



## The Prevalence of Traumatic Brain Injury in the Homeless Community in a UK City

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This study, the first in the UK to consider the possible link between brain injury and homelessness, shows that homeless people are more than twice as likely to have suffered a traumatic brain injury (TBI) as someone in the wider population. Most of the homeless people interviewed had received their first injury before they became homeless, revealing a possible causal link between TBI and homelessness.

### Research findings

The aim of the study was to investigate the prevalence of TBI in a sample of homeless people and to compare the results to the prevalence of TBI among a control group of non-homeless people in the same city. This was the first such study carried out in the UK.

### Results showed that:

- almost half (48%) of the homeless participants reported a history of traumatic brain injury compared to just 21% in the control group
- of the homeless participants, most (90%) indicated that they had sustained their first traumatic brain injury before they became homeless
- the mean age at first injury was 19.9 years, indicating that for many people their first TBI was sustained at a young age
- over half (60%) of the homeless participants with a history of TBI said that they had experienced more than one traumatic brain injury, compared to 24% of the control group

These findings suggest that rates of traumatic brain injury are much higher among homeless people than in the general population and that sustaining a traumatic brain injury may be a risk factor for homelessness.

The cognitive deficits resulting from the first injury alongside the risk of trauma associated with a homeless lifestyle increase the likelihood of sustaining further TBIs.

In this study, participants reporting more than one injury were not asked whether subsequent injuries occurred before or after they became homeless.

This timeline merits further investigation, as does a comparison of self-reported brain injuries with medical records. A further Foundation study is underway to address these issues.



### Background to the study

There is mounting evidence to suggest that there are significantly higher rates of cognitive impairments among homeless people than in the general population. Spence et al (2004)<sup>1</sup> reviewed 18 studies covering 3,300 homeless individuals in total and found that “most studies indicate a considerable burden of cognitive dysfunction among homeless people.”

Traumatic brain injury has been suggested as a possible cause for these high rates of cognitive impairment. TBI affects everyone differently, but people may have difficulty planning and organising, problems with learning new information and concentrating, as well as impaired memory.

While research concerning the prevalence of TBI among the homeless population is limited, the research which has been conducted indicates that the incidence of TBI may be high in comparison with the general population.

Only one study has been carried out which looked specifically at the prevalence of TBI among homeless individuals. Hwang et al (2008)<sup>2</sup> studied a representative sample of homeless individuals at a range of homeless shelters and meal programmes in Toronto, Ontario. Of the 904 men and women who were asked whether they had sustained “an injury to the head which knocked you out or at least left you dazed, confused or disorientated”, 53% reported that they had sustained such an injury. The study noted that this figure was 5 times higher than the prevalence rate of 8.5% among the general US population, reported by Silver et al (2001)<sup>3</sup>. Hwang et al also found that 70% of participants sustained their first head injury before they became homeless.

### Research design

In our study we contacted 12 organisations providing services for homeless people across Leeds. The sample included 100 homeless participants (75 men and 25 women) who met the inclusion criteria (see below). A matched control group (n=100) of individuals who were not homeless was also recruited. Each participant was asked a series of questions about whether they had a history of possible traumatic brain injury.

### Methodology

The Foundation’s study made use of Hwang’s methodology including the definition of homelessness as “living within the last seven days at a shelter, public place, vehicle, abandoned building or someone else’s home, and not having a home of one’s own.”

Participants were asked “Have you ever had an injury to the head which knocked you out or at least left you dazed, confused or disorientated?” This was followed by questions asking how many injuries participants had experienced, the date of their injury or age at the time of injury for the first 3 injuries, whether they were unconscious and if so, for how long. They were also asked whether they attended hospital after the injury and whether they were homeless at the time of injury. In addition, demographic information such as age, gender, education and ethnic background was collected. In all cases, information was gathered during one to one interviews.

The questions asked of participants reflected those used in the Hwang et al study but also sought to investigate the relationship between homelessness and traumatic brain injury and to establish whether a TBI is a risk factor of becoming homeless or being homeless is a risk factor for sustaining a TBI.

People were excluded from the study if they did not have sufficient proficiency in the English language to allow them to take part. In addition we addressed a major limitation of the Hwang et al study by including a matched control group from the general population.

This is a preliminary study and we are planning additional research in Glasgow where we will be able to match health records with records of homelessness.

1. Spence S, Stevens R, Parks R. Cognitive dysfunction in homeless adults: a systematic review. *Journal of the Royal Society of Medicine*, 2004;97:375-379.
2. Hwang SW, Colantonio A, Chiu S, Tolomiczenko G, Kiss A, Cowan L, Redelmeier DA, Levinson W. The effect of traumatic brain injury on the health of homeless people. *Canadian Medical Association Journal*, 2008;179(8):779-784.
3. Silver JM, Kramer R, Greewald S, Weissman, M. The association between head injuries and psychiatric disorders: findings from the New Haven NIMH Epidemiologic Catchment Area Study. *Brain Injury*, 2001;15(11):935-945.

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