

Original Research

Risk Indicators of Depressed Mood Among Sex-Trade Workers and Implications for HIV Risk Behaviour

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Celebrating 60 years
Nous célébrons 60 ans

Objectives: To determine the prevalence of depressed mood among people who have traded sex for money in the Saskatoon Health Region (SHR), the adjusted risk factors for depressed mood among this sample, and if depressed mood was associated with decreased self-efficacy for safe sexual practices and injection drug use.

Methods: Two-hundred ninety-nine people who have traded sex for money were surveyed with validated instruments for measuring risk behaviours, depressed mood, and self-efficacy for safe sexual practices.

Results: The sample consisted primarily of low-income, poorly educated Aboriginal women, many of whom also indicated using injection drugs. Using the 16-point score cut-off for the Center for Epidemiologic Studies Depression Scale, 84.6% of participants had depressed mood. When the cut-off score was 23 points or higher, 65.9% had depressed mood. After multivariate analysis, covariates that had an independent association with depressed mood included injecting a drug in the past 4 weeks (OR 1.59; 95% CI 1.2 to 1.8), suffering the death or permanent separation from a parent before the age of 18 (OR 2.09; 95% CI 1.05 to 4.15), and physical assault or abuse by a partner in adult life (OR 2.79; 95% CI 1.38 to 5.64). Depressed mood was associated with lower self-efficacy scores for safe sexual behaviours.

Conclusions: Our study suggests that high rates of depressed mood among people who have traded sex for money is associated with injection drug use and low self-efficacy for safe sexual health practices. These findings are important and may help explain the high rates of human immunodeficiency virus within the SHR.



Indicateurs du risque d'humeur dépressive chez les travailleuses du sexe et implications pour le comportement à risque du VIH

Objectifs : Déterminer la prévalence de l'humeur dépressive chez les personnes qui ont eu des rapports sexuels en échange d'argent dans la Région sanitaire de Saskatoon (RSS), les facteurs de risque ajustés pour l'humeur dépressive dans cet échantillon, et si l'humeur dépressive était associée à une auto-efficacité réduite en matière de pratiques sexuelles sûres et d'utilisation de drogues par injection.

Méthodes : Deux cent quatre-vingt-dix-neuf personnes qui ont eu des rapports sexuels en échange d'argent ont été interrogées avec des instruments validés pour mesurer les comportements à risque, l'humeur dépressive, et l'auto-efficacité en matière de pratiques sexuelles sûres.

Résultats : L'échantillon consistait principalement en des femmes Autochtones à faible revenu et à faible scolarité, dont beaucoup ont aussi indiqué utiliser des drogues par injection. Selon le seuil d'inclusion en 16 points pour l'échelle de dépression du centre d'études épidémiologiques, 84,6 % des participants souffraient d'humeur dépressive. Lorsque le score d'inclusion était de 23 points ou plus, 65,9 % souffraient d'humeur dépressive. Après une analyse multivariée, les covariables qui avaient une association indépendante à l'humeur dépressive incluaient s'injecter une drogue dans les 4 semaines précédentes (RC 1,59; IC à 95 % 1,2 à 1,8), souffrir du décès ou de la séparation permanente d'un parent avant l'âge de 18 ans (RC 2,09; IC à 95 % 1,05 à 4,15), et de

l'agression ou de l'abus physique d'un partenaire de vie adulte (RC 2,79; IC à 95 % 1,38 à 5,64). L'humeur dépressive était associée avec des scores d'auto efficacité plus faibles en matière de pratiques sexuelles sûres.

Conclusions : Notre étude suggère que les taux élevés d'humeur dépressive chez les personnes qui ont eu des rapports sexuels en échange d'argent sont associés à l'utilisation de drogues par injection et à une faible auto-efficacité en matière de pratiques sexuelles sûres. Ces résultats sont importants et peuvent contribuer à expliquer les taux élevés du virus d'immunodéficience humaine dans la RSS.

