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Street Youth in Canada



**Findings from Enhanced Surveillance of
Canadian Street Youth, 1999-2003**

March 2006

Canada

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Dedication

This report is dedicated to the nearly 5000 street youth who took part in E-SYS in seven cities across Canada. It is hoped that the information they took the time, energy and courage to give about themselves will find its way back to them in the form of improved and increased health and social service interventions.

Preface

The information contained in this report is drawn from data provided by street youth in three separate cycles of data collection between 1999 to 2003 in seven urban centres across Canada.

Core questions were repeated in each data collection cycle and new questions were added as a result of knowledge gained in previous cycles. This affords the opportunity for longitudinal comparisons of prevalence rates of sexually transmitted infections (STIs) and blood-borne infections, in addition to trends in risk behaviours.

This report contains only an overview of the available data. As a complement to this main report, three sub-reports addressing specific issues relating to the street youth population contain more complex and in-depth analyses. These sub-reports detail information from the surveillance data on STIs, substance use and associated sexual risk behaviours as well as hepatitis C and injecting drug use (IDU).

Both the main report and the sub-reports use data from all three cycles; they consistently identify which cycle of data is being referenced. Each cycle of data was analyzed separately; overall averages are occasionally used when the differences observed between cycles are small.

Attempts have been made to make information contained in this report easier to understand, by providing minimal statistical details in order to present the findings as clearly as possible for non-researchers.

For more information on survey design, data collection and analysis, please contact Olayemi Agboola, Principal Investigator for E-SYS, Surveillance and Epidemiology Section, Community Acquired Infections Division, PHAC.

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- Susanne Shields, who was the former principal investigator instrumental in conceptualizing, creating and designing E-SYS in the first place. Without Ms. Shields' dedication, E-SYS would not be a reality today.
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Executive Summary

Enhanced Surveillance of Canadian Street Youth (E-SYS) was initiated in 1998. The surveillance system was launched in direct response to recommendations made by provincial and territorial directors of sexually transmitted infections (STIs), at their 1997 national meeting. This system is the result of strong collaboration between local, provincial and federal public health stakeholders in addition to universities. The surveillance system has provided prevalence and risk behaviour data for a population not represented in school or in population-based study designs.

Findings from the analyses show that street youth have high rates of STIs and blood-borne infections. Examination of subgroups within the street youth sample, such as injection drug users, reveals a particularly disturbing prevalence of some infectious agents, for example the hepatitis C virus. High-risk sexual behaviours such as infrequent condom use, and high numbers of sexual partners were also found within this population, as were concerning levels of substance use.

Effective prevention strategies for STIs and blood-borne infections for the street youth population cannot be developed if data on this population are limited to sexual risk behaviour elements. Knowledge of social dynamics – such as reasons for leaving home, interactions with social services, exposure to abuse and risk behaviours of sexual partners – is needed for us to understand how STI and blood-borne infection prevention fits into street youth's lives. Therefore, this report extends beyond the simple prevalence of adverse health outcomes in this population; it provides information on risk taking and on the social context of risk behaviours. Finally, the report provides longitudinal comparisons of data collected in all surveillance cycles.

Information collected from E-SYS is intended to assist with enhancing social and public health programs aimed at improving the emotional, physical and psychological well-being of Canadian street youth.



1. Introduction

1.1 Street Youth

Canada has long had an international reputation for its high quality of life. Nevertheless, for a growing number of Canadians, homelessness has become a reality, and obtaining shelter, part of a daily struggle,¹ especially among youth.

The world-wide population of street youth is not known, but it has been estimated to be in the millions.^{2,3} D. DeMatteo *et al.* estimated that every day, 150,000 youth are living on the streets in Canada.⁴

Definitions of the term “street youth” are numerous and varied, as are the social realities of different countries. However, one constant found among all street youth is their precarious living conditions, which include poverty, residential instability and emotional and psychological vulnerability.^{2,5} These conditions may lead to behaviour that expose street youth to STIs and blood-borne infections, substance use and abuse.

1.2 Street Youth and the General Youth Population: How Different Are They?

Street youth are as diverse as the rest of the Canadian population. A review of available literature on this topic shows that street youth are more likely to have dropped out of school and more likely to work than other youth in their age category.^{6,7} Street youth face complex living situations and social factors, such as poverty, family violence and unstable living conditions. They are different from general population youth who live with their parents, go to school and have access to basic health care services.^{6,8}

Previous research found that compared with the parents of in-school youth, parents of street youth were more likely to be employed in lower status jobs. Poor relationships with parents were also reported by more street youth than general population youth.^{8,9}

National data on youth 15 to 24 years of age cannot be reliably used to gain insight into the street youth population. These general data are often collected through schools, telephone surveys and other residence-based approaches – which do not necessarily reach street youth. In addition, the youth who do participate in these surveys are likely to have significantly lower levels of risk behaviours than the street youth population.¹⁰

1.3 Canadian Street Youth: A Vulnerable Population

Prior research on street youth has shown that they are an emotionally and physically vulnerable population.⁹ Street youth were more likely to report having had sexual intercourse before the age of 13,¹¹ and are at higher risk for many STIs.¹¹⁻¹³ The prevalence (overall cases) and incidence (new cases) rates of many STIs and blood-borne infections are reported to be 10 to 12 times higher in street youth than in youth of the same age group among the general population.^{5,6,14}

A study on street youth in Montréal found that almost one-half (45.8%) had injected drugs. Street youth were also found to be 11 times more likely to die of drug overdose and suicide¹⁵ than general population youth. A study of homeless youth in Calgary found that more than one-half of participants had gone through the child welfare system, having experienced abuse at home and problems at school.¹⁶ Several other studies, including E-SYS, have also shown that street youth have been victims of abuse while growing up and that many had left home for this very reason.^{9,17} Other studies found high rates of attempted suicide.^{16,18}

Several studies have noted that street youth use various survival strategies such as staying with friends, trading sex or prostitution, and committing offences when living on the streets.^{8,9,16} The longer they live on the street, the more likely they are to use these strategies. It has been estimated that between 12% and 32% of Canadian street youth are involved in prostitution.^{2,19}

For most street youth, there are limited opportunities to explore potential careers and fewer career options, due to curtailed education and a lack of formal training. Casual, unskilled employment often does not provide enough income for street youth to afford stable accommodation.^{16,20} Limited education, a lack of marketable job skills and the generalized emotional and cognitive instability associated with homelessness itself contribute to these youth's dependency on the "street economy" (e.g. sex trade, panhandling, drug running) as their primary source of income to meet their basic needs for food, clothing and shelter.²¹

Given their family difficulties, their lack of educational and economic opportunities and their living conditions, how do street youth construct a vision of their future?

1.4 Rationale for Enhanced Street Youth Surveillance

In Canada, surveillance is invaluable in monitoring trends in reportable STIs and in identifying risk groups in need of public health interventions. However, routine surveillance does not capture all cases of STIs, as hard-to-reach populations with high infection rates often have limited interactions with the health care system.

Enhanced surveillance methods targeted toward hard-to-reach populations are vital to assess the burden of STIs and to provide appropriate prevention and treatment services. Street youth are a hard population to reach from a surveillance perspective, as they often have no permanent home and have little interaction with the health care and education systems. As a result, they are mostly excluded from telephone-, school-, clinic- or residence-based studies leading to a gap in information available on this population.

E-SYS was developed as a direct response to recommendations made at the 1997 national meeting of provincial and territorial directors for sexually transmitted infections (STIs). Participants had highlighted the need for a continuous data collection mechanism in order to monitor trends in STIs and blood-borne infections in the street youth population. In addition to disease prevalence information, the sentinel surveillance system was also designed to collect data on some of the determinants of health and on the prevalence of risk behaviours. These data could lead to the identification of strategies for health promotion and of gaps in disease prevention.

1.5 Enhanced Surveillance of Canadian Street Youth (E-SYS)

Enhanced Surveillance of Canadian Street Youth, or E-SYS, is an ongoing multi-centre initiative initiated in 1998 in response to the need for national data on this hard-to-reach population. This surveillance system is a comprehensive data source that monitors rates of STIs and related infections, behaviours and risk determinants in the Canadian street youth population.

The pilot phase (phase I) of E-SYS was launched in October 1998 to determine the feasibility of monitoring the street youth population. It involved three Canadian cities: Vancouver, Ottawa and Halifax. The total sample size was 297 youth. Findings concluded that valid data regarding risk behaviours and knowledge of STIs, and biological sample collection, could be obtained from this population. Data collection was conducted bi-annually starting in 1999 (phase II) and continuing in 2001 (phase III) and 2003 (phase IV), as the surveillance system expanded to seven large urban centres across Canada: Vancouver, Edmonton, Saskatoon, Winnipeg, Toronto, Ottawa and Halifax. Vancouver was unable to participate in phase III for logistic reasons. The total sample size for phases II, III and IV combined was just under 5000 youth.

Participants were aged 15–24 years (inclusively), were able to speak either French or English and had been absent from their place of residence for at least three consecutive nights in the previous six months. Information regarding their demographics, family history, current living situation, relationships with caregivers, income sources, drug and alcohol use, sexual behaviour and history of sexually transmitted infections was collected using a standardized, interviewer-administered questionnaire which took approximately one hour to complete. In addition, participants were encouraged to provide urine and blood samples for the testing of STIs and blood-borne infections. For more information on recruitment, data collection and analysis methods, please refer to the appendix.

The success of this surveillance is the result of ongoing, strong collaboration among local, provincial and federal representatives.

1.5.1 Goal

The goal of E-SYS is to provide information on the sexual health and sexual behaviours of Canadian street youth which is essential for the development of appropriate and effective disease prevention programs.

1.5.2 Objectives

The specific objectives related to the above goal are:

- to identify potential risk factors associated with chlamydia, gonorrhoea, syphilis, HIV, herpes simplex virus (HSV) and hepatitis C virus (HCV) infection in Canadian street youth;
- to monitor the prevalence of chlamydia, gonorrhoea, syphilis, HSV, HIV and HCV infection in Canadian street youth over time;
- to monitor hepatitis B immunity level and its determinants;

- to determine and to monitor HIV strains and HCV genotypes in Canadian street youth; and
- to provide information that will be useful for prevention and control efforts targeting this population.

The Public Health Agency of Canada (PHAC) is committed to this initiative, to fulfil part of its mission of promoting and protecting the health of all Canadians and to provide a national perspective on this population. Through E-SYS, needs and gaps are identified to support program and policy development to improve the health of this vulnerable population.

1.6 Public Health Benefits

In addition to the public health benefits of the epidemiological information being collected, E-SYS provides access to many street youth who would otherwise be difficult to reach, especially in terms of free counselling, testing and management of selected STIs and blood-borne infections.



2. Findings*

2.1 Key Findings From 1999 to 2003

- The ratio of males to females is approximately 2:1.
- Approximately 15% of street youth reported their families had been homeless.
- Conflict with parents was the principal reason most street youth reported for leaving home.
- More than one-half of street youth reported having hung out on the streets all the time in the previous month.
- More than one-quarter reported that social welfare was their main source of income.
- In 2003, more than 35% of street youth reported they had dropped out of school or had been expelled from school permanently.
- More than one-half of street youth reported emotional abuse or neglect.
- Rates of chlamydia and gonorrhoea in street youth are more than 10 times those in the general youth population.
- Hepatitis B immunity level is gradually increasing among street youth; however, the proportion of street youth with no immunity remains high, at more than 40%.
- Street youth are a sexually active population, with more than 95% reporting previous engagement in sexual activities.
- On average, street youth reported having had no fewer than 17 partners in their lifetime.
- Approximately one-quarter of street youth reported having traded sex at some point in their lives.
- A high proportion of street youth reported not having used condoms during their most recent episode of sexual intercourse.
- Approximately 80% of street youth reported smoking daily.
- Approximately 40% of street youth reported recent alcohol intoxication.
- Street youth who reported using one substance (alcohol, tobacco or drugs) were more likely to report using other substances (poly-drug use).

* It was not possible to present all of the information from the 1999, 2001 and 2003 cycles in this report because the quantity of data available is extensive; hence, this report contains only an overview of the findings. As a complement to this report, three sub-reports that address specific issues in greater statistical detail have been produced. They are *Canadian Street Youth and Substance Use*,²² *Sexually Transmitted and Blood-Borne Infections in Canadian Street Youth*²³ and *Hepatitis C and Injecting Drug Use Among Street Youth*.²⁴

- A large majority (95%) of street youth reported having used non-injecting drugs. Nearly 20% reported having used injecting drugs.
- Street youth did not seem to modify their sexual behaviours after being diagnosed with an STI.

2.2 Socio-demographics Characteristics

Table 1 provides an overview of the socio-demographic characteristics of youth who participated in E-SYS.

Table 1. Overview of socio-demographic characteristics of street youth recruited for E-SYS

Demographics	1999	2001	2003
	(N* = 1645)	(N = 1427)	(N = 1656)
	Percent		
Gender			
Male	61.7	56.6	62.9
Female	38.3	43.4	37.1
Mean Age (years)	18.9	19.0	19.7
Age Category			
15–19 years	63.5	68.0	56.9
20–24 years	36.5	32.0	43.1
Place of Birth			
In Canada	92.2	92.9	91.9
Outside Canada	7.9	7.1	8.1
Ethnic origin†			
Aboriginal‡	27.7	33.6	36.3
Caucasian	63.3	60.1	59.5
African /Black	4.3	4.2	5.3
Others	8.5	8.5	7.0
Ever Had a Social Worker			
Yes	64.8	70.4	70.4
No	35.2	29.6	29.6
Ever Been in Foster Care			
Yes	35.7	39.5	42.2
No	64.3	60.5	57.8
Ever Been in a Group Home			
Yes	39.8	44.4	46.7
No	60.2	55.6	53.3
Ever Been in Jail or Under Detention			
Yes	55.5	54.3	61.9
No	44.5	45.7	38.1
Ever Had a Probation Officer			
Yes	49.4	47.7	56.0
No	50.6	52.3	44.0

* N = Denominator (number of youth recruited).

† Youth were allowed to report more than one ethnic origin; therefore, total percentages may add up to more than 100%.

‡ Aboriginal includes First Nations, Métis, Inuit and other Native peoples.

2.2.1 Age and gender

A total of 4728 youth were recruited: 1645 in 1999, 1427 in 2001, and 1656 in 2003. The ratio of male to female street youth was approximately 2:1 overall (Figure 1). The average age was 19.2 years in all years of recruitment, with females approximately one year younger than males (Figure 3). Youth were categorized into two age groups; the 15–19 year age group (younger youth) and the 20–24 year age group (older youth) (Figure 2).

