from Multnomah county.
Φ lysergic diethyl amine (LSD), phencyclidine (PCP), methylenedioxymethamphetamine ("ecstasy"), pscillocybin (mushrooms), methamphetamine ("speed", "ice"), heroin.

Table 7. Age-adjusted* prevalence of selected sexual behaviors among homeless youth who reported having previously had sexual intercourse, Homeless Youth Risk Behavior Survey (HYRBS) and respondents of the 1997 Oregon Youth Risk Behavior Survey (OR YRBS) in Multnomah County, Oregon, and statewide for Oregon.

Characteristic	**1999 HYRBS (N=117)**	**1997 OR YRBS Multnomah Co. (N=1453)**	**1997 OR YRBS (N=11,219)**
	%*	%	%*
Ever had sexual intercourse	89.3†	38.7††	38.8†††
Sexual intercourse before age 13 years	36.6	15.8	14.9
Sexual intercourse before age 15 years	82.1	54.9	52.3
Been pregnant/gotten someone pregnant	42.4	15.5	10.5
Greater than 5 lifetime sex partners	69.1	16.2	14.6
Greater than 3 sex partners in the past 3 months	35.8	4.2	3.6
Used drugs or alcohol with last sexual intercourse	39.5	24.8	28.5
Used a condom with last sexual intercourse	60.3	62.2	58.6
Used birth control last sexual intercourse	69.5	84.1	81.9

* Age-adjusted to match the age distribution of respondents from Multnomah County who reported having previously had sexual intercourse.
†: N= 133; ††: N= 4047; †††: N= 32,378

Several variables were found to be significantly associated with IDU through univariate logistic regression analysis and when adjusted for age (Table 8). The variable "Used other drugs 40 or more times" was associated with IDU but was eliminated from

consideration for multiple logistic regression because heroin, the use of which is included in this variable, is generally an injected drug. Therefore, the variables were highly correlated. In addition, use of alcohol and the use of cocaine were highly correlated with fighting and were not considered for the multiple logistic regression model. Variables included in the multiple logistic regression analysis and their respective odds ratios and 95% confidence intervals are shown in Table 9. Confounding is apparent between these variables, as the odds ratios are smaller in the multiple logistic model than the odds ratios in the univariate model and the 95% confidence interval slightly narrower.

Table 8. Risk factors for injection drug use, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon.

Variable	Adjusted Odds Ratio†	95% Confidence Interval
Used other drugs 40 or more times✟	9.3	4.1-21.0
Engaged in a physical fight during the past 12 months	4.6	1.9-11.1
Smoked cigarettes everyday during the past 30 days	4.4	1.8-10.8
Used cocaine or crack during the past 30 days	3.8	1.7-8.8
Drank ≥ 5 drinks of alcohol in a row during the past 30 days	3.2	1.5-6.8
Carried a gun or other weapon during the past 30 days	1.3	1.0-1.6
Ever pregnant/caused pregnancy	2.2	1.0-4.6

† adjusted for age as a dichotomous variable (≥ 18 years)
✟ lysergic diethyl amine (LSD), phencyclidine (PCP), methylenedioxymethamphetamine ("ecstasy"), pscillocybin (mushrooms), methamphetamine ("speed", "ice"), heroin.

Table 9. Risk factors for injection drug use, from multiple logistic regression with simultaneous control for all variables included in the table, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon, 1999.

Variable	Adjusted Odds Ratio	95% Confidence Interval
Engaged in a physical fight during the past 12 months	3.8	1.5-9.4
Smoked cigarettes everyday during the past 30 days	3.6	1.4-9.0
Age $\geq$ 18 years	1.3†	0.6-2.8

† compared to < 18 years

Four variables were found to be significantly associated with attempting suicide in the past year after adjusting for age through logistic regression analysis (Table 10). Alcohol consumption was not included in multiple logistic regression analysis because it is correlated with cocaine use (gamma = 0.7). Variables included in the multiple logistic regression model and their respective odds ratios and 95% confidence intervals are shown in Table 11. Confounding is apparent between these variables as the odds ratios for each variable is smaller in the multivariate analysis and the confidence interval narrower.

Table 10. Risk factors for attempting suicide during the past 12 months among homeless adolescents, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon, 1999.

