A Workforce Survey of Psychological Practice within Concussion Services in New Zealand.

Josh W. Faulkner, PhD[1] & Alice Theadom PhD[2]

[1]Te Herenga Waka – Victoria University of Wellington, [2] Auckland University of Technology

A mild traumatic brain injury (mTBI, including concussion) results from a transfer of mechanical energy to the brain from external forces (e.g., the head being struck by an object), which results in acute physiological disruption (Silverberg et al., 2023). It is well-established that following this injury symptoms can persist beyond the acute period following injury (Theadom et al., 2015; Cancelliere et al., 2022; Machamer et al., 2022; Coffeng et al., 2020); commonly referred to as persistent post-concussion symptoms (PPCS) (Ewing-Cobbs et al., 2018). Psychological factors, when considered alongside demographic variables and clinical indicators of brain injury severity, have consistently emerged as robust predictors of PPCS (Ponsford et al., 2019; Silverberg et al., 2015; Broshek et al., 2015; Nelson et al., 2019). These psychological factors can be broadly categorized into three areas. The first involves pre-injury-related factors which include a pre-injury mental health condition, personality traits and coping strategies, injury related factors. The second includes injury-related factors and more specifically the temporary physiological changes induced by a mTBI which can cause psychological symptoms i.e. emotional lability. The third category involves post-injury factors and includes the impact of environmental stressors, post-injury coping strategies, and medico-legal issues.

As a result, clinical guidelines for mTBI underscore the importance of mental health treatments, such as psychology, as part of multi-disciplinary rehabilitation of post-concussion symptoms (Silverberg et al., 2020; Levin et al., 2015; Marshall et al., 2015). A common approach to address mental health difficulties following mTBI is Cognitive Behaviour Therapy (CBT) (Chen et al., 2020; Sullivan et al., 2020; Van Gils et al., 2020). CBT explores the relationship between thoughts, emotions, and behaviours, identifying those that are unhelpful and changing these with various techniques (Beck, 1963; Beck & Dozois, 2011). International literature has found that this psychological therapy is the most commonly used approach by clinicians in mTBI rehabilitation. evidence of the effectiveness of CBT in mTBI is mixed and may be limited when applied to specific aspects of mTBI rehabilitation i.e. reducing post-concussion symptom severity (Chen et al., 2020; Silverberg et al., 2022; Snell et al., 2009; Teo et al., 2020; Sullivan et al., 2020).

Given these limitations, it is our experience that psychologists are drawing on other psychological approaches to complement their use of CBT for the mTBI population. These approaches may include the use of third wave CBT. The third-wave is based on the concept of context and focuses more on the person's relationship with thoughts and emotions than on the content of cognitions, emphasizing processes such as acceptance, interoceptive exposure, mindfulness, and values (Zettle & Masuda, 2022). It includes therapies such as Acceptance and Commitment Therapy, Dialectical Behavioural Therapy and Compassion Focused Therapy. In order to support

these observations, this workforce report aims to ascertain the psychological interventions that Psychologists within New Zealand are using in their everyday clinical practice. In addition, we also aimed to identify psychologists' confidence in delivering psychological intervention in mTBI to inform if workforce development and training are needed.

To achieve these aims, we derived a series of questions and invited members from the New Zealand Special Interest Group of Neuropsychologists (NZSIGN). NZSIGN is a professional body for clinicians who are interested in and specialise in the field of Clinical Neuropsychology within New Zealand. NZSIGN consists of over 200 members who provide neuropsychological services in a range of medical settings. Given that these members are the most likely group of professionals to provide psychological services within ACC-funded services this was deemed the most appropriate group to investigate the objectives of this report. An email was sent to all members of NZSIGN asking them complete a survey pertaining to psychological services within concussion services. The first question asked of professionals was whether they have previously worked or are currently within concussion services. If professionals answered no to this question, the survey was ended. The remaining questions asked are summarised in Table 1.

Table 1. The questions asked to psychologists working in concussion services

1. What type of clinical work did you/do you provide to clients with mTBI/concussion?
2. If you provide psychological therapy, what is the most common psychological intervention/modality you deliver in your practice?
3. When you started working with individuals with mTBI/concussion, how confident were you in the psychological interventions you were providing?
4. If you are working with individuals with mTBI/concussion now, how confident do you feel in the psychological interventions you were providing?
5. I would attend training on the application of Acceptance and Commitment Therapy specifically for mild TBI/concussion ?

50 professionals completed the survey and of this amount, 49 stated they work or have worked in concussion services. Of these professionals, 43 (88%) indicated that they do/have provided psychological therapy within concussion services. When asked what is the most common psychotherapeutic approach that these professionals use in their clinical practice, the most common were Cognitive Behavioural Therapy (90%). Only 7% use Acceptance and Commitment Therapy as their most common psychological intervention and 3% use EMDR.

