

YOUTH ON THE STREET and Youth Involved with Child Welfare



Maltreatment, Mental Health and Substance Use

Citation: Goldstein, A.L., Amiri, T., Vilhena, N., Wekerle C., Thornton, T., & Tonmyr, L.
Youth on the Street and Youth Involved with Child Welfare: Maltreatment, Mental Health and Substance Use. Toronto, ON: University of Toronto.

Copies of this publication are available from:

Child Maltreatment Section
Public Health Agency of Canada
200 Eglantine Driveway
(Address Locator: 1910C)
10th Floor, Jeanne Mance Building
Tunney's Pasture
Ottawa, Ontario K1A 0K9
Telephone: 613-957-4689
E-mail: child.maltreatment@phac-aspc.gc.ca
Website: <http://www.phac-aspc.gc.ca/cm-vee/index-eng.php>

The opinions expressed in this report, including the interpretation of the data, are those of the authors and are not to be taken as official statements of Health Canada or the Public Health Agency of Canada.

Cat. No. H129-5/2011E-PDF

ISBN 978-1-100-19072-3



Authors:

Abby L. Goldstein, University of Toronto
Touraj Amiri, University of Toronto
Natalie Vilhena, University of Toronto
Christine Wekerle, McMaster University
Tiffany Thornton, Health Canada
Lil Tonmyr, Public Health Agency of Canada

Funded by:

Health Canada, Office of Research and Surveillance
Public Health Agency of Canada, Health Surveillance and Epidemiology Division



Acknowledgements vi

Executive Summary vii

1 Introduction 1

 Purpose and Scope of the Study 1

 About This Report 2

2 Research Design and Methodology 3

 Study Participants 3

 Measures 3

 Summary of Key Variables 6

 Procedures 8

3 Context 9

 Homelessness in Canada 9

 Maltreatment and Violence Victimization 9

 Substance Use Issues 9

 Mental Health Issues 10

 Concurrent Mental Health Symptoms and Substance Use 10

 Homelessness and Child Welfare Involvement: Shared Characteristics 11

 Pathways to Substance Use and Mental Health Issues 11

4 Results 13

 Child Maltreatment Among Youth Who Are Homeless 13

 Housing Status for Youth Who Are Homeless and Youth Involved with CAS 14

 Perceptions of Housing Safety and Youth Experiencing Partner Violence 14

 Mental Health: Internalizing and Externalizing Symptoms 15

 Substance Use and Other Issues Across Sub-Populations 15

 Looking Across the Issues 17

5 Discussion 21

6 Practice and Policy Recommendations 25

 Recommendations 25

 Conclusion 26

References 29

Appendix A: Description of Analyses 33

Appendix B: Tables 35

List of Figures and Tables

Figures

Figure 1: Percentage of youth who are homeless that has experienced maltreatment, by history of CAS involvement (page 13)

Figure 2: Percentage of youth who are homeless that has experienced physical abuse, sexual abuse and/or maltreatment, by gender (page 13)

Figure 3: Percentage of youth involved in partner violence, as victim and/or perpetrator within the past 12 months, by gender (page 15)

Figure 4: Percentage of youth that met the externalizing symptoms criteria, by youth homelessness/CAS status (page 15)

Figure 5: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who reported past month alcohol use, by youth homelessness/CAS status (page 18)

Figure 6: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who reported binge drinking, by youth homelessness/CAS status (page 18)

Figure 7: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who reported smoking cigarettes, by youth homelessness/CAS status (page 18)

Figure 8: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who reported marijuana use, by youth homelessness/CAS status (page 19)

Figure 9: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who met the cut-off for problem alcohol use, by youth homelessness/CAS status (page 19)

Figure 10: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who met the cut-off for problem drug use, by youth homelessness/CAS status (page 20)

Appendix B: Tables

Table B-1: Logistic regression coefficients, standard errors and adjusted odds ratios for youth homelessness/CAS status predicting odds of maltreatment (page 35)

Table B-2: Logistic regression coefficients, standard errors and adjusted odds ratios for gender predicting odds of physical abuse (page 35)

Table B-3: Logistic regression coefficients, standard errors and adjusted odds ratios for gender predicting odds of sexual abuse (page 35)

Table B-4: Logistic regression coefficients, standard errors and adjusted odds ratios for gender differences in overall experience of maltreatment (page 36)

Table B-5: Logistic regression coefficients, standard errors and adjusted odds ratios for differences in shelter status within the past seven days, by youth homelessness/CAS status (page 36)

Table B-6: Logistic regression coefficients, standard errors and adjusted odds ratios for differences in nights spent with parents within the past seven days, by youth homelessness/CAS status (page 36)

Table B-7: Summary of one-way ANOVA examining differences in perceptions of safety within the past seven days, by youth homelessness/CAS status (page 37)

Table B-8: Logistic regression coefficients, standard errors and adjusted odds ratios for gender differences in spending nights without shelter within the past seven days (page 37)

Table B-9: Logistic regression coefficients, standard errors and adjusted odds ratios for gender differences in spending nights with parents within the past seven days (page 37)

Table B-10: Summary of independent samples *t* test for gender differences in perceptions of safety within the past seven days (page 38)

Table B-11: Multiple logistic regression coefficients, standard errors and adjusted odds ratios youth homelessness/CAS status and gender predicting the likelihood of partner violence victimization within the past 12 months (page 38)

Table B-12: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for youth homelessness/CAS status and gender predicting the likelihood of partner violence perpetration within the past 12 months (page 39)

Table B-13: Adjusted odds ratios with 95% confidence intervals for the likelihood of meeting the cut-off for internalizing and externalizing symptoms by youth homelessness/CAS status (page 39)

Table B-14: Adjusted odds ratios with 95% confidence intervals for the likelihood of past year substance use by gender, by youth homelessness/CAS status and by internalizing/externalizing symptoms (page 40)

Table B-15: Adjusted odds ratios with 95% confidence intervals for the likelihood of past month substance use by gender, by youth homelessness/CAS status and by internalizing/externalizing symptoms (page 41)

Table B-16: Adjusted odds ratios with 95% confidence intervals for the likelihood of problem alcohol and drug use by gender, by youth homelessness/CAS status and by internalizing/externalizing symptoms (page 42)

Table B-17: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month alcohol use (page 43)

Table B-18: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month binge drinking (page 43)

Table B-19: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with cigarette smoking (page 44)

Table B-20: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month marijuana use (page 44)

Table B-21: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month illicit drug use (page 45)

Table B-22: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month polysubstance use, for youth who are homeless only (page 45)

Table B-23: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with problem alcohol use (page 46)

Table B-24: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with problem drug use (page 46)

Table B-25: Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of any substance use with concurrent mental health symptoms, for youth who are homeless only (page 47)

Acknowledgements

This report was funded by Health Canada's Office of Research and Surveillance, Controlled Substances and Tobacco Directorate, and the Public Health Agency of Canada's Health Surveillance and Epidemiology Division.

The authors wish to acknowledge the expertise of Allison Vadneau, Andrea Wills and Erin Rutherford of Health Canada, and Gail McKean of the Mental Health Commission of Canada. Additional thanks are extended to Suzanne Desjardins of Health Canada, and Pascal Roberge, Jasminka Draca, Joanne Lacroix and Stephanie Friel, all of the Public Health Agency of Canada, and Nathalie Leclerc, Human Resources and Skills Development Canada.

Data for the study came from the Youth Pathways Project (YPP) (Patricia Erickson principal investigator) and the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study (Christine Wekerle principal investigator).

The authors also extend a special acknowledgement to the youth who participated in the projects upon which this study are based, particularly for their participation and for the courage they showed by articulating their experiences. In addition, the efforts of the collaborating community agencies that support youth involved in child welfare and those who provide street services are gratefully acknowledged.



Executive Summary

Adolescents who are homeless face a variety of adverse outcomes and are at risk for concurrent mental health symptoms and substance use. Many come to the streets with a history of maltreatment, and have left home to escape dysfunctional environments, only to find themselves exposed to additional violence on the streets. Youth involved with child welfare face similar challenges and many are at risk of homelessness due to a lack of resources when transitioning out of the child welfare system. Existing research indicates that concurrent mental health symptoms and substance use, particularly among adolescents, is poorly understood and very challenging to address.*

Objectives and Methods

The current study was designed to examine factors associated with concurrent mental health symptoms and substance use across three groups of youth: youth currently involved with child welfare; youth who were homeless with a history of involvement with child welfare; and youth who were homeless with no history of involvement with child welfare.

This study is a secondary analysis of data from two datasets: the Youth Pathways Project (YPP) (data collected from 2002 to 2006) and the third year of the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study (data collected between 2008 and 2009). The YPP and MAP studies include older youth (16–21 years of age) who are homeless (YPP: $N = 150$) and youth who are currently involved with child welfare (MAP: $N = 34$ and YPP: $N = 35$). The total sample consists of 219 youth participants: 150 who are homeless and 69 currently involved with child welfare. Comparisons between these groups were expected to contribute to an understanding of the extent to which homelessness and child welfare involvement are associated with concurrent substance use and mental health issues; it is also intended to provide useful information to professionals working with these vulnerable populations.

Results

Within the sample of youth 16 to 21 years of age who are homeless, 42.7% had a (self-reported) history of child welfare involvement. These youth were significantly more likely to have experienced childhood maltreatment than youth who were homeless with no past history of child welfare involvement. With respect to housing and partner violence, the analyses showed that very few youth currently involved with child welfare had lived without shelter for even one night in the past seven days. Living without shelter was significantly related to concurrent mental health symptoms and substance use, even when controlling for youth homelessness and child welfare involvement; youth who were homeless were much more likely to have concurrent mental health and substance use issues. All three groups of youth studied were equally likely to have been victims of partner violence and to have perpetrated partner violence in the past year. Partner violence perpetration was also associated with concurrent mental health symptoms and substance use. Regarding mental health symptoms,

* Involvement in child welfare refers to involvement in a regional system mandated to protect children and intervene if a child is in danger, including experiencing maltreatment (i.e., sexual, physical and/or emotional abuse, witnessing domestic violence or neglect). Intervening could take the form of foster care or case management.

externalizing symptoms were much more likely to be reported by youth who were homeless; externalizing symptoms were consistently associated with substance use and problem substance use.

Discussion and Conclusions

This study illustrates that youth who lack stable housing, had a history of maltreatment, substance use or mental health symptoms and are no longer involved in child welfare constitute a vulnerable population for homelessness. As a result, increasing services with targeted interventions that address maltreatment, mental health and substance use are needed. Furthermore, it is clear that current child welfare involvement appears to exert a protective effect whereas youth living on the street

with a previous history of child welfare involvement appear to be at risk. Examining the transition of exit for youth currently involved in the child welfare system who have reached the age-criteria for care should be explored as some youth may not be prepared for adulthood and independent living.

Although further research is needed to clarify the chronological relationship between child welfare involvement, homelessness, mental health and substance use, the findings of this study have important policy and practice implications. In particular, creating affordable housing with built-in supports for youth with complex needs may disrupt the cycle of homelessness and help our understanding of the resilience of these youth, demonstrated in the face of extreme risk.



Introduction

Purpose and Scope of the Study

Youth who lack stable housing, have a history of maltreatment, substance use or mental health issues and are no longer involved in child welfare constitute a vulnerable population for homelessness. In particular, these youth are vulnerable to concurrently experiencing substance use and mental health issues.

For youth who are homeless or transitioning out of the child welfare system, the challenges of concurrent mental health symptoms and substance use may increase their risk for continued housing instability, physical health problems, difficulty accessing services and further violence victimization (Drake, Osher, & Wallach, 1991). Late adolescence is particularly relevant for understanding the impact of child welfare involvement on youth, as it is at this stage that youth are exiting the child welfare system. In addition, due to the limited availability of publicly funded, substance abuse treatment programs specifically for youth (Canadian Centre on Substance Abuse, 2007), many youth who are abusing substances may be lost between the child welfare and the adult substance abuse treatment systems, a situation that is exacerbated by a lack of research and treatment for this population. Thus, care providers have limited best practice resources from which to draw.

Many youth with a history of child welfare involvement become homeless once they exit the child welfare system (Thompson, Safyer, & Pollio, 2001; Greene, Ennet, & Ringwalt, 1999). This often results in further developmental adaptation challenges. In some cases, youth become involved as parents with the child welfare system (due to an increased risk of child welfare involvement associated with motherhood among homeless women) (Culhane,

Webb, Grim, Metraux, & Culhane, 2003). Street youth services see a disproportionate number of youth who were involved with child welfare (Leslie & Hare, 2003), highlighting child welfare involvement and child maltreatment as significant risk factors for homelessness among youth.

Study purpose

This study examines factors associated with concurrent mental health and substance abuse across three groups: youth involved (at the time of the study) with the child welfare system; youth who were homeless and with a history of involvement with the child welfare system; and youth who were homeless and who had never been involved with the child welfare system.

The literature highlights multiple risk factors associated with substance use and mental health issues among youth who are homeless and those involved with child welfare, with the latter being identified as a possible pathway to homelessness. Exploring the relationship between substance use and mental health issues among these groups of youth vulnerable to homelessness is useful for understanding their needs as they transition out of the child welfare system. It also provides valuable information on which to establish policies that directly meet the needs of both youth who are homeless and those who are involved with child welfare.

Study scope

An understanding of how childhood maltreatment and involvement with child welfare contribute to concurrent mental health and substance use is essential as these are two contributors to youth homelessness and housing instability. To date, it has not been sufficiently addressed—the current study seeks to contribute to the body of research on this issue.

This study considers secondary analyses of two datasets: the Youth Pathways Project (YPP) and the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study. The YPP is a field interview-based study of 150 youth who were homeless ranging in age from 16 to 21 years. The study was conducted during the period 2002 to 2006. The YPP was funded by the Social Sciences and Humanities Research Council (*Homelessness and Diversity in High-Risk Youth*) and the Canadian Institutes of Health Research (*Pathways out of Homelessness in High-Risk Young Men*).

The MAP Longitudinal Study is a questionnaire-based study of youth randomly sampled from the caseload of three large Ontario CAS agencies, capturing an urban centre. The current study considers youth assessed in the third year of the MAP, to capture older adolescents (ages 18–21 years). MAP data collection is ongoing; the sample reflected in the current study includes youth who were interviewed between 2008 and 2009.

