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 Editorial Committee: Paul Skirrow, Liesje Donkin, Wade Stent  
 (Editors), Caroline Greig, Audrey Holmes  
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 Phone 64-4-801 6088  
 Email: [office@nzccp.co.nz](mailto:office@nzccp.co.nz), [www.nzccp.co.nz](http://www.nzccp.co.nz)  
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**Nā te kune, ko te pupuke.  
Nā te pupuke ko te hihiri.  
Nā te hihiri, ko te mahara.**

***Creation and formation is also the stimulation of information as  
matter of perception and comprehension that leads to  
actualisation.***

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## **Editorial**

Tēnā tātou katoa

We are delighted to introduce this latest edition of the Journal, which has a special focus on cognitive assessment and clinical neuropsychology in Aotearoa New Zealand.

*Mā te tuakana ka tōtika te teina, mā te teina ka tōtika te tuakana  
The older sibling will lead the younger, and the younger sibling will lead the older.*

In Aotearoa, Neuropsychology represents the ‘younger sibling’ (teina) of clinical psychology, only receiving recognition from the New Zealand Psychologists Board as recently as 2018. Clearly, this new discipline has a great deal to offer us, with increasing specialisation and enthusiasm for new approaches and new applications of our psychology skills. At the same time, we must acknowledge that cognitive assessment and rehabilitation have, until only recently, been the exclusive domain of the ‘older sibling’ (tuakana), clinical psychology. As many of the contributors to this edition note, our clients rarely fit into a single, defined diagnostic category—often experiencing physical, neurological and psychological difficulties at the same time.

This edition contains a number of research articles and personal reflections from psychologists, which we hope will further underline the overlap and complementing skills of clinical psychology and neuropsychology, as well as highlighting the significant contribution that clinical (neuro) psychologists make to improving care for New Zealanders with cognitive disabilities.

In choosing to make this a special issue focused on a particular area of interest, we’ve been extremely pleased with the response from the psychology community, with a large number of submissions arriving within a relatively short period of time. For that reason, we hope to follow up with further special issues in 2023.

So, if you have burning passion for any area of practice—be it ADHD, autism, EMDR, corrections work or any area of practice—and you would be interested in helping put together a special issue, we’d love to hear from you!

Ngā mihi nui ki a koutou.

Paul (Guest Editor)

Liesje & Wade (Permanent Editors)

*Apology: The full list of authors was omitted from the article entitled **Clinical Psychologists’ Attitudes Towards using Technology in Therapy: A Survey**, published in the NZCCP Journal Vol 31(1) 2021 issue. They are **Dr Kirsten Van Kessel**, Department of Psychology, Auckland University of Technology, and **Dr Angela McNaught**, Private Practice.*

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## Clinical Neuropsychology Articles

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### What's in a Scope? Where Neuropsychology Meets Clinical Psychology

Paul Skirrow & Nic Ward

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*'What is in a name? That which we call a rose, by any other name would smell as sweet.'*  
William Shakespeare, Romeo and Juliet

Cognitive and psychometric testing has been a staple of clinical psychology practice almost since its inception, with clinical psychologists central to the development of formal psychometric tests for the US Army as early as 1914 (see Skirrow, 2020). The current 'core competencies' for clinical psychologists (New Zealand Psychologists Board, 2018) suggest that all of us should, at least, have:

- Knowledge of psychometric testing theory/practice, test construction and of the strengths and limitations of standardised tests.
- Knowledge of brain-behaviour relationships.
- (Skills in) Selection, administration and interpretation of psychometric measures relevant to area of practice.
- (Skills in) Completion of cognitive intellectual assessment and neuropsychological screening.

Before the establishment of the neuropsychologist scope of practice in 2018, the vast majority of neuropsychology work in New Zealand (particularly under Accident Compensation Corporation contracts) was traditionally undertaken by clinical psychologists. However, following the introduction of the scope, the Board recently expressed a concern that:

*...this scope may be creating barriers to access for neuropsychology services by inadvertently downplaying the legitimate knowledge and expertise that clinical psychologists have in this area and causing uncertainty in the profession as to what, if any, neuropsychological work clinical psychologists can do. (New Zealand Psychologists Board, 2022)*

The vast majority of psychologists that are registered in the neuropsychologist scope are also registered in the clinical psychology scope (167 of 179 psychologists according to the Board). However, since the 'grandparenting'<sup>1</sup> scheme ended in 2020, many of us have questioned how we might reasonably gain the skills required for registration, and in the meantime, what work is 'within our scope' as a clinical psychologist.

*Paul Skirrow is a senior lecturer at Otago University in Wellington and Director of their upcoming Postgraduate Diploma in Neuropsychology. He has a background in research and service leadership in neuropsychology and neurorehabilitation in both the UK and New Zealand.*

*Dr Nic Ward is a Clinical Psychologist and Neuropsychologist with the Laura Fergusson Brain Injury Trust, where she works as the Clinical Lead for Psychology. She also continues to chair the New Zealand Special Interest Group in Neuropsychology (NZSIGN), which she has helped establish and develop since 2011.*

<sup>1</sup> We use the term 'grandparenting' here, using the language employed by the Board, but must also note that the use of the term has raised some controversy given its roots in US racial discrimination law.

## The Function of a Scope of Practice is to Protect the Public

Psychologists are registered under the Health Practitioners' Competency Assurance Act (2003), whose primary aim is *'to protect the health and safety of members of the public by providing mechanisms to ensure that health practitioners are competent and fit to practice their professions'*. In order to protect the public, the Board restricts the use of titles such as 'clinical psychologist' and 'neuropsychologist', so that you cannot legally claim to be something that you are not. For that reason, scopes of practice are designed to delineate a set of practices that are sufficiently distinct from those of other practitioners (in this case, other psychologists), that require additional skills and training, over and above those provided by foundational training courses.