Variable	Adjusted Odds Ratio*	95% Confidence Interval
Carried a weapon other than a gun during the past 30 days	3.9	1.8-8.2
Slept previous night on the street, multiple places, or did not sleep	3.8	1.7-8.2
Drank ≥ 5 drinks of alcohol in a row during the past 30 days	3.5	1.6-7.8
Used cocaine or crack during the past 30 days	2.9	1.3-6.5

* adjusted for age

Table 11. Risk factors for attempting suicide in the past 12 months, from multiple logistic regression with simultaneous control for all variables included in the table, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon, 1999.

Variable	Adjusted Odds Ratio	95% Confidence Interval
Carried a weapon other than a gun during the past 30 days	3.0	1.3-6.6
Slept previous night on the street, multiple places, or did not sleep	2.9	1.3-6.6
Age ≥ 18 years	.95†	0.4-2.1

† compared to < 18 years

Several variables were found to be significantly associated with carrying a weapon in the past month through logistic regression analysis (Table 12). Results of multiple logistic regression analysis are shown in Table 13. Some confounding is present as the odds ratios for the variables are smaller in the multivariate model.

Table 12. Risk factors for weapon carrying in the past month among homeless adolescents, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon, 1999.

Variable	Adjusted Odds Ratio*	95% Confidence Interval
Physical fight past year	5.1	2.15-11.84
Drank ≥ 5 drinks in row past 30 days	4.1	1.9-8.4
Slept previous night: street, multiple places, did not sleep	3.8	1.7-8.2
Ever used other drugs 40 or more times†	3.4	1.7-7.1
Ever used injection drugs	2.9	1.4-5.8
Smoked marijuana 10 or more times past month	2.3	1.1-4.7

* adjusted for age

† lysergic diethyl amine (LSD), phencyclidine (PCP), methylenedioxymethamphetamine ("ecstasy"), pscillocybin (mushrooms), methamphetamine ("speed", "ice"), heroin.

Table 13. Risk factors for weapon carrying in the past month, from multiple logistic regression with simultaneous control for all variables included in the table, Homeless Youth Risk Behavior Survey (HYRBS), Portland, Oregon, 1999.

Variable	Adjusted Odds Ratio	95% Confidence Interval
Physical fight past year	4.5	1.9-11.1
Drank ≥ 5 drinks in row past 30 days	3.9	1.8-8.4
Age ≥ 18 years	1.2†	0.6-2.7

† compared to < 18 years

Discussion

The data show a high prevalence of a history of abuse (physical and/or sexual), weapon carrying, fighting and suicide attempts among homeless youth attending two drop-in centers in Portland, Oregon. In addition, substance use is extremely common among homeless youth. I found a high prevalence of recent smoking, drinking alcohol and smoking marijuana. Injection drug use and other drug use was also common. Finally, homeless youth participate in high-risk sexual behaviors, including first sexual intercourse at an early age, multiple sexual partners, unprotected sex, and the use of alcohol or drugs with sex.

The findings of this study generally reflect the findings of other studies that have examined risk behaviors in homeless adolescents. However, in my study I found a higher prevalence of smoking than previous reports among homeless youth. Greene et al reported a slightly lower prevalence of 81% in street youth and 71% in shelter youth from national surveys [Greene et al, 1997]. The different prevalence of this behavior seen in my study may be an indication of a trend towards an increased prevalence of smoking in adolescents or may be due to increased access to cigarettes due to the older age of my subjects. I also showed a much higher prevalence of smoking in homeless youth compared to high school students in Multnomah County and the State of Oregon. Ensign and Santelli reported similar findings in their comparison of shelter-based homeless youth and school based youth [Ensign & Santelli, 1998]. Similarly, Greene et al reported a higher prevalence of smoking in homeless youth compared to non-homeless youth [Greene et al, 1997].

I found that nearly 70% of homeless youth in my study reported drinking alcohol in the past month. Greene et al found a higher prevalence of alcohol abuse in street youth (81%) but a lower prevalence in shelter youth (67%) in two national samples [Greene et al, 1997]. The prevalence seen in this study may be caused by the mix of shelter and street youth in the sample. When compared to non-homeless youth, the prevalence of consuming alcohol is only slightly higher in homeless youth. Access may be of issue in this case as non-homeless youth are likely to have increased access to alcohol through their parents than homeless youth.