Figure 1. Street youth by gender

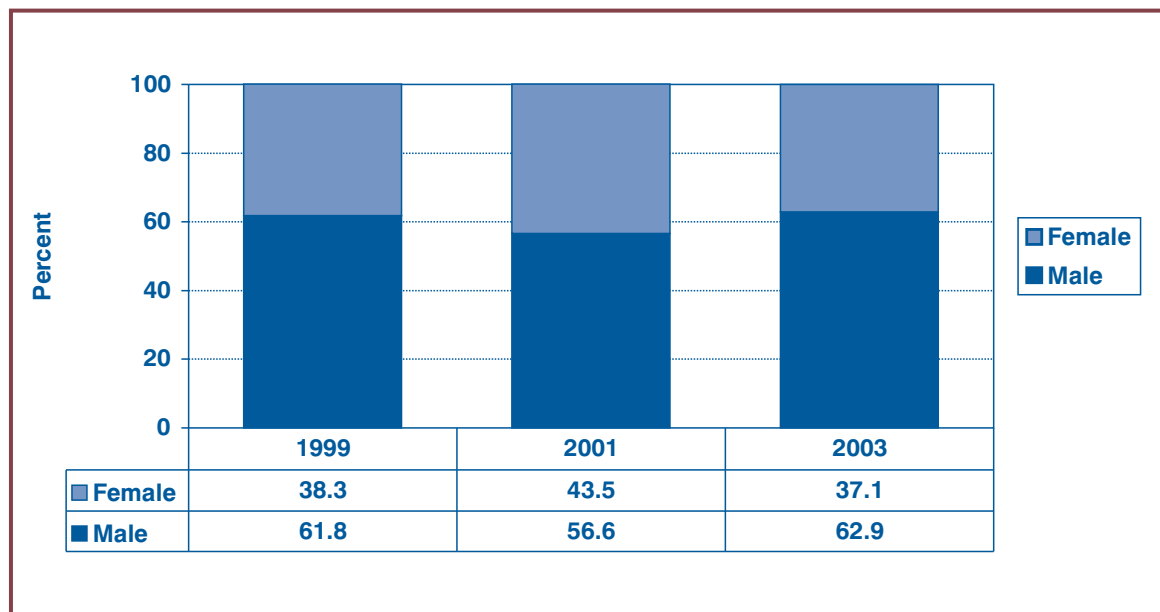


Figure 2. Street youth by age category

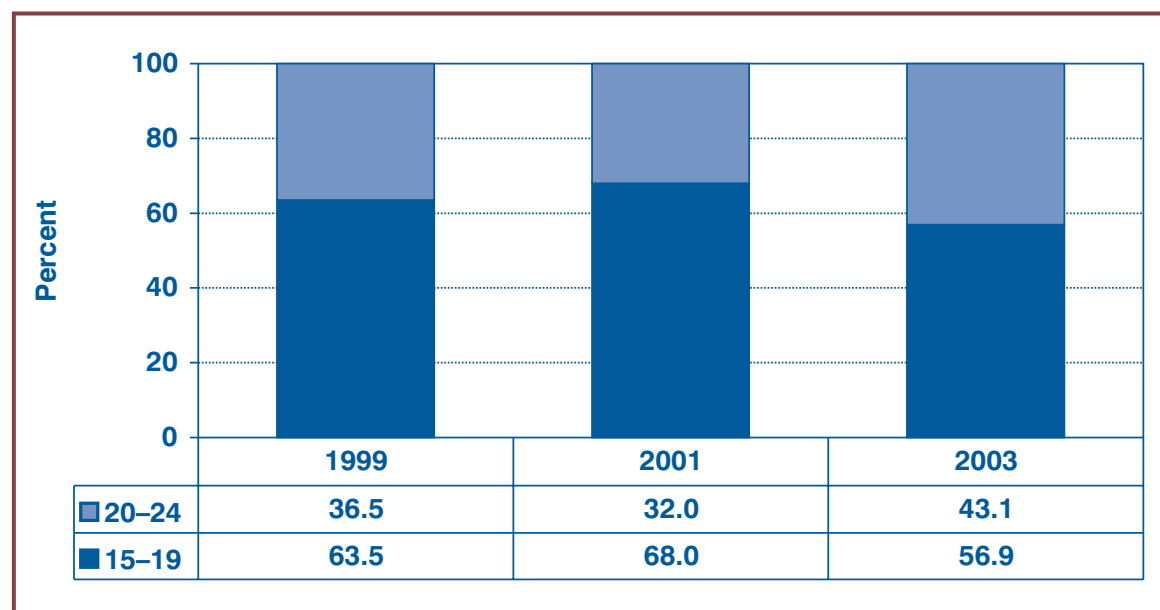
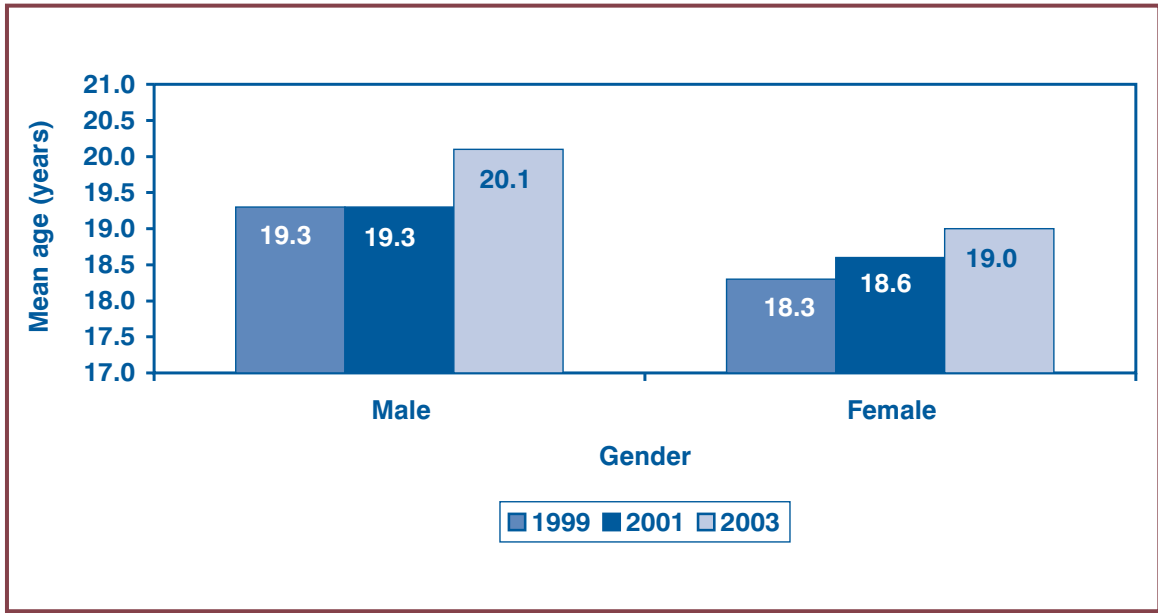


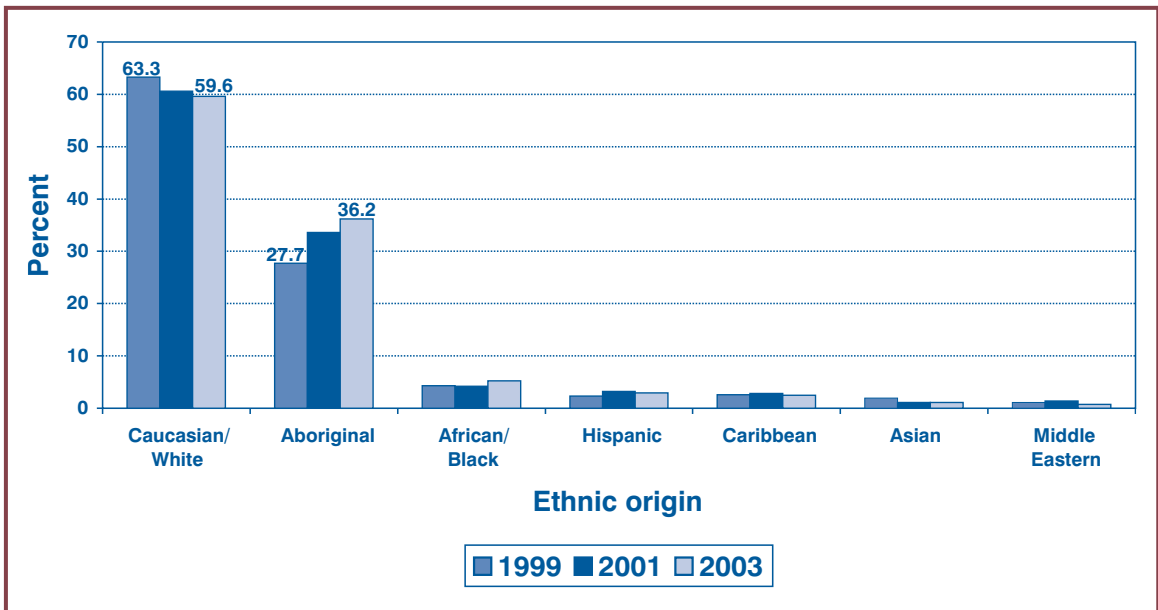
Figure 3. Average age by gender



2.2.2 Ethnicity

The vast majority of youth surveyed were born in Canada; less than 10 percent were born outside of the country. The youth were of varied ethnic backgrounds (Figure 4), with about 60% overall reporting Caucasian ethnicity and about one-third reporting Aboriginal ethnicity. About 12% of youth reported being of African, Asian, Middle Eastern or other ethnicities.

Figure 4. Ethnic origins reported by street youth



2.2.3 Education

Most street youth reported having some secondary education (up to grade 12): 88.6% in 1999, 91.7% in 2001 and 95.0% in 2003. Only very few reported an education level higher than secondary school. For youth over 18 years old, just one-quarter (25%) had completed grade 12 (2003).

In 1999 and 2001, the youth were asked why they were not currently attending school. In both years, approximately 38% reported that they had dropped out while about 12% reported they were expelled from school. In 2003, 40.1% reported that they had dropped out permanently and 37% reported that they had been permanently expelled. Males were more likely to have been permanently expelled, while females were more likely to have permanently dropped out on their own.

Data from the *Second Report on the Health of Canadians*, released in September 1999, show that 22% of males and 14% of females leave high school before graduation.²⁵ This suggests that the drop-out rate is higher among street youth than in the general youth population.

2.3 Life on the Streets

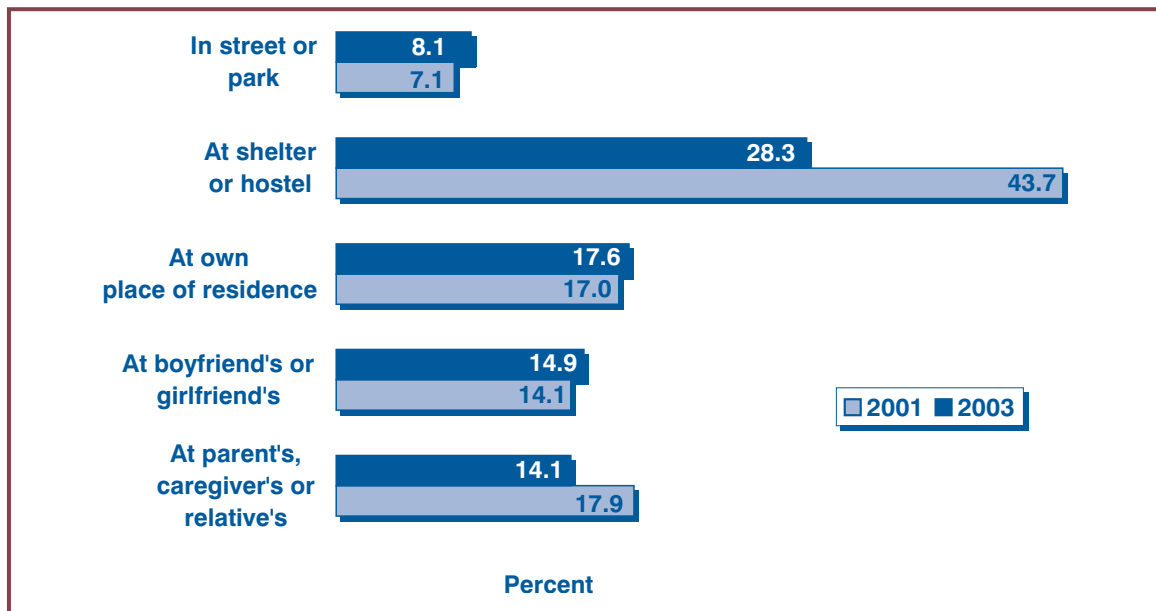
2.3.1 Living on the streets

When asked if they had ever lived on the streets full-time, one-third of the street youth surveyed reported never having done so, another third reported that they used to live on the streets but no longer do so, while yet another third reported that they used to and still continue to live on the streets. Overall, more than 60% of the youth reported having lived on the streets full-time at one point. This pattern was common to all survey years.

2.3.2 Sleeping arrangements

In 2001 and 2003, survey respondents were asked where they were going to spend the night. Figure 5 shows that 7% of the youth in 2001 and 8% in 2003 were going to spend the night on the street or in parks. The highest proportion of youth were to spend the night in a shelter or hostel, while the rest would be at home with parents, caregivers or relatives, at their boyfriend's/girlfriend's or at their own place of residence.

Figure 5. Sleeping arrangements for the night as reported by street youth (2001 and 2003)



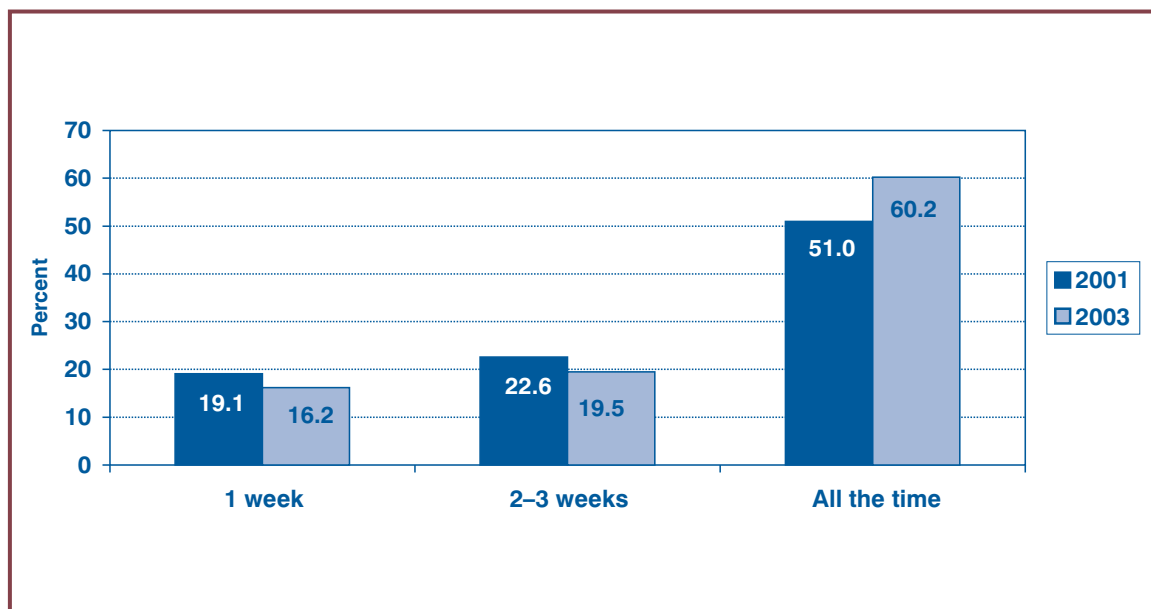
2.3.3 Amount of Time Spent on the Streets

In 2001 and 2003, street youth were asked how many hours in a week they spend “hanging out” on the street and how often they had been on the street in the previous month. More than 30% of youth reported spending more than 50 hours per week hanging out on the street. Approximately 40% reported hanging out for 10 to 30 hours per week and close to one-fifth (18%) reported spending 2 to 10 hours per week hanging out. Males were significantly⁸ more likely to report spending more time hanging out on the street than females.

As shown in Figure 6, a high proportion of street youth reported spending all their time on the street, but there is a range of time spent, suggesting various levels of “street involvement.” More males than females reported hanging out all the time, while more females than males reported hanging out some of the time (1 to 3 weeks in the previous month).

Changes in weather do not seem to have all that much of an effect on the amount of time youth spend on the street; one-half reported that the amount of time they spent hanging out changed due to the weather, while the other half reported no change. More females than males reported that the weather had an effect on the amount of time they spent on the street.

Figure 6. Time spent on the streets in the previous month (2001 and 2003)



2.4 Home Life Situations Reported by Street Youth

2.4.1 Family characteristics

In 2001 and 2003, respondents were asked about their home life as they were growing up. The results, presented in Figure 7, show that some youth had already experienced homelessness with their family before living on the streets; 13% and 15% of youth in 2001 and 2003, respectively, reported that their family had been homeless at some point. More than 70% reported that their parents had full-time jobs in previous years and less than 10% reported that their parents were jobless.

More than 65% of the youth reported that their parents were divorced. Over one-third reported that their parents had been jailed at some point, while more than one-half reported that their parents abused one another either verbally or physically and displayed fits of anger.