Most of the comparable Western nations have formally recognised the profession of clinical neuropsychology and/or the title 'clinical neuropsychologist' for many years (e.g. Australia, the UK, the US, Canada, Germany, France, Italy). In some countries, such as the UK, clinical psychology is considered a foundation, with almost all neuropsychologists first undergoing clinical training. In others, including Australia, clinical neuropsychology represents an entirely separate training pathway<sup>2</sup>. Despite the differing training pathways, there is consistent worldwide recognition that: a) clinical neuropsychology is distinct from usual (clinical) psychology practice; b) clinical neuropsychological practice requires a specific set of knowledge and skills that are not provided by clinical psychology training alone; and c) the consequences of substandard neuropsychological practice with vulnerable individuals who have neurological injury or illness can potentially have severe consequences.

With this in mind, there have been a number of proposals for the Board to consider the introduction of a neuropsychology scope of practice. A proposal made by several clinical neuropsychologists in the early 2000s was not successful. However, in 2015, 14 clinical psychologists working in the area of neuropsychology made a proposal to the Board to establish a 'clinical neuropsychology' scope of practice. After a lengthy period of consultation with the profession, including the development of what represents the core competencies, the scope was formally introduced in 2018. After an initial 13 months where psychologists could be grandparented<sup>1</sup> across to the new scope of practice on the basis of previous practice in neuropsychology, the deadline was extended for a further 2 years until March 2021. Since then, very few NZ clinical psychologists have been able to register within the neuropsychologist scope (regardless of whether they held the required competencies) as there has been no Board-accredited neuropsychology programme in New Zealand.

### **A Spectrum of Skill: From 'Clinical Psychologists' to 'Clinical Psychologists who do Neuropsychology' to 'Clinical Neuropsychologists'**

The competencies needed to practice as a neuropsychologist are clearly defined in the New Zealand Psychologists Board core competencies document. Many clinical psychologists hold some of these competencies already, however it is unlikely that they will hold *all of them* without having undertaken additional practice or training in the area of neuropsychology. The focus of clinical psychology training, by necessity, tends to be broad and there is often relatively little time dedicated to practice in neuropsychology, so most clinicians will have developed these skills by themselves.

As we described above, the administering and scoring of cognitive tests, in the form of assessment of intellectual ability or cognitive 'screening', remain clearly within the scope and skill

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<sup>2</sup> 'Clinical' can be considered to describe an approach, as in clinical psychology, or an applied setting, as in 'within a (hospital) clinic'.

of a (newly qualified) clinical psychologist, as defined by the Board. The Board's *Core Competencies for the Practice of Psychology in Aotearoa New Zealand* (2018) suggests that one of the key differences between a clinical psychologist and a neuropsychologist is a matter of the degree of knowledge and skill of the practitioner (see Table 1).

Table 1  
*Clinical Psychology Competencies versus Neuropsychologist Competencies*

<b>Clinical psychologist competency</b>	<b>Neuropsychologist competency</b>
<i>Knowledge of psychometric testing theory/practice, test construction and of the strengths and limitations of standardised tests</i>	<i>Advanced knowledge of neuropsychological testing theory and practice, test construction and the strengths and limitations of standardised neuropsychological tests</i>
<i>Knowledge of brain-behaviour relationships</i>	<i>Advanced knowledge of brain-behaviour relationships</i>
<i>Selection, administration and interpretation of psychometric measures relevant to area of practice</i>	<i>Carefully considered selection of neuropsychological measures appropriate to the clinical setting and the reasons for referral; tailoring of neuropsychological assessment appropriate to the client and clinical hypotheses</i>

It is important to be clear that the competencies set by the Board represent the *minimum competencies required for registration* (i.e. they represent a level of knowledge expected of a newly qualified clinical psychologist). In terms of the neuropsychology scope, the Board does not explain exactly what constitutes an 'advanced' level knowledge; however, the wider competencies hint at several key areas where further training is likely to be needed beyond that offered by clinical psychology programmes.

First, the Board competencies speak to the level of *knowledge of cognitive tests and skill in test selection*. There are literally thousands of standardised and non-standardised cognitive tests available, each with their own relative strengths and weaknesses, as well as appropriate and inappropriate applications (Skirrow et al., *in preparation*). While administering a test largely involves following the test manual or instructions, the question of *which tests are appropriate to answer which referral questions* is likely to require a much greater range of knowledge.

Second, the Board competencies speak to the *interpretation of cognitive tests*. Assessing which neurological condition an individual is likely to be experiencing based on their symptomatology, behaviour and test profile is likely to require a much greater level of technical knowledge and interpretative skill than assessing whether they meet criteria for intellectual disability. Similarly, cognitive 'screening' tests are generally designed to measure whether (or not) a person is likely to have a cognitive impairment, without really being able to indicate *what is causing that impairment, or what interventions may be of benefit*.

Overall, the Board competencies suggest that (clinical) neuropsychologists are likely to require much greater level of knowledge of tests and test interpretation, as well as common neuropsychological, neurological and neuropsychiatric conditions. Neuropsychologists need to know much more about models of both normal and abnormal cognitive/neuropsychological functioning, as well as models of cognitive/neuropsychological rehabilitation. Furthermore, Neuropsychologists are likely to require a greater knowledge of the methods, terminology and

conceptual approaches of other professions, including neurologists, neuroradiologists and neurosurgeons. Table 2 presents some examples of simple versus complex referrals for neuropsychological assessment, the latter that we would suggest may be best left to psychologists with the ‘neuropsychologist’ scope of practice (and even then, under appropriate supervision).