My study shows that nearly 70% of homeless youth have recently smoked marijuana. Previous studies have shown a similar magnitude in the prevalence of marijuana use other homeless adolescent populations. Greene et al reported that 72% of street youth and 52% of shelter youth have used marijuana [Greene et al, 1997]. Ensign and Santelli report that over 63% of homeless youth in their study smoke marijuana regularly [Ensign & Santelli, 1997]. In contrast, a study of homeless youth in Baltimore reported that only 43% had ever smoked marijuana [Ensign & Santelli, 1998]. I found a much higher prevalence of marijuana use in homeless youth than non-homeless youth in Multnomah County and the State of Oregon, consistent with previous studies [Greene et al, 1997, Ensign & Santelli, 1997]. I found the prevalence of injection drug use (IDU) and the use of "other" drugs, including LSD, mushrooms, PCP, methamphetamines, and heroin, were extremely high. Approximately half of the girls surveyed and over 40% of boys surveyed reported previous IDU. Previous studies have reported a similar high prevalence of IDU in Los Angeles (30%) [Anderson et al, 1994], Hollywood (30%) [Kipke et al, 1995], and San Francisco (43%) [Kral et al, 1997]. In contrast, homeless

youth in Denver and New York City reported a much lower prevalence of IDU (12% and 1% respectively) [Kral et al, 1997]. The similarity in prevalence between this study and those on the West coast may be partially explained by the migratory nature of homeless youth who often move up and down the West coast. I found several significant risk factors for IDU. When fitting a model using multiple logistic regression and controlling for age, I found that physical fighting and daily smoking were significant risk factors associated with IDU. While the presence of these variables may not predict future IDU, they are strongly associated with this behavior and may serve as signals to caseworkers and clinicians that youth may be involved in IDU behaviors. IDU was considerably more prevalent in homeless youth than non-homeless youth in both Multnomah County and the State of Oregon. Similarly, Greene et al found a lower prevalence of IDU in non-homeless youth than homeless youth [Greene et al, 1997]. In addition to injection drug use, the prevalence of the use other drugs such as hallucinogens, methamphetamines, MDMA ("ecstasy"), or heroin was extremely high in the study population. Greater than 82% of homeless youth reported using one of the above substances at least one time in their life. This prevalence is higher than that reported by homeless youth in Baltimore (63%) [Ensign & Santelli, 1997] and by homeless youth in a national sample (54.7%) [Greene et al, 1997]. Use of other drugs by homeless adolescents was also notably greater than youth from Multnomah County, where less than 15% of youth reported this behavior, and Oregon, where less than 18% reported this behavior.

I found that homeless adolescents report a high prevalence of sexual risk behaviors. Ninety percent of respondents reported that they had previously had sexual intercourse. Of this group, 88% were currently sexually active. These findings are

consistent with those of previous studies on homeless youth that showed the prevalence previous sexual intercourse ranging from 83 to 99% [Kral et al, 1997, Yates et al, 1988, Ensign & Santelli, 1998, and Sherman, 1991]. Females were significantly more likely than males to report onset of sexual intercourse before age 15 years. This finding is contrary to the findings of previous studies. Anderson et al found that more boys than girls in Hollywood, California reported sexual intercourse before age 15 (69% and 56%, respectively) [Anderson et al, 1994]. Likewise, Kral et al found a younger age of first intercourse in homeless males than females in New York City, Denver, and San Francisco (12.9 years vs. 13.9 years) [Kral et al, 1997]. I also found that many youth reported multiple sex partners in the past 3 months. Nearly one in three youth (34% of males and 31% of females) reported 4 or more sexual partners in the past three months. Kral et al report similar findings, with a mean number of sexual partners in the past 3 months was 6.9 for females, and 3.6 for males [Kral et al, 1997]. Compared to youth from Multnomah County and the State of Oregon I found that homeless youth were more likely to have had sex and more likely to have first had sex at a younger age. In contrast, Ensign and Santelli reported a similar prevalence of sexual intercourse in homeless and school based youth in Baltimore [Ensign & Santelli, 1998]. The prevalence of condom use at last sexual intercourse in this study was similar to the prevalence found in previous reports [Kipke et al, 1995, Ensign & Santelli, 1997, and Anderson et al, 1994]. Surprisingly, the prevalence of condom use by homeless youth is similar to the prevalence in youth from Multnomah County and greater than youth from the entire State of Oregon. Condoms are widely available at both drop-in centers and literature and posters encouraging condom use are boldly displayed. This push for condom use and

their ease of availability may be responsible for the observed similarities in their prevalence of use in the different adolescent samples.