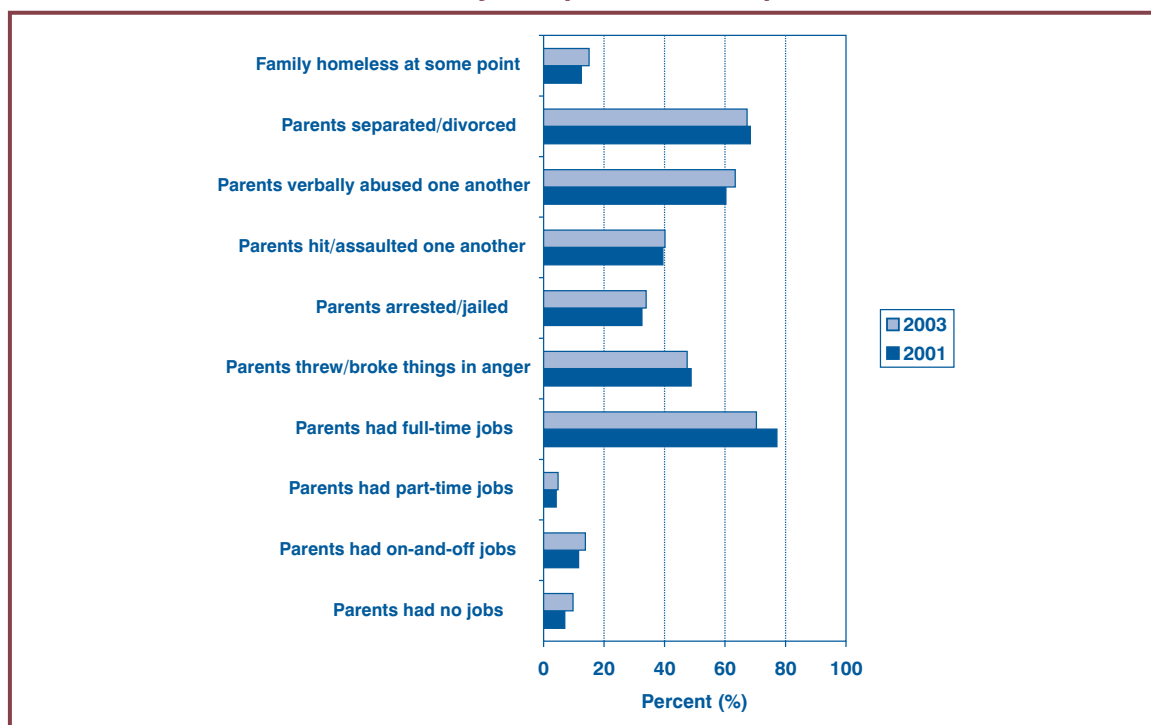
2.4.2 Reasons for leaving home

Street youth reported leaving home mostly because of unsatisfactory living conditions. Of the various reasons they gave for leaving home, the following were most commonly cited in the survey years:

- Fighting or arguing with parents/caregiver. Reasons for arguing with parents varied: breaking rules set by parents, financial difficulties, alcohol and drug use by youth and by parents, and school.
- Seeking independence, travel, or moving to a larger city.
- Being thrown out of the home.
- Abuse, including physical, sexual and emotional abuse, and neglect.
- Trouble with the law.

Table 2 presents the main reasons the youth gave for leaving home in 1999 and 2001.

Figure 7. Home life situation while growing up as reported by street youth (2001 and 2003)



Similar to a previous study, youth ran away from home primarily because of their inability to get along with their parents (conflict), a perception of being unloved (emotional abuse), being physically abused, and being thrown out of the house.²⁶ In the 1999 and 2001 E-SYS cycles, significantly^s more females reported abuse as the main reason they left home, while more males cited trouble with the law.

Table 2. Reasons for leaving home (1999 and 2001)

Reasons for Leaving Home	1999	2001
	Percent	
Independence / travel / move to larger city	17.6	15.5
Move to go to school / to find work	1.0	2.9
Taken away / placed in foster care	3.6	5.6
Parental or caregiver addiction / health problem	4.2	6.1
To live with partner (with whom they had a child)	2.0	2.0
Trouble with the law	5.3	3.6
Abuse (sexual, physical or emotional)	12.6	11.4
Parent(s) / caregiver(s) left	1.2	1.9
Thrown out	13.9	15.1
Youth drug / alcohol use	3.8	5.1
Arguing with parent(s)	23.7	16.8
Parental or caregiver financial difficulties	1.0	1.3
Parent(s) / caregiver(s) passed away	1.1	2.6

2.4.3 Contact with parents/caregivers

Street youth were asked if they have had contact with their parents or caregivers in the previous three months. While a high proportion of the youth – over 60% in 1999, more than 50% in 2001 and over 70% in 2003 – reported having contact with their parents, a greater number reported contact with their mother than with their father. In the survey years, significantly^s more females reported having contact with one or both parents (Figure 8). Of the youth who reported having contact with their parents, the majority reported regular contact (Figure 9).

Figure 8. Contact with parents in the previous three months (2001 and 2003)

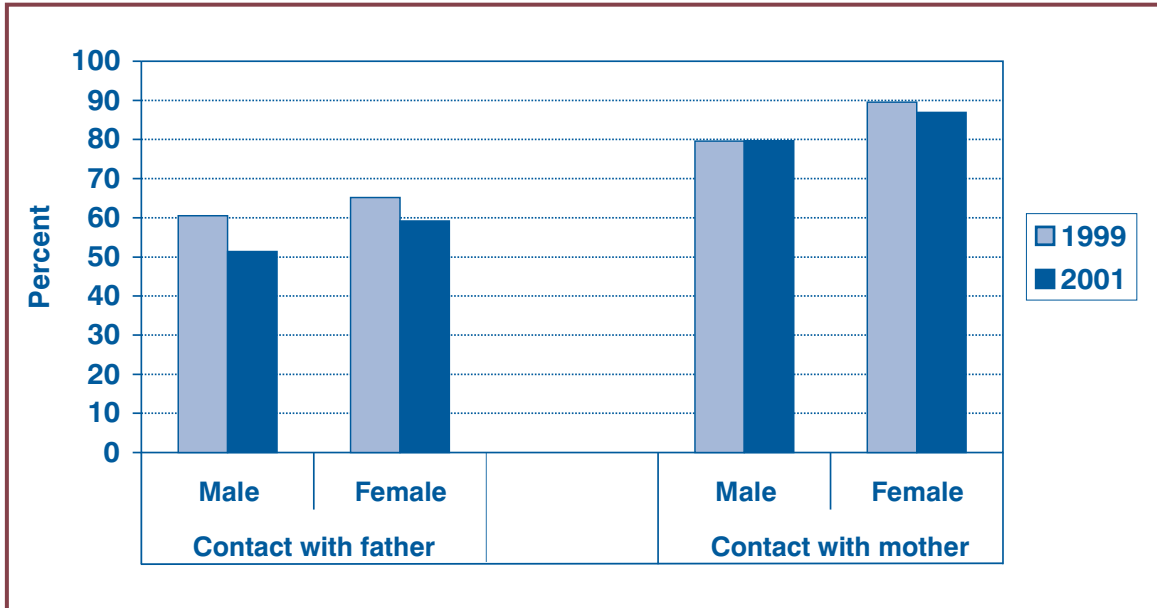
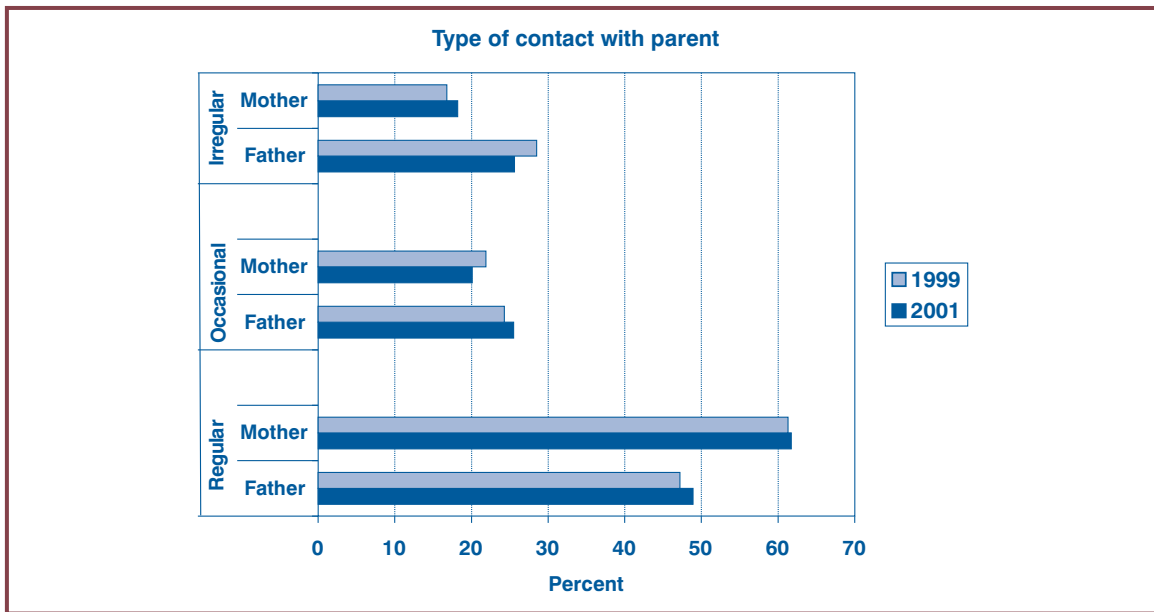


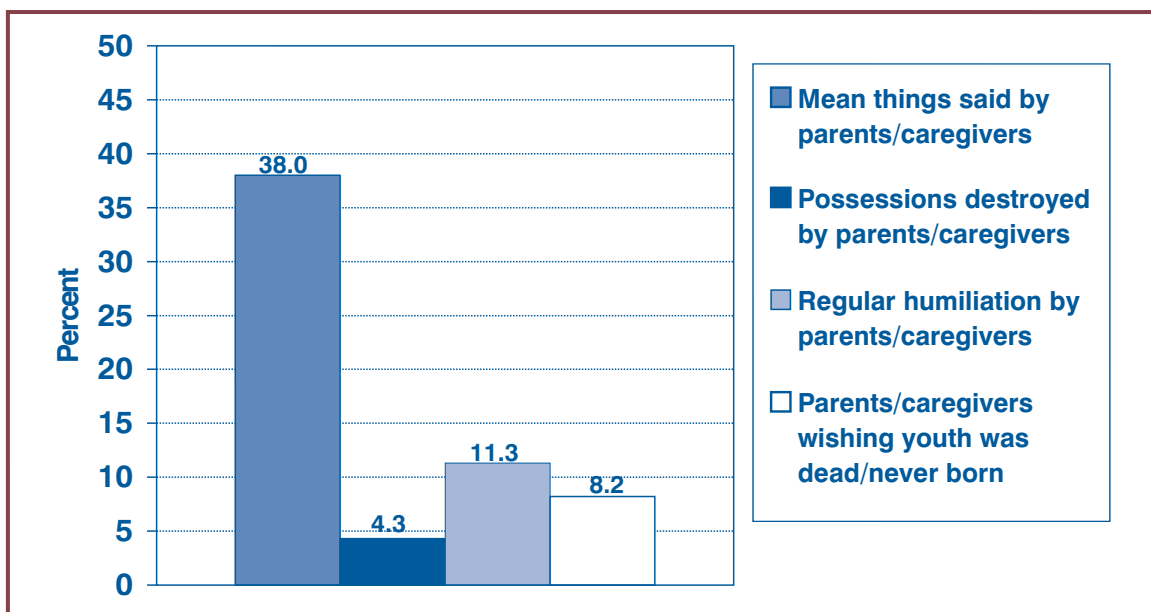
Figure 9. Type of contact with parents in the previous three months (2001 and 2003)



2.5 Abuse

The youth were not asked to provide details on abuse in 1999. In 2001 and 2003, respondents described the physical abuse they experienced as mostly fighting among themselves and their parents/caregivers; emotional abuse was mostly described as mean things being said to them, being regularly humiliated, having their possessions deliberately destroyed by their parents, or their parents telling them that they wished they were dead or never born. Figure 10 shows the type of emotional abuse reported by youth in 2003.

Figure 10. Type of emotional abuse reported by street youth (2003)



In 2003, additional questions about neglect were asked. One-third (30%) of the respondents reported experiencing neglect. The youth described neglect as being abandoned or kicked out of the home, their parents not protecting them from sexual abuse, medical neglect (parent refusing or unable to consent to medical treatment) and physical neglect (inadequate nutrition or clothing and unhygienic living conditions). As shown in Figure 11, most of the youth described neglect as being abandoned or kicked out of the home.

The overall proportion of street youth who reported leaving home because of physical, emotional or sexual forms of abuse was high, ranging from 19.1% in 2003 to 27.9% in 1999 (Figure 12). More females than males reported leaving home because of abuse.

Figures 13 to 15 offer a breakdown of the types of abuse experienced by gender. As shown in the figures below, rates of emotional, physical and sexual abuse are much higher in females than in males.

Figure 11. Type of neglect reported by street youth (2003)

