

Towards further progress in traumatic brain injury

As two of the millions of traumatic brain injury (TBI) survivors worldwide,^{1,2,3} we thank everyone who contributed to *The Lancet Neurology* Commission on TBI.⁴ The Commission highlights the enormous burden and costs of brain injury to individuals, health-care systems, and society; summarises new insights; identifies disparities in care; and presents recommendations for the way forward to improve care access, provision, and outcomes for patients with TBI, like ourselves.

In particular, the Commission acknowledges the innumerable and—so far—largely invisible stories of mild TBI lived around the world.⁴ Mild TBI, which accounts for more than 90% of all TBI cases, is the first key area for which the Commission recommends establishing a research focus to increase our understanding of this vast global health problem.⁴ Although we applaud all future research, it should be recognised that the valuable findings to date will change the lives of people only if they are applied in practice.

People who have had a mild TBI are often misdiagnosed, given inadequate advice, or discharged from health-care services too early.³⁻⁵ For example, a patient with mild TBI shared with us: “Doctor visits have been mostly frustrating...Neurologists brushed off my symptoms: ‘maybe you are a bit too sensitive’; ‘it is psychological’; ‘why are you still on sick leave?’”. Comments such as these ones trivialise debilitating symptoms, leave patients to fend for themselves, and can take away hope of recovery.

We have an opportunity to change the way we act and communicate, thereby aiming to improve outcomes for patients with mild TBI. We urge clinicians to direct people to other services and support groups, while ensuring that their own language acknowledges the distress and

frustration that mild TBI can cause. Support groups such as Lifyana and Headway exist globally and are greatly appreciated by patients. Lifyana also provides resources for practitioners to support them in the care process. Closer interaction is needed between clinicians and researchers and these patient communities.

We call on researchers to identify the areas of clinical practice that do not accord with the latest research findings, and to build an evidence base for best practice. We ask policy makers to use these findings to drive an urgently needed change of protocols.

Finally, one more change should be made without delay and unanimously to improve understanding and acknowledgment of mild TBI—that is, the term mild in reference to TBI should be abolished. This term does not recognise that the conditions are often far from mild, and that the consequences extend far beyond the physical insult to the brain.

We declare no competing interests.

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- 4 Maas AIR, Menon DK, Manley GT, et al. Traumatic brain injury: progress and challenges in prevention, clinical care, and research. *Lancet Neurol* 2022; **21**: 1004–60.
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In *The Lancet Neurology* Commission,¹ Andrew I R Maas and colleagues put forward a broad-ranging and insightful review of the traumatic brain injury (TBI) field and outline key recommendations for future

research and clinical management. We congratulate the authors for this excellent review and offer some contributions.

We have noted that the association between mental health and TBI is referenced in several sections of the Commission. However, we also noted the absence of specific clinical recommendations focusing on the neuropsychiatric outcomes of TBI, other than the need to “provide services” and “interventions”.¹ Importantly, mental health outcomes should be taken into account because of the social, clinical, and financial need to better support affected individuals.

Many people with TBI experience short-to-long term mental health difficulties after injury. A 2016 meta-analysis² showed a clear association between TBI and subsequent psychiatric diagnoses (odds ratio [OR] 2.00 [95% CI 1.50–2.66]), including depression (2.14 [1.65–2.77]), bipolar disorder (1.85 [1.17–2.94]), and mixed affective disorder (1.84 [1.50–2.66]). Another meta-analysis³ showed that people with mild TBI had a 3.29 (95% CI 2.68–4.03) times higher risk of depression than people without a history of TBI, which persisted at 6–12 months (OR 2.43 [95% CI 1.45–4.07]), 1–2 years (4.12 [2.10–8.07]), 2–10 years (3.28 [2.42–4.46]), and more than 10 years (3.42 [1.51–7.77]). People diagnosed with post-TBI psychiatric disorders are more likely to experience hospital readmissions, and have increased medical costs and reduced functional gain, which might also have a negative impact on family members or carers.⁴ Personality change after TBI is probably a similarly important outcome but remains vastly under-researched.

The recommendations by the Institut National d'Excellence en Santé et en Services Sociaux and the Ontario Neurotrauma Foundation,⁵ which include clinical guidelines from several high-income countries, state that individuals with TBI should be screened for psychiatric disorders, and diagnosis

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should involve specialists experienced in managing individuals with TBI. Psychological or pharmacological therapies, or both, should be offered to individuals with TBI on the basis of individual factors, patient preference, symptom severity and comorbidity, and existing practice guidelines for the treatment of the diagnosed condition.⁵ Despite these recommendations, many people experiencing neuropsychiatric difficulties after injury do not receive this type of care because follow-up of patients with TBI by neuropsychiatrically informed clinicians is often lacking. Patients are not adequately managed by either acute neurological or rehabilitation services and, frequently, are excluded from generic mental health services. Furthermore, existing guidelines are not tailored to low-income and middle-income countries, where TBI incidence is higher but clinical resources are scarcer than in high-income countries.

Going forward, comprehensive neuropsychiatric services and pathways for people with TBI should be improved, and we hope to see more research and recommendations for neuropsychiatric outcomes in the future.

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Authors' reply

On behalf of all the authors of *The Lancet Neurology* Commission on traumatic brain injury (TBI),¹ we thank Melanie Wienhoven and James Piercy, and Grace Revill and colleagues for their appreciation of the Commission. We particularly welcome the contribution by Wienhoven and Piercy, who highlight the patient perspective. It is extremely unusual to see a direct patient response published in a medical journal, and we strongly encourage editors to stimulate and facilitate such initiatives in the future.

The most important voice is that of the patient. Wienhoven and Piercy focus on the needs of patients with TBI, not only after severe injuries, but particularly after mild TBI. We share their view that the term mild in reference to TBI is inappropriate, underestimating the impact of the injury on both individuals and society, and thus should be changed. However, the current term does have the benefit of providing clarity of definition for clinicians. Although change in terminology might be desirable, it should be carefully thought through to avoid confusion. Such change is underway—as highlighted in the Commission, data are emerging that will probably inform a more precise TBI classification system, which will be the focus of an upcoming coordinated international effort led by the US National Institutes of Health-National Institute of Neurological Disorders and Stroke in 2023. We also fully endorse the need for closer interaction

between clinicians and researchers and patient communities. Such interaction is not only important to patients, but also highly relevant to researchers as it motivates better selection of targets for research, informs and refines the ways in which such research is done, attracts the best and brightest young researchers to neurotrauma, and ensures that policy makers and funders hear patients' voices.

We appreciate the concerns raised by Revill and colleagues, who reflect on the mental health needs of patients after TBI, and make the case for improvement of neuropsychiatric services and pathways for people with TBI. Although we agree with this concept, we also question whether the delivery of fragmented care should persist, with multiple referrals to, for example, neuropsychological, neuropsychiatric, physiotherapy, and rehabilitation services, or whether efforts should be directed to the implementation of an integrated and holistic approach to assessment and treatment. Such efforts towards a holistic approach would reflect a change in the way we act and communicate with patients, as proposed by Wienhoven and Piercy, and could also include direct involvement of, or access to, support groups. We suggest that patient involvement should be considered essential to inform efforts to improve both the structure and the implementation of delivery of care after TBI.

Author declarations remain the same as in the original Commission.

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