I found that homeless youth were likely to have been exposed to violence. I found an alarmingly high prevalence of weapon carrying in homeless adolescents. Nearly 20% of respondents reported carrying a gun and 45% reported carrying another weapon in the 30 days prior to completing the survey. A literature search failed to find similar studies reporting the prevalence of weapon carrying in homeless adolescents. The prevalence of weapon carrying by youth in Multnomah County and in the State of Oregon was much lower than in the homeless sample. A previous study examining weapon carrying showed that adolescents involved in substance abuse behaviors and physical violence were more likely to carry weapons than those not involved in these behaviors [Durant et al, 1997]. The high prevalence of fighting and substance abuse observed in this study and the results of the logistic regression analysis support this. I found that both physical fighting and frequent substance use are associated with weapon carrying behavior.

One-third of homeless youth reported at least one suicide attempt in the past year, over 3 times the prevalence reported by youth in Multnomah County or in the State of Oregon. The high prevalence in my study is consistent with a study of homeless youth in San Francisco, Denver and New York City [Molnar et al, 1998]. In contrast, previous studies in Los Angeles [Yates et al, 1988] and Baltimore [Ensign & Santelli, 1998] reported a lower prevalence of suicide attempts or self-harm. In the multiple logistic regression model, I show that carrying a weapon other than a gun and sleeping on the streets were significant risk factors associated with attempting suicide in the past month. This finding is in contrary to previous work by Molnar et al who showed that youth that

had experienced physical and/or sexual abuse were more likely to have attempted suicide [Molnar et al, 1998]. However, it is unclear whether other risk factors were considered in the development of their model. Compared to homeless youth, the prevalence of suicide attempts was much lower in the non-homeless population.

Some limitations of this study must be recognized. First, I assumed that modifying the YRBS would not significantly reduce the reliability of the tool. Because I removed questions, I may have changed the nature of the survey and can not be entirely sure of the reliability of the results. However, I feel that the HYRBS is reliable because I worded questions exactly as they appear in the YRBS, maintained the same sequence of questions as the YRBS, and found that nearly all subjects provided consistent answers when completing surveys. Second, this study population may not be representative of the homeless adolescent population as a whole, as it is a convenience sample in one Oregon county. Previous studies have shown significant regional variability in the prevalence of certain risk behaviors [Kral et al, 1997]. Such variability may explain some of the differences in the prevalence of risk behaviors than those reported elsewhere. Third, it is not possible to make any firm conclusions about the differences in the prevalence of risk behaviors between the homeless population and those captured by the state's YRBS due to differences in the age distribution of the two samples. Age-adjustment increases the validity of comparisons between the two samples, but unknown factors may be confounding the results, making any statistical analysis unreliable.

The prevalence of health risk behaviors is very high in homeless adolescents. I found an extremely high prevalence of substance use behaviors including smoking, drinking, marijuana use, IDU, and the use of other drugs. It is unclear whether these

substance use behaviors preclude homelessness or whether such behaviors are learned by the youth as they incorporate themselves into the homeless population. Regardless, a greater effort must be made to address the extensive substance abuse related needs of this population. Expanded anti-smoking and drug-use programs could be implemented in the drop-in center environment. The prevalence of sexual risk behaviors was also very high. Homeless adolescents report an earlier onset of sexual behavior report a greater number of sexual partners than non-homeless youth. These behaviors put homeless youth at significant risk for sexually transmitted diseases, HIV, and unintended pregnancies. Further educational and clinical efforts to address these risky behaviors may be effective at reducing their long-term health consequences. It is surprising that homeless youth are similar to their peers in terms of condom use and substance use prior to sexual intercourse. Efforts promoting condom use appear to be effective in this population and should be emulated and expanded to other sexual behavior issues. The prevalence of violent behaviors is very high in the homeless youth population. With the high prevalence of past traumatic life experiences, including sexual abuse, physical abuse and suicide attempts, homeless adolescents are likely to have extensive mental health care needs. However, there are many barriers to access for these youth. Organizations are aware of these problems and are making efforts to address these needs by providing counseling services and simply by providing a safe place for homeless youth to gather.

Further research is needed to identify and monitor the prevalence of risk behaviors in homeless adolescents. Trends in this population may be indicative of future trends in the general adolescent population. I have shown that a modified version of the YRBS is an effective tool for the study the homeless population. Health officials should

consider expanding the administration of the Youth Risk Behavior Survey to include fringe groups of adolescents who are not generally captured by the traditional administration of this survey, including youth in alternative schools as well as homeless adolescents. Doing so will provide a much more accurate picture of the health behaviors of adolescents and will enable health professionals to better address the needs of this important subset of the population.

References

Anderson, JE, TE Freese, JN Pennbridge. Sexual risk behavior and condom use among street youth in Hollywood. *Family Planning Perspectives*. 1994; 26: 22-25.