The MAP uses the same housing and safety questions as the YPP, as well as questions pertaining to child maltreatment and partner violence (both victimization and perpetration). This allows for a direct comparison between youth who are homeless (both those involved and those not involved with CAS) and youth currently involved with CAS who are not homeless. These comparisons allow for improved understanding of issues related to housing, perceptions of safety, maltreatment histories, mental health symptoms and substance use; they are also intended to provide direction to child welfare services, to services for youth who are homeless, and to substance abuse treatment systems, particularly with respect to the impact of child maltreatment on youth substance involvement.

About This Report

This report provides a comprehensive presentation of the design and methods (Section 2) of the study, important context for the study (Section 3), as well as detailed results (Section 4). It concludes with a discussion of findings (Section 5), and recommendations for practice and policy (Section 6). In addition to references, a description of the analyses used in the study (Appendix A) and detailed tables (Appendix B) are provided.



Research Design and Methodology

Study Participants

Youth living on the street

The sample of youth who were homeless consisted of young men and women recruited directly from street youth services in downtown Toronto and part of the Youth In Transitions (YIT) project.

These data were collected as part of a larger study entitled the Youth Pathways Project (YPP). The YPP is a larger knowledge dissemination project involving youth participants, community mentors, youth service agencies and child welfare representatives (see King, Ross, Bruno, & Erickson, 2009). The total sample of youth who were homeless consisted of 75 males and 75 females ($n = 150$) between the ages of 16 and 21 years (mean age = 19.21 years, $SD = 1.33$). Interviews were conducted at either a street youth agency or in a public space. Youth using street services were asked to indicate if they had ever been in the care of a Children's Aid Society (CAS); 86 reported no past CAS involvement and 64 reported some past CAS involvement. Male (32) and female (32) youth were equally likely to report involvement with CAS.

Youth currently involved with child welfare services

The child welfare sample was comprised of two groups of youth involved with child welfare services: 34 youth who were (at the time of the study) involved in the third year of the MAP study (77.1% female, 22.9% male) ranging in age from 18 to 21 years (mean age = 19.32 years, $SD = 1.00$) and another 35 youth (85.7% female, 14.3% male) participated in the YPP as part of the child welfare sample, ranging in age from 16 to 21 years (mean age = 18.71 years, $SD = 1.10$). The combined MAP/YPP child welfare sample was 69 youth involved with child welfare services.

Homelessness/CAS status

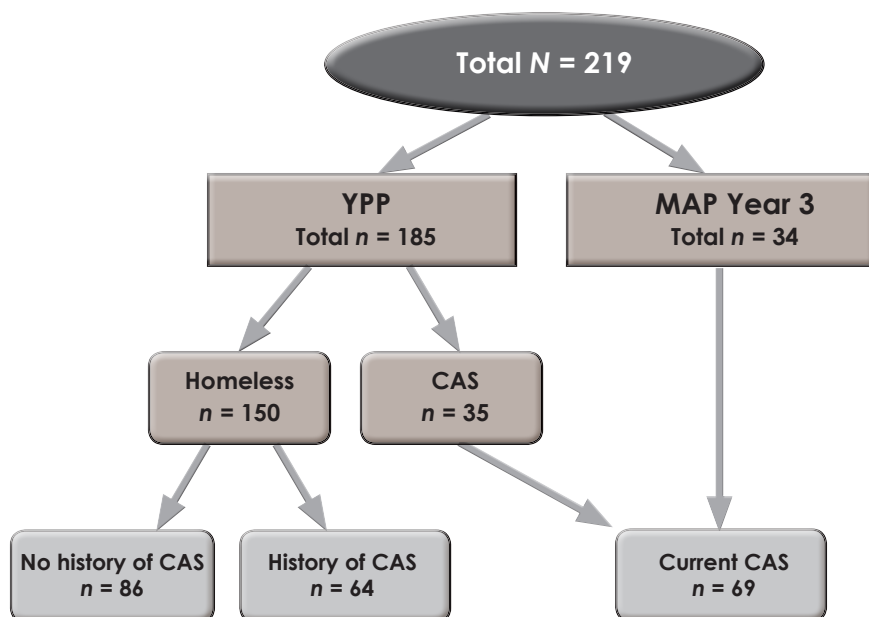
A categorical variable with two levels that reflects CAS involvement was created and included youth who were homeless with no CAS involvement and youth who were homeless with a past history of CAS involvement. Another group consisted of youth who were not homeless and were currently (at the time of the study) involved with CAS. Sample sizes are shown in the graphic on page 4. Although the majority of analyses involved all youth ($n = 219$), some only involved youth who were homeless ($n = 150$)—the latter are noted as such throughout Section 2.

Measures

Childhood maltreatment: Physical and/or sexual abuse was assessed using items from the Childhood Experiences of Victimization Questionnaire (CEVQ) (Walsh, MacMillan, Trocmé, Jamieson, & Boyle, 2008). Two of the items each assessed physical abuse by an adult: "Did an adult kick, bite or punch you to hurt you? Did an adult choke, burn or physically attack you in some other way?"; and sexual abuse: "Did anyone ever touch the private parts of your body or made you touch their private parts when you did not want them to? Did anyone ever have sex with you when you didn't want them to or sexually force themselves on you in some other way?"

Housing status: Both YPP and MAP participants were asked a series of questions on housing status, for two timeframes: the past seven days and the

YPP and MAP Samples: Homelessness and Involvement with CAS Status



past four months. The study team created a variable to determine whether participants had spent any nights without adequate shelter, a composite variable that combined six items (spending at least one night in any of the following: on the street, in an abandoned building, in a park, at a bus or train station, in a stairwell or under a bridge) to create a single dichotomous (yes/no) variable. Participants who reported having spent any nights in one of these environments were categorized as having inadequate housing. Similar methods for defining homelessness have been used in past studies (Koegel, Melamid, & Burnam, 1995).

Perception of safety: This is a continuous variable: participants indicated how safe they felt, where they were currently living, on a five-point scale (1 = *completely safe*, 2 = *quite safe*, 3 = *somewhat unsafe*, 4 = *quite unsafe*, 5 = *completely unsafe*).

Partner violence victimization and perpetration: All items assessing partner violence victimization and perpetration were extracted from the Conflict in Adolescent Dating Relationships Inventory (CADRI)

(Wolfe et al., 2001), which measures abusive behaviour among adolescent dating partners. The YPP included a single item reflecting dating violence victimization: “During the past 12 months did your boyfriend/girlfriend ever hit, slap or physically hurt you on purpose?”; and a single item reflecting perpetration: “During the past 12 months did you ever hit, slap, or physically hurt your boyfriend/girlfriend on purpose?” A similar item used in the MAP was created by combining items reflecting victimization and perpetration in the past year. For victimization, the items were: “My partner kicked, hit, or punched me”; “My partner slapped me or pulled my hair”; and “My partner pushed, shoved, shook or pinned me down.” Perpetration items were the same, but worded in the direction of the participant perpetrating the act towards his/her partner. A single item was created to reflect any victimization (yes/no) and any perpetration (yes/no) in the past year.

Behavioural disorders: Behavioural disorders in childhood and adolescence are typically classified into two groups—internalizing disorders and

externalizing disorders. Internalizing disorders are those that reflect inhibition or inward expressions of emotional difficulties. These include symptoms of both anxiety and depression. Externalizing disorders are those that reflect behavioural disinhibition, and include acting-out, and aggressive and impulsive behaviours.

Internalizing symptoms: Internalizing symptoms were assessed with the depression and anxiety subscales of the Brief Symptom Inventory (BSI) (Derogatis, 1993). Participants were asked to indicate the extent to which they experienced distress associated with each symptom over the past seven days. The depression and anxiety subscales consist of six items each, with items rated on a five-point scale ranging from 0 (*not at all*) to 4 (*extremely*). The BSI includes norms for non-psychiatric adolescent populations; these were used to establish cut-off scores. A composite internalizing score was created to reflect elevations on either the depression and/or the anxiety subscales, with scores of 0 (neither anxiety nor depression in the clinical range) and 1 (either anxiety and/or depression in the clinical range).

Externalizing symptoms: Externalizing symptoms were assessed with 10 items reflecting the number of times youth had engaged in each of a number of behaviours within the past 12 months (e.g., taken things worth \$50 or less that did not belong to them, broken into a locked building other than their own home). Responses were dichotomized (yes/no) and a composite score was created to reflect the number of behaviours participants engaged in over the past year. Consistent with scoring used by the Ontario Student Drug Use and Health Survey (Adlaf, Paglia-Boak, Beitchman, & Wolfe, 2007), a cut-off of three or more occurrences was used to establish involvement in significant externalizing behaviour.

Cigarette smoking: This was assessed using two items—reported current cigarette smoking (yes/no) and number of cigarettes smoked per day.

Substance use: Several items were used to assess substance use, with some variability across the YPP and MAP samples. For alcohol and marijuana,

responses were categorized to reflect use in the past year (yes/no) and use in the past month (yes/no). In addition, participants indicated the number of times they had consumed five or more drinks on a single occasion (binge drinking) in the past month. For other drug use, there was some variability in the wording of items across the MAP Year 3 and YPP questionnaires. The YPP questionnaire included an item for assessing past month drug use (i.e., use of hallucinogens, amphetamines, cocaine, crack and heroin), with participants indicating how often they had used each drug in the past month, with the following response options: a) *never*; b) *once or twice*; c) *more than once each day*; d) *once each day*; e) *3 to 6 times each week*; and f) *once or twice each week*. Responses were dichotomized to reflect any use in the past month (yes/no). The MAP Year 3 did not include items assessing past month illicit drug use; rather, participants were asked to indicate how often in the past 12 months they had used these same drugs, with several response options: a) *1 or 2 times*; b) *3 to 5 times*; c) *6 to 9 times*; d) *10 to 19 times*; e) *20 to 39 times*; and f) *40 or more times*. For both YPP and MAP samples, a composite score was created to reflect use of at least one illicit drug (other than marijuana) in the past year. For the YPP only, a composite polysubstance use variable was created to reflect use of multiple substances in the past month, with two levels: no substance use or use of one substance; and use of two or more substances.

Problem substance use: To assess problem alcohol and drug use, the MAP used two standardized screening questionnaires: the Alcohol Use Disorders Identification Test (AUDIT) (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993) and the CRAFFT (Knight, Sherritt, Shrier, Harris, & Chang, 2002). The AUDIT is a 10-item measure that is used in the Ontario Student Drug Use and Health Survey to assess hazardous drinking. AUDIT scores are summed and a cut-off score of 8 or more is used to establish the presence of hazardous or harmful alcohol use. The CRAFFT is a six-item measure that is used in the Ontario Student Drug Use and Health Survey to assess problem alcohol and drug use in the past 12 months.

Because the goal was to assess problems related to drug use only, all items were modified to include drug use and any reference to alcohol use was omitted. The modified items captured by the acronym CRAFFT are:

In the last 12 months . . .

- 1) Have you ever ridden in a **C**ar driven by someone who was high or had been using drugs (other than alcohol)?
- 2) Did you ever use drugs to **R**elax, feel better about yourself or fit in?
- 3) Did you ever use drugs while you were by yourself or **A**lone?
- 4) Did you ever **F**orget things you did while using drugs?
- 5) Do your family or **F**riends ever tell you that you should cut down on your drug use?
- 6) Have you ever gotten into **T**rouble while using drugs?

Scores of 2 or more on the CRAFFT are used to identify individuals who are experiencing problem drug use.

As youth who are homeless have different substance use patterns than youth in the general population (for whom the AUDIT and CRAFFT were developed), the measure of substance abuse in the YPP dataset was more stringent. For all substances, participants were asked six questions that assessed symptoms of substance abuse/dependence (e.g., "During the last 12 months have you tried to cut down on your use? During the past 12 months have you felt you needed larger amounts of the substance to get the same effect?"). Participants provided a yes/no response to each item for the following substances: alcohol, marijuana, hallucinogens, amphetamines, cocaine, crack and heroin. For alcohol, endorsing any of the six items resulted in an alcohol problems score of 1. For other drug use, endorsing any of the items for at least one of the substances resulted in a drug use problems score of 1.

Summary of Key Variables

Variable	Categories
Sex	Male youth, female youth
Homelessness/CAS status	For most analyses, this variable has three levels: current involvement with CAS, homeless with no past CAS involvement, and homeless with past CAS involvement. Some analyses involve homeless youth only, in which case this variable has two levels: homeless with no past CAS involvement and homeless with past CAS involvement.
Physical and sexual abuse	There are two levels for the child maltreatment variable: (1) experienced either physical and/or sexual abuse, and (0) did not experience either physical and/or sexual abuse.
Child maltreatment	The variable for child maltreatment combined physical and sexual abuse. There are two levels for the variable: (1) experienced either physical and/or sexual abuse, and (0) did not experience either physical and/or sexual abuse
Lived without shelter	This variable has two levels: (0) did not live without shelter for at least one night in the past seven days, and (1) lived at least one night without shelter in the past seven days.
Stayed with parents	This variable has two levels: (0) did not stay with parents for at least one night in the past seven days, and (1) stayed at least one night with parents in the past seven days.
Perceptions of safety in current place of living	This is a continuous variable with ratings on a five-point scale: (1) completely safe, (2) quite safe, (3) somewhat unsafe, (4) quite unsafe, and (5) completely unsafe.

