Sexuality Research and Social Policy (2019) 16:278–288
https://doi.org/10.1007/s13178-018-0334-0

Experiences of Violence and Head Injury Among Women and Transgender Women Sex Workers

Rebekah M. Baumann[1,2] · Sarah Hamilton-Wright[1] · Dana Lee Riley[3] · Karen Brown[3] · Cindy Hunt[4,5] · Alicja Michalak[5] · Flora I. Matheson[1,4]

Published online: 12 May 2018

Abstract
Women and transgender women sex workers have similar experiences of housing instability, childhood trauma, and victimization to populations with high rates of traumatic brain injury (TBI), such as people experiencing homelessness and incarceration; yet, there is little research on TBI among sex workers. We conducted a mixed method study using qualitative interviews and the Ohio State University TBI Identification Method to understand experiences of violence and head injury with 10 participants recruited from Elizabeth Fry Toronto. Head injuries which resulted in loss of consciousness, or a change in conscious state, a report of feeling dazed or a gap in memory, were classified as traumatic brain injuries. All other injuries to the head which did not meet these criteria were classified as head injuries. Ninety percent of participants reported at least one lifetime TBI, and all participants reported at least one head injury related to violence in sex work. Findings indicate the need to educate sex workers on the seriousness of head injuries and the importance of treatment. Participants spoke of widespread stigma and discrimination as barriers to care, which may be mitigated by enhanced training with an anti-oppressive framework in the health care sector and in law enforcement. Participants felt that peer support workers could best deliver education and create awareness of TBI among people involved in sex work. The magnitude of violence and TBI in this population indicates the need for future research to determine actual prevalence of TBI and appropriate screening tools combined with educational programs.

Keywords Traumatic brain injury · Head injury · Sex work · Transgender · Violence · Women · Qualitative

Background

The Centers for Disease Control (2016) define traumatic brain injury as a bump, blow, or jolt to the head or a penetrating head injury that disrupts the normal function of the brain; this disrupted function can be measured by change in or loss of consciousness. This health condition is associated with higher mortality, behavioral and emotional problems, and increased risk of criminal justice involvement (Farrer & Hedges, 2011; Hwang et al., 2008; McMillan et al., 2015; Topolovec-Vranic et al., 2012; Topolovec-Vranic et al., 2014; Topolovec-Vranic et al., 2017). There is an excessively high prevalence of traumatic brain injury among people experiencing homelessness and incarceration. A recent meta-analysis determined that 41–51% of people incarcerated in developed nations (e.g., primarily the USA, but also Canada, Japan, New Zealand, Spain, and Australia) had a history of TBI (Farrer & Hedges, 2011). A meta-analysis showed that the pooled rate of TBI among women prisoners across four studies was 69.98% (Shiroma, Ferguson, & Pickelsimer, 2010). Hwang et al. (2008) found that lifetime prevalence of TBI among people facing homelessness in Toronto, Ontario was 53%; the prevalence among women experiencing homeless was 42%.

Street-based sex workers often share similar struggles with people experiencing homelessness and/or histories of criminal justice involvement including housing instability, substance misuse, childhood physical and sexual abuse,

✉ Flora I. Matheson
mathesonf@smh.ca

[1] Centre for Urban Health Solutions, St. Michael's Hospital, 30 Bond Street, Toronto, ON M5B1W8, Canada

[2] Human Biology, University of Toronto, 300 Huron Street, Room 105, Toronto, ON M5S 3J6, Canada

[3] Elizabeth Fry Toronto, 215 Wellesley Street East, Toronto, ON M4X 1G1, Canada

[4] Dalla Lana School of Public Health and Centre for Criminology and Sociolegal Studies, University of Toronto, 155 College St, Toronto, ON M5T 3M7, Canada

[5] Head Injury Clinic, Trauma and Neurosurgery Program, St. Michael's Hospital, 30 Bond Street, Toronto, ON M5B1W8, Canada

and adult violent victimization (Chabot, 2012; Davis, 2004; McCarthy, Benoit, & Jansson, 2014; Orchard, Farr, Macphail, Wender, & Young, 2012; Surratt, Inciardi, Kurtz, & Kiley, 2004; Thukral & Ditmore, 2003). Involvement in criminalized activities and experiences of homelessness increase the risk that women street-based sex workers will experience gender-based violence in their personal and professional lives (Shannon et al., 2009; Thukral & Ditmore, 2003). Research suggests that 45–81% of women sex workers have experienced violence from clients (Church, Henderson, Barnard, & Hart, 2001; Deering et al., 2014). Such violence, in combination with homelessness and criminal justice involvement, increase their risk of sustaining TBIs (Church et al., 2001; Deering et al., 2014). Intimate partner violence (IPV) is linked to TBI (Monahan & O'Leary, 1999). Recent findings from a Canadian study indicate that 32.7% of street and off-street women and transgender women sex workers experienced IPV (Muldoon, Deering, Feng, Shoveller, & Shannon, 2015). A recent systematic review on violence among sex workers found only three studies on transgender women sex workers (Deering et al., 2014). Schepel (2011) found that women sex workers experienced more violence from clients and pimps than transgender women sex workers, although 12.8% of 6400 transgendered individuals who participated in American National Transgender Discrimination Survey indicated that they had participated in transactional sex (Fitzgerald, Elspeth, Hickey, Biko, & Tobin, 2015). In Canada, there is an ongoing and colonial history of violence towards Indigenous women rooted in racism, marginalization, and poverty which results in high levels of physical violence and homicide against Indigenous women (Amnesty International Canada, 2014; Kubik, Bourassa, & Hampton, 2009). Currently, the National Inquiry into Missing and Murdered Indigenous Women and Girls is investigating and will make recommendations around the systemic causes of violence against Indigenous women.