Table 2  
*Complexity of Referral Questions for Neuropsychological Assessment*

<b>Simple referral questions</b> <i>-Describing and quantifying a person’s impairment</i>	<b>Complex referral questions</b> <i>-Forming wider conclusions regarding the reasons for cognitive impairment, functional implications or treatment recommendations</i>
Does this person meet (cognitive) criteria for intellectual disability?	How much of this person’s impairment is related to their childhood head injury versus the neglect that they experienced while growing up?
Does this older person show significant cognitive deficits (relative to their peers)?	Is the person’s cognitive decline due to dementia and if so, which type of dementia are they likely to be experiencing?
What are this person’s cognitive strengths and weaknesses?	Is this person capable of work? If so, what kind of work? What supports will they need?
Does this person show significant cognitive difficulties (following their traumatic brain injury)?	Is this person’s cognitive impairment consistent with the reports of the mechanism and pathology of their injury?  How would you formulate the combinations of injury, mood, personality and performance validity factors, to best understand their current functioning?

### **It is not Easy to End up ‘Out of Your Scope’ but it IS Easy to Slip Into Poor Practice**

Despite the delineation of scopes by the Board and unlike more medical professions, psychology does not have any ‘restricted activities’ (activities that *only we* can perform) under the HPCA Act (2003). Similarly, most publishers of neuropsychological tests do not require you to hold registration as a neuropsychologist in order to use their products. Non-registered (academic) psychologists as well as pre-qualified interns regularly use cognitive neuropsychological tests and there is no suggestion that they are not qualified to do so.

Generally speaking, clinical psychologists should not be deterred from undertaking cognitive assessments, nor from practicing in fields that might be thought of as ‘neuropsychological’ (e.g. working with people with dementia); however, it is incumbent upon all psychologists that we remain aware of our own professional competencies and only practice within that range of knowledge (New Zealand Psychologists Board, 2018). If, as a registered psychologist, a piece of (neuropsychological) work is beyond your current level of competency, it is your duty to either

refuse that work or seek further advice and supervision (from a registered neuropsychologist) in order to undertake it a safe manner.

### Summary and Conclusions

- Simple cognitive and psychometric assessment has long been a ‘core competency’ for clinical psychologists.
- As an example, the Board has clearly indicated that assessments of intellectual functioning and cognitive ‘screening’ are within the skill set of a (newly qualified) clinical psychologist.
- The Board’s competencies are ‘minimum standards’ for registration and it is certainly possible for clinical psychologists to exceed that basic level of knowledge.
- Neuropsychological knowledge exists on a spectrum, however those with the neuropsychologist scope will tend to have a much greater range of knowledge regarding:
  - appropriate test selection and interpretation
  - knowledge of a range of neurological conditions
  - understanding of cognitive neuropsychological rehabilitation
  - the work of other professions allied to neurology (e.g. neurologists, neuroradiologists, neurosurgeons).
- Where the reasons for neuropsychological consultation are more complex (e.g. requiring knowledge of neurological conditions, the reasons for poor cognitive functioning or recommendations for interventions), clinical psychologists are advised to either seek supervision and advice from their (clinical) neuropsychology colleagues, or refer directly to them.

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## Criminal Justice Neuropsychology: Reflections on the Practice of Neuropsychology in Corrections

Bronwyn Castell

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The referrals that come across my desk look like this: ‘David had a major stroke—what does that mean for his risk of sexual reoffending when he moves to a rest home?’; ‘Hemi is unusually aggressive and becomes very fixated on minor issues—is this a result of a brain injury or does he need to work on his attitude?’; ‘Sarah had a right frontal aneurysm and her inappropriate behaviour hasn’t improved following our usual therapy approaches—what else should we try?’. Ten years ago, I rarely heard these questions. Now, it seems unconscionable that we would conceptualise behaviour without giving at least brief consideration to the hardware that produces that behaviour.

*Dr Bronwyn Castell is a senior psychologist (clinical psychologist, neuropsychologist) at Ara Poutama Aotearoa, Department of Corrections. Coming up on a decade of work in this field, she reflects on the opportunities for neuropsychology in this diverse and complex environment.*



Neurocognitive and neurodevelopmental disorders are generally more prevalent among the criminal justice population. High profile cases and diagnoses—think Teina Pora’s diagnosis of foetal alcohol spectrum disorder (FASD) (*Pora v. The Queen*, 2015)—have accelerated recognition that neuropsychological functioning more generally is relevant to understanding offending behaviour. Beyond the higher prevalence rates of FASD, intellectual disability and traumatic brain injury (TBI), people in the care of criminal justice agencies tend towards earlier age-related cognitive decline, greater incidence of cardiovascular and endocrine diseases, higher rates of accidents and prolonged and heavy exposure to a range of neurotoxic substances. Cases are often complex with overlapping aetiologies. In this space, neuropsychology does not just offer the opportunity to identify neurocognitive weaknesses that may be impacting on or causing behavioural difficulties, but offers an understanding of how trauma, personality disorder, mental illness and antisocial orientation can interact with cognition to influence behaviour.

The complexity of cases and environment allows plenty of scope for creativity and flexibility. Creativity must be used when a highly structured prison regimen could be hiding or creating significant adaptive functioning challenges. Gaining developmental information is quite the investigatory exercise when family ties are long-lost after decades in prison and early memories are scrambled or faded. Many times I have had to substitute tests because of interruptions in the often noisy environment of prison units, inability to read and un-corrected hearing and vision difficulties. These all have to be considered in selecting and interpreting tests; in addition, many tests are not well suited to our cultural context.

This environment is one with a large proportion of Māori and Pacific Island clients. Where many have experienced generations of disempowerment, health professionals are not necessarily trusted, especially those who carry scoring forms, stopwatches and (sometimes) unpopular opinions about risk. In this context, relationships are hard won but absolutely paramount. Furthermore, interpretation of assessment findings within a culturally diverse environment is a nuanced exercise. Being able to differentiate between difficulties with ‘hardware’ (organic impairment) and differences in ‘software’ (e.g. cultural and personal differences) becomes the crux of interpretation, with careful consideration of the person’s broader context. How a person functions within and outside their cultural context is equally important; neuropsychological assessment can shed light on why a person struggles to function well outside their culturally familiar environment. Conversely, increasing the person’s access to understanding and supports that are culturally familiar can help the person function at their potential.

