

Article details: 2013-0046	
Title	Traumatic brain injury amongst men who are homeless: Rates and mechanisms of injury
Authors	Jane Topolovec-Vranic, Naomi Ennis, Mackenzie Howatt, Donna Ouchterlony, Alicja Michalak, Cheryl Masanic, Angela Colantonio, Stephen Hwang, Pia Kontos, Vicky Stergiopoulos, Michael Cusimano
Reviewer 1	Giancarlo Logroscino
Institution	Harvard School of Public Health, Epidemiology
General comments	No comments.
Reviewer 2	Lawrence W. Svenson
Institution	Alberta Health and Wellness, Surveillance & Environmental Health
General comments	<p>The authors have put together a well-written and interesting paper on the prevalence of TBI among homeless individuals residing in shelters. The introduction highlights the key literature and has a clear purpose statement.</p> <p>The authors may want to address in the discussion the comment made on pages 7 and 8 of the manuscript about where subjects were excluded based on the mental health assessment of shelter staff. It would be worth mentioning that this could introduce a bias.</p> <p>There is a lack of a non-homeless control group. The purpose is clear that the study aimed to assess the prevalence of TBI making a control group technically unnecessary, the authors should consider adding literature references to the discussion that speak to the lower prevalence in non-homeless individuals. The last paragraph of the paper suggests a role for TBI as a factor contributing to the likelihood of becoming homeless. While this may be the case, the study was not designed to test this. Without a strong sense for the temporal relationships, the authors may want to be cautious in their interpretations and make a suggestion that future research on the temporal relationships and other factors would be valuable.</p> <p>Knowing that homeless individuals have a higher prevalence of TBI is important, but it would have been stronger to know how many people with TBI become homeless. Thus the above common on the need for references to the prevalence of TBI in the non-homeless population.</p>
Reviewer 3	Lyndal Bugeja
Institution	Monash University, Accident Research Centre
General comments	<p>This is an interesting paper on an important area of public health with some application to improvements to health outcomes for this vulnerable group. It could be strengthened with the inclusion of some further explanation of the selection criteria and discussion of the presence and impact of some limitations on the study findings.</p> <p>Major Comments:</p> <p>Page 7, line 55 - It is unclear what "non-communicative" is defined as. This could include persons with an intellectual disability or injury and it would be of interest to readers to understand how this was defined, determined and by whom.</p> <p>Page 8, line 3 - It would be of interest to know what information shelter staff relied on to determine that a client be excluded from the study based on mental illness. Was this on this basis of a clinical diagnosis assigned by a suitably qualified health professional? If so, were clients excluded if they were diagnosed with any mental illness or only particular mental illnesses? It would be of interest to the readers to know this as it would not be unreasonable to expect that some of these clients may experience illnesses such as mood disorders. Also does this exclusion criteria only refer to a diagnosis of mental illness at the time of recruitment? Later in the paper, "history of mental illness" is described as part of the personal health history collected. As it is currently described, this creates confusion and needs to be clarified.</p> <p>Page 8, line 30 - The self-report survey is described as "created", can you include whether this survey was piloted and validated.</p> <p>Page 8, line 30 - Appreciate that information pertaining to history of mental illness and family history of substance abuse is important and of interest to collect, however there is no discussion in the limitations section of this paper that considers the accuracy or reliability of this information. At the very least it should be acknowledged that clients' recall of this information may be unreliable or unknown. Particularly family history of substance abuse, it may be that this was present but they did not have a sufficient understanding of the definition of substance abuse nor the ability to apply that</p>