Variable	Categories
Partner violence victimization	This variable has two levels: (0) did not experience victimization by a partner in the past year, and (1) experienced victimization by a partner in the past year.
Partner violence perpetration	This variable has two levels: (0) did not perpetrate partner violence in the past year, and (1) perpetrated partner violence in the past year.
Internalizing symptoms	Participants who met the cut-off for anxiety symptoms and/or depression symptoms received a score of (1), and participants who did not meet the cut-off on either anxiety or depression received a score of (0).
Externalizing symptoms	This is based on endorsing three or more externalizing symptoms with (0) did not meet the cut-off, and (1) did meet the cut-off.
Cigarette smoking	This variable has two levels and was based on a single item: (0) does not currently smoke cigarettes, and (1) currently smokes cigarettes.
Past year substance use	<i>Alcohol:</i> (0) did not use alcohol in the past year, and (1) used alcohol in the past year. <i>Marijuana:</i> (0) did not use marijuana in the past year, and (1) used marijuana in the past year. <i>Illicit drug use:</i> (0) did not use at least one of the following: hallucinogens, amphetamines, cocaine, crack or heroin in the past year, and (1) used at least one of the following: hallucinogens, amphetamines, cocaine, crack or heroin in the past year. <i>Polysubstance use:</i> (0) did not use more than one type of substance in the past year, and (1) used more than one type of substance in the past year (not including cigarettes).
Past month substance use	<i>Alcohol:</i> (0) did not use alcohol in the past month, and (1) used alcohol in the past month. <i>Binge drinking:</i> (0) did not drink five or more drinks on a single occasion in the past month, and (1) drank five or more drinks on a single occasion in the past month. <i>Marijuana:</i> (0) did not use marijuana in the past month, and (1) used marijuana in the past month. <i>Illicit drug use:</i> (0) did not use at least one of the following: hallucinogens, amphetamines, cocaine, crack or heroin in the past month, and (1) used at least one of the following: hallucinogens, amphetamines, cocaine, crack or heroin in the past month. <i>Polysubstance use:</i> (0) did not use more than one type of substance in the past month, and (1) used more than one type of substance in the past month (not including cigarettes).
Problem drug use	Problem drug use had two levels: (0) did not meet the cut-off for problem drug use, and (1) met the cut-off for problem drug use. Note that the MAP and YPP utilized different approaches to assess problem drug use (see above).
Problem alcohol use	Problem alcohol use had two levels: (0) did not meet the cut-off for problem alcohol use, and (1) met the cut-off for problem alcohol use. Note that the MAP and YPP utilized different approaches to assess problem alcohol use (see above).
Concurrent mental health symptoms and substance use	Separate variables were created for each substance and were based on current substance use (past month) and the presence of either internalizing or externalizing symptoms (or both). For all analyses where concurrent internalizing/externalizing symptoms and substance use is a dependent variable, the drug is specified. For example, concurrent alcohol use reflects use of alcohol in the past month and a score of 1 on either the internalizing or the externalizing measures. All concurrent items have two levels: (0) not concurrent, and (1) concurrent.

Procedures

Youth Pathways Project

Using a standard set of 168 questions to guide them, trained graduate students conducted in-person interviews with all participants. In the interests of keeping interviews as brief as possible to ensure youth engagement, many domains were assessed with a single item. Participants received \$20 for each interview and, if needed, tokens to cover transportation, as well as other incentives (e.g., gift bags of toiletries, gift certificates for fast food restaurants). At the end of the study, all participants were provided with contact information for community services. All study procedures received ethical approval by participating agencies and institutional research ethics boards.

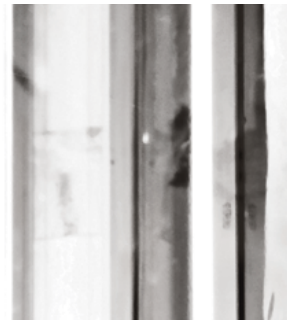
The YPP involved a convenience sample of youth, for which response rates were not documented. As noted above, the sample of youth who were homeless consisted of young men and women recruited directly from street youth services in downtown Toronto. Two graduate students recruited participants and conducted the interviews either at a street youth agency or in the community. Youth involved with child welfare were recruited from the agency through which they were receiving services at the time of the study. Recruitment of youth from CAS was initially done through case managers, who identified youth in the study age range and requested their consent to be contacted by a graduate research assistant. Although the intention of the YPP was to recruit an equal proportion

of youth involved with child welfare and those using street youth services, only 35 youth from CAS were recruited for involvement in the YPP study. While approximately half of eligible participants consented, many refused participation when contacted by researchers to schedule interviews, while others did not attend their scheduled interviews.

Maltreatment and Adolescent Pathways Longitudinal Study

Data from the third year of the MAP Longitudinal Study were used in this study. Each youth received \$28 for participating, with most (90%) completing the questionnaire in their place of residence. At the end of the study, all participants were given a listing of contact information for local support services.

To date, the MAP involves an initial assessment, followed by repeated assessments at six-month intervals for three years. MAP participants are randomly selected from active child welfare case-loads. As of July 2010, 561 youth consented to participate in the initial assessment for the MAP study (258 refused). The most frequent reason for refusal was that the youth was not interested ($n = 196$, 81.67% of those who declined); other reasons included parent/guardian refusal (5.83%), being too busy (6.67%), and not being comfortable with participation (3.75%). The MAP project received ethical approval from the University of Western Ontario, the Centre for Addiction and Mental Health, and the ethics committees at participating child welfare agencies.



Context

Homelessness in Canada

Although the exact prevalence in Canada is unknown, recent estimates indicate that approximately 150,000 Canadians are homeless (Raising the Roof, 2009). Some researchers suggest that this is an underestimate of the homeless population as it relies on data from shelters and does not account for those who are living on the streets, but not accessing services available to them.

At any point during the year it is estimated that approximately 65,000 young Canadians are without a place to call home (Raising the Roof, 2009). Rates of homelessness are typically larger in urban centres; according to the Toronto Report Card on Homelessness, over 31,985 individuals used emergency shelters in Toronto in 2002 and one in five admissions to emergency shelters were youth (City of Toronto, 2003). According to research sponsored by the National Homelessness Initiative, youth represent one of the fastest growing sub-populations of people who are homeless in Canada (Karabanow, Clement, Carson, & Crane, 2005).

Maltreatment and Violence Victimization

On average, youth who are homeless leave home at the age of 15 years (Hwang, 2001); a large proportion have a history of child maltreatment (Gaetz, O'Grady, & Vaillancourt, 1999; Janus, Archambault, Brown, & Welsh, 1995). In fact, many cite maltreatment as the primary reason for leaving home (Whitbeck & Hoyt, 1999). For example, one study estimated that, compared to youth living at home, youth who are homeless are five times as likely to have experienced sexual abuse as children (Rotheram-Borus, Mahler, Koopman, & Langabeer, 1996). In another study, parental violence (particularly violence perpetrated by mothers) was cited by youth as their reason for leaving home (Mallet &

Rosenthal, 2009). For many, the cycle of violence continues once they are homeless. For example, these youth are much more likely to experience violence victimization compared to youth in the general population (Cauce et al., 2000; Gaetz, 2004; Tyler, Whitbeck, Hoyt, & Cauce, 2004), with female youth particularly at risk for sexual victimization (Gaetz, 2004; Tyler et al., 2004). Reasons for these high rates include background vulnerability variables (e.g., maltreatment histories may mean challenges in self-protection), involvement in street economy (e.g., engaging in illegal activities for money may mean greater exposure to dangerous persons), social exclusion (e.g., limited access to regulated and secure public spaces and housing may mean turning to illegitimate/illegal housing), and reliance on supports who face similar levels of violence victimization (Gaetz, 2004).

Substance Use Issues

Alcohol and illicit drug use are much higher among youth who are homeless than among youth in the community (Baer, Ginzler, & Peterson, 2003); youth who are homeless use a wide range of illicit substances (Bousman et al., 2005). For example, among a sample of youth who were homeless studied by Rhule-Louie et al. (2008), the prevalence of use of various substances in the past 30 days was: tobacco (92.0%), marijuana (92.0%), alcohol (84.7%), amphetamines (52.3%), cocaine (28.2%), heroin (26.4%), other

opiates (24.8%), and injection drugs (36.1%)—rates that are much higher than those typically reported in general population-based studies of Canadian youth. For example, according to the 2010 Canadian Alcohol and Drug Use Monitoring Survey, Canadian youth aged 15–24 reported illicit drug use at much lower rates compared to youth who are homeless, even taking into account the longer reporting time-frame (one year for the general youth population compared to 30 days for youth who are homeless): cannabis (25.1%), hallucinogens (3.4%), cocaine/crack (2.7%), speed (1.9%), and ecstasy (3.8%). Rates for heroin use were minimal and exact percentages could not be reported (Health Canada, 2011).

In addition, research shows that:

- Polysubstance use among youth who are homeless appears to be common; one study showed that over half (54.1%) of the sample of youth reported having used three or more drugs in the past three months (Bousman et al., 2005).
- Substance use issues are more common among youth who are homeless. For example, a study of youth who had run away from home and were now living on the streets (Johnson, Whitbeck, & Hoyt, 2005) found that a large proportion met lifetime criteria for alcohol abuse (43.7%) and for alcohol dependence (29.9%). Moreover, 34.3% met the lifetime criteria for marijuana abuse and 8.2% met lifetime criteria for cocaine abuse (Johnson et al., 2005) as defined by the DSM-IV.

Mental Health Issues

Youth who are homeless experience significant mental health issues including depression, schizophrenia and bipolar disorder (Merscham, Van Leeuwen, & McGuire, 2009). Studies have also found elevated rates of suicidal ideation and suicide attempts among this population. Yoder and colleagues found that 54% of the adolescents in

their study sample had expressed some level of suicidal ideation in the past year, and 26% had made at least one suicide attempt in the past year (Yoder, Hoyt, & Whitbeck, 1998). These proportions are substantially higher than those for youth who are not homeless, where 10% and 3% reported some level of suicidal ideation and one suicide attempt, respectively, in the past year (Adlaf, Paglia-Boak, Beitchman, & Wolfe, 2007).

Youth who are homeless also struggle with externalizing behaviours—for example, involvement in delinquent activities or conduct disorder (which has been identified as the most common mental health issue for these youth) (Johnson et al., 2005; Slesnick & Prestopnik, 2005; Whitbeck, Johnson, Hoyt, & Cauce, 2004). As many of the criteria for these latter disorders overlap with behaviours often seen as necessary for survival on the street, such as theft or violent self-defence (Whitbeck et al., 2004), it is difficult to determine whether these behaviours represent adaptation to difficult circumstances or are a risk factor that contributes to homelessness.

Concurrent Mental Health Symptoms and Substance Use

The prevalence of concurrent mental health symptoms and substance use among youth who are homeless is much higher than among the general population (Whitbeck et al., 2004). While findings vary across studies, reported rates of concurrent mental health symptoms and substance use are as high as 93% among youth who are homeless and diagnosed with a substance abuse disorder (Johnson et al., 2005). Concurrent mental health symptoms and substance use is also associated with increased barriers and negative outcomes among youth who are homeless. Although the impact of concurrent mental health symptoms and substance use on outcomes for homeless youth is not well established, a review of the literature on homeless adults found that concurrent mental health symptoms and substance use is associated

with: longer durations of homelessness; more severe substance use issues; a greater likelihood of living on the streets than in shelters; and greater difficulty accessing services compared to those with single or no diagnoses (see Drake et al., 1991 for a review).

Despite the clear need for services tailored to youth with concurrent mental health symptoms and substance use, to date, best practices for this population are not well established. Treatment guidelines (e.g., sequencing of treatment, need for trauma-informed treatment, and need for gender-specific treatment) are lacking even for youth in the general population. Youth with concurrent mental health symptoms and substance use tend to have a more difficult time than those dealing with either one or the other alone (Thompson, McManus, & Voss, 2006). Moreover, when services are developed for and delivered to youth with concurrent mental health symptoms and substance use, outcomes for this group are poorer than for youth who are being treated for a single issue (Rowe, Liddle, Greenbaum, & Henderson, 2004). Where services for concurrent treatment exist, at least for adults, studies have shown that those individuals who use them tend to have better outcomes than those who receive services for one of their issues in isolation (George & Krystal, 2000). Identifying factors associated with or related to concurrent mental health symptoms and substance use is essential for determining the needs of this highly vulnerable population.

Homelessness and Child Welfare Involvement: Shared Characteristics

Youth who are homeless and those involved with child welfare share many characteristics, including concurrent mental health symptoms and substance use. As well, youth who are involved with child welfare face a significant challenge when it is time to leave the system, as they often lack social and financial support which, in turn, increases their likelihood of becoming homeless (Echenberg & Jensen,

2009). In fact, youth with past involvement in the child welfare system are over-represented among the Canadian homeless population; a Canadian study found that 43% of youth who are homeless had previously been involved with child welfare services, of which 68% had come from a foster home, a group home or a youth centre (Raising the Roof, 2009). It should be noted, however, that many youth involved with child welfare demonstrate positive outcomes. Indeed, for older youth, remaining in foster care has been associated with more positive outcomes including greater educational attainment, increased earnings and a reduced likelihood of teenage pregnancy (Courtney, Dworsky, & Pollack, 2007).

Pathways to Substance Use and Mental Health Issues

Several factors contribute to the increased likelihood of substance use among youth involved with child welfare and youth who are homeless. Members of the families of origin of many of these youth abuse substances, which may contribute to youth substance use due to lack of parental monitoring while youth are still living at home (Bousman et al., 2005), biological vulnerability, social learning histories and poor early bonding (Johnson, et al., 2005; see also Hawkins, Catalano, & Miller, 1992 for a review). Involvement with delinquent peers also contributes to the high rates of substance use among youth who are homeless and those involved with child welfare (Bousman et al., 2005; Johnson et al., 2005; Whitbeck, Hoyt, & Bao, 2000). Many youth who are homeless report that friends and acquaintances initiated them into substance use (Tyler & Johnson, 2006). Furthermore, life on the streets often contributes to substance use, with youth using alcohol and drugs to cope with various problems, including memories and reminders of early experiences of maltreatment, and the sheer stress of being homeless without assurance of food, shelter, company and safety (Tyler & Johnson, 2006).



Results

Comprehensive information is included in the Appendices, including details about the analyses employed (Appendix A), as well as supplementary data in the form of tables (Appendix B).

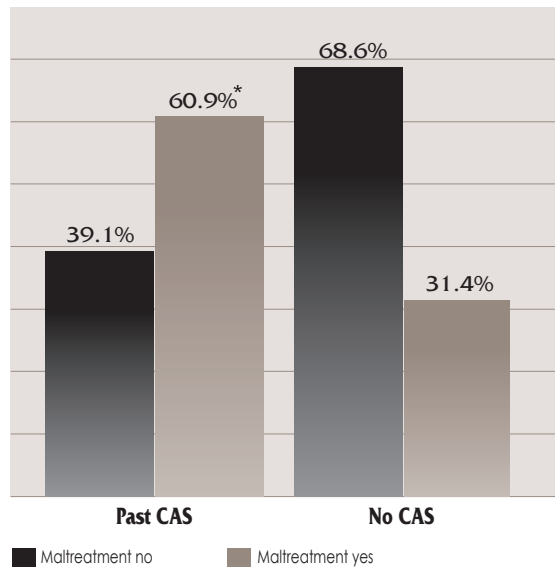
Child Maltreatment Among Youth Who Are Homeless

Physical and sexual abuse

Among youth who were homeless with a history of Children's Aid Society (CAS) involvement, 60.9% reported experiencing childhood maltreatment, compared to 31.4% of youth who were homeless with no history of CAS involvement reporting experiencing childhood maltreatment (see Figure 1).