During the last decade, national HIV trends have been decreasing. In 2012, there were 2062 HIV cases reported, compared with 2237 cases in 2011, which represents a 7.8% decrease and the lowest annual total since HIV reporting began in 1985.¹ Unfortunately, these national trends do not hold true in all Canadian provinces. For example, since 2006, Saskatchewan has a reported positive HIV test rate that is about triple the Canadian national average. By the most recent data (2012), Saskatchewan's HIV-positive rate was 17.0 per 100 000 population, while the national rate was 5.9 per 100 000.¹ Within the province of Saskatchewan, nearly two-thirds (72%) of the HIV-positive test reports came from the 2 largest health regions (Regina Qu'Appelle Health Region and the SHR).² Positive cases have quickly increased in SHR, rising from 40 reported cases in 2003 to 177 in 2012.²

While 67% of positive HIV test reports from Saskatchewan in 2012 were associated with injection drug use, 33% occurred through sexual transmission.² People who trade sex for money are at an increased risk of transmission and infection of HIV, as they are more likely to operate within a high-risk environment that includes an increased number of sexual partners, heightened risk of violence, and increased use of injection drugs.^{3,4} Laws governing selling sex in Canada often mean people working in the sex-trade experience discrimination, fear of arrest, and distrust of health and justice services.⁵ A recent and controversial Supreme Court decision in Canada has moved to target sex trade clients rather than STWs, but there is still debate as to whether the Protection of Communities and Exploited Persons Act will make work safer for STWs.⁵

STWs in Canada are more often women, young, and of Aboriginal cultural status. Within Saskatchewan, HIV

Abbreviations

CES-D	Center for Epidemiologic Studies Depression Scale
CPHA	Canadian Public Health Association
HIV	human immunodeficiency virus
IPV	intimate partner violence
RBA	Risk Behaviours Assessment
SES	socioeconomic status
SHR	Saskatoon Health Region
STW	sex-trade worker

Clinical Implications

- IPV is common among people who trade sex for money and is strongly associated with depressed mood.
- Bereavement counselling may need to be included for people who have traded sex for money.
- Injection drug use is prevalent and significantly associated with depressed mood among people who trade sex for money. Both may increase the difficulty to leave the trade.

Limitations

- Our study was cross-sectional and, therefore, unable to determine causation.
- Although validated scales were used, all of the information generated was based on self-report.
- Our study did not discriminate between the various types of STWs or the conditions under which they traded sex for money.

rates are increasing among young Aboriginal females, with 82% of female positive test reports identifying their status as Aboriginal.² The CPHA has made 5 key recommendations for laws regarding sex work in Canada. These recommendations aim to improve work conditions, to enhance the health and safety of people working in the sex trade, and to place special attention on assisting Aboriginal women.

Sex-trade work and drug use often coexist. About 35% of injection drug users in the SHR have traded sex for money.⁶ A study from Europe found that 22.3% of STWs cited buying drugs as a reason for partaking in sex work.⁷ People involved in the sex trade in Canada, who are also injection drug users, are more likely to engage in higher risk behaviours, such as sharing syringes and injecting heroin.⁸ Further, STWs who also use injection drugs have higher victimization rates, commonly experiencing violence in their everyday lives.³

Depressed mood has been reported to be high among STWs in other countries. Rossler et al⁷ reported a 1-year prevalence of major depressive disorder among female STWs in Europe to be 24.4%, with a lifetime prevalence of 36.3%. A study⁹ of 210 STWs from Nepal had a prevalence of depressed mood of 82.4%. Depressed mood may also exacerbate HIV risk behaviours. STWs who report depressed mood have been found to be more likely to engage in HIV risk

behaviour.⁹ A systematic review of barriers to condom use in the general population identified depression as one such key barrier.¹⁰ As such, those who trade money for sex and also have depressed mood may be less able or less willing to participate in safe sexual practices, such as condom use, which puts them and their partners at increased risk.

If the risk of HIV is to be reduced among people who sell sex for money, promoting safe sexual health practices in isolation is unlikely to be successful. The broader context of addiction and mental health should also be addressed. There were 3 objectives to our study: to determine the prevalence of depressed mood among people who have traded sex for money in SHR; to determine adjusted risk factors for having depressed mood among this sample; and to determine if depressed mood was associated with decreased self-efficacy for safe sexual practices and injection drug use among people who have traded sex for money.