	<p>information to their own historical circumstances.</p> <p>Page 9, line 11 – Did the authors consider using ICD-10 external cause codes to group injury types? There are a number of unintentional transport-related categories in this group that could be usefully reclassified i.e. MVC – vehicle occupant, MVC – pedestrian, MVC – cyclist. Similarly fall – same level, fall – from one level to another.</p> <p>Page 9, line 55 – How can people estimate duration of loss of consciousness if they are unconscious?</p> <p>Minor Comments:</p> <p>Page 9, line 34 – The word “of” appears to be missing between the words “numbers” and “blows”.</p> <p>Page 12, line 20 – Should the word “for” be “of”?</p> <p>Page 13, line 41 – Type in this sentence.</p>
Reviewer 4	TH Lu
Institution	National Cheng Kung University, Department of Public Health
General Comments	<p>This study used Brain Injury Screening Questionnaire (BISQ) to determine the rate, mechanism and associated outcomes of traumatic brain injury (TBI) sheltered homeless men. Followings are some suggestions for authors.</p> <ol style="list-style-type: none"> 1. It's better for authors to provide general background information on homeless situations and shelter systems in Canada in introduction or in the first part of the methods section. 2. One of the goals of this study is to determine the prevalence of TBI among homeless men in Canada, can the authors provide a table contrasting the prevalence of TBI estimated in previous studies versus those according to BISQ in this study. 3. Can the authors use both traditional measure of TBI previous studies used and the BISQ on the studied sample in this study, which could provide us more information on possible components of discrepancies between those according to traditional one versus those according to BISQ. 4. Can the authors provide rate (instead of proportions) of TBI by three different shelter programs? Please also add some discussions on rates differences by shelter programs and the implications. 5. It's not a suitable comparison of mechanisms between homeless men with general Canadian population. I prefer to see the distribution of mechanism by age and compare to the reference group of similar sex and age.
Author response	<p>Editors' Comments to the Author:</p> <p>Introduction:</p> <ol style="list-style-type: none"> 1. As suggested by Dr. Svenson, please provide some estimate of the rate of TBI in the general population. <p>We have replaced the sentence “Homeless men have rates of head injury substantially higher than those in the general population of Canada” (original page 6, lines 40-42) with the requested additional information as follows:</p> <p>“While accurate estimates of the lifetime history (prevalence) of TBI amongst the general population are scarce, making it difficult to compare rates of TBI among homeless to those in the community, two community cohort studies have suggested prevalence rates of 3.8% (experienced at least one hospitalization for TBI by age 35; Northern Finland birth cohort)²⁰ and 31.6% (experienced a TBI for which they received medical care; Christchurch, New Zealand birth cohort) ²¹. These data suggest that the reported rates of TBI may be higher amongst people who are homeless than the general community. In a recent study, homeless men were estimated to have rates of head injury that are 14 and 400 (those who are chronically homeless with drinking problems) times higher than those in the general population of Canada²². However, it is important to note that different methods and criteria have been used to screen for and quantify rates of TBI in both the general and homeless populations which may be factors in the range of TBI rates reported.”</p> <p>Methods:</p> <ol style="list-style-type: none"> 2. You have described your study as using a cross-sectional survey design. The editors would argue that you have, in fact, assembled a cohort of individuals, sampling from three settings (shelter, hostel, and harm reduction program). Please clarify. Please include the study type in the title of the paper. <p>The authors have discussed this point and feel that this isn't necessarily a “cohort study” which would imply that we are following the group over time. However, we do agree that we have three cohorts of individuals who were sampled using an observational design. Thus, we have revised the first sentence of the Methods section (page 8) to the following:</p>

"An observational study of three cohorts of men from a single large, urban men's homeless shelter was conducted. The cohorts included men from 1) the hostel program, 2) the harm reduction program, and 3) the long-term care program."

We have also changed the study title to:

"Traumatic brain injury amongst three cohorts of men in an urban homeless shelter: An observational study of the rates and mechanisms of injury".

3. Please elaborate on the rationale for sampling from three settings (shelter, hostel, and harm reduction program). How many participants were you aiming for from each setting?

We originally aimed to recruit all of the men in the harm reduction program as they less frequently leave the shelter during the day as compared to the other programs, and there is less turn-over of men in this unit. Given our success in recruitment and eventual saturation of the sample we moved to the long-term care unit where nearly half of the residents were approached for participation in the study. We then moved on to the hostel program. However, it became quickly apparent that the hostel group was quite different in terms of demographic characteristics and preliminary results from the study, and that a further, separate study just focusing on this group should be conducted in the future, as this was beyond the personnel, time and financial resources available for our study.

4. Please provide more details around the exclusion criteria for your study (please see reviewer comments.)

This is addressed below in the response to the reviewers' comments below.

5. You note that participants were recruited over an eight month period. Please provide a date range as well.

The date range (August 2011-April 2012) has been added in the methods section (page 9).

6. BISQ does not appear to be validated. Please be clear as to why you chose to use an unvalidated tool for this study. If it has been validated, please include an appropriate reference.