Youth with a history of CAS involvement were over three times (OR = 3.41) more likely to report that they had experienced child maltreatment compared to youth with no history of CAS involvement.

Figure 1: Percentage of youth who are homeless that has experienced maltreatment, by history of CAS involvement (n = 150)



*Significantly different from youth not involved with CAS who were maltreated, $p < 0.05$

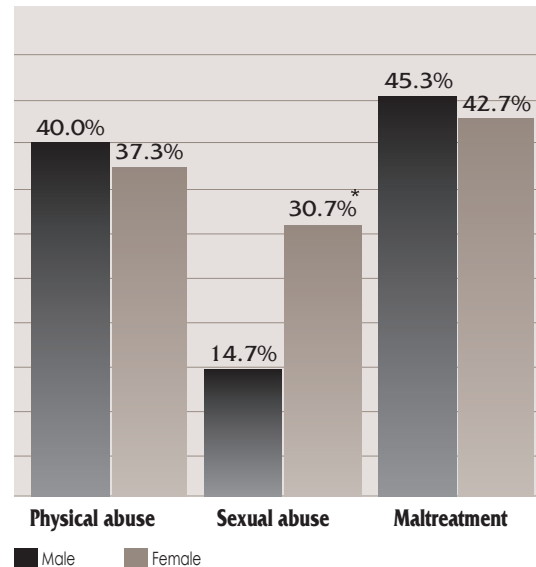
Gender differences

Rates of physical abuse did not differ by gender: 40.0% ($n = 30$) of male youth and 37.3% ($n = 28$) of female youth reported experiencing physical abuse.

With respect to sexual abuse, there was a significant gender difference—female youth (30.7%, $n = 23$) were 2.57 times more likely than males youth (14.7%, $n = 11$) to report past sexual abuse

When examined together, male and female youth reported similar rates of any type of maltreatment, with 45.3% ($n = 34$) of male youth and 42.7% ($n = 32$) of female youth reporting a history of any type of maltreatment (see Figure 2).

Figure 2: Percentage of youth who are homeless that has experienced physical abuse, sexual abuse and/or maltreatment, by gender (n = 150)



*Significantly different from male youth, $p < 0.05$

Housing Status for Youth Who Are Homeless and Youth Involved with CAS

The study examined frequencies and differences between groups with respect to living without shelter for at least one night and staying with parents for at least one night in the past seven days. A majority of youth involved with CAS had access to shelter; only one youth who was currently (at the time of the study) involved with CAS reported spending at least one night without shelter in the past seven days, and only three reported spending at least one night without shelter in the past four months. As it appeared that youth involved with CAS are likely to have stable shelter, the analyses focused on youth who were homeless: specifically, whether youth who were homeless with a history of CAS involvement were more likely to be without shelter than youth who were homeless without a history of CAS involvement.

However, results showed that the likelihood of spending nights without shelter in the past seven days did not differ by history of CAS involvement among youth who were homeless. Within the past seven days, 16.3% ($n = 14$) of youth who were homeless with no history of CAS involvement and 17.2% ($n = 11$) of youth who were homeless with a history of CAS involvement had spent at least one night without shelter.

Researchers also examined the likelihood of all three groups of youth staying with parents for at least one night in the past seven days. All three groups were equally likely to stay with their parents: 64.3% ($n = 14$) of youth who were homeless with no history of CAS involvement; 17.2% ($n = 11$) of youth who were homeless with a history of CAS involvement; and 19.7% ($n = 14$) of youth with current (at the time of the study) CAS involvement had stayed with parents for at least one night in the past seven days.

Gender differences

Compared to female youth, male youth who were homeless were 4.23 times more likely to report that they had spent a night without shelter in the past seven days. Gender was not related to the likelihood of staying with parents.

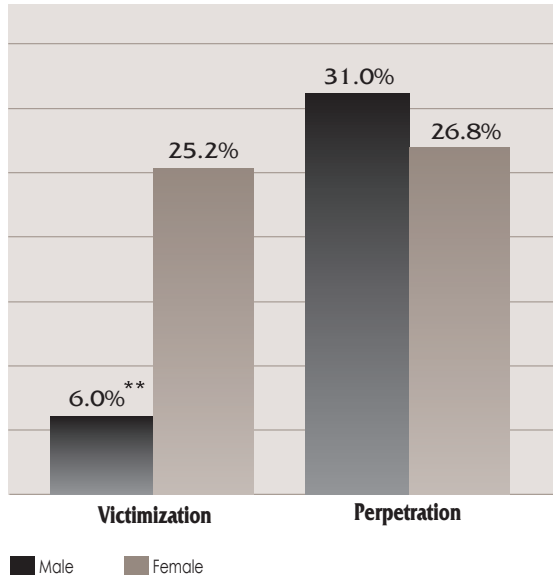
Perceptions of Housing Safety and Youth Experiencing Partner Violence

On average, reporting indicates that youth felt fairly safe in their current living situation and an examination of differences between means revealed no significant differences in perceptions of safety among the three youth groups, or by gender.

All three groups of youth did not differ in their likelihood of experiencing partner violence victimization: 15.3% of youth who were homeless without a history of CAS involvement ($n = 13$); 12.5% of youth who were homeless with a history of CAS involvement ($n = 8$); and 25.8% of youth currently (at the time of the study) involved with CAS ($n = 16$).

In total, 25.2% of female youth ($n = 32$) and 6.0% of male youth ($n = 5$) reported that they had been victims of partner violence in the past year (see Figure 3). Thus, female youth were 4.81 times more likely to be victims of partner violence than male youth, indicating that involvement in violent relationships is a salient concern for young women making the transition to adulthood.

Figure 3: Percentage of youth involved in partner violence, as victim and/or perpetrator within the past 12 months, by gender (n = 211)



**Significantly different from female youth, $p < 0.01$

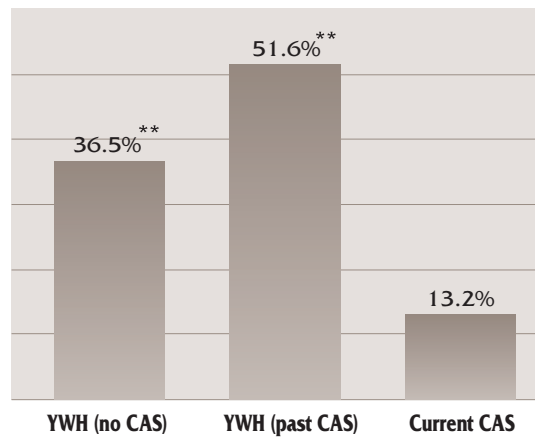
Youth who were homeless and youth involved with CAS were equally likely to have been perpetrators of partner violence. Similarly, male and female youth were equally likely to have been perpetrators of partner violence; 31.0% of male youth ($n = 26$) and 26.8% of female youth ($n = 34$) said they had perpetrated partner violence in the past year.

Mental Health: Internalizing and Externalizing Symptoms

Among all participants, 10% met the cut-off for depression on the Brief Symptom Inventory (BSI) and 14.9% met the cut-off for anxiety. In total, 18.3% of participants met the internalizing (i.e., anxiety and/or depression) criteria and 33.6% met the externalizing criteria.

Overall, the three groups of youth did not differ in their likelihood of meeting the internalizing criteria, but did differ in their likelihood of meeting the externalizing criteria. Compared to youth currently (at the time of the study) involved with CAS (and, thus, with a higher likelihood of stable housing), youth who were homeless with no history of CAS involvement were 3.70 times more likely to meet the externalizing symptoms cut-off, while youth who were homeless with a history of CAS involvement were 6.86 times more likely to meet the externalizing symptoms cut-off (see Figure 4).

Figure 4: Percentage of youth that met the externalizing symptoms criteria, by youth homelessness/CAS status (n = 219)



YWH—youth who are homeless

**Significantly different from youth currently involved with CAS $p < 0.01$

Substance Use and Other Issues Across Sub-Populations

The study examined the extent to which gender, homelessness and CAS status, and mental health symptoms (i.e., meeting the cut-offs for internalizing/externalizing symptoms) were associated with substance use in both the homeless and the CAS samples.

Past Year Substance Use

These analyses included: alcohol, marijuana, illicit drugs and polysubstance use. (See *Summary of Key Variables*, pages 6–7, for a detailed list of the illicit drugs included in these analyses.)

Gender

Male youth were 2.46 times more likely to report using marijuana in the past year and 3.38 times more likely to report polysubstance use, compared to female youth.

Homelessness/CAS status

Compared to youth currently (at the time of the study) involved with CAS, youth who were homeless with no history of CAS involvement were more likely to report past year use of all of the substances examined. Specifically, they were more likely to report using alcohol (2.91 times), marijuana (4.02 times), illicit drugs (6.11 times) and multiple substances (9.21 times). Similarly, with the exception of past year alcohol use, youth who were homeless with a history of CAS involvement were more likely to report past year use of all the illicit drugs examined, compared to youth currently (at the time of the study) involved with CAS. They were 6.03 times more likely to report marijuana use, 8.52 times more likely to report use of illicit drugs, and 8.88 times more likely to report polysubstance use.

Mental health symptoms

Among all the substances examined, internalizing symptoms were only associated with illicit drug use: youth who met the internalizing cut-off were 2.52 times more likely to report use of illicit drugs in the past year. Youth who met the externalizing cut-off were more likely to report past year use of: marijuana (9.24 times), illicit drugs (5.04 times) and multiple substances (8.32 times).

Past Month Substance Use

These analyses included: alcohol, tobacco, marijuana, illicit drugs and multiple substances (polysubstance use). (See *Summary of Key Variables*, pages 6–7, for a detailed list of the illicit drugs included in these analyses.)

Gender

Compared to female youth, male youth were more likely to report drinking alcohol (2.38 times), to say they were current cigarette smokers (2.13 times), and to report use within the past month of: marijuana (3.37 times) and multiple substances (polysubstance use) (3.16 times).

Homelessness/CAS status

Compared to youth currently (at the time of the study) involved with CAS, youth who were homeless with no history of CAS involvement were more likely to report being current cigarette smokers (6.94 times), and to be using marijuana in the past month (4.20 times). In addition, compared to youth currently involved with CAS, youth who were homeless with a history of CAS involvement were more likely to report using alcohol in the past month (2.25 times), using marijuana in the past month (7.68 times), and to be current cigarette smokers (34.87 times).

With respect to illicit drug use, due to the low frequency of past month use among youth currently involved with CAS, analyses were only conducted for street youth ($n = 150$). Youth who were homeless with no history of CAS involvement were compared to youth who were homeless with a past history of CAS involvement. These groups did not differ in terms of reported past month illicit drug use or polysubstance use. (For a detailed list of the illicit drugs included in these analyses, please see *Summary of Key Variables* on pages 6–7.)

Mental health symptoms

Youth who met the cut-off for internalizing symptoms were no more likely to report past month substance use than those who did not meet the cut-off; however, meeting the cut-off for externalizing symptoms was associated with an increased likelihood of all past month substance use. Specifically, youth who met the externalizing cut-off were more likely, in the past month, to report: using alcohol (2.06 times); binge drinking (2.42 times); being current cigarette smokers (4.05 times); and using marijuana (4.93 times), illicit drugs (2.48 times), and multiple substances (polysubstance use) (3.54 times).

Problem Alcohol and Drug Use

Gender

Male youth were 2.88 times more likely to meet criteria for problem drug use compared to female youth.

Homelessness/CAS status

Compared to youth currently (at the time of the study) involved with CAS, youth who were homeless were more likely to meet criteria for problem alcohol and drug use. Specifically, youth who were homeless with no history of CAS involvement were 3.76 times more likely to meet the cut-off for alcohol problems and 5.24 times more likely to meet the cut-off for drug problems. Youth who were homeless with a history of CAS involvement were 4.73 times more likely to meet the cut-off for alcohol problems and 6.89 times more likely to meet the cut-off for drug problems.

Mental health symptoms

Both internalizing and externalizing symptoms were associated with drug and alcohol problems. Youth who met criteria for internalizing symptoms were 2.33 times more likely to meet the cut-off for alcohol problems and 3.21 times more likely to meet the cut-off for drug problems. Similarly, youth who met

criteria for externalizing symptoms were 2.11 times more likely to meet the cut-off for alcohol problems. In addition, there was almost complete overlap between youth who met the cut-off for externalizing symptoms and drug problems; only two youth who met the cut-off for externalizing symptoms did not meet the cut-off for drug problems.

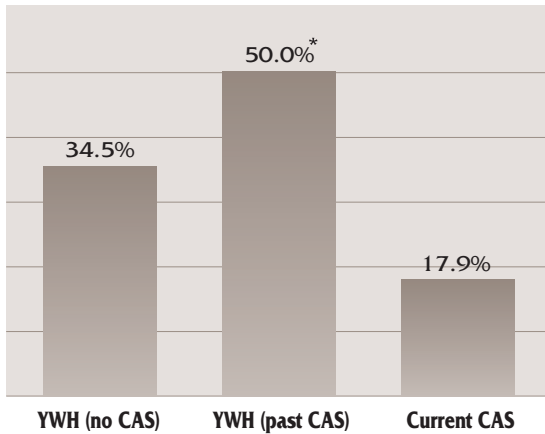
Looking Across the Issues

Gender, homelessness/CAS status, housing instability (living without shelter during the past seven days), maltreatment history and partner violence were all examined as contributors to concurrent mental health symptoms and substance use. All analyses controlled for age, education and number of months in CAS care. For all analyses, concurrent mental health symptoms and substance use was the dependent variable. Each analysis considered concurrent mental health symptoms with the substance use (past month: alcohol use, binge drinking, marijuana use, illicit drug use, polysubstance use) or substance use problem (problem alcohol use, problem drug use) varying, depending on the analysis. The mental health criterion was defined by participants meeting the cut-off for either internalizing or externalizing symptoms. Researchers used a report of "spending at least one night without shelter in the past seven days" as a proxy for housing instability. (Although many youth may spend at least one night without shelter in a four-month period, the likelihood of spending a night without shelter in the past week should be higher for those with chronic housing instability compared to those youth who casually spend a night on the streets.)