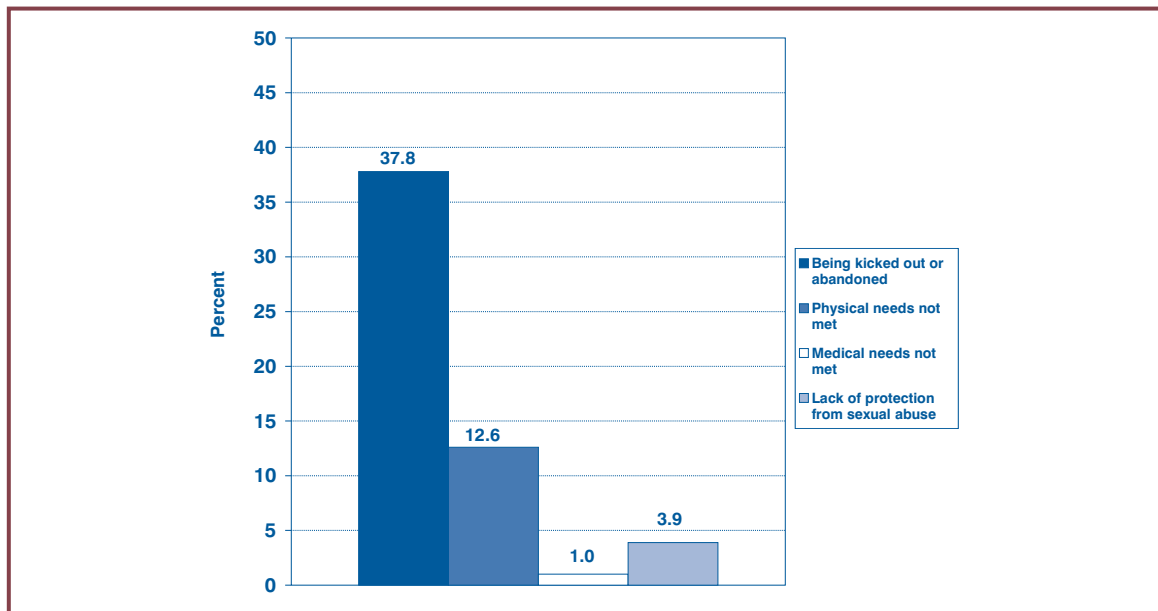


Figure 12. Proportion of street youth who had left home because of abuse

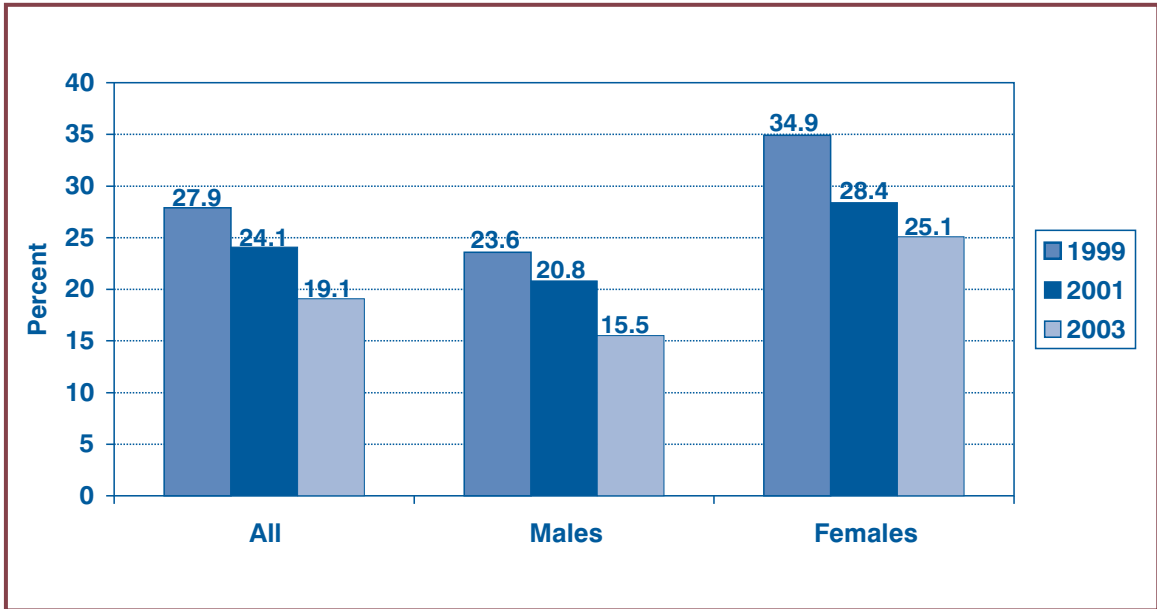
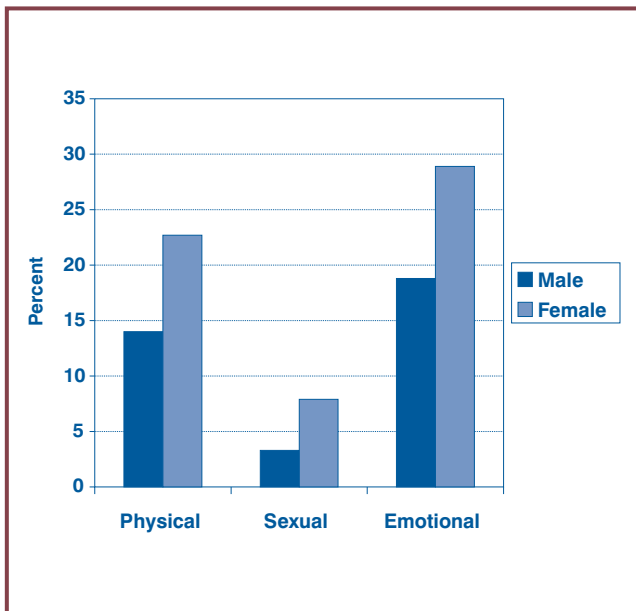
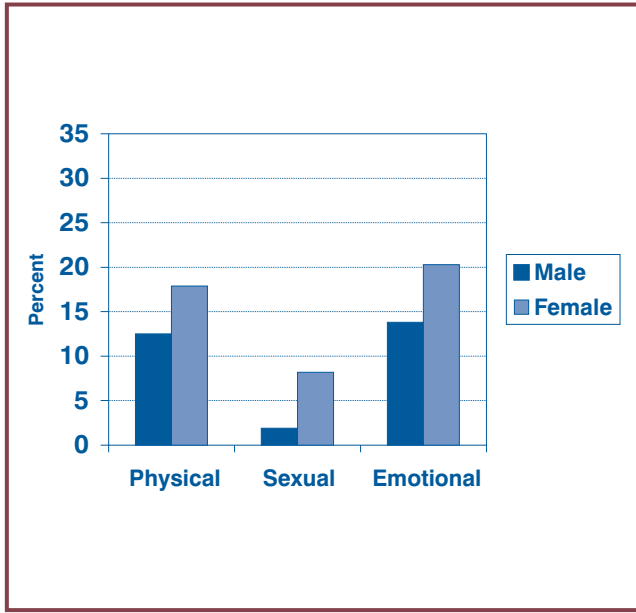


Figure 13. Type of abuse reported (1999)



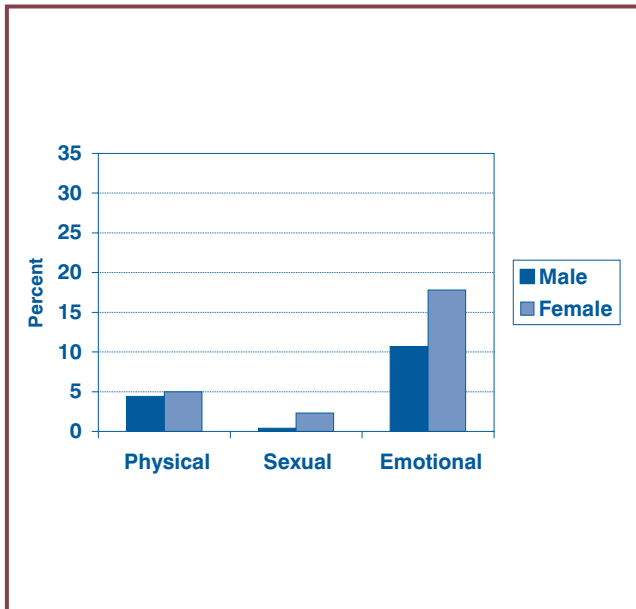
Overall, in 1999, 22.7% of youth reported leaving home because of emotional abuse; 17.3% and 5.1% reported leaving because of physical abuse and sexual abuse, respectively.

Figure 14. Type of abuse reported (2001)



Overall, in 2001, 16.6% of youth reported leaving home because of emotional abuse; 14.9% and 4.6% reported leaving because of physical abuse and sexual abuse, respectively.

Figure 15. Type of abuse reported (2003)



Overall, in 2003, 13.4% of youth reported leaving home because of emotional abuse; 4.6% and 1.1% reported leaving because of physical abuse and sexual abuse, respectively.

2.6 Interaction With the Social Service System

2.6.1 Social workers

A majority of the street youth (65% to 70% in all survey years) reported having had a social worker (Figure 16). Family problems were the most common reason youth gave for starting to see a social worker (41.5%). Other reasons cited were being assigned to a social worker (21.2%), abuse (8%), having been kicked out of their home (4.3%), parental drug problems (6.6%) and being sent to jail (3.4%). Reasons for seeing a social worker varied by gender; more females reported doing so because they had left home or because of a parent's alcohol or drug use, while males reported being assigned to a social worker to obtain housing and welfare. Older youth (20–24 years) were significantly^s more likely to report being assigned a social worker for access to shelter and welfare than younger youth (15–19 years).

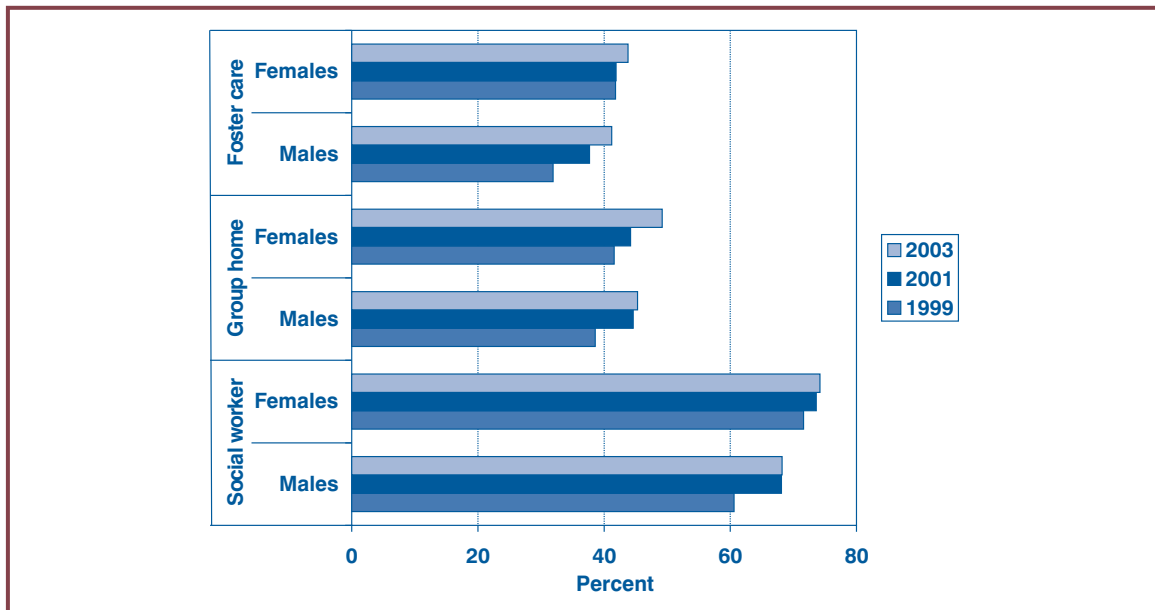
2.6.2 Foster care

The proportion of street youth who reported that they had been in foster care ranged from 35.7% in 1999 to 42.2% in 2003 (Figure 16). In 2003, the average age at first placement in foster care was 8 years and the average number of placements was 7 for both male and female street youth. More than one-half (58%) of respondents reported having run away from foster care at some point in time; the proportion was significantly^s higher among females (66.5%) than males (52.9%).

2.6.3 Group homes

The proportion of street youth who reported that they had been in a group home ranged from 39.8% in 1999 to 46.7% in 2003 (Figure 16). The average age at first placement in a group home was 14 years for both male and female street youth. As was the case with having seen a social worker, family problems were the main reason the youth gave for having been in a group home. Significantly^s more males reported having been in a group home because they were kicked out of the family home, because they had been in jail and because of anger management issues.

Figure 16. Social workers, foster care and group homes by gender



2.7 Correctional Services

2.7.1 Jail

In all survey years, more than one-half of the street youth reported they had been in jail, a youth detention centre, a prison or a detention facility, overnight or longer. More males (65%) than females (40%) reported that they had been in jail.

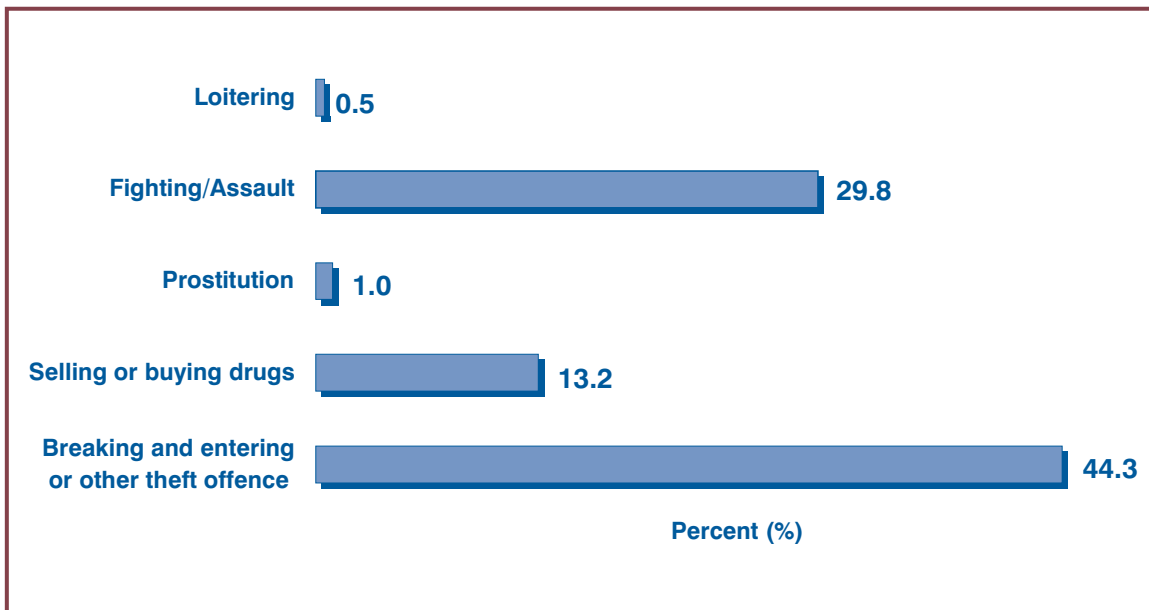
2.7.2 Probation/parole officer

More than one-half of the street youth reported having had a probation or parole officer: 50.6% in 1999, 48.0% in 2001 and 56.0% in 2003; males were significantly^s more likely to report this than females.

Figure 17 shows the reasons given by street youth for having a probation or parole officer in 2003. Their offences include breaking and entering, fighting/assault and selling/buying drugs.

Older youth were found to be more likely than younger youth to report having had a probation/parole officer or having been in jail. This may be a consequence of exposure, as older youth would have been on the streets longer than younger youth.

Figure 17. Reasons for having a probation or parole officer (2003)



2.8 Income

As shown in Figure 18, money from social welfare was the most commonly reported main source of income (26.1% to 31.2%). In 1999 and 2001 regular work and money from family were the other most often reported sources of income, while in 2003, it was occasional work and regular work for males (Figure 19) and money from family and regular work for females (Figure 20).