The outcomes of neuropsychological assessment are ultimately the most satisfying. Clients have often experienced long-term difficulties. It is not unusual for their behaviour to have been explained by others in pejorative terms, and eventually internalised by the client. Delivering a neuropsychological formulation and practical recommendations in these cases creates empowerment and a way forward. The first neuropsychological assessment I fed back in Corrections was met with such elation by the client that he promptly asked me out on a date! Although his invitation was unsurprising given the frontal weaknesses identified on neuropsychological assessment, his response reflected the degree to which he had felt understood. With that knowledge, he and his whānau were more equipped to navigate the tough road ahead.

Although I have not been offered more dates (whew), the outcomes of neuropsychological assessment are often a welcome relief to referrers, clients and their support people; the findings of the assessment can bring significant clarity and understanding. With that comes more responsive ways of working with clients (reduced frustration is always a win for staff wellbeing).

Furthermore, it can often assist in the provision of more effective intervention to prevent further criminal behaviour. The resilience of humans is often highlighted in this process, where the neuropsychological evaluation frequently uncovers remarkable adaptations made by clients and those supporting them.

In the midst of such reward comes significant struggle. Once possible cognitive impairment is flagged and resources identified to complete screening or neuropsychological assessment, then what? Unfortunately, the majority of clients then entirely fall through the gaps of support services. Currently, clients diagnosed with FASD without intellectual disability are not eligible for Ministry of Health-funded disability support. Clients have often avoided hospitals by ‘sleeping off’ a severe head knock, unknowingly forgoing Accident Compensation Corporation (ACC)-funded support much later on, meaning the medical evidence is erased by time. Clients presenting with cognitive decline in their early 50s after decades of heavy drinking may not yet reach the age threshold for older adult services. For those clients that are eligible for services, a client’s serious conviction history, challenging behaviours or prison placement can be met with reluctance on the part of support services to accept referrals. Creativity is again harnessed by the staff and whānau that work around these clients; every step of progress is a cause for celebration.

I am excited by the future of criminal justice neuropsychology in New Zealand. Awareness of the role of neuropsychology is increasing at multiple stages of the criminal justice process. For example, a recent Court of Appeal case is challenging our understanding of what it means to be fit to stand trial (Case of impaired teen convicted of murder could shift rules for fitness to stand trial, 2022), cognitive screening processes have been proposed at various times in young people and remand services and the High Court heard evidence in 2020 on what dementia means for a long-incarcerated person’s risk for inappropriate sexual behaviour (*Vincent v. The New Zealand Parole Board*, 2020).

We can go so much further. For example, the Assessment and Referral Court in the State of Victoria (aka the ‘Brain Court’) assesses and identifies support for neuropsychological impairment relevant to offending behaviour. This is a model of how neuropsychological functioning can be a front-and-centre consideration in how we understand and prevent criminal offending. Criminal justice neuropsychology offers significant value to the understanding and prevention of criminal behaviour. I look forward to continued acceleration of awareness and advocacy, continued increase in local expertise, and the ‘ideal’ of multiagency service development from assessment through to rehabilitation. In the years ahead, I hope that the value of criminal justice neuropsychology can be realised in New Zealand, and measured not just in crime statistics but by the real impact on lives.

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# Exploratory Study of Traumatic Brain Injury and Social Cognition in Residential Substance Use Disorder Rehabilitation: A Research Proposal

Hannah Marshall, Josh Faulkner & Ian de Terte

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Substance use disorder (SUD) is defined as the use of substances that result in maladaptive patterns of behaviour, leading to harmful consequences and significant impairment and distress (Sadock et al., 2015). Approximately 12% of substance users worldwide will become addicted, but recent New Zealand estimates suggested 32% of New Zealanders were at moderate to high risk for experiencing SUD (Ministry of Health, 2020; World Drug Report, 2016). There is evidence that substance use increases the risk for sustaining a traumatic brain injury (TBI) (McHugo et al., 2017). TBI is defined as an alteration in brain function or other evidence of brain pathology caused by an external force to the head or neck (Carroll et al., 2004). SUD is associated with increased rates of accidental injuries, interpersonal violence and motor vehicle crashes, all of which can cause TBI (Macias-Konstantopoulos et al., 2014).

Furthermore, individuals with TBI frequently misuse substances (Albrecht et al., 2020). TBI can precipitate cognitive, physical, psychological and social impairment (Barman et al., 2016). Psychosocial difficulties include disinhibition and impulsivity, labile mood, aggression, irritability, apathy and social deficits (Wilson et al., 2021). These difficulties are often linked to pathology in the frontal lobes and result in trouble with everyday tasks such as following instructions, prioritising, adapting to change, completing or forming plans needed to meet goals and interacting prosocially (Loe et al., 2019). Interestingly, these mechanisms have been proposed as being crucial in the development, maintenance and exacerbation of SUD (Ryan et al., 2021). In support of this, TBI has been shown to be a risk factor for the development of SUD. For example, childhood TBI has been found to increase the chances of hazardous alcohol, tobacco and cannabis use in later years, as well as increased police involvement and parent-reported conduct problems (Kennedy et al., 2017). Therefore, it appears that TBI and SUD are closely linked.