As shown in Figure 2, when these professionals started providing psychological therapy within a concussion service, only 2% of professionals stated they felt ‘very confident’ providing psychological therapy to individuals following mTBI. 54% of professionals felt ‘somewhat confident’ providing psychological therapy, and 38% of professionals felt ‘a bit uncertain’. As shown in Figure 3, when asked about their current practice 55% of professionals felt only ‘somewhat confident’ in the

psychological therapy they provide for mTBI individuals and 39% felt 'very confident' in the therapy they provided in their current practice. Finally, professionals were also asked if they would attend training on the application of ACT for mild TBI/concussion. 66% of professionals said they would, and 13% were 'maybe.'

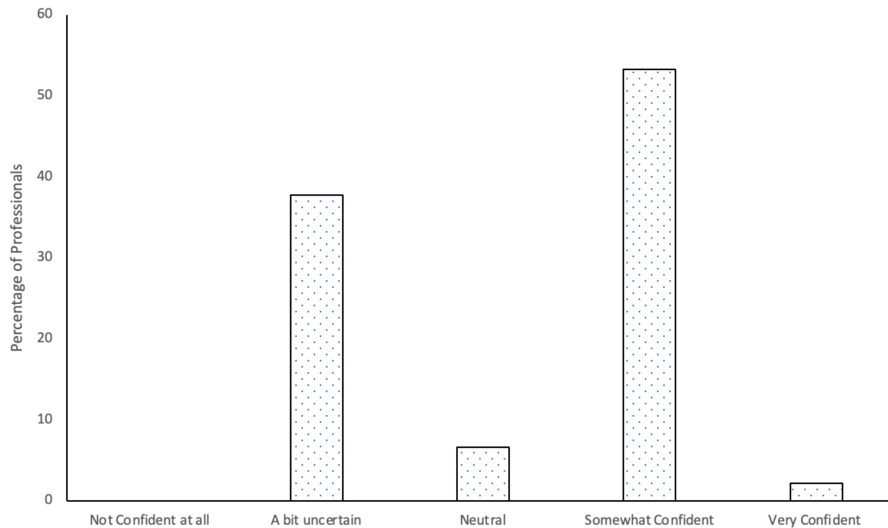

Figure 2. Professionals rating of confidence when they started providing psychological services within concussion services.

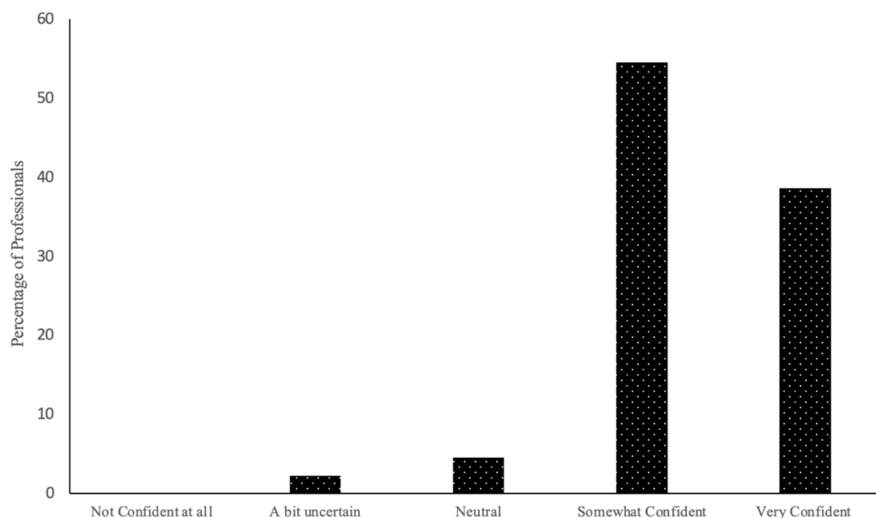

Figure 3. Professionals' rating of confidence when they in their current practice providing psychological services within concussion services.

In summary, the dominate psychological therapeutic modality used by clinical neuropsychologists working in concussion services in NZ is Cognitive Behavioural Therapy. A finding that aligns with international practice (Chen et al., 2020; Sullivan et al., 2020; Van Gils et al., 2020). However, it is also clear through our survey results that neuropsychologists are also using other therapeutic modalities, predominately third wave therapies, such as ACT. Although this is consistent

with current psychological services practice, and the recent uptake in third wave therapies (Masuda & Rizvi, 2019), this finding further validates the need to ascertain the effectiveness of these interventions for a mTBI population. Our survey also revealed a clear need to support and train neuropsychologists who are delivering psychological interventions within concussion services. A notable majority of neuropsychologists did not feel confident in the intervention they provided. Alarmingly, only 37% of neuropsychologists who currently work in concussion services feel "very confident" in the psychological treatment they provide. Given the critical role that psychological factors have in mTBI recovery, it is imperative that clinicians feel confident in their ability to deliver evidence based interventions. To reinforce this, there is a clear appetite for neuropsychologists to train in alternative modalities of therapy with 79% expressing interest to partake and engage in training on ACT for mTBI/concussion.

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