Figure 18. Main source of income reported by street youth

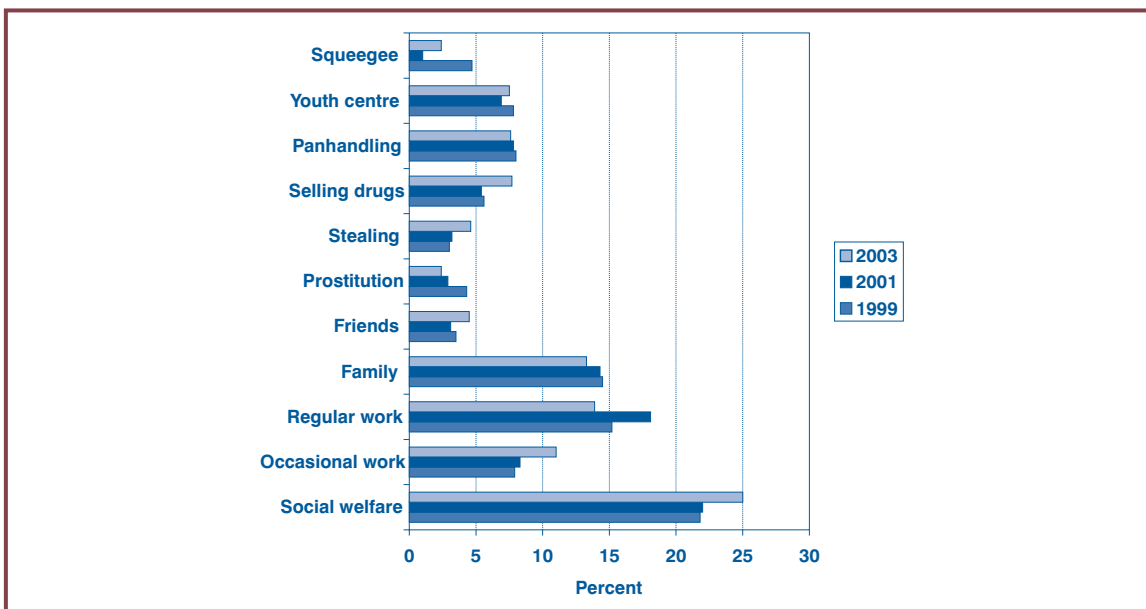


Figure 19. Main source of income reported by male street youth

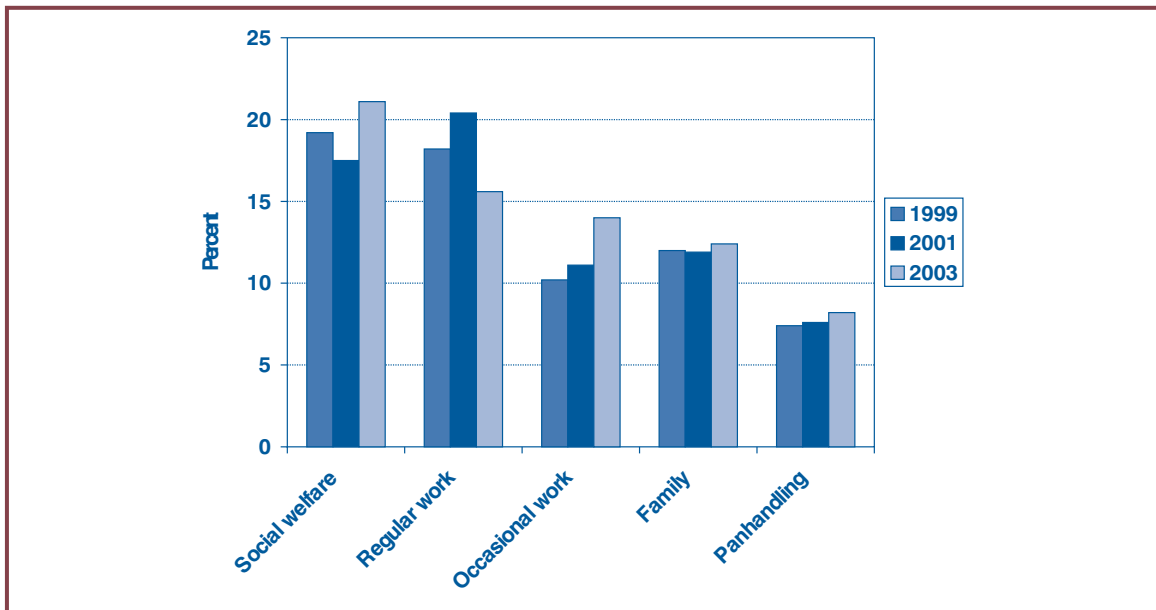
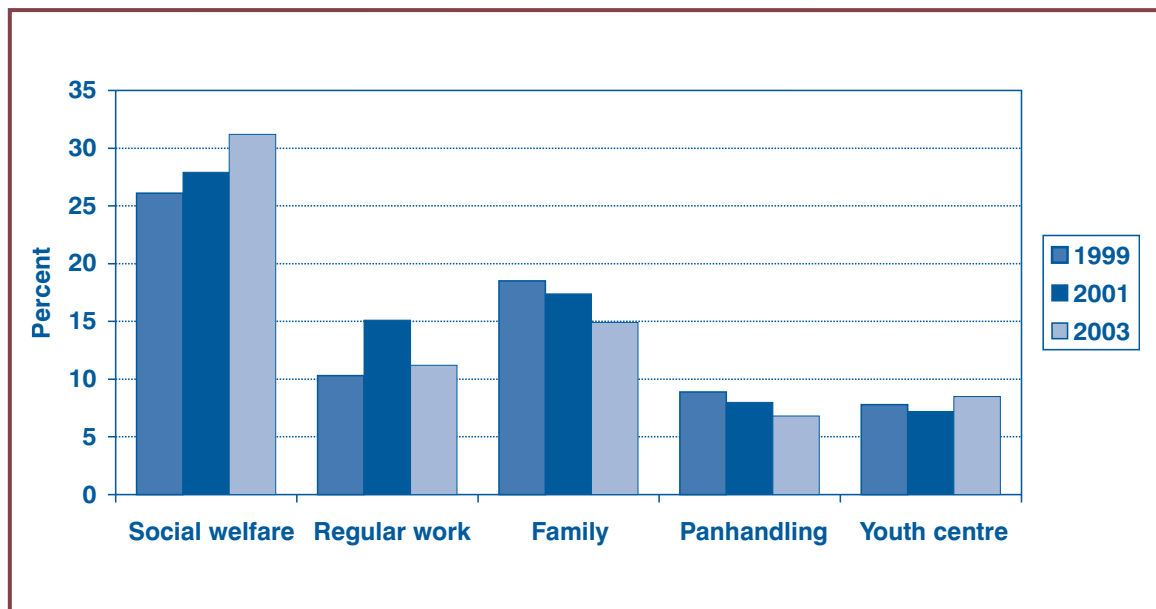


Figure 20. Main source of income reported by female street youth



2.9 Sexual Behaviours

In all survey years, more than 95% of the street youth reported having had sex. The average age at first sexual intercourse among sexually active youth was 14 years; this age did not differ between male and female youth or between survey years.

2.9.1 Sexual partnering

In 2001 and 2003, male street youth reported an average of between 18 and 45 lifetime sex partners while females reported an average of between 4 and 21. Male street youth also reported a higher number of sex partners in the previous 3 months than did females (Figures 21 and 22).

Figure 21. Number and gender of sexual partners reported by male street youth (2001 and 2003)

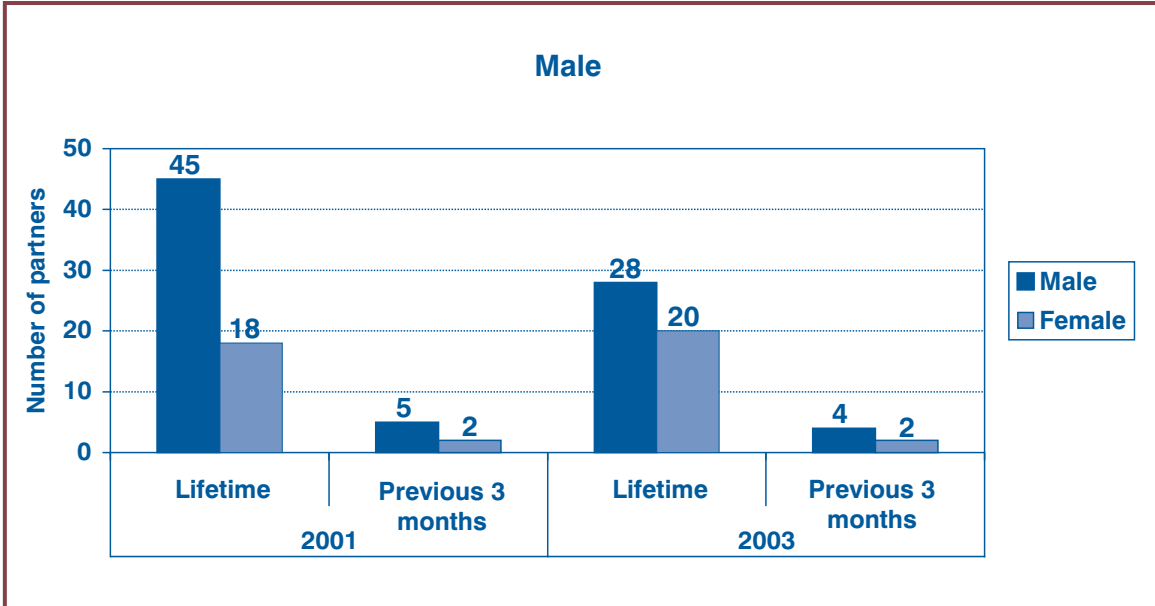
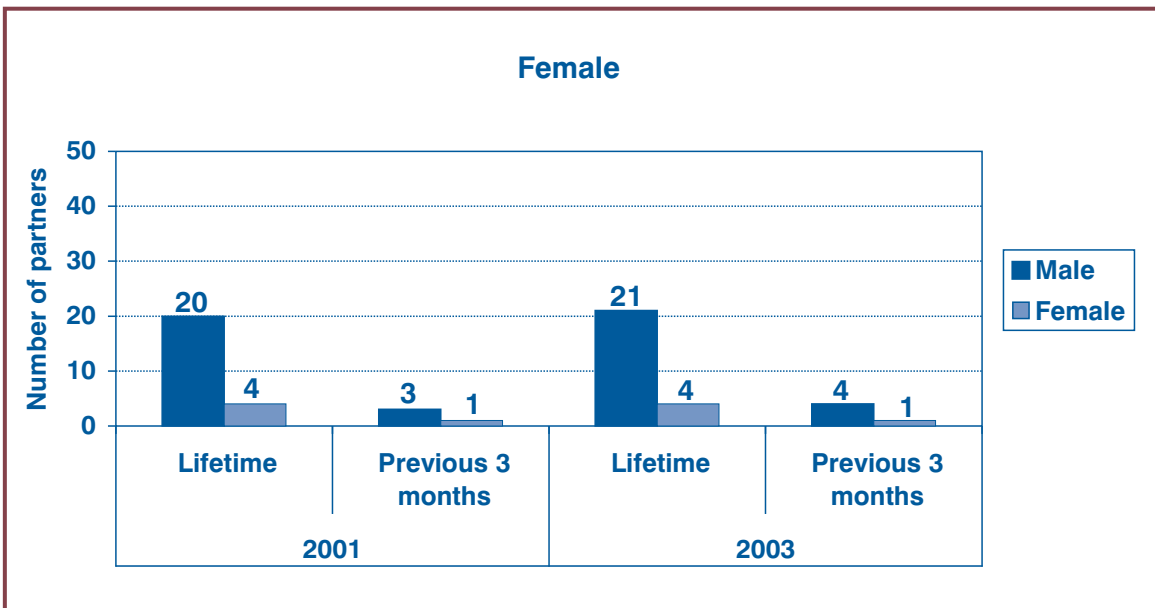


Figure 22. Number and gender of sexual partners reported by female street youth (2001 and 2003)

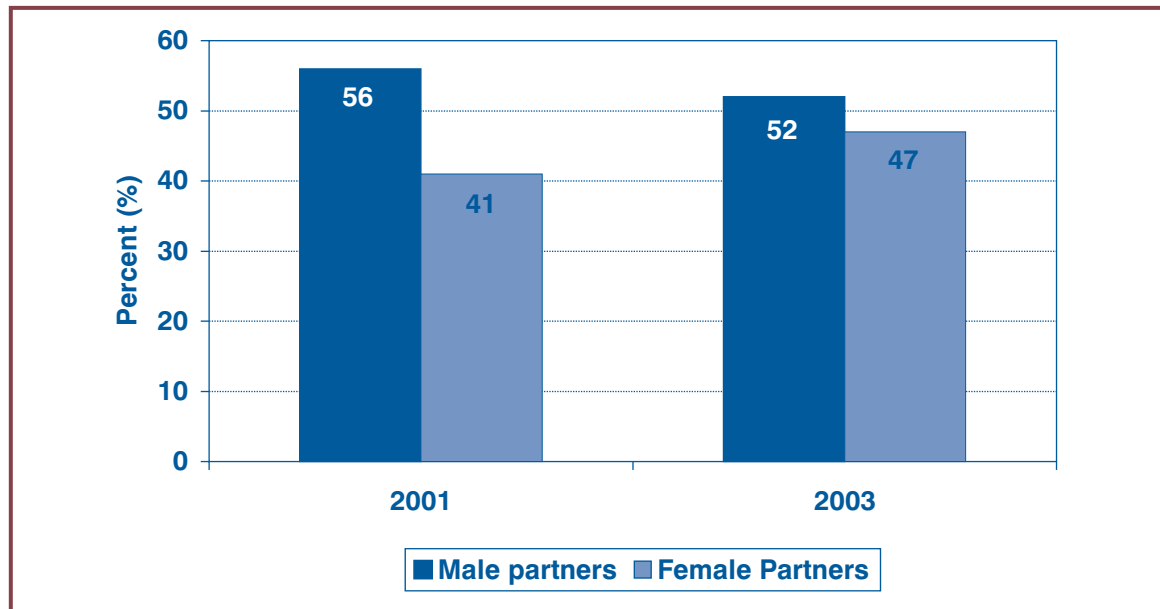


2.9.2 Condom use

Most street youth reported not using a condom at their most recent sexual encounter with either a male or a female partner. As shown in figure 23, more street youth reported not using a condom with a male partner than with a female partner.

In 2001 males were significantly^s more likely to report not using condoms with their male partners (homosexual encounters) than with their female partners (heterosexual encounters). It should be noted that the rate of condom use, hovering at around half (50% of the street youth population in all survey years) is still very low.

Figure 23. Proportion of street youth who reported not using condoms for protection at their last sexual encounter by gender of partner (2001 and 2003)



2.9.3 Sex trade

Overall, 22.6% of the street youth reported having had a past experience of trading sex in 1999, 20.9% in 2001 and 20.2% in 2003, with more females than males reporting this practice (Figure 24).

Of those street youth who reported ever having traded sex, 44.6% in 1999, 37.6% in 2001 and 35.6% in 2003 reported it had occurred in the three months prior to the interview. The percentages did not seem to differ significantly by gender (Figure 25).

Figure 24. Sex trade history among street youth

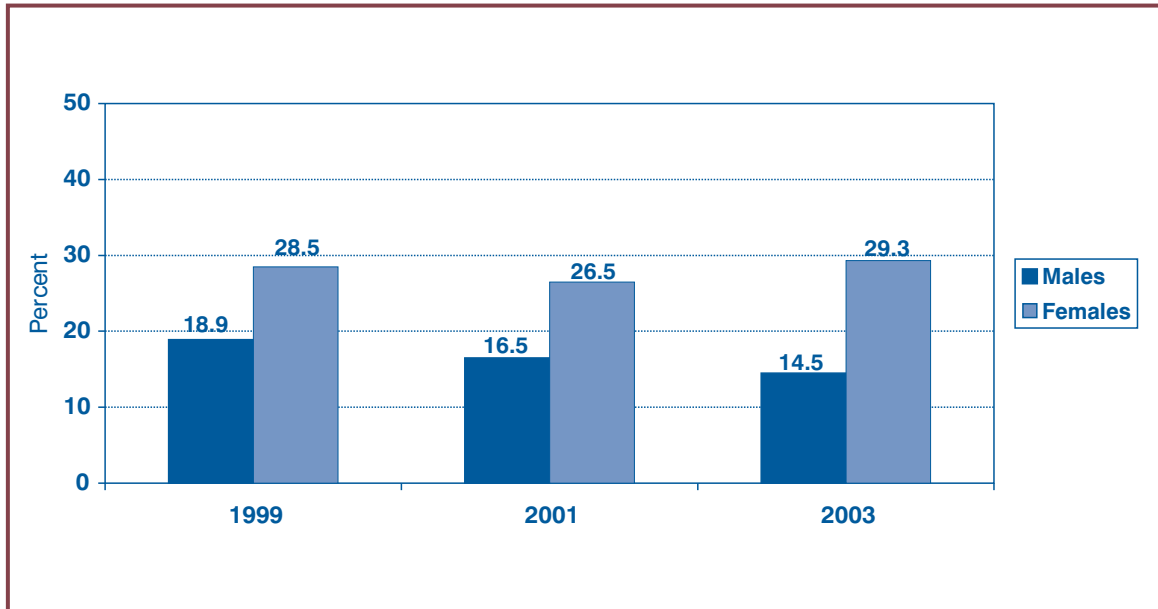
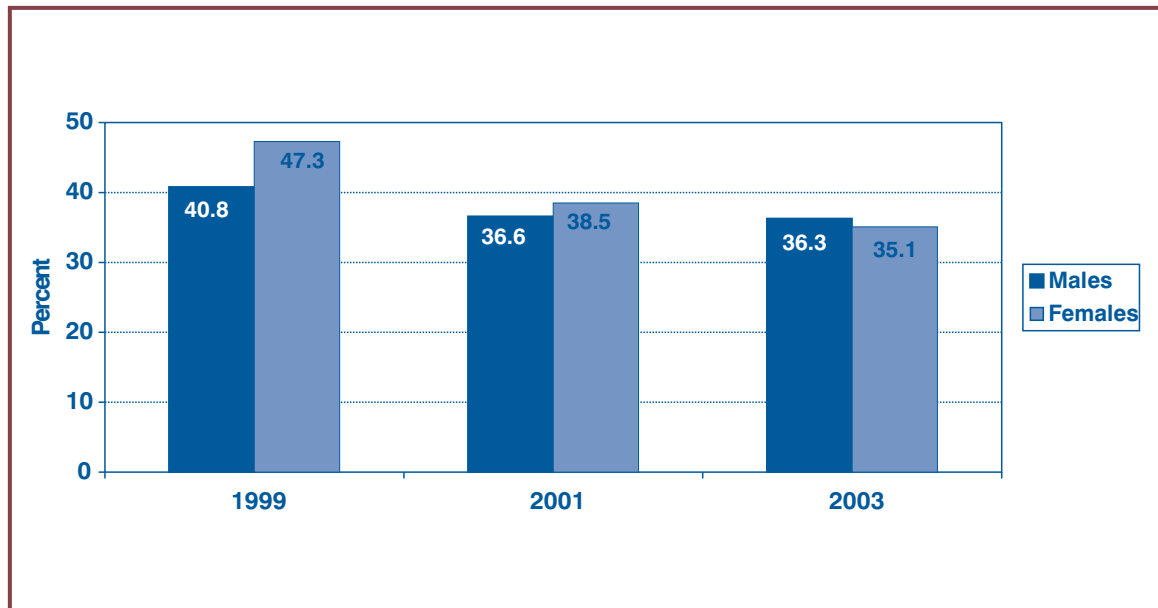


