The effect of traumatic brain injury on the health of homeless people

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Version Post-Print/Accepted Manuscript


Publisher’s Statement The final publication is available at Canadian Medical Association via http://dx.doi.org/10.1503/cmaj.080341.

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Title:
The Effect of Prior Traumatic Brain Injury on the Health of Homeless Persons

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Word count (Abstract): 250
Word count (Main text): 2,786
Word count (References): 795
Number of References: 35
Number of tables: 2
Number of figures: 2
ABSTRACT

Background: The objectives of this study were to determine the lifetime prevalence of traumatic brain injury and its association with current health conditions in a representative sample of homeless individuals in Toronto.

Methods: A survey of 601 men and 303 women was conducted at homeless shelters and meal programs in 2004-5 (response rate 76%). Traumatic brain injury was defined as any self-reported head injury that left the person dazed, confused, disoriented, or unconscious. Injuries resulting in unconsciousness >30 minutes were defined as moderate/severe. Mental health, alcohol, and drug problems in the past 30 days were assessed using the Addiction Severity Index. Physical and mental health status was assessed using the SF-12. Associations between traumatic brain injury and health conditions were examined using generalized estimating equations.

Results: Lifetime prevalence rates were 53% for any traumatic brain injury and 12% for moderate/severe traumatic brain injury. First traumatic brain injury occurred before the onset of homelessness in 70% of those injured. After adjustment for demographic characteristics and lifetime duration of homelessness, a history of moderate/severe traumatic brain injury was associated with significantly increased likelihood of seizures (odds ratio [OR] 3.2; 95% confidence interval [CI], 1.8, 5.6), mental health problems, (OR 2.5; 95% CI, 1.5, 4.1), drug problems (OR 1.6; 95% CI, 1.1, 2.5), poorer SF-12 physical health status (-8.3 points; 95% CI, -11.1,-5.5), and poorer SF-12 mental health status (-6.0 points, 95% CI, -8.3, -3.7).

Conclusion: Prior traumatic brain injury is very common among homeless people and is associated with poorer current health.
Traumatic brain injury is caused by “a blow or jolt to the head or a penetrating head injury that disrupts the normal function of the brain” and most commonly results from falls, motor vehicle-traffic crashes, and assaults.\(^1\) Traumatic brain injury is a leading cause of permanent disability in North America.\(^1\) There are reasons to believe that traumatic brain injury may be common in the homeless population.\(^2\) Exposure to physical abuse during childhood, which could result in traumatic brain injury, is a known risk factor for homelessness as an adult.\(^3\) Substance abuse increases the risk of homelessness\(^4\) and also the risk of traumatic brain injury.\(^5\) Homeless people experience high rates of injury of all types and are frequently victims of assault.\(^6,7\) Finally, traumatic brain injury could be a factor contributing to the 3-8% prevalence rate of cognitive dysfunction among homeless adults.\(^8,9\)

Providing health care for homeless patients can be challenging for various reasons, including difficult behavioral patterns among some individuals. These behaviors may be related in part to unrecognized sequelae of traumatic brain injury, including cognitive impairment, attention deficits, disinhibition, impulsivity, and emotional lability.\(^1\) If so, appropriate support services could minimize the adverse impact of these disabilities.

Only two previous studies have reported the prevalence of traumatic brain injury among individuals experiencing homelessness. These studies, which were conducted in London, England, and Milwaukee, Wisconsin, were limited by small sample sizes, recruitment at a single shelter, and lack of data on women.\(^10,11\) We therefore conducted this study to determine the lifetime prevalence of traumatic brain injury in a representative sample of homeless men and women across an entire city, to identify temporal relationships between traumatic brain injury and the onset of homelessness, and to characterize the association between history of traumatic brain injury and current health problems in this population. Our primary hypothesis was that a history of traumatic brain injury would be associated with poor current health, as determined by six pre-specified health status indicators:
seizures; presence of mental health problems, alcohol problems, and drug problems; and physical and mental health status.