The BISQ has been validated with individuals with TBI although not in the homeless shelter setting. We selected the BISQ for its comprehensiveness. There is no currently available gold-standard screening measure for TBI, other than neuroimaging, which itself may not capture milder or more subtle injuries. We have added the following sentences in the Methods section (page 11):

"The BISQ has been validated with 75 community-dwelling adults with mild to severe TBI³² and has been used with children³³, individuals accessing substance abuse services³⁴ and collegiate athletes³⁵. However, it has yet to be validated in a homeless shelter setting."

Moreover, the following has been added to the Strengths and Limitations section (page 15):

"In choosing the BISQ as the TBI screening measure, we opted for a tool that is comprehensive and thorough. We recognize that the validity of this measure is still being determined in different populations; however, in the absence of an established gold-standard in the literature, this measure was selected. The literature and evidence for TBI screening tools is an emerging area of research, with other screening tools for TBI such as the Ohio State University TBI screening measure⁴⁴, Traumatic Brain Injury Questionnaire⁴⁵ and Brief Traumatic Brain Injury Screen⁴⁶ also still undergoing validation testing."

Results:

7. Please elaborate on the results of the survey, especially given the complex nature of the BISQ survey:

- a. Response rate
- b. Completion rate

c. Average length of time to complete

The following information has been added to the Results section, under "Participants" (pages 12-13) to address points 7a-c:

"Of 133 men approached to participate in the study, 120 (90%) consented to do so. Only one participant did not complete the entire study protocol due to low engagement and difficulty with English words. Data from 9 participants were excluded post-hoc due to concerns on behalf of the research team regarding the participant's capacity to consent to the research or provide reliable data (e.g. were clearly intoxicated or delusional during the interview). On average, interviews took 52.7 minutes (SD = 21.3 minutes) to complete, and 36 (32.4%) of the participants required breaks. The breaks lasted 11.8 minutes (SD = 13.8) on average. Only six participants took more than one break (5.4%) break."

d. Number of participants from each of the three settings

The following sentence has been added to the Results section, under "Participants" (page 13):

"The final study sample consisted of 111 men (n=41, harm reduction program; n=50, long-term care program; n=20 hostel program)."

8. As suggested by Dr. Logroschino, please include an age-stratified analysis.

As suggested, we have analyzed the data for those with a positive screen for TBI according to the following age categories which are in line with several reference reports (CDC, 2002; CIHI 2006; Colantonio et al., 2010): <40 years; 40-59 years; ≥60 years. The mechanisms of injury have been stratified according to these categories and the new Table 2 (old Table 1) and Figure 2 have been revised accordingly.

The following sentence has been added to the Methods, Statistics section (page 12):

"As an additional analysis, age was categorized into three groups as per previous reports: <40 years, 40-60 years, ≥60 years^{28,29,35}."

The following information has been added to the Results, Rates and Characteristics of TBI section:

"There were no differences in rates of TBI by age overall or by age group." (page 13)

"Assaults (including physical abuse and mugging; 66%), sports and recreation (44%), motor vehicle collisions (42%), and/or falls (42%) were the most commonly reported mechanisms. However, these rates varied by age group with drug/alcohol blackout being the most common mechanism of TBI for those under the age of 40 years, and assault being the most common mechanism for those over 40 years of age (Figure 2)." (page 14)

We have expanded the Implications, Main Findings section (pages 14-15) as follows:

" Our study used a validated screening tool for TBI to determine the rates and mechanisms of injury in three groups of men attending an urban homeless shelter. Our findings demonstrate that assault was a leading contributor of TBI and that drug/alcohol blackouts were reported by most of the participants in the <40 years of age category. Based on data from the Ontario Trauma Registry from 1993-2001, 91% of persons who sustained a TBI that was inflicted by others (i.e. assault) were male, with the highest proportion (28.0%) of other-inflicted TBIs found in the 25-34 years of age group³⁷.

Other common mechanisms of injury were comparable with those observed in the general population. In Canada the leading mechanisms of TBI were motor vehicle related for those aged <60 years and falls for those who were ≥60 years of age, with assaults reported as the mechanism at a significantly less rate than reported in our study³⁰. Data from Ontario of over 55,000 hospitalizations of men with TBI indicated that falls, being struck by or against an object, motor vehicle collisions and sport related injuries were the most common mechanisms of TBI, with only 14% reported as "intentional" injuries³⁸. Aside from assaults, the similarity in mechanism of injury between the general and homeless populations is particularly notable given that, for a majority of homeless individuals, TBI has been shown to precede the onset of

homelessness and often occurs before adulthood^{39,40}.”