However, the relationship between TBI and SUD is complex. Myriad factors have been implicated in the aetiology of both TBI and SUD that may mediate or moderate the relationship between the two. Such variables include: mental health disorders; conduct disorder and antisocial behaviours; and social and environmental factors such as poverty, impaired family functioning, family history of alcohol use disorder (AUD) and family exposure to adverse life events (Lindgren et al., 1998; McKinlay et al., 2010; Vasallo et al., 2007). Furthermore, the main substance to which an individual is addicted also has a role in the relationship between SUD and TBI. For example, TBI caused by falls is mostly associated with alcohol use, and TBI from violence is associated with alcohol or heroin use (Jacotte-Simancas et al., 2021). Alternatively, individuals with cannabis use disorder are more likely to sustain TBI from motor vehicle accidents than any other cause (Hawley et al., 2018). However, complicating the matter further, SUD samples have high rates of poly-substance use (Erga et al., 2021) and as a result, isolating the effects of a specific substance on TBI is a challenging endeavour. Finally, the majority of studies investigating comorbid SUD and TBI often anchored to one recent TBI event or the presence or absence of TBI, and did not collect detailed information on earlier TBI history (Kolakowsky-Hayner et al., 1999). Some studies reported limited information about the association between age of TBI and other TBI characteristics and substance-using behaviours

*Hannah Marshall is a clinical psychology doctorate student at Massey University.*

*Josh Faulkner is a Lecturer, Clinical Psychologist/Neuropsychologist at Te Herenga Waka - Victoria University of Wellington.*

*Dr de Terte is a senior lecturer in clinical psychology at the Wellington Campus of the School of Psychology, Massey University.*

(Olsen & Corrigan, 2022). Other studies relied heavily on medical records to determine TBI occurrence (Johnson et al., 2015), which is potentially limiting as this population is less likely to receive medical attention (Corrigan et al., 2012).

Therefore, the relationship between TBI and SUD is complex, and causality is difficult to establish because of the many influential factors potentially involved (Olsen & Corrigan, 2022). To understand the link between TBI and SUD more clearly, Olsen and Corrigan (2022) argued that research in this area must consider the following three principles. First, the incidence, characteristics and age of onset of TBI must clearly be established. Second, underlying mechanisms that could explain the link between TBI and SUD need to be examined. Third, confounding factors that increase risk for both TBI and SUD separately must be considered.

One mechanism that could explain the link between TBI and SUD is social cognition (SC), which refers to a range of cognitive functions that process, perceive and interpret social information. This includes abilities of emotion recognition from verbal and nonverbal cues, theory of mind (ToM; the ability to understand that another's thoughts values and beliefs differ from one's own) and social perception, which integrates cues, norms and context to make meaning (McDonald et al., 2003). SC enables us to understand ourselves, predict the intentions and behaviour of others, modify and improve our social behaviours, and know how to interact appropriately in different social situations (Quednow, 2020). Impairment in SC is a common consequence of TBI and often results in disinhibited social behaviours, which can reduce the quality of life for patients with TBI and their families (Maggio et al., 2020). Patients with TBI have shown moderate to severe deficits in SC, which is linked to right frontal lesions, and these individuals may have particular difficulty recognising negative emotions in others (May et al., 2017). TBI-positive individuals have also been found to have lower empathy and lower facial and vocal affections, indicating there is some impairment in processing emotional information (Neumann et al., 2012). Furthermore, patients with TBI have shown inferior SC performance in comprehending and producing sincere, deceitful and ironic communicative exchanges compared with controls, leading Bosco and colleagues (2018) to consider social skills training to be important in TBI rehabilitation.

SC impairment comes with increased interpersonal conflict, trouble complying with social norms and trouble using social supports (Shany-Ur et al., 2012). Impairment in SC also increases the likelihood of experiencing negative emotions and other forms of psychological distress (Alvi et al., 2020). The implications of such social impairment may increase the risk that individuals will turn to substances as a maladaptive means of managing emotional distress (Carrigan & Randall, 2003). Over time and with reinforcement, this could lead to the development of SUD (Bora & Zorlu, 2017). In support of this, findings have emerged illustrating SC impairments in addictive disorders (Kornreich et al., 2016). Samples with cocaine, opioid and alcohol use disorders have displayed impaired SC abilities, even after 6 months of abstinence (Bland & Ersche, 2020; Onuoha et al., 2016). These impairments include reduced ability to share the emotions of others, particularly for positive emotions (Carlyle, 2020). This impairment is likely related to the impairment in ability to recognise facial emotional expressions found in individuals with cocaine use disorder (Preller et al., 2014). Similar impairments in emotion recognition have been found in individuals with AUD as well as deficits in ToM (Bora & Zorlu, 2017). In polysubstance users, deficits in cognitive aspects of ToM have been found to persist after 6 months of abstinence (Fernandez-Sarrano et al., 2011). However, other studies found individuals with AUD had no impairment in ToM abilities, suggesting there may be some other factors involved in SC impairment in AUD (Amenta et al., 2013).

SUD is associated with increased neurotoxic-induced cognitive dysfunction from prolonged use of substances on the brain (Zhong et al., 2016). It has been hypothesised that this physical

impact of substances on the brain may cause impairment in SC, as can happen after TBI (Maggio et al., 2020). Longer duration of AUD has been related to higher severity of SC impairment, which supports this hypothesis (Bora & Zorlu, 2017). However, SC impairment has been found in individuals with gambling use disorder, an addictive disorder requiring no heavy or prolonged substance-use (Kornreich, 2017). This suggests that neurotoxic-induced cognitive dysfunction may not be a complete explanation for the presence of SC impairment in addiction (Bora & Zorlu, 2017). Therefore, it may be that individuals who develop addiction have predisposed vulnerabilities regarding their SC. Although the direction of the relationship between SC and SUD remains unclear in the literature, it is possible that pre-existing difficulties with SC may increase the risk for maladaptive substance use and subsequently lead people to develop SUD (Kornreich, 2017).