**METHODS**

**Sampling Design**

We recruited a representative sample of homeless persons in Toronto, where about 5,000 individuals are homeless each night and about 29,000 individuals use shelters each year.\(^{12,13}\) Homelessness was defined as living within the last 7 days at a shelter, public place, vehicle, abandoned building, or someone else’s place, and not having a place of one’s own. Based on a pilot study, we determined that approximately 90% of homeless individuals in Toronto slept at shelters, whereas 10% did not use shelters but did use meal programs.\(^{14}\) We therefore recruited 90% of our study participants at shelters and 10% at meal programs.

We contacted every homeless shelter in Toronto and obtained permission to enroll participants at 50 (89%) of 56 shelters (20 for men, 12 for women, 6 for men and women, and 12 for youths 16 to 25 years old. The number of beds at each shelter ranged from 20 to 406. Recruitment at meal programs took place at 18 sites selected at random from 62 meal programs in Toronto that served homeless people. Because the goal of recruiting at meal programs was to enroll homeless people who did not use shelters, we excluded individuals at meal programs who had used a shelter within the last 7 days.

Recruitment took place over 12 consecutive months in 2004-2005. Enrollment was stratified to achieve a male-to-female ratio of 2:1. The number of participants recruited at each site was proportionate to the number of homeless individuals served monthly. Individuals were selected at random from bed lists or meal lines using a random number generator and then screened for eligibility.
Of 1,679 individuals screened, 489 (29%) were ineligible: 222 (13%) did not meet our definition of homelessness, 61 (4%) were unable to communicate in English, 54 (3%) were homeless shelter users encountered at meal programs, and 51 (3%) were unable to give informed consent (Figure 1). Because this study was part of a larger study of homeless people’s health care utilization, 101 individuals (6%) were excluded because they did not have an Ontario health insurance number, which was required to allow tracking of health care use subsequent to the recruitment interview. Most of these 101 individuals were refugees, refugee claimants, or recent migrants to Ontario. Of 1,190 eligible individuals, 283 declined to participate and 907 (76% of those eligible) were enrolled in the study. Information on traumatic brain injury was obtained for 904 individuals. All participants provided written informed consent. Participants received $15 for completing the survey. This study was approved by the St. Michael’s Hospital Research Ethics Board.

Previous studies have shown that homeless parents with dependent children differ substantially from single homeless persons. Homeless parents have lower rates of mental illness and substance abuse and are more likely to have become homeless for purely economic reasons.15,16 Because of these differences, homeless parents with dependent children who were screened or enrolled in this study are not considered in this report.

Survey instrument

Information was obtained on demographic characteristics and health conditions. Data on race/ethnicity were collected because previous studies have demonstrated racial disparities in rates of traumatic brain injury.1 Race/ethnicity was self-identified, with participants selecting from categories adapted from the Statistics Canada Ethnic Diversity Survey.17 The most commonly selected categories were white, black, and First Nations. All other categories were classified as other race/ethnicity.
Mental health problems, alcohol problems, and drug problems in the last 30 days were assessed using the Addiction Severity Index.\textsuperscript{18,19} The Addiction Severity Index has been validated in homeless individuals and has been used in numerous studies, including a nationwide survey of homeless individuals in the United States.\textsuperscript{20,21,22,23} Problems were dichotomized as present or absent using cut-off scores established for homeless populations.\textsuperscript{24} Participants were classified as having mental health problems if their Addiction Severity Index mental health score was $\geq 0.25$, as having alcohol problems if their Addiction Severity Index alcohol score was $\geq 0.17$, and as having drug problems if their Addiction Severity Index drug score was $\geq 0.10$.\textsuperscript{24} The SF-12, a health status instrument that has been validated in homeless populations,\textsuperscript{25} was used to generate physical component and mental component subscale scores.\textsuperscript{26} These scores range continuously from 0 to 100 (best), standardized to a mean of 50 and standard deviation of 10 in the U.S. general population.\textsuperscript{26}

History of traumatic brain injury was ascertained using questions from a study of prison inmates.\textsuperscript{27} Lifetime prevalence of traumatic brain injury was determined using the question “Have you ever had an injury to the head which knocked you out or at least left you dazed, confused, or disoriented?” Participants were asked how many such injuries they had over their lifetime. For the first injury and up to two subsequent injuries, we obtained the date or age at injury, whether the injury resulted in unconsciousness, and duration of unconsciousness. The age at which the participant first experienced homelessness was determined much earlier in the interview; this information was used to determine the temporal relationship between the first traumatic brain injury and the onset of homelessness. Mild traumatic brain injury was defined as a head injury that left the person dazed, confused, or disoriented, but resulted in no unconsciousness or unconsciousness $\leq 30$ minutes. Moderate/severe traumatic brain injury was defined as head injury resulting in unconsciousness $>30$ minutes. These definitions are consistent with standardized consensus criteria.\textsuperscript{28}
**Statistical analyses**