Booth, RE. Y Zhang. Severe aggression and related conduct problems among runaway and homeless adolescents. *Psychiatric Services*. 1996; 47: 75-80.

Brener, ND, JL Collins, L Kann, CW Warren, BI Williams. Reliability of the Youth Risk Behavior Survey questionnaire. *Am J Epidemiology*. 1995; 141: 575-580.

Brener, ND, JL Collins, L Kann, CW Warren, BI Williams. Reliability of the Youth Risk Behavior Survey Questionnaire. *Am J Epidemiol*. 1995; 141: 575-580.

Council on Scientific Affairs, American Medical Association. Health care needs of homeless and runaway youths. *JAMA*. 1989;262:1358-61.

Dean, AG, JA Dean, D Coulombier, KA Brendel, DC Smith, AH Burton, RC Dicker, K Sullivan, RF Fagan, TG Arner. EpiInfo, Version 6: Wordprocessing, Database, and Statistics Program for Public Health on IBM-Compatible Microcomputers. Centers for Disease Control and Prevention, Atlanta, Georgia, USA, 1995

DuRant, RH, J Kahn, PH Beckford, ER Woods. The association of weapon carrying and fighting on school property and other health risk and problem behaviors among high school students. *Arch Pediatr Adolesc Med.* 1997; 151: 360-366.

Ensign J, Santelli J. Shelter-based homeless youth: Health and access to care. *Arch Pediatr Adolesc Med.* 1997;151:817-23.

Ensign, J, J Santinelli. Health Status and Service Use: Comparison of adolescents at a school-based health clinic with homeless adolescents. *Arch Pediatr Adolesc Med.* 1998; 152: 20-24.

Greene JM, Ennett ST, Ringwalt CL. Substance use among runaway and homeless youth in three national samples. *Am J Public Health.* 1997;87:229-235.

Janus M-D, Archambault FX, Brown SW, et al. Physical abuse in Canadian runaway adolescents. *Child Abuse & Neglect.* 1995;19:433-447.

Kipke MD, O'Connor S, Palmer R, et al. Street youth in Los Angeles: Profile of a group at high risk for Human Immunodeficiency Virus infection. *Arch Pediatr Adolesc Med.* 1995;149:513-519.

Kipke MD, TR Simon, SB Montgomery, JB Unger, EF Iversen. Homeless youth and their exposure to and involvement in violence while living on the streets. *Journal of Adolescent Health*. 1997; 20: 360-7.

Kipke MD, Unger JB, O'Connor S, et al. Street youth, their peer group affiliation and differences according to residential status, subsistence patterns, and use of services. *Adolescence*. 1997;32:655-669.

Kral AH, Molnar BE, Booth RE, et al. Prevalence of sexual risk behavior and substance use among runaway and homeless adolescents in San Francisco, Denver, and New York City. *International Journal of STD & AIDS*. 1997;8:109-117.

Molnar, BE, SB Shade, AH Kral, RE Booth, JK Watters. Suicidal behavior and sexual/physical abuse among street youth. *Child Abuse & Neglect*. 1998; 22: 213-222.

Oregon Health Division, Center for Health Statistics. 1997 Oregon Youth Risk Behavior Survey Summary Report. 1998.

Ringwalt CL, Greene JM, Robertson M, et al. The prevalence of homelessness among adolescents in the United States. *Am J Public Health*. 1998;88:1325-29.

Rotheram-Borus MJ, Majler KA, Koopman C, et al. Sexual abuse history and associated multiple risk behavior in adolescent runaways. *Am J Orthopsychiatry*. 1996;66:390-400.

Sherman DJ. Homeless and Runaway Youth; Public Health Issues and the Need for Action. U.S Public Health Service, Region IX, San Francisco, California, 1991.

SPSS Inc. Release Number 8.0, 1998, Chicago, Illinois.

US Department of Health and Human Services. Youth risk behavior surveillance – United States, 1997. MMWR CDC Surveillance Summaries. 1998;47(SS-3).

Yates G, Mackenzie RG, Pennbridge J, et al. A risk profile comparison of runaway and non-runaway youth. *Am J Public Health*. 1988;78:820-1.

Yates GL, Mackenzie RG, Pennbridge J, et al. A risk profile comparison of homeless youth involved in prostitution and homeless youth not involved. *J Adolesc Health*. 1991;12:545-548.