There has been little research examining traumatic brain injury among sex workers, despite their vulnerability to experiencing violence, suggesting that TBI in the context of violence is understudied in this population (Ackerman, Banks, Farley, & Sikora, 2003; Farrer & Hedges, 2011; McMillan et al., 2015). In the few studies available, statistics on traumatic brain injury are not generated using TBI-specific screening tools but rather general questions about injury to the head. For example, in a study of 105 women working in sex work in Minnesota, the authors concluded that 72% had suffered traumatic brain injury, citing a variety of injuries to the face and head (Farley et al., 2011). These injuries included “broken jaws, fractured cheekbones, missing teeth, punched lips, black eyes, blood clots in the head, hearing loss, memory loss, headaches, and neck problems” (Farley et al., 2011, p. 30). These authors gathered information about injuries through quantitative and semi-structured, open-ended questions: The Prostitution Questionnaire, the Trauma Symptom Checklist-40, the PTSD Checklist, and a Chronic Health Problem Questionnaire. This study did not incorporate TBI-specific tools to identify injuries among sex workers.

The aim of this study was to understand experiences of violence and head injury among women and transgender women sex workers. To do this, we used in-depth qualitative interviews and validated screening tools for TBI in order to understand the context and magnitude of head injuries.

Methods

Setting and Community Partners

The study took place in Toronto, Ontario, Canada, in collaboration with Elizabeth Fry Toronto. Elizabeth Fry Toronto serves women in conflict or at risk of being in conflict with the criminal justice system through provision of housing and community supports, and a variety of support and educational programs. The WorkSafe program offered by Elizabeth Fry Toronto specifically focuses on women and transgender women who are involved with sex work. It is a weekly, 2-h drop-in program, which offers educational, legal, health, and counseling services to enhance wellness. Approximately, 20 people attend the program weekly at two Elizabeth Fry Toronto locations. Yearly the program accommodates over 43 unique participants. We conducted this research at one of the two Elizabeth Fry Toronto program sites in Toronto.

We used an integrated knowledge translation approach involving staff of Elizabeth Fry Toronto. They were involved in the design of the study, the development of the interview protocol to ensure appropriateness of language, and facilitated recruitment of participants. We conducted this research, and our community engagement using trauma informed approaches. Elizabeth Fry Toronto staff use trauma-informed principles to address women's needs. The project received ethical approval from St. Michael’s Hospital Research Ethics Board. All participants provided verbal consent and were offered emotional support at the conclusion of the interview.

Data Collection Tools

We developed a qualitative semi-structured interview protocol for this exploratory study to understand early childhood/familial experiences, adult experiences of violence and head injury, symptomatology, and treatment and reporting of head injury. We used the validated Ohio State University TBI Identification Method (OSU TBI-ID) to record all life experiences of head injury, including the number, severity and age of occurrence of head injury for each participant (Bogner & Corrigan, 2009; Corrigan & Bogner, 2007). The OSU TBI-ID is a 3- to 5-min

structured interview used to record lifetime history of TBI (Bogner & Corrigan, 2009; Corrigan & Bogner, 2007). According to the Centers for Disease Control (2016) a TBI is caused by a bump, blow, or jolt to the head or a penetrating head injury that disrupts the normal function of the brain.

Recruitment

We used purposive sampling to recruit potential participants. This non-probability sampling technique is appropriate considering the qualitative nature of this study and the interest in generating in-depth knowledge and data saturation from experts—in this case, persons involved in sex work (Palinkas et al., 2015). Eligible participants included women and transgender women, age 18 and above, that were involved in the Elizabeth Fry Toronto WorkSafe program.

The research team introduced the study to participants at the WorkSafe program in October 2015. An interviewer visited the WorkSafe program on a weekly basis from November 2015 to February 2016. Attendees received informational flyers from the research team on site. Flyers were also posted on the Elizabeth Fry Toronto bulletin board. Participants engaged in the interviews on a first-come, first-served basis with up to two interviews conducted per day. This approach worked well as participants preferred to be interviewed when a research team member was present at the WorkSafe program. It also reduced the potential for missed interviews. We did not pre-screen potential participants for brain injury since we were also interested in general experiences of violence among this population.

Two authors shadowed two early interviews conducted by a junior researcher on the team for training purposes (e.g., feedback on interview techniques such as how to probe to gather deeper understanding of experiences of violence). We revised the interview protocol after three pilot interviews to reflect the health literacy level of the participants and to restructure the order of questions for better flow, (e.g., the OSU TBI-ID moved to the end of the interview).

We conducted 10 private face-to-face interviews with participants at the Elizabeth Fry Toronto WorkSafe program, each lasting approximately 40 min. The researcher conducting the interviews followed Elizabeth Fry Toronto's standard safety measures while onsite (e.g., wearing a panic alarm). An encrypted recorder was used to audio record the interviews. Recordings were transferred daily to a secure institutional server and then password protected. One team member transcribed the interviews verbatim. We obtained informed verbal consent from each participant prior to the interview, at which time participants were made aware that some questions may be emotionally distressing, that counseling services were available, and that they could stop the interview at any time or skip questions. All participants received a $20 gift card for their participation. At the end of each interview, we asked participants about their emotional state and offered to have them speak to an Elizabeth Fry Toronto counselor, who was immediately available if needed. Additionally, information for various health care services, including those which did not require an Ontario Health Insurance Plan card, was offered to each participant at the end of the interview.

Data Analysis

The study used a mixed methods approach for data collection and analysis. In qualitative analysis, two researchers independently reviewed two transcripts, and then met to discuss and arrive at consensus on primary themes in the data (e.g., violence, sex work, experiences with health providers and police, head injury, childhood and adulthood injury/trauma, and fear/stigma). The quantitative portion used the OSU TBI-ID to calculate the number and classification of head injuries participants suffered.

Two team members identified sub-themes relevant to the objective of the paper: violence in sex work, substance abuse, staying safe in sex work, fear and intimidation, reporting injuries, recognition of injuries, health care awareness, connection to services, communication about TBI with sex workers, stigma/shame, perceptions of treatment by health care providers, community supports and sex work networks, transgender specific experiences, and recommendations for services. We developed an analytic summary of the data with attention to these sub-themes, integrating representative quotations from the participants. During data analyses, the original transcripts were regularly consulted to ensure that quotations were not being decontextualized.