9. As you have collected data from three settings, are you able to conduct sub-analyses by group (shelter, hostel, and harm reduction program)?

We have added a new table, now Table 1, with the characteristics of the study participants presented according to shelter group (harm reduction, long-term care, hostel). The previous Table 1, which presents the data according to TBI screen is now Table 2.

We have added the following paragraph to the Results Section (pages 13):

“The final study sample consisted of 111 men (n=41, harm reduction program; n=50, long-term care program; n=20 hostel program). There were significant differences in age, history of arrests, lifetime history of substance abuse, and lifetime history of seizures between participants from the three programs (Table 1).”

The next paragraph was also revised to read:

“Nearly half (45%) of the participants screened positive for a TBI according to the BISQ with significantly different rates between the three programs, ranging from 30% in the long-term care to 65% in the hostel programs (Table 1).”

10. As suggested by Dr. Lu, are you able to use both the traditional measure of TBI (from previous studies) in addition to the BISQ?

Please refer to our response to item #6 above.

Interpretation:

11. Please structure the Interpretation section (discussion) into the following 4 main headings (i.e. insert the headings themselves): “Main findings” (discussing implications, not a repetition of results), “Comparison with other studies”, “Limitations”, and “Conclusions” (including implications for practice and future research).

This has been done.

12. Please avoid claims of precedence. One such claim is made in the first line of the Interpretation section (“Our study is the first to use a validated screening tool...”).

The sentence “Our study is the first to use a validated screening tool...” (original version, page 11, line 37) has been changed to:

“Our study used a validated screening tool ...”

Also, the sentence “This is the first study to use a...” (original version, page 11, line 37) has been changed to:

“A strength of our study lies in the use a validated...”

13. The BISQ does not appear to have been validated. Please clarify in the Methods section and comment on the implications in the Limitations subsection of the interpretation.

Please refer to our response to item #6 above.

14. You note a response rate of 90%. This should be presented in the Results section.

This has been added to the Results section, under “Participants” (page 12) and has been removed from the interpretation.

15. Please comment on the generalizability of your findings. For example, might homeless men who access shelters have different rates of TBI from those who choose not to?

We have revised a sentence from the “Strengths and Limitations” section of the paper (original version, page 13, lines 39-46) to now read as follows:

“Only homeless men residing in a single shelter were included which may limit the

study's generalizability as there may be important differences in prevalence and characteristics of TBI among various groups of homeless people (e.g. women, youth, families, those who live on the streets, and 'couch surfers')."

16. As noted by Dr. Bugeja, the results presented in Table 2 may be subject to recall bias. Please comment on this in the Limitations subsection.

The following sentences have been added to the "Strengths and Limitations" section of the paper to address Dr. Bugeja's comments #4 and #6:

"It is important to note that the data collected in this study was obtained through self-report and may be subject to recall bias. For example, individuals who sustain a TBI may learn of the duration of their loss of consciousness through witness reports or hospital records. Often though individuals will estimate their duration of loss of consciousness and it is likely that they will have over-estimated it as periods of anterograde and/or retrograde amnesia may have accompanied the event, which to the individual would have felt like a period of loss of consciousness. With the self-report method, there is also the possibility of social desirability bias which may have led to under-reporting of sensitive histories such as those related to personal and/or family substance use or mental health."

17. In the Conclusion subsection, please be briefer in the paragraph around the uses of qualitative research in TBI.

We have removed the last sentence regarding qualitative research in the Conclusions section.

We also ask that you tone down your conclusion around "routine screening," as such a broad recommendation is not supported by the study design.

The sentence in the Conclusions section regarding "routine screening" has been revised to read:

"Screening for TBI can perhaps provide insight into the cognitive, behavioural and mental health issues that homeless persons face and future research on the temporal relationships and other factors related to TBI and homelessness would be valuable."

We have also replaced the last sentence of the abstract with the following message:

"Additional research is needed to understand the complex interactions between homelessness, TBI, mental illness, and substance use."

Tables and Figures:

18. In Table 1, it is assumed that the denominator used in the calculation of percentages varies due to missing data. Please include a footnote to this effect.

The footnote "Percentages have been adjusted for missing data" is included with the tables.

Reviewers' Comments to Author:

Reviewer: Giancarlo Logroscino

1. It is not clear if the BISQ has ever been validated.

Please refer to our response to the Editors' comment #6 above.

2. Did the authors look if the subjects who refused to participate were different from subjects who entered into the study?