Methods

Participants and Procedures

The Saskatoon Tribal Council, in cooperation with the University of Saskatchewan, undertook a research study to collect information on people at risk of contracting HIV in Saskatoon. Survey data were collected from September 2009 to April 2010 from Saskatoon residents who were either HIV-positive or at risk for contracting HIV (a current injection drug user, an STW, a person who frequently used the services of an STW, or a man who had sex with other men). Participants were recruited from a primary care clinic located within one of Saskatoon's low-income neighbourhoods, a needle exchange and a primary care facility operated by the Saskatoon Tribal Council, AIDS Saskatoon, and a facility that offers free meals within Saskatoon's low-income neighbourhoods. Only adults (aged 18 and older) were eligible to participate. Each participant was given \$20 for taking part in the study. A researcher was available to take each participant through the written and informed consent process in accordance to the University of Saskatchewan Behavioural Research Ethics Board (BEH# 08-53).

Instruments

Our study mainly used the RBA, which was developed by the National Institute on Drug Abuse. This questionnaire has also been used in the Vancouver Injection Drug Use Study.^{11,12} The RBA collects information on demographics, SES, and HIV risk behaviours (for example, "Have you injected a drug in the past four weeks?" "Have you ever traded sex for drugs?"). The main survey question was as follows: "Have you ever traded sex for money?" If the participant responded yes, they were selected for analysis in our study. The Spearman correlation r for this question was 0.72.¹³

Depressed mood was measured using the CES-D. The CES-D is an established measure of depressed mood, and has been used both in community and in clinical

settings,^{14,15} and has been used in commercial STWs with an internal consistency of 0.87.¹⁶ This measure consists of 20 questions about mood and behaviours within the last 7 days. A summary score of 16 or more is used most often as the cut-off for identifying depressed mood. However, it has been suggested to use a cut-off of 23 or more to reduce the risk of false positives.¹⁴ Our study will report the point-prevalence of depressed mood using both cut-offs, but the cut-off of 16 will be used for statistical analysis.

Participants were also asked to respond to 11 items taken from the HIV-AIDS Questionnaire¹⁷ on whether they had experienced several significant life events, such as physical assault or abuse as an adult or as a child, death of loved ones, including parent or child, or witnessing violent events. An additional 2 questions were added by the research team to determine if a participant had attended a residential school, or if they had a parent or grandparent attend a residential school.

The RBA was also used to determine if respondents had participated in other HIV risk behaviours. The RBA asks, "Have you injected a drug in the last 4 weeks?" "Have you ever given sex to get drugs?" and "Have you ever given someone drugs to have sex with you?" The Spearman correlations (r) for these questions were 0.65, 0.66, and 0.78, respectively.¹³

To measure self-efficacy for safe sexual practices, the research team used 7 sexual health-related items from an HIV risk behaviour self-efficacy scale.¹⁸ The scale asks participants to indicate their confidence to perform a certain task (with 0 being not at all confident and 100 being completely confident). Internal consistency for the scale has been found to be good in young adults (Cronbach $\alpha = 0.77$).¹⁸

Analysis

All analyses were performed using SPSS version 18 (IBM SPSS Inc, Armonk, NY). Cross-tabulations between having depressed mood (as established by the 16-score cut-off) and variables on demographics, SES, HIV risk behaviours, and significant life events were performed. Chi-square tests were run to establish significant associations ($P < 0.05$). After initial cross-tabulations, hierarchical well-formulated binary logistic regression was used to determine the association between the outcome variable of having been someone who has traded sex for money with depressed mood (compared with no depressed mood) and all potential explanatory variables. The unadjusted effect of each covariate was determined and then entered, one step at a time, based on changes in the -2 log likelihood and the Wald test.¹⁹ The final results are presented as adjusted odds ratios with 95% confidence intervals.

Results

During the 6-month data collection period, 1000 people at risk of contracting or testing positive for HIV completed the survey. Thirty surveys were removed owing to high

Table 1 Demographics and socioeconomic status of people who have traded sex for money