The OSU TBI-ID was used to identify head injury. When completing the OSU TBI-ID the participants shared narrative stories of their experiences of head injury which we included in the qualitative analysis. We classified head injury based on pre-defined scores from the OSU TBI-ID (Bogner & Corrigan, 2009; Corrigan & Bogner, 2007). The categories of head injury comprised: no TBI (no loss of consciousness (LOC) or memory gap, or not dazed), mild TBI without LOC (dazed, or gap in memory), mild TBI with LOC (less than 30 min unconscious), moderate TBI (30 min to 24 h unconscious), and severe TBI (over 24 h unconscious). If a participant reported a head injury that did not result in LOC, feeling dazed, or a memory gap, we considered this an unclassified head injury but not a TBI. If a participant indicated she lost consciousness, but for an unknown length of time, we classified it as a mild TBI with LOC (unconscious for < 30 min). We then quantified each type of head injury experienced.

Participants received a pseudonym to identify their quotes. Small numbers are not included in the descriptive analysis to protect the identities of participants.

Findings

Sample Description

All ten participants self-identified as women, with almost half identifying as transgender women. Participants ranged in age from 43 to 59 years old. The majority of participants reported lower educational training (e.g., high school completion or less than a grade 10 education). Income ranged from $9000–$30,000 per year. One participant did not provide information on income. The primary source of income among participants was Ontario Disability Support Program or Ontario Works (OW), both forms of government social assistance. Half of the participants lived in subsidized community housing, with the remaining in market rental housing, rooming houses, or shelters. Sixty percent of participants identified as Aboriginal or Metis, and the rest identified as Caucasian, Canadian, or East Asian. Most participants began sex work between 20 and 27 years of age, some as early as age 13 and others later in life (e.g., 36 years of age). Participants reported being engaged in street and off-street (such as online or indoor) sex work. Some had regular clientele. Several participants shared that they were not actively engaged in sex work at the time of the interview.

Traumatic Brain Injury-OSU TBI-ID Quantitative

All participants reported multiple incidents of head or neck trauma. Nine participants reported lifetime TBI, and six of these nine participants reported multiple TBIs. Collectively, participants reported 14 mild TBIs without LOC, 5 mild TBIs with LOC, and < 5 severe TBIs. A few participants (< 5) reported a period of time in which they received multiple repeated impacts to their head. Participants also reported 19 head injuries that were unclassifiable as TBI (e.g., lack of specifics about symptoms, inability to recall details about the head injury, or did not meet the criterion of altered consciousness). Yet, it was clear from their stories that these injuries were not trivial. For example, during the interview Candice pointed to her head and described the scar she received at the age of ten: "My brother chucked a hammer, hit me right here."

Although participants' backgrounds and sex work journeys were different, many shared similar socioeconomic features of low income, lower educational attainment, and sex work involvement, as well as experiences of head injury. Participant demographic data, along with the numerical data collected around TBIs, is shown in Table 1.

Table 1 Socio-demographic characteristics and classification for the sample ($n = 10$)

Variable	Participants (n)	
Gender		
Women	5	
Transgender	< 5	
Other	< 5	
Age	43–59	
Ethnicity		
Indigenous	6	
Asian	< 5	
Caucasian	< 5	
Educational attainment*		
Less than grade 12	5	
Grade 12	<5	
Some college	<5	
Brain injury classification**	Participants (n)	Incidents (n)
Mild TBI without LOC	7	14
Mild TBI with LOC	< 5	5
Severe TBI	< 5	< 5
Unclassified	8	19

*Highest level of education completed

**See page 9, lines 7–16 for a discussion of the classification system used

Salience of Violence

Violence was salient throughout the lives of the participants. Many participants experienced personal abuse within their families or were witness to physical, sexual, and verbal violence between their parents. Bailey said: "That's the only way communication could be taught to me was I guess by beating me, slapping me, yelling at me, or saying something so horrible that you didn't have to hit me." Tiffany recalled sexual and physical violence from family members: "My brothers raped me, but my father didn't rape me. And my uncle raped and abused me." Ellie reported being bullied as a child because of her Aboriginal ethnicity. She also witnessed substance-related violence between her parents: "They fought, and they drank, and they were alcoholics."

Participants spoke of adult experiences of violence from intimate partners, friends, clients, and strangers. Brooke described repeated abuse by her ex-partner: "There's a bald spot in the back of my head from where he ripped my hair out and dragged me across the carpet floor." Others spoke of violence in the context of drug activities (selling or buying) and at the hands of dealers, strangers, and the police, or during bar fights. Darlene described living in a crack house: "You're getting busted and raided and the cops come in and punching you out at the same time, and kicking you in the head and stuff."

Our participants' accounts confirmed the highly dangerous nature of street sex work. Brooke experienced various dangerous encounters in her work: "I've had a knife pulled on me. I've had a gun pointed at my head. I've been raped and robbed by tricks." Participants recalled being punched, slapped in the face, kicked, strangled/choked, and stabbed. Ellie shared that a

client "started hitting me… he grabbed me by the hair…and he had me in his lap and he was pounding me in the head with his fists." This resulted in her sustaining a mild TBI without LOC according to the OSU TBI-ID. Participants reported sexual, verbal, and physical violence during their sex work, including threats to their lives to deter them from reporting violent encounters to the police and threats with a knife or gun while being raped. Tiffany experienced multiple forms of violence during her work: "*I've got like thrown out of the car and not paid, punched in the mouth and kicked out, left on a deserted road.*"

The participants reported excessive violence both in childhood and in their adult lives. Loved ones and strangers directed this violence at them.

"Those were pretty hard shots": The Situational Context of Head Injury

We explored the context of head injury among sex workers to understand how the injury occurred as well as the location of injury on the body. We explored head injuries that did and did not meet the criteria for TBI on the OSU TBI-ID. The OSU TB-ID provided data on the types of violence experienced by the participants with details of the injury extracted from the qualitative data or during stories shared when we screened for head injury with the OSU TBI-ID.