Past Month Substance Use

Youth who were homeless with a history of CAS involvement were 3.94 times more likely than youth currently involved with CAS to have concurrent alcohol use and mental health symptoms (see Figure 5).

Figure 5: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who reported past month alcohol use, by youth homelessness/CAS status (n = 195)

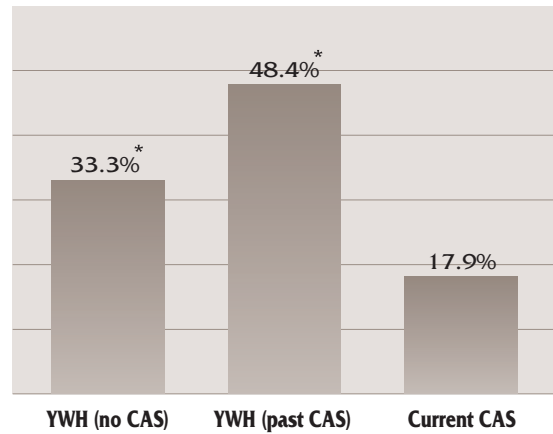


YWH—youth who are homeless
*Significantly different from youth currently involved with CAS p <0.05

In addition, youth who said they were without shelter at least one night in the past seven days were 2.97 times more likely to have concurrent alcohol use and mental health symptoms. Those who reported perpetrating partner violence were also more likely to have concurrent alcohol use and mental health symptoms; these youth were 2.20 times more likely to report past month alcohol use and concurrent mental health symptoms, compared with youth who said they had not perpetrated partner violence in the past month.

Youth who were homeless with a history of CAS involvement were 10.07 times more likely, and youth who were homeless with no history of CAS involvement were 8.82 times more likely, than current CAS youth to have concurrent binge drinking and mental health symptoms (see Figure 6).

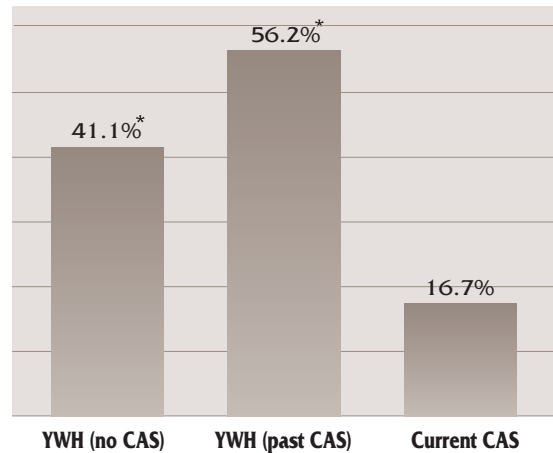
Figure 6: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who reported binge drinking, by youth homelessness/CAS status (n = 195)



YWH—youth who are homeless
*Significantly different from youth currently involved with CAS p <0.05

Youth who were homeless with no history of CAS involvement were 7.41 times more likely, and youth who were homeless with a history of CAS involvement were 8.06 times more likely, than current CAS youth to have concurrent cigarette smoking and mental health symptoms (see Figure 7).

Figure 7: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who reported smoking cigarettes, by youth homelessness/CAS status (n = 196)

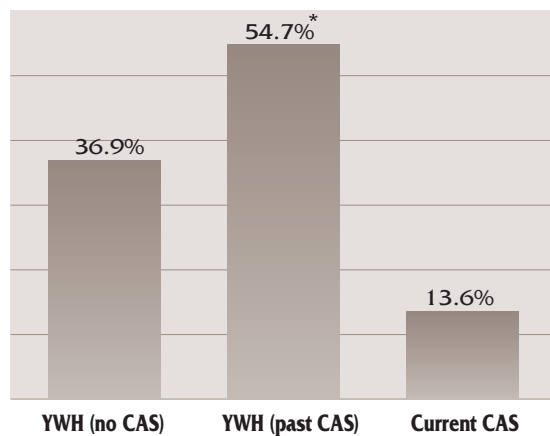


YWH—youth who are homeless
*Significantly different from youth currently involved with CAS p <0.05

Youth who reported living without shelter for at least one night in the past seven days were 3.61 times more likely to have concurrent cigarette smoking and mental health symptoms. In addition, youth who had a history of physical or sexual abuse were 2.26 times more likely to have concurrent cigarette smoking and mental health symptoms.

Youth who were homeless with a history of CAS involvement were 6.42 times more likely to have concurrent marijuana use and mental health symptoms compared to youth currently involved with CAS (see Figure 8).

Figure 8: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who reported marijuana use, by youth homelessness/CAS status (n = 195)



YWH—youth who are homeless
*Significantly different from youth currently involved with CAS p <0.05

In addition, youth living without shelter for at least one night in the past seven days were 4.60 times more likely to have concurrent marijuana use and mental health symptoms. Finally, youth who reported having perpetrated partner violence in the past year were 2.52 times more likely, and those who had a history of maltreatment were 2.39 times more likely, to have concurrent marijuana use and mental health symptoms.

The analyses for illicit drug use were limited to youth who were homeless, as the frequency of illicit drug use among youth currently involved with CAS was

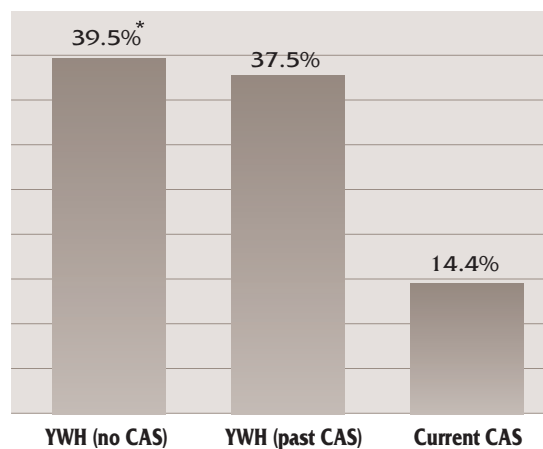
extremely low. Youth living without shelter for at least one night in the past seven days were 3.17 times more likely to have concurrent illicit drug use and mental health symptoms.

The analyses for past month polysubstance use were also limited to youth who were homeless. Youth who were living without shelter in the past seven days were 10.30 times more likely to have concurrent polysubstance use and mental health symptoms. In addition, youth who reported having perpetrated partner violence in the past year were 7.83 times more likely to have concurrent polysubstance use and mental health symptoms.

Problem Alcohol and Drug Use

Youth who were homeless with no history of CAS involvement were 5.47 times more likely to have concurrent problem alcohol use and mental health symptoms compared to youth currently involved with CAS (see Figure 9).

Figure 9: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who met the cut-off for problem alcohol use, by youth homelessness/CAS status (n = 197)

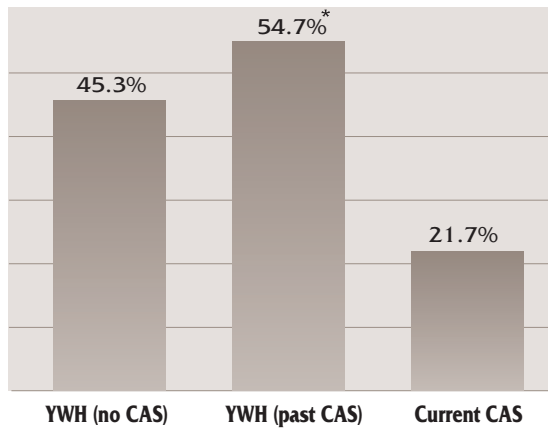


YWH—youth who are homeless
*Significantly different from youth currently involved with CAS p <0.05

In addition, youth who were without shelter for at least one night in the past seven days were 3.37 times more likely to have concurrent problem alcohol use and mental health symptoms. Finally, youth who said they had perpetrated violence towards a partner in the past year were 2.66 times more likely to have concurrent problem alcohol use and mental health symptoms.

Youth who were homeless with a history of CAS involvement were 3.35 times more likely, and youth who were homeless with no history of CAS involvement were 3.98 times more likely, than current CAS youth to have concurrent problem drug use and mental health symptoms (see Figure 10).

Figure 10: Percentage of youth that met the cut-offs for internalizing or externalizing symptoms, and who met the cut-off for problem drug use, by youth homelessness/CAS status (n = 198)



YWH—youth who are homeless

*Significantly different from youth currently involved with CAS p < 0.05

In addition, youth who said they had lived without shelter for at least one night in the past seven days were 3.23 times more likely to have concurrent problem drug use and mental health symptoms. Finally, youth who had perpetrated partner violence within the past 12 months were 2.37 times more likely to have concurrent problem drug use and mental health symptoms.

Any Past Month Substance Use, Polysubstance Use and Mental Health Symptoms

When use of alcohol and illicit drugs were considered together, along with mental health symptoms, living without shelter was significantly associated with concurrent mental health symptoms and substance use. These analyses were only conducted for youth who were homeless. Specifically, youth who reported being without shelter for at least one night in the past seven days were 2.69 times more likely to have any substance use and concurrent mental health symptoms.

When use of multiple substances (i.e., polysubstance use) was considered, along with concurrent mental health symptoms, youth who reported being without shelter for at least one night in the past seven days were 10.30 times more likely to have polysubstance use and concurrent mental health symptoms. In addition, youth who perpetrated partner violence were 7.83 times more likely to have polysubstance use and concurrent mental health symptoms. For these analyses, polysubstance use refers to use of two or more substances in the past month, including alcohol, marijuana and/or other illicit drugs.



Discussion

Some of the key findings from Section 4 are described here in greater detail, particularly those with implications for policy, programs and further research.

Youth who are homeless may have experienced maltreatment

Study findings highlight child welfare involvement as a possible precursor to youth homelessness, with 42.7% of youth in the homeless sample reporting a history of involvement with child welfare services. These findings are consistent with others (e.g., Cauce et al., 2000; Raising the Roof, 2009) and suggest that youth leaving the child welfare system may be ill-prepared to cope with this transition. This, in turn, may result in lack of stability and a trajectory marked by recurrent violence victimization, substance use and mental health symptoms. The findings also suggest that many youth living on the streets without a history of child welfare involvement may have experienced child maltreatment. This is not surprising given that the incidence rates of child maltreatment are based on official reports of maltreatment by child protection agencies and they tend to underestimate official rates. As well, actual occurrences of maltreatment are not brought to the attention of the child welfare system for a number of reasons, including the reluctance of children to come forward, the prevailing view that family is a private matter, and that professionals may not recognize and/or report child maltreatment. Indeed, both child welfare involvement and child maltreatment may contribute to youth homelessness, due to youth's desire to leave a home where they experience maltreatment, to free themselves from the child welfare system, or due to a lack of support when "graduating" from the system (Hyde, 2005; Whitbeck & Simons, 1990).

Remaining involved with CAS may be a protective factor for some youth

Overall, few youth who (at the time of the study) were involved with CAS had been without shelter in the past seven days. Although longitudinal research to identify causal factors is needed, these findings suggest that remaining involved with CAS may be protective for youth where it allows for more secure housing. These results should be interpreted with caution as there was likely some bias regarding the housing experiences of youth who were recruited as part of the study's child welfare sample.

Youth in the child welfare sample of the Youth Pathways Project (YPP) study were those who presented to a child welfare agency to receive financial support; eligibility for financial support is often based on youth pursuing an education program. Thus, these youth may be those who are more secure in multiple domains, resulting in a reduced likelihood of spending nights without housing. Similarly, follow-up assessments with MAP youth were scheduled directly with the youth, which required that the youth respond to the research assistant's query and that they could be reached. Again, youth with secure housing are more likely to have contact information that remains consistent across testing intervals.

Research is needed to examine youth returning home following exit from child welfare

There were no differences between groups in terms of the likelihood of youth spending one or more nights with their parents in the past seven days. These findings suggest that youth involved with CAS, many of whom have been removed from their parents'

homes, are as likely to return home for at least one night as are youth who voluntarily leave their parents' homes. Indeed, 19.7% of youth involved with CAS had returned to stay with their parents for at least one night in the past seven days. Although reunification with family is often a goal for children and youth who are removed from the home, it is not clear to what extent youth in the current study sample were receiving support from child welfare to reunify. Further research in this area is needed, including a closer examination of how returning home affects adjustment following an exit from child welfare, and the extent to which cycles of violence are repeated once youth return home.

Youth who are homeless may feel safe

It should be noted that, despite diverse living situations, most youth perceived their current (at the time of the study) living situation to be safe. These findings speak to the resilience of these youth, and to their ability to adapt to difficult situations and to seek out safe alternatives to stable housing. Factors contributing to safety were not examined (e.g., avoiding certain areas of the city, travelling in groups), but should be explored in future research.

Internalizing and externalizing problems are higher among study youth

Findings indicate that rates of internalizing symptoms are much higher among youth involved with child welfare and youth who are homeless than among youth in the general population. For example, findings from the Ontario Student Drug Use and Health Survey (OSDUHS) (Adlaf et al., 2007) indicate that about one in twenty (5%) high school-aged youth is at risk for depression. In the current study sample, 10% of youth met the cut-off for depression on the Brief Symptom Inventory (BSI).

In addition, externalizing problems were much higher in the current study sample than among youth in the general population. For example, prevalence of delinquent behaviour in the OSDUHS was approximately 13% compared to 33.6% of youth in the current study that met the externalizing criteria.

In particular, the current study found that externalizing problems are much higher among youth who are living on the streets than among youth currently involved with CAS. These findings are consistent with others who have identified externalizing disorders (e.g., conduct disorder) as the primary mental health issue among older adolescents who are living on the streets (Whitbeck et al., 2004), and suggest that youth with externalizing disorders may be more susceptible to an early and unplanned exit from child welfare, resulting in instability and homelessness. It should be noted, however, that many of the behaviours included in the definition of externalizing disorders (e.g., theft under \$50, property damage, selling drugs) are part of the subculture of life on the streets and, in some cases, reflect survival skills (i.e., stealing to purchase food) (Robertson & Toro, 1999). In addition, many youth who were homeless are involved with delinquent peers (Whitbeck, Hoyt, & Ackely, 1997), which again may reflect a way of surviving on the streets.