Appendix A:

Homeless Youth Risk Behavior Survey

The following is a survey that is used to determine the presence of certain behaviors in adolescents. Information from this survey will be used to help meet the needs of young people in society. Your participation could help to make things better for young people like yourself.

Please read each question carefully and circle the letter next to the answer that best describes you.

1) How old are you?

a) 12 years old or younger

b) 13 years old

c) 14 years old

d) 15 years old

e) 16 years old

f) 17 years old

g) 18 years old or older

2) What is your sex?

a) Female

b) Male

3) What is the last grade you completed in school?

a) 8th grade or before

b) 9th grade

c) 10th grade

d) 11th grade

e) 12th grade

f) Ungraded or other

4) How do you describe yourself?

a) White-not Hispanic

b) Black-not Hispanic

c) Hispanic or Latino

d) Asian or Pacific Islander

e) American Indian or Alaska native

f) Other

The next 5 questions ask about weapons and violence

5) **During the past 30 days, on how many days did you carry a gun as a weapon?**
   a) 0 days
   b) 1 day
   c) 2 or 3 days
   d) 4 or 5 days
   e) 6 or more days

6) **During the past 30 days, on how many days did you carry a weapon (other than a gun) such as a knife or a club?**
   a) 0 days
   b) 1 day
   c) 2 or 3 days
   d) 4 or 5 days
   e) 6 or more days

7) **During the past 12 months, how many times were you in a physical fight?**
   a) 0 times
   b) 1 time
   c) 2 or 3 times
   d) 4 or 5 times
   e) 6 or 7 times
   f) 8 or 9 times
   g) 10 or 11 times
   h) 12 or more times

8) **During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?**
   a) 0 times
   b) 1 time
   c) 2 or 3 times
   d) 4 or 5 times
   e) 6 or more times

9) **The last time you were in a physical fight, with whom did you fight?**

a) I have never been in a physical fight
b) A total stranger
c) A friend or someone I know
d) A boyfriend, girlfriend, or date
e) A parent, brother, sister, or other family member
f) Someone not listed above
g) More than one of the persons listed above

The next questions ask about physical abuse

10) **Have you ever been physically abused (hit, kicked or struck by someone when you were not involved in a fight)?**

a) Yes
b) No
c) Don't know

11) **If you have ever been physically abused, when was the last time this happened to you?**

a) I have never been physically abused
b) Within the past week
c) Within the past month
d) Within the past year
e) Within the past 5 years
f) Over 5 years ago
g) Don't know

12) **If you have ever been physically abused, have you ever talked with someone or tried to get help about this abuse?**

a) I've never been physically abused
b) Yes
c) No

The next questions ask about sexual abuse

13) Have you ever been sexually abused (For example: touched sexually when you did not want to be, or forced to have sexual intercourse when you did not want to)?

a) Yes
b) No
c) Don't know

14) If you have been sexually abused, when was the last time this happened?

a) I have never been sexually abused
b) Within the past week
c) Within the past month
d) Within the past year
e) Within the past 5 years
f) Over 5 years ago
g) Don't know

15) If you have been sexually abused, have you ever talked with someone or tried to get help about this abuse?

a) I've never been sexually abused
b) Yes
c) No

Sometimes people feel so depressed and hopeless about the future that they may consider attempting suicide, that is, taking some action to end their own life.

16) During the past 12 months, did you ever *seriously* consider attempting suicide?

a) Yes
b) No

17) During the past 12 months, how many times did you actually attempt suicide?

a) 0 times
b) 1 time
c) 2 or 3 times
d) 4 or 5 times
e) 6 or more times

18) If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?

a) I did not attempt suicide during the past 12 months
b) Yes
c) No

The next questions ask about tobacco use.

19) How old were you when you smoked a whole cigarette for the first time?

a) I have never smoked a whole cigarette
b) 8 years old or younger
c) 9 or 10 years old
d) 11 or 12 years old
e) 13 or 14 years old
f) 15 or 16 years old
g) 17 years old or more

20) During the past 30 days, on how many days did you smoke cigarettes?

a) 0 days
b) 1 or 2 days
c) 3 or 5 days
d) 6 or 9 days
e) 10 or 19 days
f) 20 or 29 days
g) All 30 days

21) During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?

a) I did not smoke cigarettes during the past 30 days
b) Less than 1 cigarette per day
c) 1 cigarette per day
d) 2 to 5 cigarettes per day
e) 6 to 10 cigarettes per day
f) 11 to 20 cigarettes per day
g) More than 20 cigarettes per day

22) Have you ever quit smoking cigarettes for three months or longer?

a) I have never smoked
b) I smoke and have never quit for 3 months
c) I smoke now, but I have quit for at least 3 months at one time
d) I used to smoke, but I quit 3 or more months ago

23) Have you ever used chewing tobacco or snuff?

a) Yes
b) No

24) During the past 30 days, on how many days did you use chewing tobacco or snuff?

a) 0 days
b) 1 or 2 days
c) 3 to 5 days
d) 6 to 9 days
e) 10 to 19 days
f) 20 to 29 days
g) All 30 days

The next questions ask about drinking alcohol. This includes drinking beer, wine, wine coolers, and liquor such as rum, gin, vodka, or whiskey. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.