Seven participants reported an experience of at least one head injury during their childhood, related to parental abuse or fights with siblings, falls, tripping by bullies, accidents resulting from recreational activities, or car accidents. Several of these childhood head injuries met OSU TBI-ID criteria for severe TBI (with LOC greater than 24 h). Seven participants had at least one head injury during adulthood from car accidents, bar fights, or falls, and a few participants suffered head injuries from violence perpetrated by intimate partners/acquaintances. Eight participants reported at least one head injury during client encounters, with all participants reporting at least one head injury related to sex work (which could include stranger violence while on the street or intimate partner violence related to their income). Across the sample, participants reported 15 incidents of head injury related to sex work.

Mechanisms of head injury related to sex work included being hit in the head with an object, being punched, slapped, or kicked in the face, being shaken and jolted, strangulation, having one's head smashed against a hard surface such as stairs, a window, or a wall, and being grabbed by the hair or having one's hair ripped out. Darlene, after negotiating payment for a sexual encounter, got into a fight with the potential client who turned out to be a hockey player:

> He grabbed me by the hair, pulled me down, and he had a good fucking shot too, like [no being hit- boom boom] punching me in the head. I was like, almost seeing stars. Those were pretty hard shots, you know what I mean; and I didn't get paid for those either.

Participants reported head injuries resulting in lacerations, bruising, fractures, whiplash, memory gaps, loss of consciousness, and feeling dazed. Some participants experienced short-term symptoms such as headaches and soreness, while others reported experiencing long-term consequences such as persistent memory loss, noise sensitivity, and scars. Tiffany, who was strangled by an acquaintance, has persistent anxiety and memory loss and shared that she has "Short-term memory problems right now and I get constant headaches….my neck's out of whack. I've been sleeping on the floor, I can't sleep on my bed cause my neck and back's sore from him strangling me." This injury is classified as a mild TBI with LOC on the OSU TBI-ID.

All participants had experienced head injuries with some experiencing multiple head injuries. These injuries resulted from violence but also accidents. There was a wide range of mechanisms of head injury but participants recounted excessive violence from others.

"If my face had been gashed open…": Self-Assessment of Head Injury

Participants who experienced head injury reported various help-seeking behaviors. After experiencing an injury, participants reported doing their own self-assessment of the severity of the injury as a way to decide whether they felt they needed to seek care. For instance, Naomi, who was severely beaten including having her head smashed against a set of stairs, recalled that: "I didn't even go to the doctor's…but whatever, I figured the worst was my kidneys. I figured if I could get through it without having any blood in my urine, I was, I could heal." Tamara told us that she did not seek medical treatment for what she describes as 'light abuse' from a date, noting: "I wasn't knocked out, I wasn't dazed, I wasn't anything. He just slapped me in the head and I pushed him away."

Some participants spoke about the role of illicit drugs as a way to dull their pain response, but that drugs also impeded help seeking. Bailey was punched in the head by a date who learned she was transgender

> Nobody could hear my scream or, you know. But funny things was, I was so high I didn't even feel it. I was just happy that was all he was going to do to me. He got back into his car. I went to the nearest women's shelter. And they took the blood away and washed my face. I had to get stitches.

Bailey also recalled that she was taken by ambulance to the hospital because of the extent of blood loss: "Can you imagine all that just coming down? And here I am thinking that it's gonna stop and I'm gonna be able to go get high." When Naomi fell down the stairs and broke her wrist, she delayed treatment: "I didn't go to the hospital 'til like- that happened probably 6, 7 at night and I went to the hospital around 1." She felt that her drug use enabled her to cope with the pain and only went to the hospital 6 h later.

The participants recognized the need for treatment for head injuries that caused them to bleed. Naomi went to the hospital after being pushed into a TV stand by a date:

> My head felt really hot and I looked and there was like blood. What I do is I put my head down right and in a matter of seconds there was a big pool of blood so I went 'Ah, quick, I'm bleeding, I'm dying.' They gave me two stitches."

When participants did not consider a head injury to be severe they would discount, ignore, or delay seeking treatment. Darlene, when asked why she did not seek medical treatment for a head injury, stated: "I didn't have time. My work was more important. I didn't get hurt. My face wasn't hurt…I went back to work. If my face had been gashed open, of course I would have gone to the emergency room."

The decision to seek treatment for a head injury was specific to the perceived extent of the injury. Often, loss of blood was the impetus to seek care. For some, substance use created a delay in help-seeking because it dulled the immediate pain related to the injury.

"If I have to go to the hospital, I'd lie and say I was drunk": Barriers to Health Care

Participants reported varied experiences with the health care system, some extremely positive and others marked by stigma. Some provider encounters were congenial with participants reporting pleasant relationships with family doctors while other participants reported feeling stigmatized and neglected during medical encounters. Some health care providers and treatment centers were very accessible and provided positive interactions and experiences; for instance, Tamara noted:

> It is so comfortable there. Like you just walk in off the street and you need this or you need that and they'll serve you right away. And the nurses and the doctors there are excellent and they understand how you feel and they'll help you as much as they can.

Others reported feeling discrimination and judgment from providers. Tiffany felt that the stigma related to sex work was pervasive which affected what she revealed to providers when she had to seek care:

> If I have to go to the hospital, I'd lie and say I was drunk and fell or something stupid, like I was in a fight, drinking even though I wasn't. If I got punched in the mouth from a date, I'd just say, you know, 'I was drunk and got in a fight.' I wouldn't tell the whole truth.

For those participants who accessed health care for head injury, some walked to the emergency room, some were taken by friends, and others were taken involuntarily by ambulance or police escort.