In summary, although a clear relationship between TBI and SUD has been established, the underlying mechanisms that link TBI and SUD remain unclear. Therefore, the overall objective of this exploratory study is to examine the relationship between SC and TBI in SUD. To achieve this, we aim to test SC performance in a sample of people with SUD and explore the association between SC performance and history of TBI. In this study, Olsen and Corrigan's (2022) proposed principles will be applied given the complexities of the studied population. First, an in-depth assessment of TBI will be used so that a range of TBI characteristics will be ascertained. We aim to examine the relationship between these TBI characteristics and SC performance in a sample of people with SUD. When exploring the relationship between TBI and SC in SUD, we also aim to control for possible confounding variables that may also explain these relationships. We are mindful that all possible confounders cannot be controlled, but will attempt to explore a range of factors. Therefore, given the exploratory nature of this study, we aim to explore the social, demographic and health-related variables that are also associated with SC in SUD. We will control for these variables in subsequent analyses to examine the relationship between TBI and SC.

### **Method**

The study will be completed in partnership with the Wellington Salvation Army Bridge Programme. Ethical approval has been obtained from the Massey Human Ethics Committee (SOA 21/28).

### **Participants**

All clients admitted to a residential rehabilitation programme in Wellington between August 2021 and March 2023 will be invited to take part in this study. Participants will be adults aged 18+ years with SUD of any kind.

### **Measures**

A summary of the outcome and predictor variables that will be assessed in this study is presented in Table 1.

Table 1

*Summary of the Outcome and Predictor Variables Measured in This Study*

Outcome variable	Predictor variables			
	TBI characteristics	Demographic variables	Substance use behaviours	Clinical variables
Social cognition: <ul style="list-style-type: none"> <li>• Emotion recognition</li> <li>• Conversational inference making</li> <li>• Theory of mind</li> </ul>	<ul style="list-style-type: none"> <li>• History of TBI</li> <li>• TBI severity</li> <li>• Number of TBI</li> <li>• Age of TBI</li> <li>• Current TBI-related symptoms</li> </ul>	<ul style="list-style-type: none"> <li>• Ethnicity</li> <li>• Gender</li> <li>• Education</li> <li>• Medical history</li> <li>• Family history</li> <li>• Psychiatric history</li> </ul>	<ul style="list-style-type: none"> <li>• Main problem substance</li> <li>• Age of regular problematic substance use</li> </ul>	<ul style="list-style-type: none"> <li>• Current mental health status</li> <li>• Current cognitive status</li> </ul>

TBI, traumatic brain injury.

### Outcome Variable

**SC.** The Awareness of Social Inference Test-Short (TASIT-S) will be used to measure SC (McDonald et al., 2003). The TASIT-S has three subtests measuring different components of SC: emotion recognition, conversational inference making and ToM. This comprises a series of 28 short (15–60 second) videotaped scenes where actors interact in everyday social situations. Participants are asked questions after each video to assess their recognition of spontaneous emotions (happy, sad, angry, anxious, surprised, disgust and neutral), comprehension level of social exchanges (sarcastic or sincere) and detection of and ability to distinguish sarcasm from lies. Intended meaning of each exchange is indicated through speaker demeanour (voice and facial expression). Additional contextual cues are given to convey meaning in subtest 3, which are not provided in subtest 2.

### Predictor Variables

**TBI screening questionnaire.** To assess TBI in this population we adapted a screening tool previously used in a NZ prison population (Mitchell et al., 2017). This questionnaire screens for the occurrence of any historical TBI and details related to the event. The screen asks for the total number of lifetime TBIs, allows for reports of up to five separate injuries and covers age of TBI, mechanism of injury, whether or not loss of consciousness occurred as well as any treatment for this injury. If one or more head or neck injuries are reported by a participant, the presence of TBI-related symptoms will be assessed using the Rivermead Post-Concussion Questionnaire (King et al., 1995).

**Demographic variables.** A demographic questionnaire will be used to collect demographic information for each participant. Variables assessed will include age, ethnicity, highest level of education, medical history, family history (of SUD) and mental health history.

**Substance use behaviours.** Substance-use behaviours will be explored by asking questions about specific substances used/not used, as well as age of problematic substance use. A range of other substance use behaviours are also assessed (i.e. routes of administration, age of first use of their 'problem substance', period of heaviest use, any periods of voluntary abstinence, overdoses and treatment history). However, for this study, the aforementioned variables will be used.

**Current mental health status.** Participants' current mental health status will be assessed using the Depression, Anxiety and Stress Scale (DASS-21; Grennan & Woodhams, 2007). The DASS-21 is a 21-item self-report with three subscales that measure depression, anxiety and stress over the previous week. Furthermore, participants will be asked to report any current mental health diagnoses and a screen will be conducted for any experiences of a range of mental health conditions within the last month (e.g. depressive symptoms, anxiety, psychosis whether drug induced or not, trauma symptoms).

**Current cognitive status.** A broad screening assessment of cognition will be administered using the Neuropsychological Assessment Battery – Screening (NAB-S; Stern & White, 2003). The NAB-S provides information regarding cognitive functioning in five main areas: (a) attention, (b) language, (c) memory (assessing immediate and delayed verbal and visual memory), (d) spatial reasoning and (e) executive functioning, as well as an index of overall cognitive functioning. NAB-S scores are corrected for age-group, gender and education level.

### **Procedure**

Upon client's admission to the SUD rehabilitation programme and following their orientation, programme staff will invite clients to participate in this study. All consenting clients will then be referred by staff to the researcher, who will subsequently meet with the participant for the first time at the rehabilitation facility. The researcher will complete the TBI screen, demographic screen and DASS-21, followed by the NAB-S and the TASIT-S across two or three sessions with each participant during their 10-week stay at the programme. Completion of these measures will be staggered with breaks between sessions according to clients' needs to accommodate for individuals' fatigue and concentration abilities. Cognitive testing will occur within 5 days of the participant providing a negative urine drug screen as per programme requirements. If a participant is reported by the facility to score below a 19 in the Montreal Cognitive Assessment (Nasreddine et al., 2005), which is used as a screening tool, that participant will not carry on and complete the NAB-S or TASIT-S to avoid putting them under unnecessarily difficult testing or embarrassment.