We did not as once the participant refused consent to participating in the study, data collection ceased.

3. It would be interesting to stratify the analyses by age. In the descriptive table, the authors should indicate the age range.

We have done this as suggested. Please refer to our response to the Editors' comment #8 above for further details.

4. It would also of interest to look specifically at the role of TBI in subjects without family history of psychiatric illness or substance abuse.

This is a very interesting suggestion which we will pursue in a separate manuscript as it would expand the scope and length of this paper substantially.

Reviewer: Lawrence W. Svenson

The authors have put together a well-written and interesting paper on the prevalence of TBI among homeless individuals residing in shelters. The introduction highlights the key literature and has a clear purpose statement.

Thank you.

1. The authors may want to address in the discussion the comment made on pages 7 and 8 of the manuscript about where subjects were excluded based on the mental health assessment of shelter staff. It would be worth mentioning that this could introduce a bias.

We generally aimed to be inclusive of shelter clients for the study, and men were only excluded if their mental illness and/or aggressive behaviours may have affected the reliability of their responses and/or posed a safety concern for the study staff. This only occurred with 3 of otherwise eligible men (Figure 1). This has been clarified in the exclusion criteria which now reads:

“Clients were excluded if they: 1) were unable to communicate in English; 2) had severe mental illness or aggressive behaviours that may have affected the reliability of the respondent, or posed a safety concern for the research staff, as per the shelter staff; or 3) were incapable of providing consent to participate (as deemed by their care provider or treating physician).”

2. There is a lack of a non-homeless control group. The purpose is clear that the study aimed to assess the prevalence of TBI making a control group technically unnecessary, the authors should consider adding literature references to the discussion that speak to the lower prevalence in non-homeless individuals.

We have added information about this as per our response to the Editors’ comment #1 above.

The last paragraph of the paper suggests a role for TBI as a factor contributing to the likelihood of becoming homeless. While this may be the case, the study was not designed to test this. Without a strong sense for the temporal relationships, the authors may want to be cautious in their interpretations and make a suggestion that future research on the temporal relationships and other factors would be valuable.

The wording of the last sentence has been toned down and the final sentence now reads:

“Screening for TBI can perhaps provide insight into the cognitive, behavioural and mental health issues that homeless persons face and future research on the temporal relationships and other factors related to TBI and homelessness would be valuable.”

3. Knowing that homeless individuals have a higher prevalence of TBI is important, but it would have been stronger to know how many people with TBI become homeless. Thus, the above comment on the need for references to the prevalence of TBI in the non-homeless population.

As noted, we have added information about this as per our response to the Editors’ comment #1 above. An understanding of how many people with TBI become homeless would be extremely interesting. As far as we are aware however, such information is not currently available in any literature/data.

Reviewer: Lyndal Bugeja

This is an interesting paper on an important area of public health with some application to improvements to health outcomes for this vulnerable group. It could be strengthened with the inclusion of some further explanation of the selection criteria and discussion of

the presence and impact of some limitations on the study findings.

Thank you.

Major Comments:

1. Page 7, line 55 - It is unclear what "non-communicative" is defined as. This could include persons with an intellectual disability or injury and it would be of interest to readers to understand how this was defined, determined and by whom.

Thank you for pointing this out. We actually did not have any "non-communicative" participants, but rather individuals who were not able to communicate in "English" (n=7, Figure 1). This has been clarified in the exclusion criteria as follows:

"Clients were excluded if they: 1) were unable to communicate in English;"

2. Page 8, line 3 - It would be of interest to know what information shelter staff relied on to determine that a client be excluded from the study based on mental illness. Was this on the basis of a clinical diagnosis assigned by a suitably qualified health professional? If so, were clients excluded if they were diagnosed with any mental illness or only particular mental illnesses? It would be of interest to the readers to know this as it would not be unreasonable to expect that some of these clients may experience illnesses such as mood disorders. Also, does the exclusion criterion only refer to a diagnosis of mental illness at the time of recruitment? Later in the paper, "history of mental illness" is described as part of the personal health history collected. As it is currently described, this creates confusion and needs to be clarified.

Please see our response to Dr. Svenson's comment #1 above. We generally aimed to be inclusive for the study, and men were only excluded if their mental illness and/or aggressive behaviours may have affected the reliability of their responses and/or posed a safety concern for the study staff. This only occurred with 3 of otherwise eligible men (Figure 1). This has been clarified in the exclusion criteria.