Some participants reported that fear was a barrier to seeking medical attention. Some were afraid their children could be taken by child services while others reported being threatened by aggressors not to report the assaults. Brooke said she did not seek medical treatment while suffering domestic abuse, because she feared: "Too many questions, and of course I had to think of my little girl too. Trying to avoid the children's aid." Ellie was punched in the head by a particularly violent date, who then "smashed my head into the glass, the window. And that shook me, that jolted me." After experiencing this violence and the head injury, Ellie was cared for by two neighbors but did not seek professional medical treatment. She also reported being raped at knife point and told us the reason she did not go to the hospital:

> I was scared he would come back in all instances. I guess I was scared that he would come back and do me in. 'Cause they were pretty violent, threaten you, 'You open your mouth, you call the cops, whatever. I know where you live, your area, I'll find you.'

The stigma experienced by the participants affected their decisions to seek care and how to report their injuries if they did seek care. To feel that it is less stigmatizing to say the injury was a result of substance use, than the truth—injury through violence from a date—speaks to their need to retain their dignity in health care encounters. It also speaks to their perception of judgment from health providers.

"You got what you deserved": Reporting Violence

Most participants did not regularly report incidents of violence to the police or their families or provide information for a 'bad date' list, a compilation of sex work clients who pose a physical, financial, or other type of threat to sex workers. Few participants had access to support networks after experiencing an injury. They frequently could not or would not identify the aggressor to police either due to a lack of information or out of

fear. They believed the police thought poorly of them, and many participants had negative previous encounters with police. Tiffany preferred not to report violence to the police:

> The police look down on us. They think, 'Oh you got what you deserved. If you weren't out there it wouldn't happen to you,' you know. But financially, they don't understand the struggles that we have to go through to make ends meet, right?

Natasha reported that she was stabbed by a client. When asked about whether she sought medical treatment, she said: "I did. And was I made to feel like shit from them and was I treated like shit from the [local] police department, yes I was." She went on to say that the police questioned her choice of clothing: "'Well if you weren't wearing that.' Never mind what I was wearing, that's irrelevant and you know it. Doesn't matter what I'm wearing, I don't deserve this and you know that. All kinds of stigma and discrimination and bullshit."

When participants did disclose their injuries, they most frequently shared these encounters with others who were working in the sex trade, with people at drop-in centers, at work the next night, or within support groups. Bailey told us:

> I always tell girls on the corner the next night I go back to work, 'Yeah, I was attacked by this and that.' If it matches with someone else, then boom, when that happens, we usually go to the cops. It only makes sense right? We can all just say who our attacker was whenever. But still, other than that, you just feel alone. That's what it is eh? A lot of us just feel like, it's just another story, I don't want to tell the girls.

Judgment from police deterred women from reporting the violence and reporting the perpetrators. Women felt the police were blaming them for the injuries they received. Some participants only felt they could report perpetrators when they had corroboration by their fellow workers.

"Come out and walk with us": Recommendations for Improving Services Provision and Education

Many participants indicated that health care was available and accessible, although most participants were not aware of health care services specifically for head injuries. Participants reflected on what might help to improve accessibility and awareness of head-injury specific care, and to make treatment experiences more positive. For instance, when Ellie was asked if she was aware of any health services to treat head injuries specifically, she responded: "emergency rooms," illustrating how participants often knew that they could access their local hospital for medical treatment, but were unaware of services specifically for head trauma.

The participants felt that health care providers need training to develop their knowledge of the lived experience of people involved in sex work. For example, training to reduce discrimination within the health care system towards people experiencing substance use disorders, involved in sex work, or who are transgendered might improve help seeking. This would also enhance empathy for those involved in sex work among health care providers. Participants suggested that peer support workers should be available at health clinics, and that health care providers should be given anti-discrimination and anti-oppression training. Natasha suggested having: "More trans people come in or maybe a couple of addicts, recovering addicts, and voice their opinion on how they should be treated, whether he's high or not." She felt this would help health care providers better recognize the humanity of their patients. Tiffany suggested that it might be useful for health care providers to walk in her shoes, so to speak: "The care workers at the hospital should come out and see what it is like here at night. Come out and walk with us. If you don't walk the walk, how do you know, right?" Similarly, Candice made this recommendation: "There needs to be more trans workers everywhere. Not like just sex workers but, trans front-line workers, at OW, drop-ins, wherever."

Several participants suggested that sex worker safety and positive experiences with health care would improve by creating a 24-h safe sex drop-in clinic with medical and mental health staff on hand. Tiffany summarized this idea: "I really think you should have a 24 hour safe sex drop-in, we really need that in Toronto, really, really do with a nurse on sight and some mental health crisis people."

Peer support and education was a strong theme in service improvement for head injury treatment and violence prevention. Participants suggested that street outreach workers could distribute information pamphlets about head injury to people involved in sex work. They also noted the need for discussion groups and workshops that provided education on head injury to sex workers. Candice suggested educational workshops: "Going to different drop-ins or like [sex worker organization] and doing small workshops like that with people." Deborah proposed safety training: "They can have some seminar and invite people. And tell them how to do it [sex work] properly and not get injured. Make some kind of booklet, and print it, and then give it to…people working the street." Darlene emphasized the importance of education being peer-led: "It's a conversation, it's not a presentation, 'cause we're friends, 'cause we know each other." Ellie shared that:

> The thing is, getting someone who has been violated against, especially women of my trade, is that, we're afraid already. And then, if we get an injury, like six times out of ten we're not going to report it, we're not going to go to the hospital, because we don't want to have to explain where we got it or how we got it or why

> we got it because we're always afraid we're going to be blamed which we've been blamed a lot for a lot of things.

The idea that it is important for health care providers to understand why people enter sex work and what they face during their work was a strong theme that emerged from the stories of participants. They provided concrete ideas on what might improve interactions with providers, such as anti-oppression and anti-discrimination training. The participants also were vocal about the need for peer support workers to be available for sex workers and that a 24/7 drop-in center staffed with empathetic medical and mental health crisis staff could be a viable option. They also suggested that peer support workers might be the best people to deliver injury prevention education to those involved in sex work so it is a conversation with people who understand their lives.