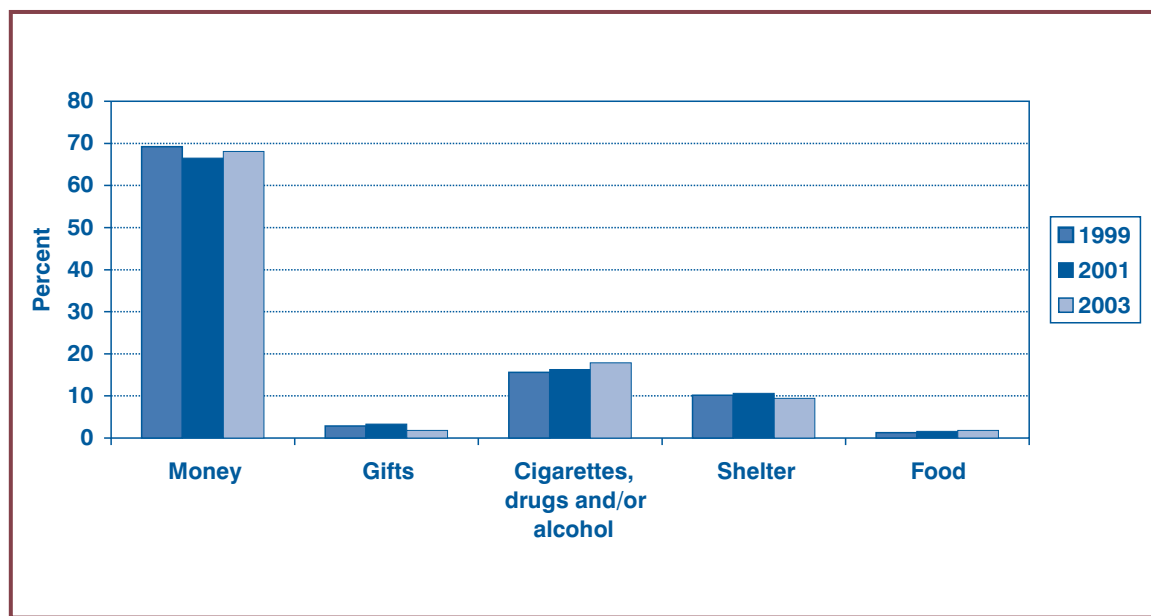
Figure 25. Sex trade in the previous 3 months among street youth who reported having traded sex in the past



Money was the most common item received after trading sex, followed by cigarettes, drugs and/or alcohol, and shelter (Figure 26). This pattern was consistent in all survey years. Only a few street youth reported that they traded sex for food or gifts.

Over 75% in all survey years reported using condoms the last time they had traded sex. While this number seems high, there exist potential risks to the youth who reported not using condoms: 16% in 1999, 25% in 2001 and 19% in 2003.

Figure 26. Items most commonly received after trading sex



2.9.4 Obligatory sex

In 2003, street youth were asked if they ever had obligatory sex – defined as having sex when feeling obligated to do so *after* receiving money, gifts, drugs or a place to sleep. Of the respondents, 18.5% reported they had at some point felt obligated to have sex, with more females (25.5%) than males (14.3%) reporting this. However, more males (25.7%) than females (21.2%) reported at least one episode in the three months prior to the interview (Figure 27). Of note is the fact that just over one-half reported using condoms the last time they had obligatory sex.

Street youth were asked to describe what items they had received prior to feeling obligated to have sex. Shelter was the most common, followed by cigarettes, drugs and/or alcohol, money, food and gifts (Figure 28).

Figure 27. Obligatory sex among street youth (2003)

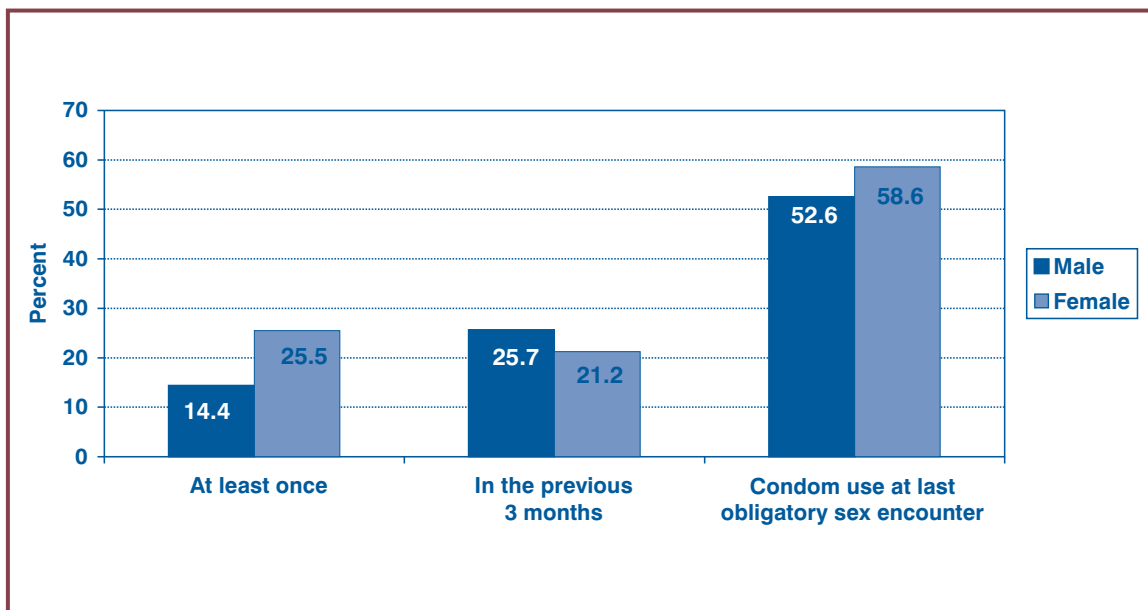
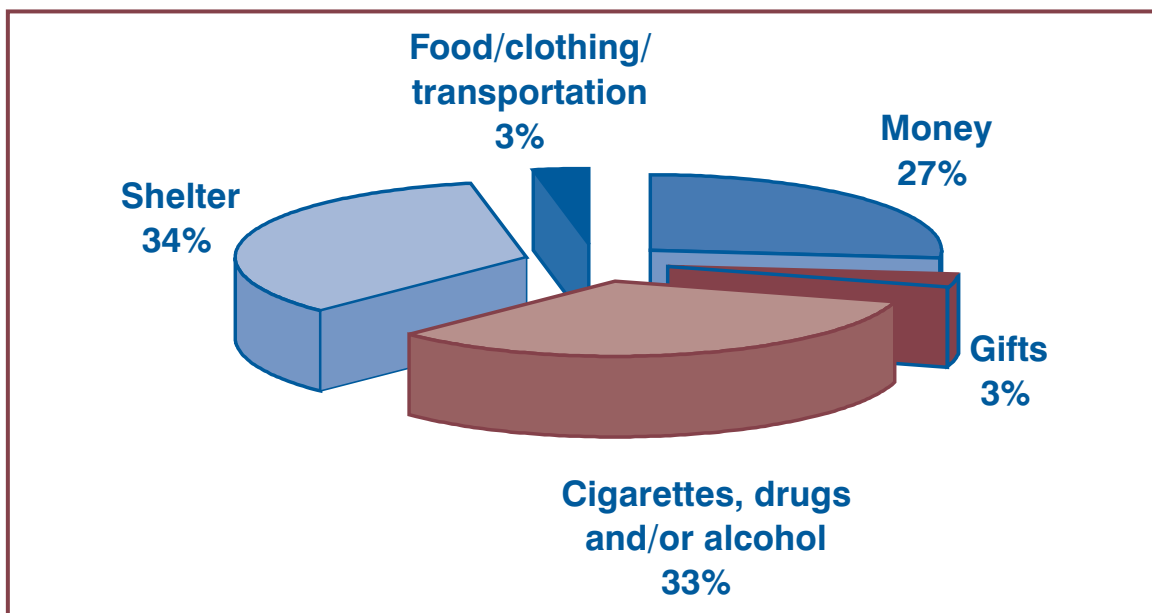


Figure 28. Items most commonly received before obligatory sex (2003)



2.10 STIs and Blood-Borne Infections

This section provides an overview of STI prevalence among street youth. More detailed information is provided in the *Sexually Transmitted and Blood-Borne Infections in Canada's Street Youth* report.²³

2.10.1 Previous STIs

Street youth were asked about their history of STIs. In all survey years, more females than males reported a previous STI (Figure 29). Overall, the proportion of street youth reporting they had had STIs was 20.8% in 1999, 22.7% in 2001 and 26.6% in 2003. When asked about use of any form of protection during sex after the diagnosis of an STI, 32% reported not using any in 1999 (Figure 30), although this proportion decreased to 27% in 2003.

Figure 29. Proportion of street youth reporting a history of STIs

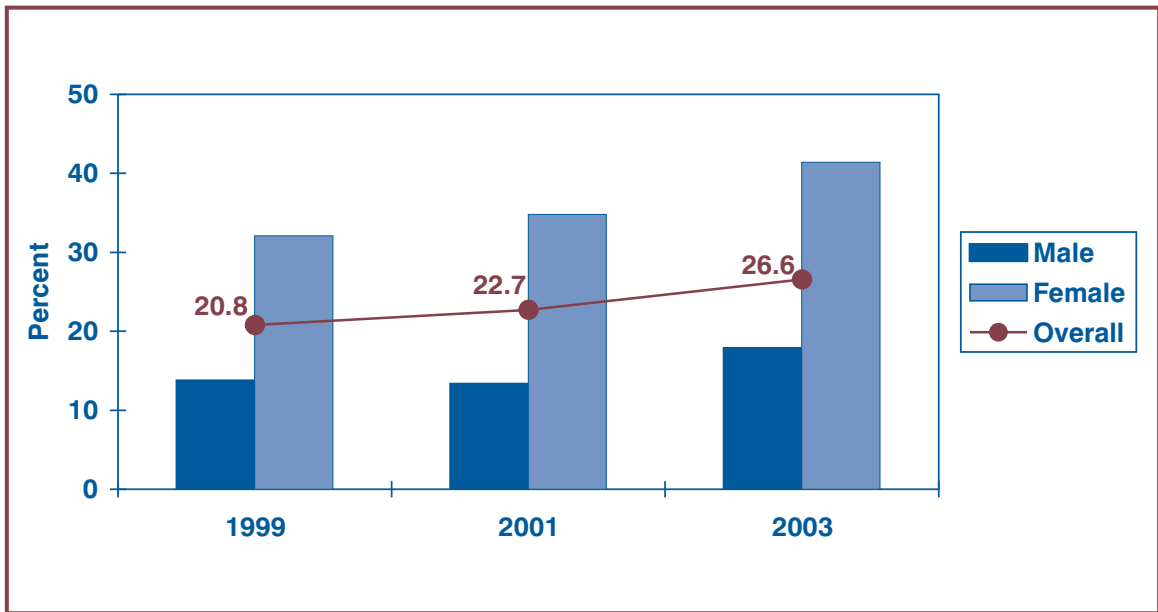
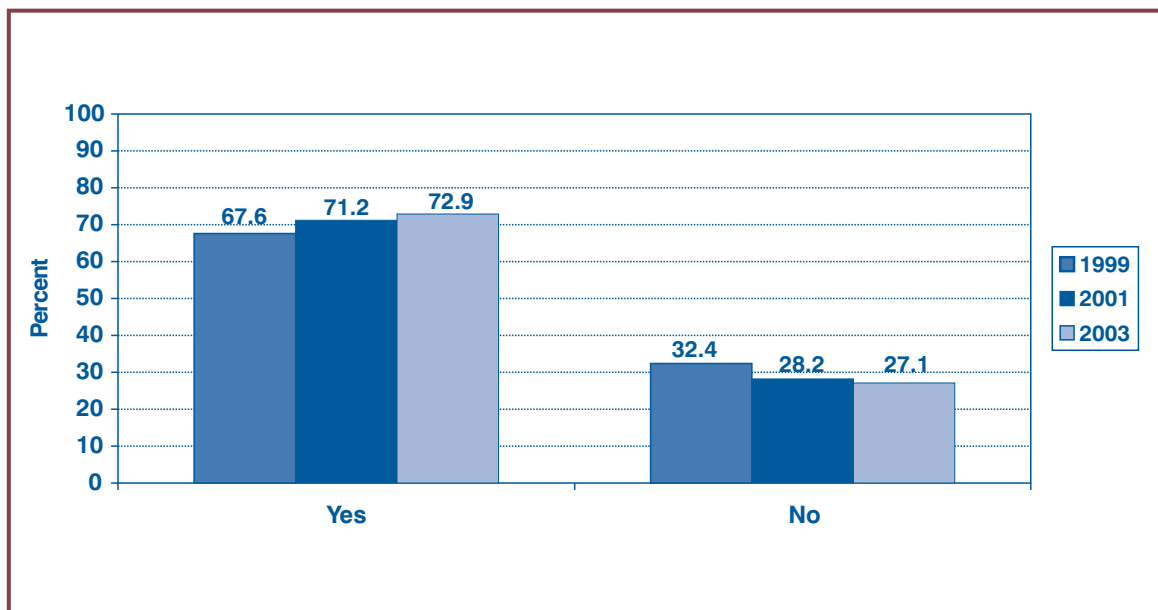


Figure 30. Use of any form of sexual protection after diagnosis of an STI



2.10.2 Prevalence of STIs and blood-borne infections

Youth who consented to be tested for STIs and other blood-borne infections (BBIs) were asked to provide a urine sample and a blood sample. More than 70% of participating youth provided blood while more than 80% provided a urine sample.

Table 3. Prevalence rates of STIs and BBIs in street youth

STIs and BBIs	1999	2001	2003
	Prevalence Rate (%)		
Chlamydia	8.6	11.5	11.0
Males	7.5	9.4	8.4
Females	10.4	14.3	15.4
Gonorrhoea	1.4	1.4	3.1
Males	1.2	1.1	2.3
Females	1.7	1.8	4.6
Infectious Syphilis*	–	0.0	0.7
Males		0.0	0.6
Females		0.0	0.9
Hepatitis C**	4.0	3.6	4.5
Males	3.9	2.4	4.4
Females	4.2	5.0	4.8
HIV	<1.0	<1.0	<1.0
Hepatitis B (susceptibility)***	67.3	49.8	40.4
Males	69.4	51.9	46.1
Females	63.6	46.9	29.9
Herpes simplex type 1 (HSV-1)	–	56.0	60.8
Males		53.2	59.3
Females		59.6	63.2
Herpes simplex type 2 (HSV-2)	–	14.2	18.8
Males		7.6	12.6
Females		22.6	29.4
HSV-1 and 2 co-infection	–	9.9	11.9
Males		5.2	8.4
Females		16.0	18.1

* Infectious syphilis includes primary, secondary and early latent syphilis.