25) How old were you when you had your first drink of alcohol other than a few sips?

a) I have never had a drink of alcohol other than a few sips
b) 8 years old or younger
c) 9 or 10 years old
d) 11 or 12 years old
e) 13 or 14 years old
f) 15 or 16 years old
g) 17 years old or older

26) During your life, on how many days have you had at least one drink of alcohol?

a) 0 days
b) 1 or 2 days
c) 3 to 5 days
d) 6 to 9 days
e) 10 to 19 days
f) 20 to 39 days
g) 40 to 99 days
h) 100 or more days

27) During the past 30 days, on how many days did you have at least one drink of alcohol?

a) 0 days
b) 1 or 2 days
c) 3 to 5 days
d) 6 to 9 days
e) 10 to 19 days
f) 20 to 29 days
g) All 30 days

28) During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?

a) 0 days
b) 1 day
c) 2 days
d) 3 to 5 days
e) 6 to 9 days
f) 10 to 19 days
g) 20 or more days

The next questions ask about the use of marijuana, which is also called grass or pot.

29) How old were you when you tried marijuana for the first time?

a) I have never tried marijuana
b) 8 years old or younger
c) 9 or 10 years old
d) 11 or 12 years old
e) 13 or 14 years old
f) 15 or 16 years old
g) 17 years old or older

30) During your life, how many times have you used marijuana?

a) 0 times
b) 1 or 2 times
c) 3 to 9 times
d) 10 to 19 times
e) 20 to 39 times
f) 40 to 99 times
g) 100 or more times

31) During the past 30 days, how many times did you use marijuana?

a) 0 times
b) 1 or 2 times
c) 3 to 9 times
d) 10 to 19 times
e) 20 to 39 times
f) 40 or more times

The next questions ask about cocaine and other drug use.

32) How old were you when you tried any form of cocaine, including powder, crack, or freebase, for the first time?

a) I have never tried cocaine
b) 8 years old or younger
c) 9 or 10 years old
d) 11 or 12 years old
e) 13 or 14 years old
f) 15 or 16 years old
g) 17 years old or older

33) During your life, how many times have you used any form of cocaine, including powder, crack, or freebase?

a) 0 times
b) 1 or 2 times
c) 3 to 9 times
d) 10 to 19 times
e) 20 to 39 times
f) 40 or more times

34) During the past 30 days, how many times have you used any form of cocaine, including powder, crack, or freebase?

a) 0 times
b) 1 or 2 times
c) 3 to 9 times
d) 10 to 19 times
e) 20 to 39 times
f) 40 or more times

35) During the past 30 days, how many times have you sniffed glue, or breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?

a) 0 times
b) 1 or 2 times
c) 3 to 9 times
d) 10 to 19 times
e) 20 to 39 times
f) 40 or more times

36) During your life, how many times have you used any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, or heroin?

a) 0 times
b) 1 or 2 times
c) 3 to 9 times
d) 10 to 19 times
e) 20 to 39 times
f) 40 or more times

37) During your life, how many times have you used a needle to inject any illegal drug into your body?

a) 0 times
b) 1 or 2 times
c) 3 to 9 times
d) 10 to 19 times
e) 20 to 39 times
f) 40 or more times

The next questions ask about sexual behavior.