Discussion

The aim of this study was to explore experiences of traumatic brain injury among women and transgender women with histories of sex work, in the context of their lives and the violence they face. In Canada, women are more likely to be victims of violence, much more likely to suffer severe IPV, and are at increased risk of violence if they are young or of Indigenous status (Sinha, 2013). We found that 90% (nine out of ten) of participants had suffered a TBI over their lifetime and all participants reported at least one head injury related to violence in their sex work. This mirrors previous research which found that 72% of Indigenous women involved in sex work had suffered TBIs (Farley et al., 2011).

The magnitude and impact of mild TBIs are underestimated in the general population (National Center for Injury Prevention Control, 2003); hence, why traumatic brain injury has commonly been called the 'silent epidemic' (Rusnak, 2013). Despite the numerous incidents of TBI reported by participants in our study, it is highly likely that the data did not capture the full extent of TBIs experienced by the participants. Although we took the time to define head injury some participants may have been unsure whether certain injuries met the criteria or forgotten past injuries, and thus likely underreported their lifetime experience of head injury. Additionally, we noted that participants would seek medical attention, primarily in the emergency department, based on their personal assessment of the severity of the injury. This highlights the need for more targeted education and awareness, particularly in plain language, around the nature and severity of head injuries and the importance of seeking treatment. Root causes of head injuries among sex workers needs to be better understood. The barriers to treatment for head injuries among this population need to be addressed, including decreasing stigma towards sex workers, educating service providers in the community, providing more education to sex workers about the consequences of head injuries, and ultimately, unnormalizing violence against sex workers. Non-recognition of head injury, widespread stigma, and normalization of violence creates an situation in which women and transgender women involved in sex work may fail to get adequate care for their head injuries and that the true prevalence of head injury in this population is unknown. Future research is needed to document the true prevalence of TBI among this population.

The findings also revealed the importance of peer support. Participants felt more comfortable reporting violence and injury to peers rather than to authority figures. Peer-led education and having peer workers embedded within the health care system could facilitate better knowledge transfer of the implications of head injury and improve access to health, mental health and addiction services. For example, Deering et al. (2011) found that a peer-led mobile outreach program was successful in reaching a high proportion of sex workers including those more at risk—such as those with higher service volume of clients and who solicited clients in more isolated public spaces such as alleys or side streets. Those accessing the program reported greater use of addiction treatment services (Deering et al., 2011).

There is a need to educate health care professionals and law enforcement to reduce stigma directed at sex workers. Some participants felt judged during encounters with health care workers and the police. This is counterproductive, potentially creating barriers to help seeking among a population at high risk of head injury. It may also inhibit full disclosure of the nature, extent and context of the injury. Discriminatory practices towards people involved in sex work have been previously documented in the literature (Bodkin, Delahunty-Pike, & O'Shea, 2015; Lazarus et al., 2012). Anti-oppressive practice is:

> a person centred philosophy; an egalitarian value system concerned with reducing the deleterious effects of structural inequalities upon people's lives; a methodology focusing on both process and outcome; and a way of structuring relationships between individuals that aims to empower users by reducing the negative effects of social hierarchies on their interaction and the work they do together (Dominelli 1994 as cited in Dominelli, 1996, pp. 170-171).

Anti-oppression training is necessary for both health care providers and police officers to decrease discrimination towards people involved in sex work and improve uptake of services. Anti-oppression training is offered through various community organizations, such as the Urban Alliance on Race Relations (see https://urbanalliance.ca/initiatives/workshops-2/), or as educational training through workplaces.

Our findings suggest that study participants experienced multiple head injuries over the course of their lives. Health care providers should be attentive and vigilant to engage sex-working patients in screening for and discussion of TBIs. Although people involved in sex work may seek medical care for reasons other than brain injury, brain injury assessment and screening could be a standard part of the treatment regimen when someone presents with injuries. Aftercare for sex workers must consider the context of participants' lives. They often live in unstable housing situations, have lower educational attainment and lower incomes, are embedded in substance use cultures, and live with violence from their work encounters (McCarthy et al., 2014; Shannon et al., 2009). These life circumstances may make it difficult to adhere to TBI treatment regimens, which often require a patient to abstain from drug/alcohol use and get plenty of rest (Marshall et al., 2015). Many of the people involved in the sex trade may not be able to take time away from work because they are living on low incomes and will be vulnerable to re-injury because of the nature of their work. These should be considerations for treatment plans developed by health care providers. Peer-led outreach services specifically for people involved in sex work, such as those used among sex workers by the Mobile Access Project (MAP) in Vancouver, British Columbia or the Persons at Risk (PAR) program in London, Ontario, may help address some of these barriers (Bodkin et al., 2015; Deering et al., 2011).

One limitation of this study is the relatively small sample; however, our interest was in the context of violence and specifically brain injury among this population. Thus, our data provide an in-depth understanding of the participants' experiences of injury and their interactions with the health care system and with the police. There was an over-representation of Indigenous and transgender participants in our sample, reflecting the composition of the WorkSafe program. Transgender individuals and Indigenous women are at higher risk of stigma and violence, which may help to explain the extent of the violence experienced within this sample (Amnesty International Canada, 2014; Hughto, Reisner, & Pachankis, 2015).

Indigenous participants were over-represented in our sample, an unanticipated finding. Colonialism, racism, sexism, and the residential school legacy continue to impact Indigenous women in a multitude of ways, including poor social determinants of health, negative personal well-being, and high incidences of violence towards Indigenous women, which can lead to increased rates of addiction and sex trade involvement (Kubik et al., 2009; Bourassa, McKay-McNabb, & Hampton, 2004). It is important that health care and health care education are delivered in a culturally safe manner, informed by the historical and ongoing context of colonization, and incorporating social justice and critical inquiry knowledge (Browne et al., 2009). The Reclaiming Our Spirits (ROS) health promotion and intervention for Indigenous women who have experienced IPV may be an example of a model that could help provide care to Indigenous participants in our sample (Varcoe et al., 2017). There is a need for collaborative, culturally appropriate health research with Indigenous women, particularly those living in urban settings and those with disabilities, contextualized to the social, legal, cultural, and economic reality and focusing on violence and injury, resilience and well-being, and self-governance (Young, 2003; Stout, Kipling, & Stout, 2001; Stout & Kipling, 1998).