Substance use is a problem among youth who are homeless

Findings from the current study are consistent with those of others who have identified substance use as a significant and severe problem among youth who are homeless (Baer et al., 2003; Rhule-Louie et al., 2008). Prevalence of substance use and substance use problems in the current sample was much higher than rates found in general population studies of youth (Health Canada, 2011), and being homeless increased the likelihood of substance use and substance use problems.

Concurrent mental health symptoms and substance use among youth living on the streets

A large percentage of youth in the study reported concurrent mental health symptoms and substance use, findings that were more pronounced for youth living on the streets than for youth currently (at the time of the study) involved with child welfare. This is both consistent with findings from the adult

literature (Hwang, 2001) and those indicating high rates of concurrent mental health symptoms and substance use among youth who are homeless (Johnson et al., 2005). Results from this study highlight externalizing disorders in particular as a significant correlate of increased substance use and problem substance use. Furthermore, these results are more pronounced for youth living on the streets. However, the chronological relationship between these variables requires clarification. For example, it is not clear whether externalizing behaviours lead to both substance use and homelessness (perhaps due to high levels of conflict as a result of substance use or resistance to authority at home), or whether street involvement results in increased externalizing behaviours, including substance use, as a way to survive street life. Longitudinal studies with larger samples of youth are needed to understand the nature of these relationships.

Youth homelessness, being without shelter for at least one night in the past seven days, was associated with concurrent mental health symptoms and substance use, with some variability across substances. Although the direction of these relationships cannot be established with the present data, one possible explanation is that continued involvement with child welfare exerts a protective effect; youth who remained involved with child welfare were less likely to have concurrent mental health symptoms and substance use. It is also possible that youth with fewer mental health symptoms and substance use issues may remain longer in the child welfare

system. In addition, living without shelter for at least one night was associated with concurrent status, highlighting housing instability as a possible outcome for youth struggling with both mental health symptoms and substance use. Further research using longitudinal data is needed to clarify the nature and direction of these relationships.

There is a relationship between perpetrating partner violence and concurrent mental health symptoms and substance use

Finally, the findings show a significant relationship between partner violence perpetration and several of the concurrent mental health symptoms and substance use. There appears to be significant overlap between externalizing symptoms, substance use and partner violence perpetration. According to problem behaviour theory (Jessor, 1991) there may be a cluster of behaviours that tend to go together among youth, such as a tendency toward non-conforming sensation-seeking and delinquency. This clustering may be particularly prominent for youth who are homeless. Among youth who also have a history of child welfare involvement, the combination of this history and the cluster of behaviours may contribute to their early exit from child welfare services. Although in the short term youth may perceive leaving child welfare as the best option, those with multiple problem behaviours who are living on the streets will likely face challenges, making it increasingly difficult to transition out of homelessness.



Practice and Policy Recommendations

This study illustrates that youth who lack stable housing, have a history of maltreatment, and/or substance use and mental health issues, and are no longer involved in child welfare services, constitute a vulnerable population. The evidence suggests that a proportion of these youth end up on the streets.

It also emphasizes the importance of establishing early interventions and services to assist these youth. Effective practice and policy interventions that address the current gaps and lack of coordination across all sectors, such as those identified below, should be instituted.

Recommendation 1: Improve treatment for youth who are homeless and have mental health and substance use issues.

Youth who are homeless have complex needs and many would benefit from treatment, particularly for mental health symptoms and substance use. A recent report examining polysubstance use among youth who are homeless in Toronto highlights the basic needs of this population, which includes housing. In this report, youth spoke about the challenge of finding and maintaining affordable housing when substance use was not adequately addressed (Barnaby, Penn, & Erickson, 2010). Given the prevalence of mental health symptoms and substance use among the sample of youth who are homeless, a collaborative, youth-centered outreach approach may be most accessible and may increase engagement in treatment. In addition, a focus on outreach, with unconventional modes of service delivery (e.g., youth counsellors providing mobile services) could be useful since those who are homeless do not have the financial resources to access public transportation and are often at risk for mental health symptoms or substance use crises during non-working hours.

Building a continuum of care for youth who are homeless is a challenging but necessary task. Interventions should be integrated and comprehensive as each aspect of youth functioning has an impact on overall stability, increasing the likelihood of youth moving to independent living. Youth who are homeless with mental health symptoms are often difficult to engage, a situation that is heightened among youth with substance use issues (due to the stigma often associated with drug use). As well, due to their histories of maltreatment and violence victimization, these youth are often mistrustful of adults. Alternative strategies for engaging youth who are homeless, including involving peers, employing effective methods for enhancing treatment engagement and commitment to change could be implemented (e.g., Motivational Interviewing; Miller & Rollnick, 2002).

Recommendation 2: Examine the reasons for early exit and readiness among youth involved in the child welfare system.

The current study demonstrates that a history of child welfare involvement is common among youth living on the streets. As a result, the reasons for early exit from child welfare and indicators for readiness (youth's own perceptions of her/his preparedness, ability to manage financial, psychological and health care needs, and ability to maintain stable housing) for those who have reached the age criteria for services should be examined more

closely, especially when trying to prevent the progression to homelessness.

In addition, support for youth as they transition out of the child welfare system is required. For instance, continued screening and monitoring of both mental health symptoms and substance use could be integrated into child welfare services, either through training within child welfare agencies or by increased collaboration between service sectors (e.g., child welfare, mental health and substance abuse treatment services). Youth with concurrent mental health symptoms and substance use could be provided with additional support during the transition out of child welfare due to their increased risk of homelessness.

Recommendation 3: Prevent youth homelessness through early intervention.

Given the high rates of concurrent mental health symptoms and substance use among youth living on the streets, prevention should be a key focus for service agencies for youth. For example, greater funding of early intervention programming for youth with identified risk factors such as conduct or behavioural problems is needed to prevent a trajectory towards poorer outcomes, including the stress of street life. Furthermore, prevention initiatives targeting some of the underlying causes of youth homelessness (such as child maltreatment) are needed.

Findings from this study suggest that many youth who are homeless have a history of involvement with child welfare. It is likely that these youth carry multiple levels of stigma—childhood maltreatment, partner violence, mental health issues, substance abuse, street living—that deter them from seeking help and making use of available services. There needs to be an opportunity for identification, prevention and intervention for mental health and substance use issues in a supportive and safe

environment. This would likely require increased resources and training to prevent premature exit from the child welfare system and the resultant loss of resources.

Recommendation 4: Increase research on risk factors, outcomes and interventions.

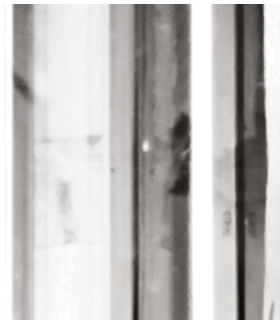
It would be useful to follow the populations that are the focus of the current study longitudinally to identify patterns of homelessness, as well as the risk factors and protective factors that are associated with concurrent mental health symptoms and substance use. To date, there have been few formal evaluations of interventions for homeless youth (Robertson & Toro, 1999). While tracking youth who are homeless over time is a difficult and onerous task, it is essential for developing effective interventions. Funding for prospective longitudinal studies of homeless and child welfare involved youth is needed to ensure that interventions are tailored to their specific needs.

Conclusion

This study is the first known attempt to examine the differences in mental health symptoms and substance use between youth who are involved in child welfare and those who are homeless. As illustrated in this report, the relationships among homelessness, mental health, substance use/abuse and child welfare involvement are very complex. Homelessness can contribute to mental health symptoms and substance use/abuse. Likewise, substance use and mental health symptoms, including a history of child maltreatment, can influence homelessness. Moreover, homelessness may be the outcome of a young person's attempt to secure her/his safety and to escape maltreatment at home. Such vulnerability is emphasized when youth reach the legal age of independence and

are left unsupported, regardless of their readiness to live on their own. Their trajectories into adulthood could be affected and, as a consequence, they may become the next generation of adults who are chronically homeless.

Although much of this study focuses on the high levels of risk and the challenges these youth face, it is important to recognize their resilience. Many have developed a strong sense of survival by building skill sets that allow them to live in very difficult, and often dangerous, environments. Further research into the process of developing and retaining resilience in such adverse contexts is warranted and will provide further insight into how success is obtained despite multiple level challenges.



References

- Aarons, G.A., Monn, A.R., Hazen, A.L., Connelly, C.D., Leslie, L.K., Landsverk, J.A., et al. (2008). Substance involvement among youths in child welfare: The role of common and unique risk factors. *American Journal of Orthopsychiatry*, 78, 340–349.
- Adlaf, E.M., Paglia-Boak, A., Beitchman, J.H., & Wolfe, D. (2007). *OSDUHS Highlights The Mental Health and Well-Being of Ontario Students 1991–2007*. CAMH Research Document Series No. 23. Toronto, ON: Centre for Addiction and Mental Health.
- Baer, J.S., Ginzler, J.A., & Peterson, P.L. (2003). DSM-IV alcohol and substance abuse and dependence in homeless youth. *Journal of Studies on Alcohol*, 64, 5–14.
- Barnaby, L., Penn, R., & Erickson, P.G. (2010). *Drugs, Homelessness & Health: Homeless Youth Speak Out About Harm Reduction. The Shout Clinic Harm Reduction Report, 2010*. Toronto, ON: Wellesley Institute.
- Bousman, C.A., Blumberg, E.J., Shillington, A.M., Hovell, M.F., Ji, M., Lehman, S., et al. (2005). Predictors of substance use among homeless youth in San Diego. *Addictive Behaviors*, 30, 1100–1110.
- Canadian Centre on Substance Abuse. (2007). *Substance abuse in Canada: Youth in focus*. Ottawa, ON: Author.
- Cauce, A.M., Paradise, M., Ginzler, J.A., Embry, L., Morgan, C.J., Lohr, Y., et al. (2000). The characteristics and mental health of homeless adolescents: Age and gender differences. *Journal of Emotional and Behavioral Disorders*, 8, 230–239.
- City of Toronto (2003). *The Toronto report card on homelessness*. Retrieved November 12, 2010, from <http://intraspec.ca/reportcard2003.pdf>
- Courtney, M.E., & Dworsky, A. (2006). Early outcomes for young adults transitioning from out-of-home care in the USA. *Child and Family Social Work*, 11, 209–219.
- Courtney, M.E., Dworsky, A., & Pollack, H. (2007). *When should the state cease parenting? Evidence from the Midwest study*. Chicago: Chapin Hall Centre for Children at the University of Chicago.
- Courtney, M.E. & Heuring, D.H. (2005). The transition to adulthood for youth "aging out" of the foster care system. In D.W. Osgood, E.M. Foster, C. Flanagan, & G.R. Ruth (Eds.), *On your own without a net: The transition to adulthood for vulnerable populations* (pp. 27–67). Chicago: The University of Chicago Press.
- Culhane, J.F., Webb, D., Grim, S., Metraux, S., & Culhane, D. (2003). Prevalence of child welfare services involvement among homeless and low-income mothers: A five-year birth cohort study. *Journal of Sociology and Social Welfare*, 30, 79–95.
- Derogatis, L.R. (1993). *Brief Symptom Inventory: Administration, scoring, and procedures manual*. Minneapolis, MN: National Computer Systems, Inc.
- Drake, R.W., Osher, F.C., & Wallach, M.A. (1991). Homelessness and dual diagnosis. *American Psychologist*, 46, 1149–1158.
- Echenberg, H., & Jensen, H. (2009). *Risk Factor for Homelessness. Parliamentary Information and Research Service*. Ottawa, ON: Library of Parliament.
- Gaetz, S. (2004). Safe streets for whom? Homeless youth, social exclusion and criminal victimization. *Canadian Journal of Criminology and Criminal Justice*, 46, 423–454.
- Gaetz, S., O'Grady, B., & Vaillancourt, B. (1999). *Making Money: The Shout Clinic Report on Homeless Youth and Unemployment*. Toronto, ON: Central Toronto Community Health Centres.
- George, T.P., & Krystal, J.H. (2000). Comorbidity of psychiatric and substance abuse disorders. *Current Opinion in Psychiatry*, 13, 327–331.
- Greene, J.M., Ennet, S.T., & Ringwalt, C.L. (1999). Prevalence and correlates of survival sex among runaway and homeless youth. *American Journal of Public Health*, 89, 1406–1409.
- Hawkins, J.D., Catalano, R.F., & Miller, J.Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*, 112, 64–105.
- Health Canada. (2011). *Major Findings from the Canadian Alcohol and Drug Use Monitoring Survey (CADUMS) 2010*. Retrieved July 18, 2011, from http://www.hc-sc.gc.ca/hc-ps/drugs-drogues/stat/_2010/summary-sommaire-eng.php
- Hussey, J.M., Chang, J.J., & Kotch, J.B. (2006). Child maltreatment in the United States: Prevalence, risk factors and adolescent health consequences. *Pediatrics*, 118, 933–942.
- Hwang, S.W. (2001). Homelessness and health. *Canadian Medical Association Journal*, 164, 229–233.