38) How concerned are <u>you</u> <u>personally</u> about getting the HIV/AIDS virus?

a) Not concerned
b) Somewhat concerned
c) Very concerned
d) Extremely concerned
e) Don't know how I feel

39) How concerned are <u>you</u> <u>personally</u> about getting a sexually transmitted disease other than AIDS?

a) Not concerned
b) Somewhat concerned
c) Very concerned
d) Extremely concerned
e) Don't know how I feel

40) Have you ever had sexual intercourse?

a) Yes
b) No

41) How old were you when you had sexual intercourse for the first time?

a) I have never had sexual intercourse
b) 11 years old or younger
c) 12 years old
d) 13 years old
e) 14 years old
f) 15 years old
g) 16 years old
h) 17 years old or older

42) During your life, with how many people have you had sexual intercourse?

a) I have never had sexual intercourse
b) 1 person
c) 2 people
d) 3 people
e) 4 people
f) 5 people
g) 6 or more people

43) During the past 3 months, with how many people did you have sexual intercourse?

a) I have never had sexual intercourse
b) I have had sexual intercourse, but not during the past 3 months
c) 1 person
d) 2 people
e) 3 people
f) 4 people
g) 5 people
h) 6 or more people

44) Did you drink alcohol or use other drugs before you had sexual intercourse the last time?

a) I have never had sexual intercourse
b) Yes
c) No

45) The last time you had sexual intercourse, did you or your partner use a condom?

a) I have never had sexual intercourse
b) Yes
c) No

46) The last time you had sexual intercourse, what one method did you or your partner use to prevent pregnancy?

a) I have never had sexual intercourse
b) No method was used to prevent pregnancy
c) Birth control pills
d) Birth control shot (Depo Provera)
e) Condoms
f) Withdrawal
g) Some other method
h) Not sure

47) How many times have you been pregnant or gotten someone pregnant?

a) 0 times
b) 1 time
c) 2 or more times
d) Not sure

48) How concerned are <u>you</u> <u>personally</u> about being pregnant or making someone else pregnant?

a) Not concerned
b) Somewhat concerned
c) Very concerned
d) Extremely concerned
e) Don't know how I feel

The next series of questions ask about sexually transmitted diseases, which includes HIV/AIDS

49) Have you ever been taught about AIDS or HIV infection in school?

a) Yes
b) No
c) Not sure

50) What do you consider to be the one most important source from where you have gotten your information about AIDS/HIV infection?

a) From classroom instruction
b) From a teacher or school counselor
c) From parents or other adults in my family
d) From friends
e) From brochures available at schools or school health centers
f) From TV or radio
g) Other sources not mentioned above

51) Can you tell if people are infected with HIV (the AIDS virus) just by looking at them?

a) Yes
b) No
c) Not sure

52) Can a person get AIDS/HIV infection from being bitten by mosquitoes or other insects?

a) Yes
b) No
c) Not sure

53) If you wanted them, where would you go to get condoms? (Select only **one** response)

a) Parent or other family member
b) Friend
c) Pharmacy or store
d) Vending machine
e) School health center
f) County or Community Health Center
g) Other community program or place
h) Not sure; haven't really though about it

54) If you thought you were exposed to the HIV/AIDS virus, where would you go to be tested?

a) School health center
b) County or Community Health Center
c) Doctor's office
d) Red Cross
e) Other place not listed
f) Don't know where I would go to get tested

The next questions ask about body weight.

55) How do you describe your weight?

a) Very underweight
b) Slightly underweight
c) About the right weight
d) Slightly overweight
e) Very overweight

56) Which of the following are you trying to do about your weight?

a) Lose weight

b) Gain weight

c) Stay the same weight

d) I am not trying to do anything about my weight

The last questions ask about health care and community resources.

57) When did you last go to a doctor or nurse practitioner?

a) During the past 12 months

b) Within the past 2 years

c) Within the past 5 years

d) More than 5 years ago

e) Never been to doctor

f) Don't know

58) When did you last go to a dentist?

a) During the past 12 months

b) Within the past 2 years

c) Within the past 5 years

d) More than 5 years ago

e) Never been to dentist

f) Don't know

59) During the past 12 months, did you have any of the following health care needs?

(PLEASE CIRCLE ALL THAT APPLY.)

a) Check-up or sports physical

b) Injury or accident

c) Immunization

d) Reproductive health services (exam or birth control/condoms)

e) Pregnancy test or sexually transmitted disease test

f) Alcohol or other drug problem

g) Personal or emotional problem

h) Other need not listed

i) I had no health care needs

60) During the past 12 months, where did you go to meet your health care needs?

(PLEASE CIRCLE ALL THAT APPLY.)

a) Emergency room

b) Family doctor

c) County or community health clinic

d) School-based health center

e) Other place not listed

f) I needed care, but didn't see anyone

g) I did not need care during the past 12 months

61) Do you consider yourself homeless?

a) Yes

b) No

62) Last night, where did you sleep?

a) In a house or apartment

b) In a hotel

c) In a shelter

d) On the street

e) Don't know

f) I did not sleep last night