Demographic	<i>n</i> (%) ^a
Sex	
Male	81 (27.1)
Female	217 (72.6)
Missing	1 (0.3)
Age category, years	
18 to 29	92 (30.8)
30 to 39	110 (36.8)
40 to 49	73 (24.4)
50 to 59	21 (7.0)
Missing	3 (1.0)
Marital status	
Single (never married)	173 (57.9)
Married or common law	84 (28.1)
Separated, divorced, or widowed	34 (11.3)
Other	4 (1.3)
Missing	4 (1.3)
Cultural status	
White or Caucasian	25 (8.4)
Aboriginal (First Nations, Métis, or Inuit)	271 (90.6)
Other	3 (1.0)
Sexual orientation	
Heterosexual	240 (80.3)
Bisexual	49 (16.4)
Gay, lesbian, or 2-spirited	10 (3.3)
Education level	
≤Eighth grade	52 (17.4)
Grades 9 to 12 but not high school graduation	178 (59.5)
High school or equivalent	41 (13.7)
Trade or technical training	14 (4.7)
College or university graduate	9 (3.0)
Missing	5 (1.7)
Living arrangement	
Own home or apartment	118 (39.5)
Someone else's home or apartment	124 (41.5)
On the streets	10 (3.3)
Shelter or halfway house	22 (7.4)
Hotel	3 (1.0)
Some other place not mentioned	20 (6.7)
Do you consider yourself to be homeless?	
Yes	117 (39.1)
No	171 (57.2)
Missing	11 (3.7)

continued

Table 1 continued

Demographic	<i>n</i> (%) ^a
Annual household income, \$	
0 to 9999	190 (63.5)
10 000 to 19 999	44 (14.7)
20 000 to 29 999	9 (3.0)
30 000 to 39 999	7 (2.3)
40 000 to 49 999	1 (0.3)
≥50 000	2 (0.7)
Missing	46 (15.4)
^a Percent of sample	

likelihood of duplication. There were 299 people who answered yes to the question, "Have you ever traded sex for money?" Most were female (72.6%), Aboriginal (90.6%), heterosexual (80.3%), and single (57.9%). Only 21.4% had completed high school, and 78.3% had an annual income of below \$20 000 (Table 1).

People who were actively engaged in trading sex for money (income from prostitution in the past 30 days) were significantly more likely to be young (18 to 29 years; 62.3%, compared with 24.3%; $P < 0.001$), female (98.1%, compared with 67.2%; $P < 0.001$), identify as other than heterosexual (38.9%, compared with 15.5%; $P < 0.001$), had not completed high school (90.7%, compared with 75.4%; $P = 0.01$), and to identify as homeless (54.7%, compared with 37.4%; $P = 0.02$), than those who had not collected income from prostitution in the past 30 days. There were no statistically significant differences in cultural status, marital status, or annual household income. Prevalence of depressed mood also did not differ significantly between people who had traded sex for money in the past 30 days and those who have ever traded sex for money ($P = 0.48$).

Prevalence of Depressed Mood

Using the 16-point score cut-off for the CES-D, 84.6% of participants had depressed mood. Conversely, when the cut-off score was moved to 23 points or higher, 65.9% had depressed mood.

Risk Factors for Depressed Mood

Cross-tabulations were computed for demographics, SES, risk behaviours (injecting a drug in the last 4 weeks, trading sex for drugs, and giving someone drugs to have sex with you), and significant life events. One demographic variable was significantly associated with depressed mood, not identifying as heterosexual ($P = 0.04$). Socioeconomic variables significantly associated with depressed mood included identifying as being homeless ($P = 0.05$). Injecting a drug in the past 4 weeks was also significantly associated with depressed mood among this sample ($P = 0.002$). Significant life events that had statistically significant association with depressed mood included suffering the death or permanent separation from a parent ($P = 0.01$), or