- Hyde, J. (2005). From home to street: Understanding young people's transitions into homelessness. *Journal of Adolescence*, *28*, 171–183.
- Janus, M.D., Archambault, F.X., Brown, S.W., & Welsh, L.A. (1995). Physical abuse in Canadian runaway adolescents. *Child Abuse & Neglect*, *19*, 433–447.
- Jessor, R. (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health*, *12*, 597–605.
- Johnson, K.D., Whitbeck, L.B., & Hoyt, D.R. (2005). Substance abuse disorders among homeless and runaway adolescents. *Journal of Drug Issues*, *35*, 799–816.
- Karabanow, J. (2008). Getting off the street: Exploring the processes of young people's street exits. *American Behavioral Scientist*, *51*, 772–788.
- Karabanow, J., Clement, P., Carson, A., & Crane, K. (2005). *Getting off the Street: Exploring Strategies Used by Canadian Youth to Exit Street Life*. The National Homelessness Initiative, National Research Program.
- King, K.E., Ross, L.E., Bruno, T.L., & Erikson, P.G. (2009). Identity work among street-involved young mothers. *Journal of Youth Studies*, *12*, 139–149.
- Knight, J.R., Sherritt, L., Shrier, L.A., Harris, S.K., & Chang, G. (2002). Validity of the CRAFFT substance abuse screening test among adolescent clinic patients. *Archives of Pediatrics and Adolescent Medicine*, *156*, 607–614.
- Koegel, P., Melamid, E., & Burnam, M.A. (1995). Childhood risk factors for homelessness among homeless adults. *American Journal of Public Health*, *85*, 1642–1649.
- Leslie, B., & Hare, F. (2003). At care's end: Child welfare grads and street youth services. In K. Kufeldt & B. McKenzie (Eds.), *Child welfare: connecting research, policy and practice* (pp. 239–247). Waterloo, ON: Wilfrid Laurier University Press.
- Mallett, S., & Rosenthal, D. (2009). Physically violent mothers are a reason for young people's leaving home. *Journal of Interpersonal Violence*, *24*, 1165–1174.
- McCaskill, P.A., Toro, P.A., & Wolfe, S.M. (1998). Homeless and matched housed adolescents: A comparative study of psychopathology. *Journal of Clinical Child Psychology*, *27*, 306–319.
- Merscham, C., Van Leeuwen, J.M., & McGuire, M. (2009). Mental health and substance abuse indicators among homeless youth in Denver Colorado. *Child Welfare*, *88*, 93–110.
- Miller, W.R., & Rollnick, S. (2002). *Motivational Interviewing: Preparing people for change* (2nd ed.). New York: Guilford Press.
- Ministry of Children and Youth Services. (2010). *Report on the 2010 Review of the Child and Family Services Act*. Retrieved August 4, 2010, from <http://www.children.gov.on.ca/htdocs/English/documents/about/2010%20CFSA%20Discussion%20document.pdf>
- Raising the Roof. (2009). *Youth Homelessness in Canada: The Road to Solutions*. Retrieved November 12, 2010, from http://intraspec.ca/RoadtoSolutions_fullrept_english.pdf
- Rhule-Louie, D.M., Bowen, S., Baer, J.S., & Peterson, P.L. (2008). Substance use and health and safety among homeless youth. *Journal of Child and Family Studies*, *17*, 306–319.
- Robertson, M.J., & Toro, P.A. (1999). Homeless youth: Research, intervention, and policy. In L.B. Fosburt & D.L. Dennis (Eds.), *Practical Lessons: The 1998 National Symposium on Homelessness Research*. U.S. Department of Housing and Urban Development, U.S. Department of Health and Human Services.
- Rotheram-Borus, M.J., Mahler, K.A., Koopman, C., & Langabeer, K. (1996). Sexual abuse history and associated multiple risk behavior in adolescent runaways. *American Journal of Orthopsychiatry*, *66*, 390–400.
- Rowe, C.L., Liddle, H.A., Greenbaum, P.E., & Henderson, C.E. (2004). Impact of psychiatric comorbidity on treatment of adolescent drug abusers. *Journal of Substance Abuse Treatment*, *26*, 129–140.
- Roy, R., Haley, N., Leclerc, P., Sochanski, B., Boudreau, J-F., & Boivin, J-F. (2004). Mortality in a cohort of street youth in Montreal. *Journal of American Medical Association*, *292*, 569–574.
- Saunders, J.B., Aasland, O.G., Babor, T.F., De La Fuente, J.R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on early detection of persons with harmful alcohol consumption-II. *Addiction*, *88*, 791–804.
- Slesnick, N., & Prestopnik, J. (2005). Dual and multiple diagnosis among substance using runaway youth. *The American Journal of Drug and Alcohol Abuse*, *31*, 179–201.
- Thompson, S.J., McManus, H., & Voss, T. (2006). Posttraumatic stress disorder and substance abuse among youth who are homeless: Treatment issues and implications. *Brief Treatment and Crisis Intervention*, *6*, 206–217.

- Thompson, S.J., Safyer, A.W., & Pollio, D.E. (2001). Differences and predictors of family reunification among subgroups of runaway youths using shelter services. *Social Work Research, 25*, 163–173.
- Tyler, K.A., & Johnson, K.A. (2006). Pathways in and out of substance use among homeless-emerging adults. *Journal of Adolescent Research, 21*, 133–157.
- Tyler, K.A., Whitbeck, L.B., Hoyt, D.R., & Cauce, A.M. (2004). Risk factors for sexual victimization among male and female homeless and runaway youth. *Journal of Interpersonal Violence, 19*, 503–520.
- Walsh, C.A., MacMillan, H.L., Trocme, N., Jamieson, E., & Boyle, M.H. (2008). Measurement of victimization in adolescence. Development and validation of the Childhood Experiences of Violence Questionnaire. *Child Abuse & Neglect, 32*, 1037–1057.
- Whitbeck, L.B., & Hoyt, D.R. (1999). *Nowhere to grow: Homeless and runaway adolescents and their families*. New York: Aldine de Gruyler.
- Whitbeck, L.B., Hoyt, D.R., & Ackley, K.A. (1997). Abusive family backgrounds and later victimization among runaway and homeless adolescents. *Journal of Research on Adolescence, 7*, 375–392.
- Whitbeck, L.B., Hoyt, D.R., & Bao, W-N. (2000). Depressive symptoms and co-occurring depressive symptoms, substance abuse, and conduct problems among runaway and homeless adolescents. *Child Development, 71*, 721–732.
- Whitbeck, L.B., Johnson, K.D., Hoyt, D.R., & Cauce, A.M. (2004). Mental disorder and comorbidity among runaway and homeless adolescents. *Journal of Adolescent Health, 35*, 132–140.
- Whitbeck, L.B., & Simons, R.L. (1990). Life on the streets: The victimization of runaway and homeless adolescents. *Youth and Society, 22*, 108–125.
- Wolfe, D.A., Scott, K., Reitzel-Jaffe, D., Wekerle, C., Grasley, C., & Straatman, A-L. (2001). Development and validation of the Conflict in Adolescent Dating Relationships Inventory. *Psychological Assessment, 13*, 277–293.
- Yoder, K.A., Hoyt, D.R., & Whitbeck, L.B. (1998). Suicidal behavior among homeless and runaway adolescents. *Journal of Youth and Adolescence, 27*, 753–771.



Appendix A: Description of Analyses

Logistic Regression Analysis

Logistic regression, the primary statistical procedure employed in this study, is used to examine the likelihood of an event occurring (versus not occurring) when the response variable is discrete: that is, defined in terms of distinct categories (e.g., substance use versus no substance use).

Statistics derived from this type of analyses include the odds, odds ratio and the 95% confidence interval. The odds of an event occurring is calculated by forming the ratio of the probability of an event (e.g., substance use) over the probability of the alternative event (e.g., no substance use). The odds ratio reflects the ratio of the odds of an event (e.g., substance use) for a given group of participants (e.g., female youth) over the odds of the same event for the reference group (e.g., male youth). If the odds of an event are the same for both for female and male youth, the odds ratio will be equal to one; an odds ratios greater than one indicates that the particular outcome is more likely. (These estimates are known as "point estimates" and are valid within the scope of the study sample since it is not practical [nor likely possible] to study the whole population of youth.) To gain a reasonable understanding of the magnitude of the effect in the population at large, the 95% confidence interval was used as an additional and useful estimate.

The 95% confidence intervals are estimates that attempt to set the limits with a high probability of encompassing the true (population value) of the odds or odds ratios (likelihood of a given event) for the whole population of, for example, youth dealing with homelessness. In other words, if a researcher were to repeat the study 100 times, using random sampling (with replacement), and then build the 95% confidence interval, it can be stated

that the probability is .95 that the confidence intervals constructed as such will include the true population value of the odds ratio.

Multiway frequency (loglinear) analysis

Multiway frequency (or loglinear) analysis was used in the current study to probe the relationship between three or more discrete variables. Using a multiway contingency table in which all the variables are considered as predictors and the dependent variable is represented by its frequency within the table, loglinear analysis lets researchers examine whether the frequencies in the table for a given variable depend on any of the other two (or more) variables. In other words, it helps determine any association among any combination of the variables. The procedure is done in two distinct steps. First, a best-fitting model is explored which leads to the selection of the minimum number of relationships between the variables necessary for explaining the observed frequencies in the contingency table. Second, a different set of calculations is run using information provided in the first step to produce estimates for the effects of the individual variables and their relationships with each other.

One-way analysis of variance (ANOVA)

One-way analysis of variance (ANOVA) was used in the current study to examine differences in perceptions of safety by youth homelessness/Children's Aid

Society (CAS) status in the past seven days. ANOVA is used to examine mean differences between groups, using the F-statistic. A significant difference suggests that groups differ on the variable of interest; subsequent analyses involve identifying which groups differ from the others. The procedure was used to examine the difference in the means of three or four groups (e.g., youth currently involved with CAS, youth who are homeless with past CAS involvement, youth who are homeless with no history of CAS involvement).



Appendix B: Tables

Table B-1

Logistic regression coefficients, standard errors and adjusted odds ratios for youth homelessness/CAS status predicting the odds of maltreatment, $\chi^2 (1, N = 150) = 13.12, p < .001$

Variable	B	SE (B)	Odds ratio	95% CI
History of CAS involvement	1.23	0.35	3.41***	1.73–6.71
Constant	-0.78	0.23		

*** $p < .001$

Note: Reference category—youth who are homeless with no history of CAS involvement.

Table B-2

Logistic regression coefficients, standard errors and adjusted odds ratios for gender predicting the odds of physical abuse, $\chi^2 (1, N = 150) = .11, p > .05$

Variable	B	SE (B)	Odds ratio	95% CI
Gender (male)	0.11	0.33	1.12	0.58–2.16
Constant	-0.52	0.24		

Note: Reference category—female youth.

Table B-3

Logistic regression coefficients, standard errors and adjusted odds ratios for gender predicting the odds of sexual abuse, $\chi^2 (1, N = 150) = 5.57, p < .05$

Variable	B	SE (B)	Odds ratio	95% CI
Gender (male)	-0.94	0.41	0.39*	0.17–0.87
Constant	-0.82	0.25		

* $p < .05$

Note: Reference category—female youth.

Table B-4

Logistic regression coefficients, standard errors and adjusted odds ratios for gender differences in overall experience of maltreatment, $\chi^2 (1, N = 150) = .10, p >.05$

Variable	B	SE (B)	Odds ratio	95% CI
Gender (male)	0.11	0.33	1.11	0.58–2.12
Constant	-0.30	0.23		

Note: Reference category—female youth.

Table B-5

Logistic regression coefficients, standard errors and adjusted odds ratios for differences in shelter status within the past seven days, by youth homelessness/CAS status, $\chi^2 (1, N = 150) = .02, p >.05$

Variable	B	SE (B)	Odds ratio	95% CI
History of CAS involvement	0.06	0.44	1.07	0.45–2.53
Constant	-1.64	0.29		

Note: Reference category—youth who are homeless with no history of CAS involvement; the estimate for shelter status is given for youth who were without shelter compared to their counterparts who had shelter.

Table B-6

Logistic regression coefficients, standard errors and adjusted odds ratios for differences in nights spent with parents within the past seven days, by youth homelessness/CAS status, $\chi^2 (2, N = 219) = .44, p >.05$

Variable	B	SE (B)	Odds ratio	95% CI
History of CAS involvement	0.06	0.44	1.07	0.45–2.54
In CAS care	0.27	0.42	1.31	0.58–2.97
Constant	-1.64	0.29		

Note: Reference category—youth who are homeless with no history of CAS involvement.

Table B-7

Summary of one-way ANOVA examining differences in perceptions of safety within the past seven days, by youth homelessness/CAS status

Source	Sum of squares	df	Mean square	F	p
Safety perception within the past seven days					
Between groups	0.63	2	0.31	0.41	0.67
Within groups	166.16	215	0.77		
Total	166.79	217			

Table B-8

Logistic regression coefficients, standard errors and adjusted odds ratios for gender differences in spending nights without shelter within the past seven days, $\chi^2 (1, N = 219) = 11.22, p < .01$

Variable	B	SE (B)	Odds ratio	95% CI
Gender (male)	1.43	0.45	4.23**	1.75–10.24
Constant	-2.76	0.36		

** $p < .01$

Note: Reference category—female youth.

Table B-9

Logistic regression coefficients, standard errors and adjusted odds ratios for gender differences in spending nights with parents within the past seven days, $\chi^2 (1, N = 219) = .002, p > .05$

Variable	B	SE (B)	Odds ratio	95% CI
Gender (male)	-0.02	0.36	0.98	0.48–2.00
Constant	-1.52	0.22		

Note: Reference category—female youth.

Table B-10

Summary of independent samples *t* test for gender differences in perceptions of safety within the past seven days

Gender	N	M	SD	df	<i>t</i>
Safety perception within the past seven days				216	-1.02
Male	85	1.64	0.81		
Female	133	1.76	0.91		

Table B-11

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for youth homelessness/CAS status and gender predicting the likelihood of partner violence victimization within the past 12 months, $\chi^2(3, N = 211) = 15.61, p < .01$

Variable		B	SE (B)	Odds ratio	95% CI
Block 1	YWH with history of CAS involvement	-0.23	0.48	0.79	0.31–2.04
	In CAS care	0.66	0.42	1.93	0.85–4.37
	Constant	-1.71	0.30		
Block 2	YWH with history of CAS involvement	-0.26	0.49	0.77	0.29–2.05
	In CAS care	0.22	0.44	1.25	0.53–2.96
	Gender (male)	-1.57	0.52	0.21**	0.08–0.58
	Constant	-1.13	0.33		

***p* < .01

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for homelessness/CAS status—youth who are homeless with no history of CAS involvement.

Table B-12

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for youth homelessness/CAS status and gender predicting the likelihood of partner violence perpetration within the past 12 months, $\chi^2 (3, N = 211) = 1.03, p >.05$

Variable		B	SE (B)	Odds ratio	95% CI
Block 1	YWH with history of CAS involvement	0.22	0.36	1.24	0.61–2.51
	In CAS care	-0.21	0.38	0.81	0.38–1.71
	Constant	-0.93	0.24		
Block 2	YWH with history of CAS involvement	0.22	0.36	1.24	0.61–2.51
	In CAS care	-0.16	0.40	0.85	0.39–1.86
	Gender (male)	0.13	0.33	1.14	0.60–2.16
	Constant	-1.00	0.30		

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for homelessness/CAS status—youth who are homeless with no history of CAS involvement.