3. Page 8, line 30 - The self-report survey is described as "created", can you include whether this survey was piloted and validated.

We have revised the sentence to clarify that this was a data collection form created for the study rather than a survey. It did not undergo any particular testing or validation. The sentence (page 10) has been revised to read:

"Information was obtained on demographic characteristics, personal health history including history of mental illness, seizures and substance abuse, duration of homelessness, family history of substance abuse, legal status, and injury history were captured via self-report and documented on a data collection form created for this study and administered by the research staff."

4. Page 8, line 30 - Appreciate that information pertaining to history of mental illness and family history of substance abuse is important and of interest to collect, however there is no discussion in the limitations section of this paper that considers the accuracy or reliability of this information. At the very least it should be acknowledged that clients' recall of this information may be unreliable or unknown. Particularly family history of substance abuse, it may be that this was present but they did not have a sufficient understanding of the definition of substance abuse nor the ability to apply that information to their own historical circumstances.

We have added information about this as per our response to the Editors' comment #16 above.

5. Page 9, line 11 - Did the authors consider using ICD-10 external cause codes to group injury types? There are a number of unintentional transport-related categories in this group that could be usefully reclassified i.e. MVC - vehicle occupant, MVC - pedestrian, MVC - cyclist. Similarly fall - same level, fall - from one level to another.

Thank you for this suggestion- we had not considered this. The mechanisms of injury were captured directly as per the BISQ measurement tool and we grouped the data to be comparable to the mechanisms reported in previous publications to enable comparisons (CIHI Report, 2006; Colantonio, et al., 2010; CDC 2002). Thus, we have kept the groupings as originally presented.

6. Page 9, line 55 – How can people estimate duration of loss of consciousness if they are unconscious?

We have added information about this as per our response to the Editors' comment #16 above.

Minor Comments:

1. Page 9, line 34 – The word "of" appears to be missing between the words "numbers" and "blows".
2. Page 12, line 20 – Should the word "for" be "of"?
3. Page 13, line 41 – Type in this sentence.

These corrections have been made.

Reviewer: TH Lu

This study used Brain Injury Screening Questionnaire (BISQ) to determine the rate, mechanism and associated outcomes of traumatic brain injury (TBI) sheltered homeless men. Followings are some suggestions for authors.

1. It's better for authors to provide general background information on homeless situations and shelter systems in Canada in introduction or in the first part of the methods section.

The following data has been added to the first paragraph of the Introduction section (page 7):

"In 2011, 1,086 shelters served homeless individuals and families in Canada, with a total of 28,495 beds, of which 38% were in the province of Ontario¹. In 2011, on average 2,787 beds were occupied nightly in the Toronto shelter system alone² and the projected 2013 operating budget for these shelters was \$59.4 million³."

2. One of the goals of this study is to determine the prevalence of TBI among homeless men in Canada, can the authors provide a table contrasting the prevalence of TBI estimated in previous studies versus those according to BISQ in this study.

Although there are incidence rates of TBI available, reports of the prevalence of TBI in the general community are rare. We have added information about this as per our response to the Editors' comment #1 above.

3. Can the authors use both traditional measure of TBI previous studies used and the BISQ on the studied sample in this study, which could provide us more information on possible components of discrepancies between those according to traditional one versus those according to BISQ?

We have added information about this as per our response to the Editors' comment #6 above.

4. Can the authors provide rate (instead of proportions) of TBI by three different shelter programs? Please also add some discussions on rates differences by shelter programs and the implications.

We have added information about this as per our response to the Editors' comment #9 above.

5. It's not a suitable comparison of mechanisms between homeless men with general Canadian population. I prefer to see the distribution of mechanism by age and compare to the reference group of similar sex and age.

We have added information about this as per our response to the Editors' comment #8 above. It is important to note, however, that we did not collect the age of the participants at the time of injury/injuries. Surveillance data typically include the mechanism of injury at the time of injury which we would use for comparison data. Mechanisms of injury vary dramatically in the general population by age group. For example, falls are the leading cause of TBI in children and youth as well as older adults whereas motor vehicle collisions are the leading cause among young adults. Injuries are often categorized by intentionality and assaults are the leading cause of intentional injury. Available Canadian data show that assaults as a mechanism of injury peak in

	young adulthood and is predominantly seen among males. Our data however show that the rate of assault as a mechanism of injury is overwhelmingly higher than the highest rates overall among young males in the general community.
--	--