Table 2 Demographics, socioeconomic status, risk behaviours, and significant life events by depressed mood among injection drug users			
Demographics	Depressed mood <i>n</i> (%)	No depressed mood, <i>n</i> (%)	<i>P</i>
Risk behaviours			
Age, years			0.3
18 to 39	169 (67.1)	33 (75.0)	
≥40	83 (32.9)	11 (25.0)	
Sex			0.37
Male	66 (26.2)	15 (32.6)	
Female	186 (73.8)	31 (67.4)	
Cultural status			0.16
Caucasian	23 (9.1)	8 (17.8)	
Aboriginal	226 (89.3)	37 (82.2)	
Other	4 (1.6)	0 (0.0)	
Sexual orientation			0.04
Heterosexual	198 (78.3)	42 (91.3)	
Homosexual, bisexual, or other	55 (21.7)	4 (8.7)	
Marital status			0.35
Single	151 (60.4)	22 (48.9)	
Married or common-law	68 (27.2)	16 (35.5)	
Separated, widowed, divorced, or other	31 (12.4)	7 (15.6)	
Socioeconomic status			
Education level			0.7
≥Grade 12	53 (21.4)	11 (23.9)	
<Grade 12	195 (78.6)	35 (76.1)	
Household income, \$			0.15
<20 000	201 (93.5)	33 (86.8)	
>20 000	14 (6.5)	5 (13.2)	
Do you consider yourself to be homeless?			0.05
Yes	105 (43.0)	12 (27.3)	
No	139 (57.0)	32 (72.7)	
Risk behaviours			
Have you injected a drug in the last 4 weeks?			0.006
Yes	187 (74.2)	25 (54.3)	
No	65 (25.8)	21 (45.7)	
Have you ever given sex to get drugs?			0.84
Yes	189 (74.7)	35 (76.1)	
No	64 (25.3)	11 (23.9)	
Have you ever given someone drugs to have sex with you?			0.21
Yes	47 (18.6)	5 (10.9)	
No	206 (81.4)	41 (89.1)	

continued

Table 2 continued			
Significant life events	Depressed mood (%)	No depressed mood (%)	P
Physical assault or abuse in your adult life by your partner	200 (81.0)	27 (58.7)	0.001
Physical assault or abuse in your adult life by someone other than your partner	192 (78.0)	30 (65.2)	0.06
Physical assault or abuse as a child	186 (76.5)	35 (77.8)	0.86
Seeing people hitting or harming one another in your family while growing up	213 (87.7)	37 (82.2)	0.32
Sexual assault in your adult life	148 (59.7)	21 (46.7)	0.1
Sexual assault as a child	171 (70.4)	28 (60.9)	0.2
Seeing someone physically assaulted or abused	207 (85.9)	40 (87.0)	0.85
Seeing someone seriously injured or violently killed	161 (66.0)	32 (69.6)	0.64
Losing a child through death	82 (34.3)	16 (35.6)	0.87
Death or permanent separation from a parent or someone who was like a parent to you before 18	148 (61.2)	18 (40.9)	0.01
Death of a spouse	25 (54.3)	0.13	0.13
Attended a Residential School	88 (35.9)	15 (33.3)	0.74
Had a parent or a grandparent who attended a Residential School	35 (76.1)	0.42	0.42

having been physically assaulted by a partner in adult life ($P = 0.001$). Full results are presented in Table 2.

There were 5 covariates associated with depressed mood among people who have traded sex for money. Binary logistic regression was then used to determine the adjusted and independent association with ever having traded sex for money and having depressed mood. Only having injected a drug in the last 4 weeks (OR 1.59; 95% CI 1.2 to 1.8), having been physically assaulted or abused by a partner in adult life (OR 2.79; 95% CI 1.38 to 5.64), and suffering the death or loss of a parent or someone who was like a parent before the age of 18 (OR 2.09; 95% CI 1.05 to 4.15) were independently associated with depressed mood among people who have traded sex for money (Table 3).

Depressed Mood and Self-Efficacy for Safe Sexual Practices

Mean scores for each self-efficacy item were compared using ANOVA, with significance set to $P \leq 0.05$. Mean scores differed significantly between people who had depressed mood and those without for all but 2 items, asking a partner about their other sexual partners and buying condoms in a drug store (Table 4).

Discussion

A survey of people who have traded sex for money living in the SHR found that 84.6% had depressed mood as determined by the CES-D cut-off point of 16. This prevalence is similar to the one reported in other studies.^{7,9,20} Identifying as other than heterosexual, considering oneself homeless, injecting a drug in the past 4 weeks, suffering the death or separation of a parent before the age of 18,

and having been physically abused or assaulted by a partner in adult life were significantly associated with having depressed mood before regression analysis. After logistic regression, injecting a drug in the past 4 weeks; having been physically assaulted or abused by a partner in adult life; and suffering the death or separation of a parent before the age of 18 years increased the risk of having depressed mood among people who have traded sex for money.