We compared the characteristics of individuals with and without history of traumatic brain injury using chi-square and t-tests. Regression models were developed to determine if history of traumatic brain injury was associated with health conditions and health status indicators, after adjustment for sex, age, race/ethnicity, place of birth, education, and lifetime years of homelessness. Generalized estimating equations (Proc Genmod for binary outcomes and Proc Mixed for continuous outcomes, SAS Institute, Cary, NC) were used to account for possible clustering of the sample within shelters or meal programs. History of traumatic brain injury was entered into models as a categorical variable representing the severity of the worst traumatic brain injury ever experienced (none, mild/unknown, or moderate/severe). In secondary analyses, both severity of worst traumatic brain injury and lifetime number of traumatic brain injuries were entered into models. Prior to analyses, independent variables were assessed for multi-collinearity, and no problems were detected. Analyses were conducted with unweighted data.

**RESULTS**

Characteristics of study participants are shown in Table 1. The lifetime prevalence of traumatic brain injury was 53% with significantly higher rates among men than women (58% vs. 42%, \( p < 0.0001 \)). Those with a history of traumatic brain injury were more likely to be male, white, and born in Canada; to have become homeless for the first time at a younger age; and to have experienced more years of homelessness over their lifetime. Individuals with a history of traumatic brain injury had a significantly higher lifetime prevalence of seizures; higher prevalence of mental health problems, alcohol problems, and drug problems; and poorer mental and physical health status as measured by the SF-12 (Table 1).
The mean age at first traumatic brain injury was 17.8 years. While 40% of participants with traumatic brain injuries reported only one such injury, 21% reported two injuries, 12% reported three injuries, 7% reported four injuries, and 20% reported five or more. The severity of the worst traumatic brain injury was mild in 66%, moderate/severe in 23%, and unknown in 11%. In all analyses involving traumatic brain injury severity, injuries of unknown severity were grouped together with mild injuries. Analyses in which injuries of unknown severity were considered a separate category yielded essentially identical results.

The temporal relationship between first traumatic brain injury and first episode of homelessness is shown in Figure 2. The first traumatic brain injury occurred before the onset of homelessness in 70%, in the same year as the onset of homelessness in 7%, and after the onset of homelessness in 22%. The relationship between first traumatic brain injury and first episode of homelessness could not be determined for 2% of participants.

The findings from multivariate models examining the association between traumatic brain injury and health problems in all 904 participants are shown in Table 2. In models adjusted for sex, age, race/ethnicity, place of birth, education, and lifetime years of homelessness, history of traumatic brain injury was significantly associated with seizures, mental health and drug problems, and poorer physical and mental health status. In additional models that included both the severity of the worst traumatic brain injury and the total lifetime number of traumatic brain injury as covariates, a higher number of traumatic brain injury was associated with significantly increased odds of seizures and mental health, alcohol, and drug problems.
INTERPRETATION

This study documents a high prevalence of traumatic brain injury in a representative sample of homeless people. A history of traumatic brain injury was more common among homeless men than homeless women (58% and 42%, respectively). These rates are five or more times greater than the 8.5% lifetime prevalence rate of traumatic brain injury in the U.S. general population,29 and within the range reported in studies of traumatic brain injury among prison inmates.27,30,31

Only two previous studies have reported the prevalence of traumatic brain injury among individuals experiencing homelessness. In a study of 80 consecutive entrants to a men’s shelter in London, England, 46% had a lifetime history of head injury severe enough to cause unconsciousness.10 A study of 90 homeless men at a shelter in Milwaukee, Wisconsin, found that 80% of participants had possible cognitive impairment and 48% had a history of traumatic brain injury involving loss of consciousness.11 In both studies, the sample size was small, and participants were recruited at a single shelter rather than at a broad range of shelters across an entire city, and homeless women and homeless people who did not use shelters were excluded.