** Another report, Hepatitis C and IDU Among Street Youth,²⁴ will provide detailed information on the relationship between HCV and IDU.

*** Susceptible = anti-HBs negative and anti-HBc negative or no laboratory evidence of hepatitis B immunization.

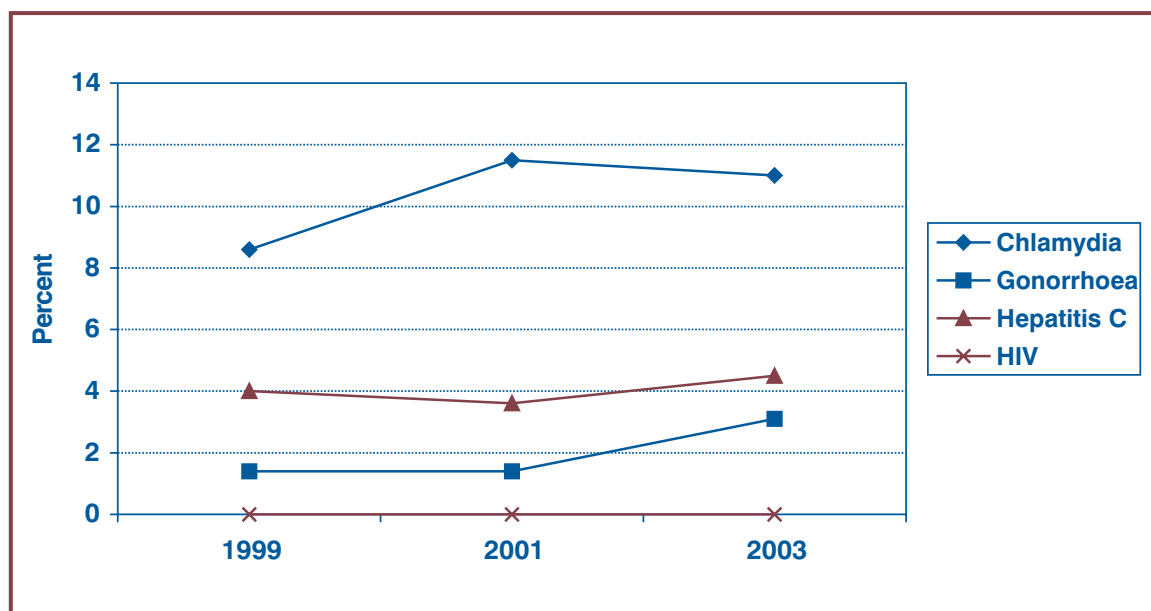
As shown in Figure 31, rates of chlamydia and gonorrhoea in the street youth increased between 1999 and 2003. They are significantly^s higher than reported rates for all youth 15–24 years of age, which are about 1% for chlamydia and 0.3% for gonorrhoea.²⁷ Hepatitis C and HIV rates in the street youth were stable, at approximately 4% and less than 1% respectively, over the survey years.

Syphilis testing was added to the surveillance protocol for 2001 and 2003. In this time period, infectious syphilis rate increased from 0% (no cases) in 2001 to 0.7% (10 cases) in 2003 (Table 3).

Regarding hepatitis B, in the three survey years, there was a dramatic decrease in the proportion of youth who had no natural or vaccine-induced immunity and needed to be immunized (Table 3).

Testing for HTLV was performed in 2001 and 2003; in both years, there was only one case of HTLV-1.

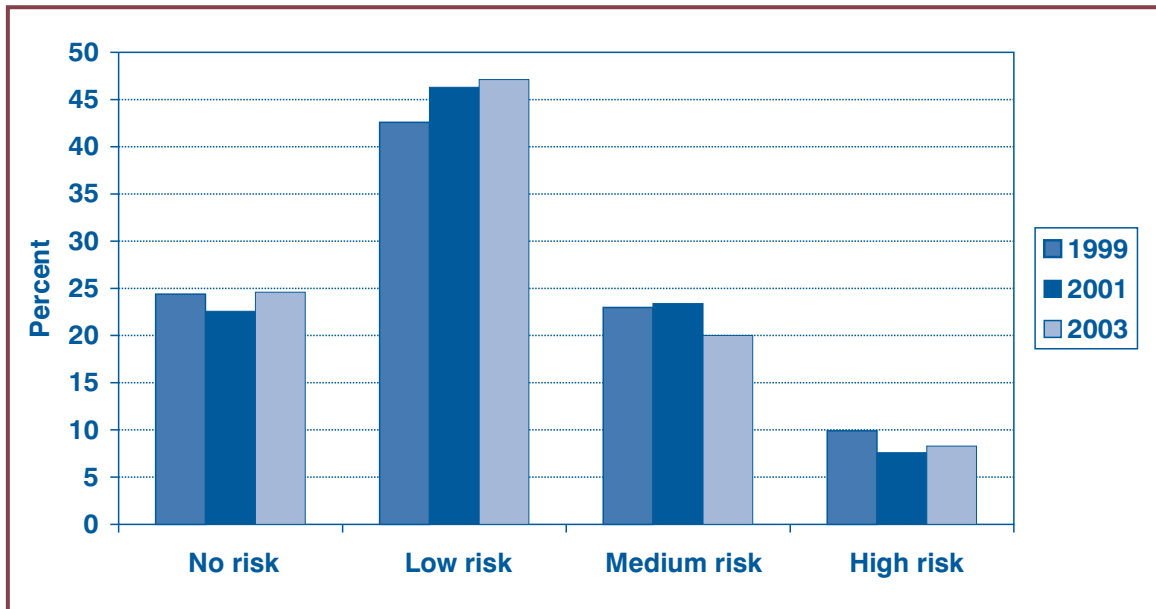
Figure 31. Prevalence rates of STIs and blood-borne infections



2.10.3 Self-perceived risk of STIs

In terms of their self-perceived risk of getting an STI, the majority of street youth interviewed believed that they were at low risk or at no risk (Figure 32). Fewer than 10% of street youth in all survey years believed they were at high risk of getting an STI. About one-quarter believed that they were at no risk at all.

Figure 32. Self-perceived risk of STIs



2.11 Substance Use

The youth were asked about their smoking, drinking and drug use practices. They were asked to report if they smoked at the time of the survey, and to report their alcohol and drug use habits of the previous three months. This section provides an overview of substance use patterns among street youth. More detailed information is provided in the *Canadian Street Youth and Substance Use* report.²²

Table 4. Substance use patterns among street youth

Substance Use	1999	2001	2003
	Percent		
Smoking – current			
Daily	84.3	82.5	78.8
Occasional	5.7	7.2	9.2
Alcohol use in previous 3 months			
Daily	6.5	7.0	5.8
More than once per week	24.1	29.8	26.9
Less than once per week	50.7	42.3	43.1
None	18.7	20.9	24.3
Alcohol intoxication in previous 3 months	67.2	42.0	36.6
Males	65.3	46.1	37.9
Females	70.5	36.5	34.2
Injecting drug use (lifetime)	20.8	18.4	22.3
Males	21.4	18.7	23.3
Females	20.0	20.5	20.6
Non-injecting drug use (lifetime)	79.0	76.3	73.2
Males	78.6	77.2	73.1
Females	80.0	75.1	73.2
Lifetime drug use (injecting and non-injecting)	95.2	93.9	95.3
Males	95.3	94.2	96.4
Females	95.2	93.5	93.5

As shown in the above table, the majority of the street youth smoked on a daily basis. The proportion of daily smokers was very high but decreased from 84.3% in 1999 to 78.8% in 2003. Less than 10% of street youth reported drinking every day. A high proportion, however, reported recent alcohol intoxication – defined as being drunk for one or more days – with this rate also decreasing from 1999 to 2003 (67.2% in 1999, 42.0% in 2001 and 36.6% in 2003).

2.11.1 Injecting drug use

More than 20% of street youth reported injecting drug use (IDU) in all survey years (Figure 33). The injection drugs most commonly used by street youth in the three months prior to the survey were cocaine, heroin, morphine and speedball (a combination of cocaine and heroin) (Table 5). This result is consistent with studies on injecting drug use in Canada, including I-Track.²⁸ In a study examining factors that were most likely to predict the initiation of IDU, recent homelessness was found to be the most important.²⁹

Figure 33. Injecting drug use among street youth

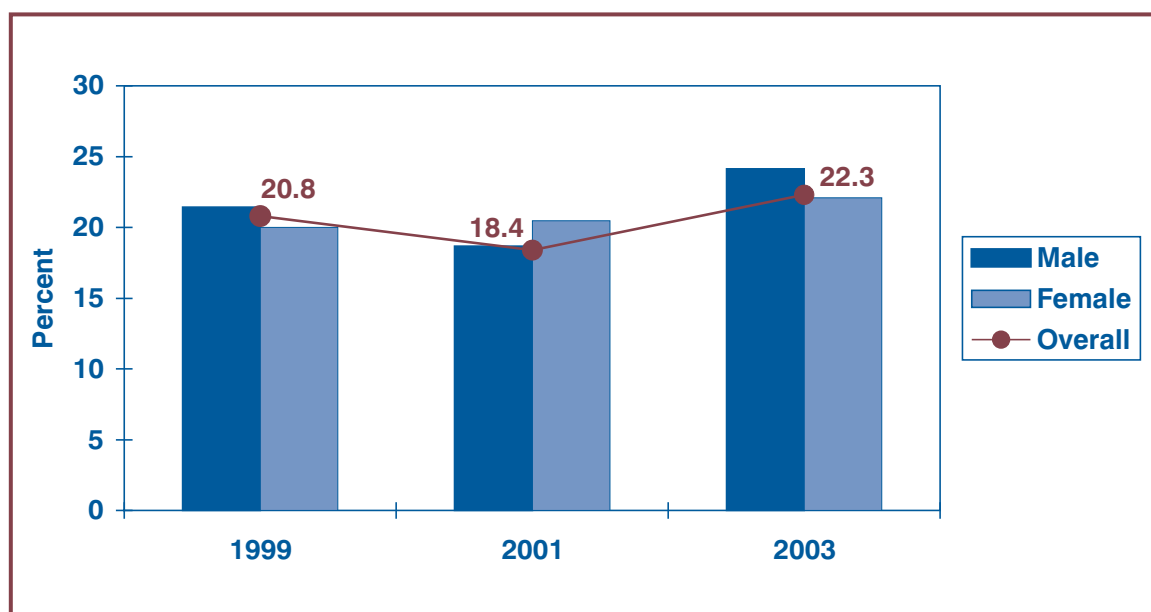


Table 5. Injection drugs most commonly used by injecting drug users in the previous 3 months

Drugs commonly injected	1999*	2001†	2003
	Percent		
Cocaine	21.2	56.3	37.7
Heroin	20.9	36.5	26.0
Morphine	9.4	42.3	34.4
Speedball	7.5	15.8	11.0
PCP	0.9	0.0	4.6
Alcohol	0.2	0.0	2.9

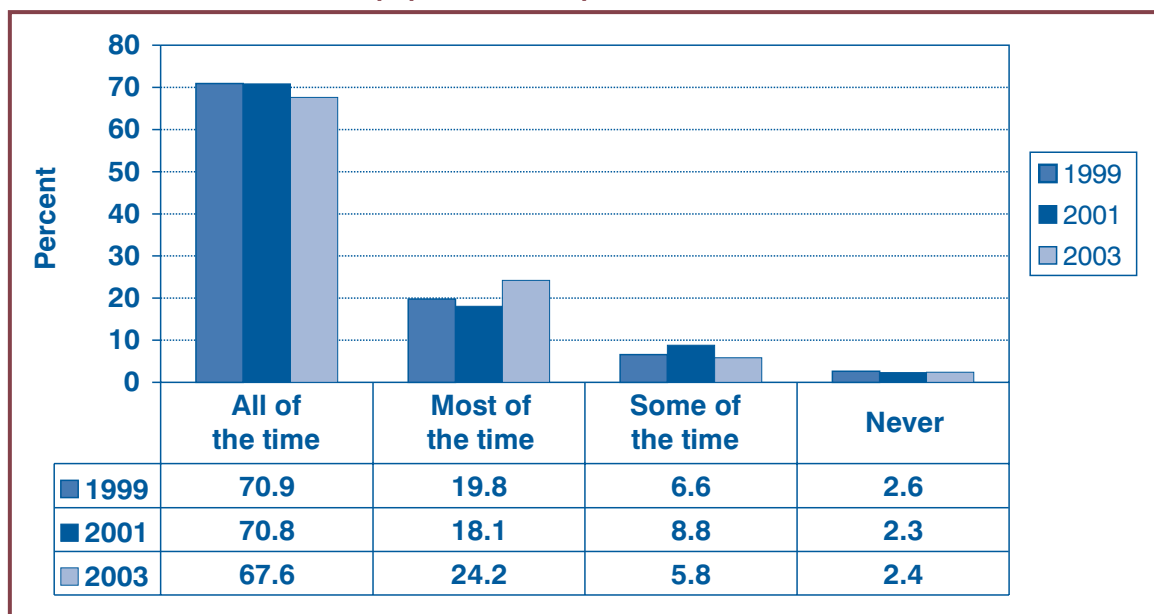
* Total percentages may not add up to 100% because there were large numbers of missing values. The questions was not well answered in 1999.

† In 2001 and 2003, youth were allowed to report more than one drug; therefore, total percentages may add up to more than 100%.

Respondents were asked to report how often they used clean needles or other injecting equipment in the previous three months. As shown in Figure 34, approximately one-third (30%) of IDUs reported not always using clean needles or equipment in that time frame.

Street youth were asked in 2003 if they had ever borrowed injecting equipment from someone else; 31% of injecting drug users reported that they had previously done so.

Figure 34. Use of clean needles or other drug injection equipment in the previous 3 months



2.11.2 Non-injecting drug use

A high proportion of street youth reported the use of drugs by means other than injection. Rates ranged from 79% in 1999 to 73% in 2003 (Figure 35). The non-injecting drugs most commonly used in the previous three months were marijuana, crack and other forms of cocaine, crystal methamphetamine (“crystal meth”) and ecstasy (Table 6).

Figure 35. Non-injecting drug use among street youth

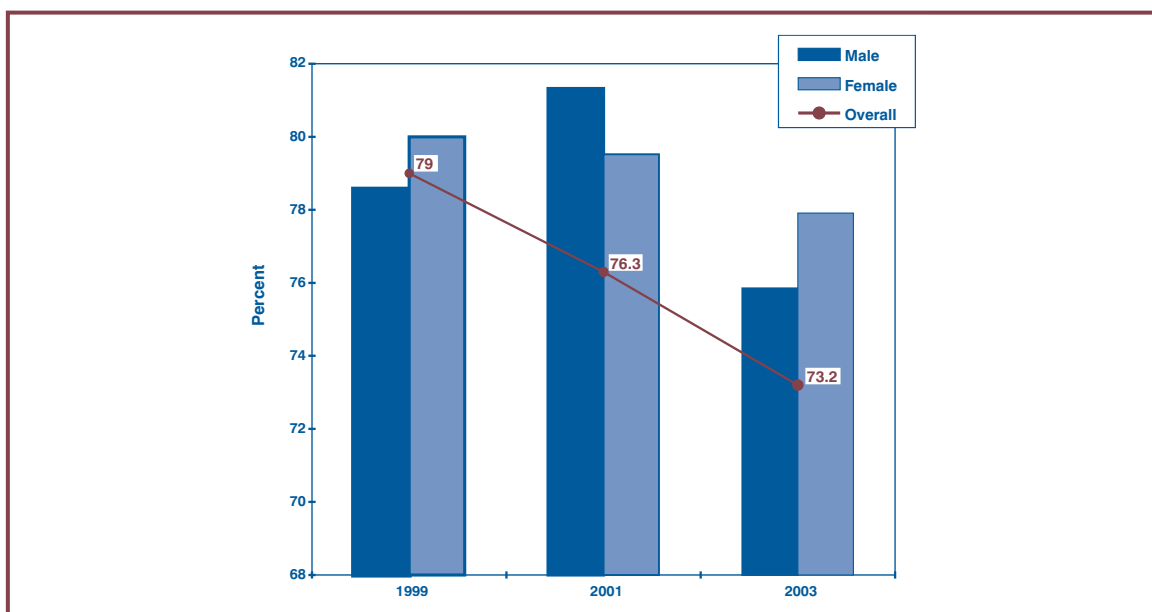


Table 6. Drugs most commonly used by non-injecting drug users in the previous 3 months

Drug	1999*	2001†	2003
	Percent		
Marijuana	66.6	81.8	78.3
Cocaine	2.2	1.6	5.1
Crack	1.5	3.0	5.8
Ecstasy	1.2	3.8	5.1
Crystal meth	2.3	3.7	6.6
LSD	2.8	0.0	2.3
Hashish	1.9	0.7	2.2

* Total percentages may not add up to 100% because there were large numbers of missing values. The questions was not well answered in 1999.