### **Statistical Analysis**

Descriptive analyses will be used to characterise the study variables. Because of the exploratory nature of the study, the relationship between the demographic and clinical variables (outlined in Table 1) and SC will first be undertaken. This is to determine what variables are significantly associated with SC in our sample and therefore need to be considered in further analyses. To achieve this, Pearson's correlations will be used to examine the relationship between continuous variables (i.e. age, mental health status). Independent sample t-tests and one-way analysis of variance will be used for categorical variables, assuming the assumptions of normality are met (if not, non-parametric analyses will be conducted). Because of the number of comparisons being conducted, Bonferroni correction will be applied to mitigate type 1 errors. Next, regression analysis will be conducted to examine the predictive role of TBI on SC. A model will be computed for each of the TBI characteristics outlined in Table 1; therefore five regression models will be conducted for each of the three TASIT-S subtests. For each regression analysis, significant demographic and clinical variables identified in the analyses described above will be included as additional predictors. If all of the demographic and clinical variables outlined in Table 1 are significantly associated with SC, then 10 predictors plus one TBI-related variable will be included in the model.

A power analysis using the G\*power software (Faul et al., 2009) estimated that a minimum sample of 123 participants will be needed (assuming a medium effect size ( $f^2$ ) of 0.15, an alpha of 0.80 and a maximum of 11 predictors). We believe this number is achievable as we plan to

collect data over an 18-month period. Over a period of 7 months, data from 66 participants have been collected.

### **Implications of the Proposed Research**

Because of differences in substance accessibility across countries, it is important to explore TBI within NZ SUD samples to identify incidence, causes and characteristics specific to the location and culture of NZ. These may differ from international findings and reveal unique cultural factors contributing to comorbid TBI and SUD in indigenous people of NZ. NZ Māori are overrepresented in both the SUD and TBI populations (Feigin et al., 2013). Exploratory research in this area may enable culturally appropriate modification of prevention and rehabilitation efforts and clarify important areas of focus for NZ rehabilitation programmes (Taylor et al., 2010).

Social skills training interventions are available to help improve social behaviours (Dahlberg et al., 2007). Understanding how SC is associated with comorbid TBI and SUD may raise awareness of the potential importance of such interventions in SUD rehabilitation and lead to incorporation of these interventions in treatment settings. This research may also identify some of the static and dynamic risk factors for impaired SC, and factors that lead to more severe SUD behaviours, especially cultural factors specific to NZ Māori, which may help inform treatment and prevention initiatives.

For neuropsychologists, this exploratory research on TBI may identify some TBI characteristics that are important to screen in neuropsychological assessments and formulation. SC training is helpful and important in rehabilitation after TBI (Bosco et al., 2018), and highlighting a possible need for this in SUD rehabilitation in NZ may enable funding and collaboration opportunities for neuropsychologists in and outside the addiction treatment field. Discovering rates of TBI in SUD settings in NZ may also reveal an area of need within addictions treatment that currently exists as a separate service, and pave the way for integrating TBI and SUD rehabilitation.

### **Summary**

During my personal experience working in a SUD rehabilitation setting over a 4-year period, I have seen behavioural presentations common to clients in this setting that are attributed to impairment in SC in the literature. Such unhelpful social behaviours can include interrupting often, inappropriate humour, focusing conversation on the self with lack of interest in others or switching the topic suddenly. It could also look like fixation and difficulty shifting focus or topics, slow comprehension, bluntness, oversharing or inappropriate comments (McDonald et al., 2003). These appear to create social conflict and pose barriers to remaining in treatment. SC may therefore be a common area of cognitive impairment in this population and TBI may be an important factor in driving these impairments. The proposed research aims to explore some of these questions.

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## Learning to ‘Let it Go’: A Psychologist and a Client’s Journey Together Through Therapy Post-Stroke

Annie Talbot & ‘Anna’ (of Arendelle)

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*Annie and her client, ‘Anna’ share their shared reflections on feeling like frauds, the problems with being a ‘fixer’ and remembering to listen, after Anna sought help following a stroke in 2020. As parents of young children, the pair used the Disney movie, Frozen, as a shared cultural reference point (and it made them both laugh). This story is told from both perspectives with both voices.*

Anna had experienced a stroke 1 year before we met. She was referred for pain management, with a specific recommendation that she sought eye movement desensitization and reprocessing (EMDR) for her neuropathic pain. Anna is a 39-year-old woman who lives in Wellington with her husband and young child. Before her stroke, she was a highly successful professional who loved to go to the gym, hang out with her family and watch ‘corny’ TV shows while eating ice cream.

I am a clinical psychologist who trained in neuroscience before my clinical career. I have a love of neuropsychology and a lifelong passion for neurorehabilitation fuelled by the people I have met in my life and the likes of Oliver Sacks and Alexander Luria. We decided to share our story together in this edition of the NZCCP journal in the hopes of inspiring others to learn to trust themselves rather than judge themselves and others by what they think they *should* be (either as a clinician or a patient). This is more a human story than an academic piece, but one that we hope you can identify with.