Data from the US have demonstrated higher rates of traumatic brain injury among African-Americans.1 In contrast, our study found a significantly lower prevalence of traumatic brain injury among homeless people who were black compared to those who were white (30% vs. 59%, respectively). This difference is possibly explained by the fact that traumatic brain injury was much less common among immigrants than Canadian-born individuals. In our study, 69% of participants who were black were immigrants to Canada.

Among homeless individuals, the first experience of traumatic brain injury often occurred at a young age and usually antedated the person’s first episode of homelessness. This finding suggests the
hypothesis that in some cases traumatic brain injury may be a causal factor contributing to the onset of homelessness, possibly through cognitive or behavioral sequelae of traumatic brain injury. Future research could explore this unconfirmed hypothesis.

History of traumatic brain injury was strongly associated with a wide array of adverse health outcomes among homeless individuals, including seizures, mental health problems, drug problems, and poorer physical and mental health status. A history of moderate/severe traumatic brain injury had particularly strong associations with both the presence of mental health problems within the past 30 days (odds ratio 2.5; 95% CI 1.5, 4.1) and poorer mental health status (−8.3 points on the SF-12 mental component subscale, where 10 points equals 1 standard deviation in the general population). Our cross-sectional study is unable to ascertain the causal pathways responsible for these associations. Although the cognitive sequelae of traumatic brain injury may increase the risk of subsequent mental health and drug problems, it is equally plausible that pre-existing mental health, alcohol, and drug problems increase the risk of experiencing traumatic brain injury. Likewise, homelessness could be both a contributing cause and/or consequence of traumatic brain injury. Clarification of these issues would require data from a prospective longitudinal study of individuals with traumatic brain injury.

Our study has a number of important strengths. We enrolled a large representative sample of both homeless men and women in a major North American city, including shelter users and non-shelter users. Rigorous methods were employed to select participants randomly at each site. We achieved a high response rate, with 76% of eligible individuals successfully recruited. History of traumatic brain injury was assessed using a series of questions from a previously validated survey of prison inmates.27 Certain limitations of this study should be noted. We did not enroll a control group of non-homeless individuals. Our findings may not reflect rates of traumatic brain injury among homeless
parents with dependent children or homeless persons who use neither shelters nor meal programs. The requirement that study participants have an Ontario health insurance number resulted primarily in the exclusion of refugees and refugee claimants, whose history of traumatic brain injury may be different from that of other homeless individuals. Information was not collected on the mechanism or circumstances of traumatic brain injury. Prevalence and severity of traumatic brain injury, as well as age at the time of traumatic brain injury, were ascertained through self reports that are subject to recall errors. Confirmation of these self-reports through the review of health records was beyond the scope of our study. Recently, the Traumatic Brain Injury Questionnaire (TBIQ) has been described as a promising interview-based instrument to assess history of traumatic brain injury in incarcerated adults.\textsuperscript{33} Future studies of homeless individuals should consider using this instrument. Finally, participants did not undergo formal testing for neuro-psychological dysfunction that may have resulted from brain injuries.

Our study’s findings underscore the need for clinicians to routinely ask patients who are homeless about a history of traumatic brain injury. Given the apparent dose-response relationship between injury severity and current health (Table 2), clinicians should assess injury severity based on information such as self-reported duration of unconsciousness, hospitalization subsequent to the injury, collateral history, and medical records. For persons with a history of traumatic brain injury, brief neuropsychological screening can provide valuable information on cognitive function. Individuals with moderate or severe cognitive impairment may be eligible for disability benefits. Referral to rehabilitaton and other appropriate community services should be considered, as recent studies have shown that a range of rehabilitation interventions improve community integration and other outcomes in traumatic brain injury survivors.\textsuperscript{34} Moreover, appropriate living environments are fundamental to community integration and are particularly important for persons with more severe injuries.\textsuperscript{35} Treatment of concurrent alcohol or substance abuse should also be considered.
Future research should expand upon these findings by using medical records to confirm self-reported traumatic brain injury among homeless individuals and by correlating history of traumatic brain injury with objectively assessed cognitive function. Cohort studies would be helpful in clarifying the causal pathways that account for the high prevalence of traumatic brain injury among homeless individuals. Finally, research should examine the possible benefits of appropriate supportive living environments for homeless individuals with moderate cognitive dysfunction due to traumatic brain injury.
Contributors: All of the authors contributed to the study concept and design. Stephen Hwang and Shirley Chiu acquired the data. Stephen Hwang, Shirley Chiu, Angela Colantonio, Alex Kiss, Donald Redelmeier and Wendy Levinson contributed to the analysis and interpretation of the data. Alex Kiss, Stephen Hwang and Shirley Chiu performed the statistical analyses. Stephen Hwang and Shirley Chiu drafted the manuscript and all of the authors critically revised it for important intellectual content. Stephen Hwang, Angela Colantonio, George Tolomiczenko, Donald Redelmeier and Wendy Levinson obtained funding for the study.