† In 2001 and 2003, youth were allowed to report more than one drug; therefore, total percentages may add up to more than 100%.



3. Implications for Interventions

Findings from E-SYS have significant implications for intervention in the street youth population. The majority of the street youth reported leaving home because of family problems, being thrown out of their home or abuse. These findings are in line with other studies that show that adolescents often leave home because of family problems, such as family violence and abuse, family conflict, and disagreements with caregivers about adolescent behaviours.^{17,25,29-30}

An integrated approach to developing and implementing intervention programs for the street youth population would go far in ensuring that these youth are able to get help they need in different areas. A multi-faceted approach addressing broader determinants of health is needed, as single-issue public health interventions are unlikely to address the root causes of risk behaviours. For example, street youth who experienced family problems and abuse may require protection and mental health services as opposed to correctional services when they come in contact with the judicial system.

Youth who do not have the benefit of supportive family ties come to depend upon same-age peers for support. Among homeless youth, the peers and associates that comprise their new social support system are likely to be troubled themselves. The result is a social network of same-age peers that, while supportive, may influence their newer members to adopt risky behaviours and subsistence strategies. A previous cross-cultural study of street youth showed that although participation in street networks may expose these youth to high-risk behaviours, the networks serve a positive emotional function.²⁶

Prevention programs that identify and build on these positive social network ties – including ties to home and with peers who are not street-involved – could both preserve important links to the community and school and reduce integration into street networks.²⁶ Facilitating supportive contacts with friends at home and in school, may lead to housing solutions other than the family home while maintaining youth in familiar peer and school settings.

A considerable proportion of street youth (more than 70% in 2003) reported having had contact with their parents or caregivers in the previous three months. While not appropriate for all street youth, family bonds are a strength that could be built upon, as has been suggested in the literature on this area. The development of family-focused interventions that assist parents and siblings in providing supportive family interactions may be a viable early intervention strategy for newly homeless young people.¹⁷ Successful intervention when the family has not disintegrated beyond the point of reunification might prevent future homelessness,³¹ though future research is needed before any recommendations are made on this possibility.

Adolescence is a time of risk taking, as part of the process of growing up. Young people are more likely to have concurrent relationships, monogamous relationships of short duration and a high frequency of new partners. All these factors are likely to increase transmission of STIs.³² Street youth are a sexually active population; they are more likely than non-street youth to report having had sexual intercourse before the age of 13.^{11,33} They are also more likely to have multiple sexual partners and to report inconsistent condom use.

It is important to provide adequate services to youth living on the street, to assist in capacity-building and to encourage them to engage in harm reduction activities, such as consistent condom use and having fewer sexual partners in order to reduce their risk of contracting or transmitting STIs and blood-borne infections. Our findings show that while STI rates are high, most street youth reported a low self-perceived risk of STIs.

Street youth reported use of substances such as cigarettes, alcohol and several drugs. The rates of non-injecting and injecting drug use among street youth make it clear that actions are needed to reduce the rates of substance abuse and to lessen the impact of social and physical harms associated with use of these substances. Early interventions for street youth about the dangers of injecting drug use and addiction could help prevent these youth from starting to inject drugs. Harm reduction approaches, together with facilitating a return to school or alternative education initiatives, also need to be available to street youth. There is also a need to work with the education system to identify youth who are at high risk of becoming street-involved and to offer preventive interventions.



4. Conclusion

Since its inception, the *Enhanced Surveillance of Canadian Street Youth* (E-SYS) has revealed much about the street youth population. The surveillance data collected suggest that a multi-faceted approach, that integrates health programs and interventions aimed at addressing broader determinants of health, is needed. Such an approach could improve the quality of life of street youth and reduce the potential harms associated with living on the streets. Single-issue public health interventions are unlikely to address the root causes of these problems.

Homeless youth have often been found to come from high-stress backgrounds and unstable living situations.¹⁷ What is common to many homeless youth is a troubled and complex past characterized by an unsupportive home life involving abuse, neglect and conflict. Street youth require both basic care and ongoing support if they are to set their lives towards achieving productive, self-enhancing goals and a useful place within their community.

Street youth become homeless for a variety of reasons; the most common ones are conditions at home. In most instances when youth have left home and become homeless, they report that their families are responsible for this action. Conflict between parents and youth and abuse are often cited as reasons for leaving home.^{17,29} While life on the streets may be dangerous, for some youth it may be safer than their home.²⁹

There is a need for further research on these youth's home life and the factors that lead them onto the street. Many homeless youth indicated that they had lost respect for their parents or caregivers for failing to provide them with due care, nurturing and protection from abuse and family violence.²⁹ As a result, these youth no longer accept the possibility of reuniting with their families.³¹ Life on the street can therefore become a solution to an intolerable family situation and other living environments.³⁰

This report highlights some national findings that could influence and shape prevention and control programs in the future. However, more data are needed to understand how such programs could best be designed to reach these youth when there are such competing stressors. Prevention and control programs need to be developed for use before youth reach the streets or get into trouble with the judicial system.

At a societal level, we expect that key social institutions – notably families, schools, the criminal justice system and health services – serve as sources of support and protective influence in preventing exposure to and accumulation of risks within the life development stages of youth and early adulthood.³⁴ As findings from this and other studies have shown, most street youth do not see these as supportive and protective systems.

The purpose of E-SYS was to contribute to current research on street youth by providing a more complete assessment of their socio-demographic profile, their interaction with the social service and the judicial systems, their substance use patterns, including injecting drug use, their sexual behaviours, such as sexual partnering and condom use, and other risk determinants. It is hoped that our findings will also be of use in aiding the prevention and control of homelessness and associated risk factors in the street youth population.

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Appendix

Methodology

Design and Recruitment

A pilot project launched in October 1998 (phase I) investigated the feasibility of studying the street youth population. The data from this phase were used to validate responses to similarly worded questions. The validity of responses was ascertained through the calculation of Kappa statistics. Interpretation indicated moderate agreement, as per the definition of Landis and Koch.³⁵ Additional questions were adapted from questionnaires used by Roy *et al.*³⁶ and the Vancouver Injection Drug Use Study (VIDUS),³⁷ which were tested and validated with similar populations. Local universities or hospital research ethics boards within each city where the study took place reviewed the study design and questionnaire. Informed consent was obtained from each youth prior to participation in the study.

Data collection was then conducted in large urban centres across Canada, bi-annually, starting in 1999 (phase II) and continuing in 2001 (phase III) and 2003 (phase IV). Phases II and IV included Vancouver, Edmonton, Saskatoon, Winnipeg, Toronto, Ottawa and Halifax. Vancouver was unable to participate in Phase III because of logistic issues. Cities that had participated in a previous phase of data collection were encouraged to be part of subsequent phases. Methodology regarding recruitment, inclusion criteria and laboratory methods remained consistent throughout the phases.

The questionnaire was modified at the start of each data collection phase to respond to new information obtained during the previous phase. Core questions, however, remained unchanged, allowing for time trend analyses of disease prevalence as well as key risk factors.

The recruitment of youth involved informal snowball sampling methods, where the study was well advertised and news of it passed verbally to potential participants, without the use of specific geographic sampling frames or direct linked referrals. This technique has been shown to be effective in hard-to-reach populations such as street youth.³⁸

The inclusion criteria encompassed the varying definitions of “street youth” adapted from the literature. Youth who were invited to participate in the study were those who

- were aged 15 to 24 years inclusively (i.e. participation on or after their 15th birthday and on or before their 25th birthday),
- had the ability to speak either French or English (the two official languages of Canada), and
- were not intoxicated (drugs and/or alcohol);

AND in the previous six months had

- been absent from their residence for at least three consecutive nights, OR
- run away from home or from another place of residence for three days or more, OR
- been thrown out of their home for three days or more, OR
- been without a fixed address for three days or more.

When creating this definition, the goal was to include youth who were on the street for varying lengths of time, as this variable is often an indicator of the frequency and types of risk behaviour.⁴

Participants were recruited through drop-in centres (at least two centres were involved per city), outreach work and mobile vans. The drop-in centres provided medical services, counselling and referrals to the youth at no cost and in an environment suitable for confidential discussions. Outreach nurses walked in the neighbourhoods where street youth gathered, recruiting both during the day and night. Mobile vans provided free condoms, clean needles and warm food. Nurses experienced in working with street youth were trained to ensure that recruitment was conducted using the same approach at all sites. Standardized training consisted of teleconferences with all nurses before and during the study period, which ensured that recruitment practices and questionnaire delivery remained uniform. A food voucher was given to each youth for participating in the study. Youth were permitted to enrol in the study only once during each data collection year.

Previous research on street youth had indicated that efforts to prevent STIs and blood-borne infections in this population are incomplete if the only data considered are related to sexual risk behaviours. As a result, other socio-demographic data were collected, including ethnic origin, current living situation, interactions with caregivers, income sources, drug and alcohol use, mental health, history of STIs and blood-borne infections, sexual experience and partnering, and unwanted sexual activity.

Participating youth were not prompted for responses regarding ethnicity and could identify themselves under more than one origin. From these responses, the definition of “self-identified Aboriginal” was developed. Self-identified Aboriginal street youth included those who identified themselves as solely or partially Native, including First Nations, Métis, Inuit and/or belonging to a particular Native people.

There were two interviewer-administered questionnaires. The first consisted of questions on demographics, lifestyle, sexual practices, attitudes and knowledge of risk behaviours and family history. This questionnaire took approximately one hour to complete. At any time during the administration of the questionnaire, an individual could withdraw from the study. All data collected were kept confidential.

In addition to the questionnaire, consenting youth were asked to provide a urine sample and a blood sample. Blood samples were tested in all years for hepatitis B and C virus and HIV; tests for human T-cell lymphotropic virus (HTLV), syphilis and herpes simplex virus types 1 and 2 were carried out in phases III and IV only. Urine samples were tested for *Chlamydia trachomatis* and *Nisseria gonorrhoea*. The laboratory testing for chlamydia, gonorrhoea, hepatitis B and syphilis was conducted locally. Tests for the remaining pathogens were performed at federal laboratories in Ottawa.

Those youth who chose not to provide a biological sample were still included in the study as long as they agreed to answer the questionnaire. If youth wanted solely to be tested for an STI or a blood-borne infection, they were directed to health services at the drop-in centre or local medical clinics. The test results were linked to the questionnaire by non-nominal study identification numbers. Youth who agreed to be tested were strongly encouraged to return to the drop-in centre or mobile van to hear their results for chlamydia, gonorrhoea, infectious syphilis and hepatitis B. For HIV, hepatitis C and HTLV, it was recommended that youth with risk factors go to clinics or other testing sites to get counselling, testing and results.

If necessary, a second questionnaire on issues related to partner notification barriers was administered as a follow-up to youth whose urine or blood sample tested positive for STIs or blood-borne infections.

Youth who tested positive for chlamydia, gonorrhoea or infectious syphilis were offered free counselling and treatment. Youth with no natural or vaccine-induced immunity against hepatitis B were referred for hepatitis B immunization. All treatments and referrals were made in accordance with professional standards and provincial public health guidelines. Partner notification was carried out in accordance with public health guidelines.

Laboratory Testing

Urine specimens were transported in a cooler kept at -4°C until testing at a central laboratory within each of the seven cities. Specimens were processed by using the Roche Amplicor polymerase chain reaction (PCR) test for gonorrhoea and chlamydia according to the manufacturer's instructions. To prevent contamination, pre- and post-PCR areas in the laboratory were physically separated and the workflow was unidirectional. Dedicated pipettes and other supplies were used in conjunction with frequent glove changes to prevent cross-contamination. For quality assurance, each PCR run included positive and negative controls.

Blood was tested at local laboratories for hepatitis B and syphilis, while the remaining sera were spun down and stored for shipment to the National HIV and Retrovirology Laboratory in Ottawa. Testing of sera was done in Ottawa for hepatitis C, herpes simplex virus types 1 and 2, HIV and HTLV. All tests were ELISA-based.

A first catch urine specimen (10–20 mL) was collected from the youth to test for chlamydia and gonorrhoea. The Roche Amplicor PCR test was used for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. PCR testing of urine for *Chlamydia trachomatis* has a sensitivity of $>90\%$ and a specificity of $>99\%$. Herpes simplex virus (HSV) was screened using HSV I/II EIA (Meridian); repeatedly reactive and discordant results on EIA were confirmed by type-specific line immunoassay (MRL Diagnostics). Hepatitis C virus (HCV) was screened using Ortho HCV 3.0 EIA; repeatedly reactive results on EIA were resolved by immunoblot (HCV 3.0 RIBA) assay. PCR testing was used to detect recent seroconversion if RIBA (v3) was indeterminate. Testing was also done for hepatitis B virus (HBV) serology markers (antibodies to HBV surface antigen and core antigen). Syphilis testing was performed using serological testing (RPR/VDRL) followed by confirmatory testing (FTA-ABS/MHA-TP).

Statistical Analysis

Data from phases II and III were entered in a custom database designed using Microsoft Access 97 (Microsoft Corporation, Redmond, WA). Phase IV data were stored in a custom Oracle database. Statistical analyses were performed using SAS v6.02 and v8e for Windows (SAS Institute, Carey, NC).

The tests of association used were chi-square or Fisher's exact for discrete variables, Kruskal-Wallis for non-normally-distributed continuous variables, and t-tests for normally distributed continuous variables. A two-tailed p-value of < 0.05 was defined as statistically significant for univariate analysis.

The proportions presented for each variable in the questionnaire are based on the number of youth who answered the specific question or the number of youth who provided blood or urine samples. For the purposes of this report, younger youth are defined as youth aged 15–19 years while older youth are defined as youth aged 20–24 years.

Analysis Terms

Univariate analysis: A statistical analysis that examines one factor or variable at a time. Univariate analysis was conducted using the chi-square test for heterogeneity or Fisher's exact for discrete variables, Kruskal-Wallis for non-normally-distributed continuous variables, and t-tests for normally distributed continuous variables. Statistically significant relationships are defined in univariate analyses by a p-value of < 0.05 and are denoted by (\$) in the report.

Limitations

E-SYS has several limitations that should be noted.

- First is its cross-sectional design. As is the case for all cross-sectional research, it does not allow causality to be established.
- Second, the sample is limited to seven urban centres across Canada. We view this as both a strength and a limitation. It is a strength in that it documents the presence and the plight of street youth in cities where they are most often situated. The limitation is that the findings may not be applicable to other geographic areas or cities or to less populated areas.
- Third, the recruitment of youth involved informal snowball sampling methods, where the study was well advertised and news of it passed verbally to potential participants, without the use of specific geographic sampling frames or direct linked referrals. While this technique has been shown to be effective in hard-to-reach populations such as street youth, it could result in a selection bias.
- Finally, findings were based on self-reported data. As such, veracity of the information provided could not be established except for specific STIs and blood-borne infections, for which blood or urine testing was performed. Also, street youth in this sample may have been reluctant to report socially undesirable behaviours such as unprotected sex, commercial sex trade work and injecting drug use and as a consequence, these behaviours may have been under-reported.