One strong point of this study was that there was approximately equal numbers of transgendered and non-transgendered women participants, allowing us to examine their combined experiences of violence and encounters with health care professionals and the police. Based on conversations with the staff that manage the WorkSafe program, generally a greater proportion of transgender women compared to non-transgender women participate in the program at this particular location. Future research might consider exploring differences in the lived experience of sex work and violence among transgendered and non-transgendered women and men as well as incidence of head injury.

We noted some challenges using the OSU TBI-ID tool; most notably that the women were uncertain whether they should report an injury. They found it difficult to determine if their injury met the criteria for head injury based on the screener questions. Current screening tools may be too rigid in structure to elicit information about head injuries. Story telling may be a better approach to elicit information. We found that women recounted stories of head injury in the qualitative interviews, which they did not report during the more structured screening. Prompts from the interviewer to remind the women of these head injuries helped the participants to report their head injuries during the use of the OSU TBI-ID. Also, during the use of the screener women related additional information about their head injuries, not reported during the qualitative portion of the interview. Research might consider comparison of various ways to elicit stories of violence and head injury for people involved in sex work and for other at risk populations such as those who have experienced homelessness or incarceration. This study benefitted greatly from the collaborative research approach. The two nurses at the Head Injury Clinic of SMH suggested the use of the OSU TBI-ID to classify head injury and provided training on the tool, as well as guidance on the interpretation of the findings from the OSU TBI-ID. The staff at Elizabeth Fry Toronto facilitated access to women in the WorkSafe program and were available for participants who wanted counseling support post-interview.

Conclusion

In conclusion, we note that violence and related head injuries were part of the context of the participants' lives. Educational

efforts to ensure that people involved in sex work know how to assess the severity of their head injuries might help them make an informed decision whether to seek care or not. Health care professionals and police require anti-oppression education to reduce discrimination towards people involved in sex work. We also note that peer-support programs may provide a mechanism to improve help seeking and an opportunity for education and improve health outcomes.

Acknowledgements The Centre for Urban Health Solutions is part of the Li Ka Shing Knowledge Institute, St. Michael's Hospital. This study developed as a requirement of a 4th year undergraduate independent research course in Human Biology at the University of Toronto. Honorariums in the form of gift cards were provided by local businesses and private donation. The authors wish to thank the participants for bravely sharing their stories with us and for their warmth in welcoming us into their community. We admire their resilience and strength. The opinions, results, and conclusions reported in this paper are those of the authors.

Compliance with Ethical Standards

Conflict of Interest Author Rebekah Baumann declares that she has no conflict of interest. Author Sarah Hamilton-Wright declares that she has no conflict of interest. Author Dana Lee Riley declares that she has no conflict of interest. Author Karen Brown declares that she has no conflict of interest. Author Cindy Hunt declares that she has no conflict of interest. Author Alicja Michalak declares that she has no conflict of interest. Author Flora I. Matheson declares that she has no conflict of interest.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Ethical Approval The study was approved by the Research Ethics Board of St. Michael's Hospital in Toronto, Ontario, Canada. All aspects of the study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

References

Ackerman, R., Banks, M., Farley, M., & Sikora, E. (2003). Prostitution, dissociation, and traumatic brain injury. Symposium presented at the 20th annual international fall conference of the International Society for the Study of Dissociation, Chicago.

Amnesty International Canada (2014). Violence against Indigenous women and girls in Canada: A summary of Amnesty International's concerns and call to action.

Bodkin, K., Delahunty-Pike, A., & O'Shea, T. (2015). Reducing stigma in healthcare and law enforcement: A novel approach to service provision for street level sex workers. *International Journal for Equity in Health, 14*, 1.

Bogner, J., & Corrigan, J. D. (2009). Reliability and predictive validity of the Ohio State University TBI identification method with prisoners. *The Journal of Head Trauma Rehabilitation, 24*, 279–291.

Bourassa, C., McKay-McNabb, K., & Hampton, M. (2004). Racism, sexism, and colonialism: The impact on the health of aboriginal women in Canada. *Canadian Women Studies, 24*, 23–30.

Browne, A. J., Varcoe, C., Smye, V., Reimer-Kirkham, S., Lynam, M. J., & Wong, S. (2009). Cultural safety and the challenges of translating critically oriented knowledge in practice. *Nursing Philosophy, 10*, 167–179.

Centers for Disease Control. (2016). TBI: Get the facts. Centers for Disease Control and Prevention.

Chabot, F. (2012). The toolbox: What works for sex workers. Ottawa/Gatineau.

Church, S., Henderson, M., Barnard, M., & Hart, G. (2001). Violence by clients towards female prostitutes in different work settings: Questionnaire survey. *BMJ, 322*, 524–525.

Corrigan, J. D., & Bogner, J. (2007). Initial reliability and validity of the Ohio State University TBI identification method. *The Journal of Head Trauma Rehabilitation, 22*, 318–329.

Davis, J. (2004). Off the streets: Tackling homelessness among female street-based sex worker. Shelter.

Deering, K. N., Amin, A., Shoveller, J., Nesbitt, A., Garcia-Moreno, C., Duff, P., et al. (2014). A systematic review of the correlates of violence against sex workers. *American Journal of Public Health, 104*, e42–e54.

Deering, K. N., Kerr, T., Tyndall, M. W., Montaner, J. S., Gibson, K., Irons, L., et al. (2011). A peer-led mobile outreach program and increased utilization of detoxification and residential drug treatment among female sex workers who use drugs in a Canadian setting. *Drug and Alcohol Dependence, 113*, 46–54.

Dominelli, L. (1996). Deprofessionalizing social work: Anti-oppressive practice, competencies and postmodernism. *British Journal of Social Work, 26*, 153–175.