Acknowledgments: This project was supported by operating grants from the Agency for Healthcare Research and Quality (1 R01 HS014129-01) and the Canadian Institutes of Health Research (MOP-62736), and by an Interdisciplinary Capacity Enhancement grant on Homelessness, Housing, and Health from the Canadian Institutes of Health Research (HOA-80066). The project was also supported by a grant from the Ontario Neurotrauma Foundation and the Toronto Rehabilitation Institute Foundation. The Centre for Research on Inner City Health, the Toronto Rehabilitation Institute, and the Institute for Clinical Evaluative Sciences gratefully acknowledge the support of the Ontario Ministry of Health and Long-Term Care. Dr. Hwang is the recipient of a New Investigator Award from the Canadian Institutes of Health Research. Dr. Redelmeier is supported by the Canada Research Chair in Medical Decision Sciences. The authors thank Marko Katic, Department of Research Design and Biostatistics, Sunnybrook Health Sciences Centre, for expert programming and analyses. We are grateful for collaboration with the Institute for Clinical Evaluative Sciences. The views expressed in this publication are the views of the authors and do not necessarily reflect the views of the Ontario Ministry of Health and Long-Term Care or any of the other above named organizations.
**TABLE 1: Characteristics of study participants.** Data are given as numbers (%), unless otherwise specified.

<table>
<thead>
<tr>
<th></th>
<th>All participants (n = 904)</th>
<th>With TBI (n = 475)</th>
<th>Without TBI (n = 429)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD)</td>
<td>37.4 (12.9)</td>
<td>37.6 (11.9)</td>
<td>37.1 (13.9)</td>
<td>0.59</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Male</td>
<td>601 (67)</td>
<td>348 (73)</td>
<td>253 (59)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>303 (34)</td>
<td>127 (27)</td>
<td>176 (41)</td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity*</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>White</td>
<td>547 (61)</td>
<td>322 (68)</td>
<td>225 (52)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>166 (18)</td>
<td>49 (10)</td>
<td>117 (27)</td>
<td></td>
</tr>
<tr>
<td>First Nations</td>
<td>89 (10)</td>
<td>54 (11)</td>
<td>35 (8)</td>
<td></td>
</tr>
<tr>
<td>Other race/ethnicity</td>
<td>102 (11)</td>
<td>50 (10)</td>
<td>52 (12)</td>
<td></td>
</tr>
<tr>
<td>Place of birth</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Canada</td>
<td>663 (73)</td>
<td>390 (82)</td>
<td>273 (64)</td>
<td></td>
</tr>
<tr>
<td>Outside of Canada</td>
<td>241 (27)</td>
<td>85 (18)</td>
<td>156 (36)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td>0.70</td>
</tr>
<tr>
<td>Some high school or less</td>
<td>476 (53)</td>
<td>252 (53)</td>
<td>224 (52)</td>
<td></td>
</tr>
<tr>
<td>High school or equiv.</td>
<td>187 (21)</td>
<td>93 (20)</td>
<td>94 (22)</td>
<td></td>
</tr>
<tr>
<td>Vocational training/college or above</td>
<td>239 (27)</td>
<td>128 (27)</td>
<td>111 (26)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td>0.48</td>
</tr>
<tr>
<td>Single/never married</td>
<td>611 (68)</td>
<td>322 (68)</td>
<td>289 (67)</td>
<td></td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>221 (25)</td>
<td>111 (23)</td>
<td>110 (26)</td>
<td></td>
</tr>
<tr>
<td>Married/partnered</td>
<td>53 (6)</td>
<td>29 (6)</td>
<td>24 (6)</td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>19 (2)</td>
<td>13 (3)</td>
<td>6 (1)</td>
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</tbody>
</table>
TABLE 1: Characteristics of study participants. (continued)