Table B-13

Adjusted odds ratios with 95% confidence intervals for the likelihood of meeting the cut-off for internalizing and externalizing symptoms by youth homelessness/CAS status

Youth type	B	SE (B)	Odds ratio	95% CI
Internalizing				
YWH with no history of CAS involvement	0.08	0.44	1.09	0.48–2.48
YWH with history of CAS involvement	0.09	0.45	1.10	0.45–2.65
Externalizing				
YWH with no history of CAS involvement	1.31	0.42	3.70**	1.61–8.48
YWH with history of CAS involvement	1.93	0.44	6.86**	2.91–16.15

** $p <.01$

YWH—youth who are homeless

Note: Reference category for homelessness/CAS status—YWH with no history of CAS involvement.

Table B-14

Adjusted odds ratios with 95% confidence intervals for the likelihood of past year substance use by gender, by youth homelessness/CAS status and by internalizing/externalizing symptoms

Past year substance use

Predictor	Alcohol Odds ratio (95% CI)	Marijuana Odds ratio (95% CI)	Illicit drugs Odds ratio (95% CI)	Polysubstance Odds ratio (95% CI)
Gender (male)	2.07 (0.88–4.90)	2.46* (1.22–4.93)	1.68 (0.96–2.93)	3.38** (1.59–7.18)
Youth type				
YWH with no history of CAS involvement	2.91* (1.16–7.27)	4.02** (1.92–8.39)	6.11** (2.95–12.66)	9.21** (3.99–21.27) ^b
YWH with history of CAS involvement	2.11 (0.83–5.35)	6.03** (2.49–14.57)	8.52** (3.85–18.84)	8.88** (3.55–22.02) ^b
Internalizing	0.97 (0.37–2.54)	2.12 (0.84–5.38)	2.52* (1.18–5.34)	1.97 (0.78–5.01)
Externalizing	1.60 (0.68–3.76)	9.24** (3.18–26.82) ^a	5.04** (2.60–9.75)	8.32** (2.86–24.19) ^a

* $p < .05$

** $p < .01$

^a The confidence intervals for these analyses are wide due to the fact that very few youth who meet the cut-off for externalizing symptoms are not also engaging in marijuana and polysubstance use.

^b The confidence intervals for these analyses are wide due to the fact that very few youth who are homeless are **not** engaging in polysubstance use.

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS.

Table B-15

Adjusted odds ratios with 95% confidence intervals for the likelihood of past month substance use by gender, by youth homelessness/CAS status and by internalizing/externalizing symptoms

Past month substance use	Alcohol	Binge drinking	Cigarette smoking ^a	Marijuana	Illicit drugs ^c	Polysubstance ^d
	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)
Gender (male)	2.38** (1.29–4.41)	1.15 (0.66–1.99)	2.13* (1.06–4.31)	3.37** (1.82–6.23)	0.82 (0.43–1.57)	3.16** (1.68–5.92)
Youth type						
YWH with no history of CAS involvement	1.85 (0.95–3.58)	1.60 (0.81–3.05)	6.94** (3.39–15.82)	4.20** (2.13–8.17)	0.92 ^c (0.48–1.75)	0.72 (0.35–1.45)
YWH with history of CAS involvement	2.25* (1.09–4.68)	2.00 (0.99–4.06)	34.87** (7.89–154.19) ^b	7.68** (3.48–16.9)	N/A	N/A
Internalizing	1.06 (0.51–2.18)	1.09 (0.54–2.18)	1.23 (0.53–2.88)	1.09 (0.54–2.21)	1.77 (0.77–4.10)	1.01 (0.48–2.11)
Externalizing	2.06* (1.09–3.90)	2.42** (1.36–4.32)	4.05** (1.72–9.55)	4.93** (2.25–9.94)	2.48** (1.27–4.83)	3.54** (1.82–6.92)

* $p < .05$

** $p < .01$

^a Cigarette smoking refers to current use of cigarettes.

^b The wide confidence intervals are due to the very low frequency of youth who are homeless with a history of CAS involvement who do not also smoke cigarettes.

^c Due to very low frequency of the use of illicit drugs among youth involved with CAS, this analysis was done with the sample of youth who are homeless only. The odds ratio is for youth who are homeless with no history of CAS involvement compared to youth who are homeless with a history of CAS involvement.

^d For polysubstance use the analysis is done using the YPP sample ($N = 185$). However, the estimates for youth type are presented for youth who are homeless only ($N = 150$).

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS.

Table B-16

Adjusted odds ratios with 95% confidence intervals for the likelihood of problem alcohol and drug use by gender, by youth homelessness/CAS status and by internalizing/externalizing symptoms

	Problem alcohol use	Problem drug use
	Odds ratio (95% CI)	Odds ratio (95% CI)
Gender (male)	1.66 (0.94–2.94)	2.88** (1.38–6.02)
Youth type		
YWH with no history of CAS involvement	3.76** (1.91–7.41)	5.24** (2.41–11.39)
YWH with history of CAS involvement	4.73** (2.34–10.01)	6.89** (2.74–17.30)
Internalizing	2.33* (1.07–5.05)	3.21* (1.08–9.51)
Externalizing	2.11* (1.15–3.88)	11.42** (3.41–38.22) ^a

* $p < .05$

** $p < .01$

^a The confidence intervals for this analysis are wide due to the fact that very few youth who met the cut-off for externalizing symptoms did not also have problem drug use.

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS.

Table B-17

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month alcohol use, $\chi^2 (11, N = 195) = 41.33, p < .01$

Variable	B	SE (B)	Odds ratio	95% CI	
Gender (male)	-0.25	0.38	0.78	0.37	1.64
Homelessness/CAS status					
YWH with no history of CAS involvement	1.31	0.67	3.69	1.00	13.65
YWH with history of CAS involvement	1.37	0.57	3.94*	1.28	12.09
Without shelter	1.10	0.37	2.97**	1.43	6.17
Maltreatment history	0.29	0.37	1.33	0.64	2.77
Perpetrated partner violence	0.79	0.40	2.20*	1.01	4.79
Victim of partner violence	-0.04	0.49	0.96	0.37	2.52
Constant	2.78	2.90			

* $p < .05$

** $p < .01$

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS. Estimates are adjusted for age, number of months in CAS care and education.

Table B-18

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month binge drinking, $\chi^2 (11, N = 195) = 31.36, p < .01$

Variable	B	SE	Odds ratio	95% CI	
Gender (male)	0.25	0.36	1.28	0.63	2.61
Homelessness/CAS status					
YWH with no history of CAS involvement	2.18	0.69	8.82**	2.29	34.04
YWH with history of CAS involvement	2.31	0.59	10.07**	3.14	32.28
Without shelter	0.40	0.36	1.49	0.73	3.03
Maltreatment history	0.33	0.36	1.40	0.68	2.85
Perpetrated partner violence	0.38	0.39	1.46	0.68	3.13
Victim of partner violence	0.37	0.48	1.44	0.57	3.68
Constant	2.06	2.83			

** $p < .01$

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS. Estimates are adjusted for age, number of months in CAS care and education.

Table B-19

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with cigarette smoking, $\chi^2 (11, N = 196) = 60.4, p < .01$

Variable	B	SE	Odds ratio	95% CI	
Gender (male)	0.21	0.39	1.24	0.58	2.66
Homelessness/CAS status					
YWH with no history of CAS involvement	2.03	0.71	7.41**	1.84	29.80
YWH with history of CAS involvement	2.09	0.61	8.06**	2.42	26.79
Without shelter	1.28	0.38	3.61**	1.71	7.63
Maltreatment history	0.81	0.39	2.26*	1.05	4.84
Perpetrated partner violence	0.63	0.41	1.87	0.84	4.20
Victim of partner violence	0.26	0.51	1.30	0.48	3.52
Constant	1.81	2.92			

* $p < .05$

** $p < .01$

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS. Estimates are adjusted for age, number of months in CAS care and education.

Table B-20

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month marijuana use, $\chi^2 (11, N = 195) = 41.33, p < .01$

Variable	B	SE	Odds ratio	95% CI	
Gender (male)	-0.64	0.41	0.53	0.24	1.18
Homelessness/CAS status					
YWH with no history of CAS involvement	1.26	0.72	3.53	0.87	14.36
YWH with history of CAS involvement	1.86	0.63	6.42**	1.87	22.05
Without shelter	1.52	0.40	4.60**	2.09	10.11
Maltreatment history	0.87	0.41	2.39*	1.07	5.37
Perpetrated partner violence	0.92	0.44	2.52*	1.07	5.93
Victim of partner violence	-0.08	0.53	0.92	0.32	2.60
Constant	4.56	3.19			

* $p < .05$

** $p < .01$

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS. Estimates are adjusted for age, number of months in CAS care and education.

Table B-21

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month illicit drug use, $\chi^2 (10, N = 146^a) = 26.33, p < .01$

Variable	B	SE	Odds ratio	95% CI	
Gender (male)	0.18	0.44	1.20	0.50	2.87
Homelessness/CAS status^a					
YWH	-0.37	0.51	0.69	0.25	1.89
Without shelter	1.15	0.42	3.17**	1.40	7.19
Maltreatment history	0.05	0.43	1.05	0.45	2.45
Perpetrated partner violence	0.22	0.47	1.24	0.49	3.13
Victim of partner violence	0.14	0.60	1.15	0.36	3.71
Constant	1.79	3.22			

** $p < .01$

^aDue to the low frequency of concurrent mental health symptoms and past month illicit drug use among youth involved with CAS, this analysis is conducted with youth who are homeless only. The odds ratio reflects comparing youth who are homeless with no history of CAS involvement to youth who are homeless with a history of CAS involvement.

YWH—youth who are homeless

Note: Reference category for gender—female youth. Estimates are adjusted for age, number of months in CAS care and education.

Table B-22

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with past month polysubstance use, for youth who are homeless only, $\chi^2 (13, N = 145) = 41.36, p < .01$

Variable	B	SE	Odds ratio	95% CI	
Gender (male)	0.25	0.84	1.29	0.25	6.67
Homelessness/CAS status^a					
YWH	-0.48	0.51	0.62	0.23	1.66
Without shelter	2.33	0.66	10.30*	2.81	37.78
Maltreatment history	0.09	0.62	1.09	0.32	3.69
Perpetrated partner violence	2.06	0.70	7.83**	1.98	30.93
Gender by perpetrated partner violence	-2.61	1.02	0.07**	0.01	0.54
Victim of partner violence	-0.07	1.23	0.93	0.08	10.43
Constant	2.09	3.36			

* $p < .05$

** $p < .01$

^aDue to the low frequency of concurrent mental health symptoms and past month polysubstance use among youth currently involved with CAS, this analysis is conducted with youth who are homeless only. The odds ratio reflects comparing youth who are homeless with no history of CAS involvement to youth who are homeless with a history of CAS involvement.

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS. Estimates are adjusted for age, number of months in CAS care and education. This was the only analysis for which a significant gender interaction term was identified.

Table B-23

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with problem alcohol use, $\chi^2 (11, N = 197) = 41.72, p < .01$

Variable	B	SE	Odds ratio	95% CI	
Gender (male)	0.04	0.40	1.04	0.48	2.27
Homelessness/CAS status					
YWH with no history of CAS involvement	1.70	0.68	5.47*	1.43	20.91
YWH with history of CAS involvement	1.03	0.60	2.81	0.87	9.12
Without shelter	1.21	0.39	3.37**	1.57	7.21
Maltreatment history	0.67	0.39	1.95	0.90	4.24
Perpetrated partner violence	0.98	0.42	2.66*	1.17	6.04
Victim of partner violence	0.41	0.51	1.51	0.56	4.07
Constant	4.67	3.03			

* $p < .05$

** $p < .01$

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS. Estimates are adjusted for age, number of months in CAS care and education.

Table B-24

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of concurrent mental health symptoms with problem drug use, $\chi^2 (11, N = 198) = 53.16, p < .001$

Variable	B	SE	Odds ratio	95% CI	
Gender (male)	-0.20	0.37	0.82	0.40	1.70
Homelessness/CAS status					
YWH with no history of CAS involvement	1.38	0.64	3.98*	1.14	13.90
YWH with history of CAS involvement	1.21	0.55	3.35*	1.14	9.86
Without shelter	1.17	0.38	3.23**	1.54	6.75
Maltreatment history	0.55	0.37	1.70	0.82	3.53
Perpetrated partner violence	0.86	0.40	2.37*	1.08	5.19
Victim of partner violence	0.25	0.48	1.28	0.50	3.32
Constant	5.06	2.86			

* $p < .05$

** $p < .01$

YWH—youth who are homeless

Note: Reference category for gender—female youth; the reference category for youth homelessness/CAS status—youth currently involved with CAS. Estimates are adjusted for age, number of months in CAS care and education.

Table B-25

Multiple logistic regression coefficients, standard errors and adjusted odds ratios for the indicator variables predicting the likelihood of any substance use with concurrent mental health symptoms, for youth who are homeless only, $\chi^2 (9, N = 144) = 24.88, p < .01$

Variable	B	SE	Odds ratio	95% CI	
Gender (male)	-0.14	0.39	0.87	0.41	1.85
Homelessness/CAS status^a					
YWH	-0.12	0.46	0.88	0.36	2.18
Without shelter	0.99	0.38	2.69**	1.27	5.69
Maltreatment history	0.54	0.40	1.71	0.78	3.76
Perpetrated partner violence	0.78	0.44	2.19	0.93	5.18
Victim of partner violence	0.74	0.61	2.10	0.63	6.99
Constant	5.18	3.06			

** $p < .01$

^aDue to the low frequency of any substance use and concurrent mental health symptoms among youth involved with CAS, this analysis is conducted with youth who are homeless only. The odds ratio reflects comparing youth who are homeless with no history of CAS involvement to youth who are homeless with a history of CAS involvement.

YWH—youth who are homeless

Note: Reference category for gender—female youth. Estimates are adjusted for age, number of months in CAS care and education. The variable “any substance use” does not include cigarette use.