Farley, M., Matthews, N., Deer, S., Lopez, G., Stark, C., & Hudon, E. (2011). *Garden of truth: The prostitution and trafficking of native women in Minnesota*. Saint Paul, Minnesota: William Mitchell College of law.

Farrer, T. J., & Hedges, D. W. (2011). Prevalence of traumatic brain injury in incarcerated groups compared to the general population: A meta-analysis. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 35*, 390–394.

Fitzgerald, E., Elspeth, S., Hickey, D., Biko, C., & Tobin, H. (2015). Meaningful work: Transgender experiences in the sex trade. National Center for Transgender Equality.

Hughto, J. M. W., Reisner, S. L., & Pachankis, J. E. (2015). Transgender stigma and health: A critical review of stigma determinants, mechanisms, and interventions. *Social Science & Medicine, 147*, 222–231.

Hwang, S. W., Colantonio, A., Chiu, S., Tolomiczenko, G., Kiss, A., Cowan, L., et al. (2008). The effect of traumatic brain injury on the health of homeless people. *Canadian Medical Association Journal, 179*, 779–784.

Kubik, W., Bourassa, C., & Hampton, M. (2009). Stolen sisters, second class citizens, poor health: The legacy of colonization in Canada. *Humanity and Society, 33*, 18–34.

Lazarus, L., Deering, K. N., Nabess, R., Gibson, K., Tyndall, M. W., & Shannon, K. (2012). Occupational stigma as a primary barrier to health care for street-based sex workers in Canada. *Culture, Health & Sexuality, 14*, 139–150.

Marshall, S., Bayley, M., McCullagh, S., Velikonja, D., Berrigan, L., Ouchterlony, D., et al. (2015). Updated clinical practice guidelines for concussion/mild traumatic brain injury and persistent symptoms. *Brain Injury, 29*, 688–700.

McCarthy, B., Benoit, C., & Jansson, M. (2014). Sex work: A comparative study. *Archives of Sexual Behavior, 43*, 1379–1390.

McMillan, T. M., Laurie, M., Oddy, M., Menzies, M., Stewart, E., & Wainman-Lefley, J. (2015). Head injury and mortality in the homeless. *Journal of Neurotrauma, 32*, 116–119.

Monahan, K., & O'Leary, K. D. (1999). Head injury and battered women: An initial inquiry. *Health & Social Work, 24*, 269–278.

Muldoon, K. A., Deering, K. N., Feng, C. X., Shoveller, J. A., & Shannon, K. (2015). Sexual relationship power and intimate partner violence among sex workers with non-commercial intimate partners in a Canadian setting. *AIDS Care, 27*, 512–519.

National Center for Injury Prevention Control (2003). Report to congress on mild traumatic brain injury in the United States: Steps to prevent a serious public health problem. Centers for Disease Control and Prevention.

Orchard, T., Farr, S., Macphail, S., Wender, C., & Young, D. (2012). Sex work in the forest city: Experiences of sex work beginnings, types and clientele among women in London, Ontario. *Sexuality Research and Social Policy, 9*, 350–362.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*, 533–544.

Rusnak, M. (2013). Traumatic brain injury: Giving voice to a silent epidemic. *Nature Reviews Neurology, 9*, 186–187.

Schepel, E. (2011). A comparative study of adult transgender and female prostitution. Arizona State University.

Shannon, K., Kerr, T., Strathdee, S. A., Shoveller, J., Montaner, J. S., & Tyndall, M. W. (2009). Prevalence and structural correlates of gender based violence among a prospective cohort of female sex workers. *BMJ, 339*, b2939.

Shiroma, E. J., Ferguson, P. L., & Pickelsimer, E. E. (2010). Prevalence of traumatic brain injury in an offender population: A meta-analysis. *Journal of Correctional Health Care, 16*, 147–159.

Sinha, M. (2013). Measuring violence against women: Statistical trends. *Jurisat article, Canadian Centre for Justice Statistics, Statistics Canada.* Catalogue no. 85-002-X.

Stout, M.D. & Kipling, G.D. (1998). Aboriginal women in Canada: Strategic research directions for policy development. Status of Women Canada. Government of Canada.

Stout, M.D., Kipling, G.D. & Stout, R. (2001). Aboriginal women's health research synthesis project: Final report. Centres of Excellence for Women's Health.

Surratt, H. L., Inciardi, J. A., Kurtz, S. P., & Kiley, M. C. (2004). Sex work and drug use in a subculture of violence. *Crime & Delinquency, 50*, 43–59.

Thukral, J., & Ditmore, M. (2003). Revolving door: An analysis of street-based prostitution in New York City. Sex Work Project at the Urban Justice Center. Retrieved from The Urban Justice Center.

Topolovec-Vranic, J., Ennis, N., Colantonio, A., Cusimano, M. D., Hwang, S. W., Kontos, P., et al. (2012). Traumatic brain injury among people who are homeless: A systematic review. *BMC Public Health, 12*, 1.

Topolovec-Vranic, J., Ennis, N., Howatt, M., Ouchterlony, D., Michalak, A., Masanic, C., et al. (2014). Traumatic brain injury among men in an urban homeless shelter: Observational study of rates and mechanisms of injury. *CMAJ Open, 2*, E69–E76.

Topolovec-Vranic, J., Schuler, A., Gozdzik, A., Somers, J., Bourque, P.-É., Frankish, C. J., et al. (2017). The high burden of traumatic brain injury and comorbidities amongst homeless adults with mental illness. *Journal of Psychiatric Research, 87*, 53–60.

Varcoe, C., Browne, A. J., Ford-Gilboe, M., Dion Stout, M., McKenzie, H., Price, R., et al. (2017). Reclaiming our spirits: Development and pilot testing of a health promotion intervention for indigenous women who have experienced intimate partner violence. *Research in Nursing & Health, 40*, 237–254.

Young, T. K. (2003). Review of research on aboriginal populations in Canada: Relevance to their health needs. *BMJ, 327*, 419–422.