<table>
<thead>
<tr>
<th></th>
<th>All participants (n = 904)</th>
<th>With TBI (n = 475)</th>
<th>Without TBI (n = 429)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at first episode of homelessness, mean (SD)</td>
<td>28.5 (13.8)</td>
<td>27.5 (13.3)</td>
<td>29.6 (14.2)</td>
<td>0.02</td>
</tr>
<tr>
<td>Lifetime years of homelessness, mean (SD)</td>
<td>4.4 (5.9)</td>
<td>4.9 (6.3)</td>
<td>3.8 (5.4)</td>
<td>0.006</td>
</tr>
<tr>
<td>Seizures (ever experienced in lifetime)</td>
<td>139 (15)</td>
<td>103 (22)</td>
<td>36 (8)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Mental health problems (present within the last 30 days)</td>
<td>344 (38)</td>
<td>204 (43)</td>
<td>140 (33)</td>
<td>0.001</td>
</tr>
<tr>
<td>Alcohol problems (present within the last 30 days)</td>
<td>322 (36)</td>
<td>201 (42)</td>
<td>121 (28)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Drug problems (present within the last 30 days)</td>
<td>442 (49)</td>
<td>269 (57)</td>
<td>173 (40)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>SF-12 Mental component subscale, mean (SD)</td>
<td>41.3 (13.2)</td>
<td>39.0 (12.7)</td>
<td>43.8 (13.2)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>SF-12 Physical component subscale, mean (SD)</td>
<td>45.9 (11.1)</td>
<td>43.9 (11.4)</td>
<td>48.1 (10.3)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

*Race/ethnicity was self-identified.
TABLE 2: Associations between history of TBI and current health status indicators in multivariate models adjusted for sex, age, race/ethnicity, place of birth, education, and lifetime years of homelessness.

<table>
<thead>
<tr>
<th>Health status indicator</th>
<th>Seizures (ever experienced in lifetime)</th>
<th>Mental Health Problems (present within the past 30 days)</th>
<th>Alcohol Problems (present within the past 30 days)</th>
<th>Drug Problems (present within the past 30 days)</th>
<th>SF-12 Mental Component</th>
<th>SF-12 Physical Component</th>
<th>Difference (95% CI)</th>
<th>Difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No TBI #</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild/unknown severity TBI</td>
<td>2.5 (1.5, 4.2)</td>
<td>1.3 (1.0, 1.8)</td>
<td>1.4 (1.0, 2.0)</td>
<td>1.8 (1.3, 2.5)</td>
<td>-4.7 (-6.6, -2.8)</td>
<td>-3.9 (-5.5, -2.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate/severe TBI</td>
<td>3.2 (1.8, 5.6)</td>
<td>2.5 (1.5, 4.1)</td>
<td>1.6 (1.0, 2.7)</td>
<td>1.6 (1.1, 2.5)</td>
<td>-8.3 (-11.1, -5.5)</td>
<td>-6.0 (-8.3, -3.7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# Reference group
Figure 1: Flow diagram of participant recruitment.

- Screened for eligibility (n=1679)

  - Currently homeless (n=1457)
  - Not currently homeless (n=222)

    - Able to communicate in English (n=1396)
    - Not able to communicate in English (n=61)

      - Eligible shelter users and meal program users (n=1342)
      - Meal program users excluded due to recent shelter use* (n=54)

        - Capable of informed consent (n=1291)
        - Incapable of informed consent (n=51)

          - Had an Ontario health insurance number (n=1190)
          - No Ontario health insurance number (n=101)

            - Consented to participate and enrolled in study (n=907)
            - Declined to participate (n=283)

              - Study participants with data on TBI (n=904)
              - Data on TBI not obtained (n=3)

* See Methods section for details.
Figure 2. Occurrence of first TBI in relation to first episode of homelessness

Years before first episode of homelessness

Years after first episode of homelessness

Number of individuals.
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