Injection drug use was found to significantly increase the risk of depressed mood in our study. Depressed mood has been found to be highly prevalent among injection drug users in Saskatoon, regardless of whether they participated in trading sex for money.⁶ Additionally, injection drug use among people who trade sex for money has been found to be associated with depressed mood in other studies.²¹ One study of STWs found that injecting drugs to deal with symptoms of depression led many to join the sex trade more quickly than people who did not inject drugs.²² As such, the strong link between trading sex, depressed mood, and injection drug use should be addressed in drug intervention and harm-reduction programs.

Depressed mood was associated with lower self-efficacy for safe sexual health practices among STWs in the SHR. This is an important finding because self-efficacy theory supports that people with lower self-efficacy are more vulnerable to depression.²³ Higher self-efficacy for condom use has been found to be associated with increased condom use among STWs.²⁴ Therefore, successfully improving depressed mood may improve safe sexual health practices, reducing the risk of HIV infection.

A high prevalence of experiencing and witnessing violence, and experiencing sexual abuse as an adult or in childhood

Independent variables	OR	95% CI	P
Physical assault or abuse in your adult life by your partner, yes	2.79	1.38 to 5.64	0.004
Death or permanent separation from a parent or someone who was like a parent, yes	2.09	1.05 to 4.15	0.04
Injected a drug in the last 4 weeks, yes	1.59	1.20 to 1.80	0.01
Reference categories: no physical assault or abuse in adult life by partner, no death or permanent separation from parent, and did not inject a drug in the last 4 weeks			

Safe sexual practices	Depressed mood Mean (SD)	No depressed mood Mean (SD)	P
How confident are you that you can:			
Talk about safe sex with a casual partner?	69.12 (30.6)	79.78 (27.9)	0.03
Buy condoms in a drug store?	72.74 (33.6)	77.83 (30.0)	0.34
Refuse to have sex with someone you don't know very well	68.14 (34.1)	84.22 (29.8)	0.003
Use a condom correctly if your partner wanted to	81.13 (28.0)	91.09 (23.6)	0.02
Convince a partner that he or she should use a condom	75.48 (29.1)	88.26 (24.0)	0.005
Prevent a partner from having anal sex with you	74.98 (33.0)	89.78 (23.8)	0.004
Ask a partner about his or her other sexual partners	69.47 (33.5)	76.00 (32.8)	0.23

was also found in our study population. Childhood abuse has been found to be significantly associated with trading sex for money or drugs in other populations,^{25,26} but was not found to be significantly associated with depressed mood in our study. It should be noted that among injection drug users in Saskatoon, sexual assault as a child was found to be significantly associated with depressed mood,⁶ which is important, as many of the participants reported recent injection drug use. IPV among STWs is common,²⁷ and an association between physical violence and depressed mood has been found among STWs in past research.²⁸

Losing a parent in childhood is also significantly associated with depressed mood as an adult.²⁹ These effects have been found, whether the separation was due to divorce or death of a parent, but a stronger association between depressed mood and childhood bereavement was found.²⁹ In our study, 55.5% of participants had suffered the death or permanent separation from a parent, 32.8% of participants had suffered the death of a child, and 62.2% of participants had suffered the death of a spouse. Therefore, bereavement counselling may be an important resource for people who trade sex for money, as it may help improve their mood, increase their self-efficacy, and decrease their risk behaviours.

There were numerous limitations to our study. One limitation is that it was cross-sectional in design, and therefore unable to determine causation. Another limitation was that, although validated instruments were used, all information collected was self-report data and prone to recall bias. An additional limitation was that our study did not differentiate the type of setting STWs were engaged in (street or private residence), which could be quite heterogeneous.

Conclusions

The context surrounding the sex trade in Canada is complex. To best address this complex situation, the CPHA has recommended an approach

based on the principles of social justice, attention to human rights and equity, evidence-informed policy and practice, and addressing the underlying determinants of health.^{5, p 11}

The results from our study suggest that there is a need for this approach.

Depressed mood is highly prevalent among people who have traded sex for money in the SHR. Injection drug use is also highly prevalent and a concomitant risk indicator for depressed mood. New prostitution laws in Canada should

ensure the work safety of STWs and their nondiscriminant access to health care services so as to protect them from violent encounters. Interventions to address depressed mood may improve safe sexual health and injection practices, thereby reducing HIV risk in this vulnerable group. Mental health treatment should be made available to deal with past traumas, particularly IPV and childhood bereavement.

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