

# Concussion in Aboriginal and Torres Strait Islander peoples: what is the true epidemiology?

There is a lack of data relating to all-cause concussion in Aboriginal and Torres Strait Islander peoples

**T**he diagnosis and management of concussion, or mild traumatic brain injury (TBI), has seen increased attention in recent years as an area requiring greater identification and action. Despite typical lay associations as an injury sustained during contact sport, this activity only makes up about 20% of concussion diagnoses,<sup>1</sup> with the majority of concussion cases resulting from falls, motor vehicle and bicycle crashes, assaults (including domestic violence), and other physical activities.<sup>2,4</sup> There is a lack of comprehensive epidemiological data relating to TBI in Aboriginal and Torres Strait Islander peoples.<sup>5</sup> Available data relating to concussion have historically been collected from hospitalisations.<sup>6,7</sup> These data fail to capture Aboriginal and Torres Strait Islander peoples who fail to present to hospital after a potential concussion episode; those who present to Aboriginal Community Controlled Health Organisations (ACCHOs), general practice, and nurse-led primary health care centres; those who present to hospital but their symptoms and signs are overlooked, and those who present to hospital but fail to undergo assessment due to prolonged waiting times or as a result of a lack of cultural competence at first point of contact.



## The increased risk

In Aboriginal and Torres Strait Islander peoples, physical injuries are most commonly caused by assaults (25%), falls (22%) and exposure to inanimate mechanical forces (14%).<sup>6</sup> More than 16% of Aboriginal and Torres Strait Islander peoples aged 15 years and over have experienced physical harm at least once in a 12-month period nationally,<sup>8</sup> with Aboriginal and Torres Strait Islander females being more likely than Aboriginal and Torres Strait Islander males to experience an injury due to assault. While there are clear psychological and physiological benefits to wellbeing from sports participation, being female has also been identified as a risk factor in sports-related concussion,<sup>9</sup> and it remains unclear whether this translates to all-cause concussion in Aboriginal and Torres Strait Islander peoples in particular. Aboriginal and Torres Strait Islander peoples are 1.7 times more likely to sustain a TBI than the general population. In sporting populations, the Sport Concussion Assessment Tool, fifth edition (SCAT5) is often used in sports-related concussion assessment,<sup>10</sup> but there is no evidence that this tool is culturally appropriate for Aboriginal or Torres Strait Islander peoples, especially for those who do not speak English as a first language.

## Current data

Between 2011 and 2016, Aboriginal and Torres Strait Islander peoples represented a higher proportion (27%) of hospitalisations for injuries to the head compared with non-Indigenous Australians (18%), and the rates were higher for both Aboriginal and Torres Strait Islander males and females.<sup>6</sup> Much higher rates of hospitalisation due to head injury among Aboriginal and Torres Strait Islander peoples living in remote and very remote areas have also been identified.<sup>6</sup> The reasons behind these statistics are unclear. However, it may reflect a lack of early primary care and outpatient care available to patients sustaining a TBI in remote areas, resulting in later presentation and with more significant signs or complications requiring hospital admission. Alternatively, this may reflect a better relationship between Aboriginal and Torres Strait Islander peoples located remotely and remote medical centres and nurse-led primary health care centres than that of Aboriginal and Torres Strait Islander peoples and facilities in major cities, more culturally safe health care environments in these locations, or both. Concussion is the most common outcome of intracranial injury in Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians, with a larger proportion of concussion injuries in Aboriginal and Torres Strait Islander peoples.<sup>6</sup>

## The missing data

In addition to the missing data related to the discrepancy between metropolitan versus remote hospitalisations for TBI, there is a gap in the epidemiological data relating to concussion injuries

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not requiring hospitalisation. This may occur due to lack of presentation, with injuries seen by the affected person or their family and friends as less severe and the need for further assessment not identified, particularly in remote and very remote areas where primary care is limited. There is a paucity of research highlighting Aboriginal and Torres Strait Islander peoples' knowledge, perceptions and experience of concussion.

While specific details are unknown, TBI (including concussion) symptom minimisation may be possible for a number of reasons, including cultural and personal.<sup>11</sup> However, unhelpful myths held by non-Indigenous health care workers relating to Aboriginal and Torres Strait Islander peoples' health experiences and access to care may also apply to TBI.<sup>12,13</sup> Across all settings, there is a significant evidence base outlining why Aboriginal and Torres Strait Islander peoples are less likely to present to a health care facility seeking medical attention. The reasons for this include lack of Aboriginal and Torres Strait Islander peoples' health care services, mistrust of authority and fear of social services or police involvement, mistrust of modern medicine, previous experiences of poor communication with health care workers, discrimination and racism.<sup>14</sup> The successful provision of culturally safe health care across a range of domains by ACCHOs is well documented.<sup>15</sup> However, lack of culturally appropriate services outside the ACCHO setting may result in assessment where there is a failure to elicit appropriate information, incorrect assumptions are made, and diagnoses are missed. It may be that it is inappropriate to apply western nosology to assessment for certain subtypes of concussion in Aboriginal and Torres Strait Islander peoples, resulting in inaccurate or misdiagnosis of cognitive or anxiety/mood subtypes of concussion due to westernised assumptions of normal. In the case of trauma, where multiple injuries have occurred, concussion may not be the primary diagnosis and may be overlooked despite presentation to the emergency department.

### Addressing the knowledge gap

Culturally appropriate research is required to clarify Aboriginal and Torres Strait Islander peoples' knowledge and attitudes relating to concussion, with true community codesigned models of research proving to be culturally appropriate and effective in translating the needs and experiences of Aboriginal people into tangible and relevant impact.<sup>16</sup> Such models of research are also likely to better understand factors preventing presentation for medical assessment in Aboriginal and Torres Strait Islander peoples who have sustained mild TBI. Similarly, a greater focus on data linkage (clinical and epidemiological) between ACCHOs, emergency departments and general practice would provide a starting point for identifying the true incidence and prevalence of concussion in Aboriginal and Torres Strait Islander peoples. We suggest these are important first steps in providing culturally safe access to concussion assessment in all areas in Australia, with the ultimate goal of improved

management of concussion in Aboriginal and Torres Strait Islander peoples.

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