*When I first walked into Annie’s office I expected to be ‘fixed’—if she couldn’t do it—I damn well was going to. It’s been a year post-stroke and I kept pushing through. Professionals kept telling me to slow down and I sped up. I was NOT going to be disabled. I was a mum. I was a professional. I was a wife. My GP (general practitioner) and specialist had told me about EMDR for neuropathic pain and this was what I was expecting; my next step in my recovery to become ME again, managing that pain that cut through you like knives and left you feeling exhausted and wanting to ‘check out’. This was going to fix it, or at least make it easier to get my old life back. I did not expect to be told that maybe I needed to consider a different path. I did not expect such honesty. To be honest I really didn’t like it. She should be agreeing with me doing ‘the magic’, not questioning me on what I wanted or asking me who I was? I wanted the pain gone and me to return to my ‘old self’ that’s what I wanted—nothing more and nothing less.*

As a clinical psychologist who specialises in recovery post-injury, disease or trauma I get many referrals for ‘fixes’, especially from insurance companies or businesses in New Zealand looking to support the wellbeing of their staff. These are backed up by GPs and specialists and I often

*Dr Annie Talbot studied psychology and neuroscience in Glasgow and at the University of California, Berkeley, before completing her doctorate in clinical psychology from the University of Liverpool. Annie’s doctoral project explored clients’ perceptions of recovery following an acquired brain injury and she has retained a strong interest in that area. Annie currently work in private practice in Wellington.*

*‘Anna’ is currently recovering from a stroke, which she experienced at the age of 38. ‘Anna’ is a successful professional, wife and mother and initially sought psychological support from Annie for pain management and EMDR therapy.*

feel the pressure to perform, succeed and ‘make it better’ and help ‘get them back’. I guess that is why many of us do go into psychology in the first place too? That desire to make things better? I know I did. For me, it was my big sister, who was more like my mum. She got very ill at an early age, then was diagnosed with multiple sclerosis. She always fought for me, cared for me and protected and guided me; so, I felt the least I could do was fight for her and all like her too. Naively, I went into the long road into clinical psychology feeling I was going to change things, fix things! I knew my destiny!

*Annie asked me about my pain. I told her, my pain is like going from utterly numb, disconnected and heavy on my left-hand side one day, to the next being in the most excruciating pain I have ever known. Like a fire is raging across the whole of my left side and even entering my ‘normal’ right side, infecting my body. I don’t know which side of my pain I dislike more. The numbness is not as exhausting and I can do more but it’s heavy, a reminder I am no longer ‘me’. The fire side is so exhausting and all-consuming and then it’s over and I am left with grief and anger and an overwhelming need to sleep. On the numb days I can function—just—and I feel like I never want anyone to know I am weak and that I am damaged by stroke. On the fire days I am angry and frustrated and all I want is people to recognise I am in pain, that I had a stroke that ‘I am not ok...I am not fixed, it’s all fake! Help me! See me!’ They are like clockwork; one day numb, one day fire, then back to numb. I just want this Groundhog Day feeling gone!*

My sister sat with me, one day when I was telling her of my plans to change the face of neuropsychology and recovery with chronic conditions such as brain injury, and told me ‘Just don’t forget about the person, Annie. We don’t all need to be fixed, just seen and trusted. Maybe that’s a good place to start?’

I remembered my sister’s words when, many years later, one of the people I interviewed for my doctoral research said: ‘everyone tells me I have executive difficulties due to my stroke and that’s why I’m angry, swear and am disinhibited. They say if I take medications and try cognitive therapies to “modify my actions” I’ll do better. But Annie, it’s just not true! Sure, I know my brain has been broken and I know meds help, and so do you, by telling me to slow down before I do something stupid, but I’m still me! Why don’t people ask me why I am angry? Why I’m angry and swearing is ‘cos no one is seeing me! They just want to fix me—not see me as I am, and that pisses me off! Always ask someone, don’t just focus on what you think needs to be effing fixed’.

I sat with Anna. She came into my office with purpose. She told me she so desperately wanted to be her ‘old self’. I asked, ‘What did that woman look like and what did she do?’ ‘*Not like this!*’ Anna said, ‘*She was strong, powerful and focused*’. I told her I saw a strong, composed woman in front of me who knew what she wanted and demanded to be heard. She felt shocked at this. Then cried. She said she felt, ‘*Everyone just sees my stroke—well, or they don’t, but I see it, I see my weakness and hate it*’.

As a clinical psychologist, one of the hardest things we do is to hold on to hope, while also setting realistic expectations. Many people, understandably so, want only to hear hope and certainty that things will get better, and I have found that referrals for EMDR in particular, whether it be for physical or psychological trauma, often come with the ‘it will fix you’ promise. My professional ethics set me up for a dilemma; one side tells me I need to listen, validate and hold hope, and the other says I have to be honest and say this is not about ‘fixing’ but ‘integrating’ more effectively—living with, not without. Integrative therapies do not invalidate the experience of wanting to return to your previous state, nor do they invalidate the reality that you often cannot. They focus on not rejecting the person you are now, nor pretending that you do not want to be the person you were, but holding space for that person to take themselves on

the next journey. The journey to who they are now and who they have capacity to be in the future; integrating and building trust with all parts of their wounded and healing selves. This is especially so in neurological conditions. It is an area that we understand relatively little about and, like everything we do not understand, we so desperately want to ‘fix it’. So, Anna and I sat with this dilemma together, sharing it and validating it.

*It felt strange to have someone notice me as me. I didn't like it at first but then it became a safe place. No BS! The focus shifted away from the pain solely and I noticed my focus was more on me, who I am and what was important.*

Through the assessment process, although we talked about Anna's pain, we talked more about who she was and her journey. How Anna had learned to be a new mum post-stroke and been so creative and inventive in her parenting. How she had always preferred a ‘quiet life’ but got dragged into cycles of pleasing others and often invalidated her own needs and wishes. As we focused again on her goals, she appeared to have shifted away from focusing on her pain to ‘*how do I get what I want from my life?*’ This was also helped by starting with a brilliant physio who had helped her to achieve her physical goals and build her strength physically and psychologically.

*I have started to notice my body again. Sometimes I hate it but often I don't, I just noticed it and sometimes I notice it is doing some pretty cool stuff. I started lifting weights and feel like wonder woman without the cool costume. It makes me feel strong even if I am numb. I can trust myself more if I listen. When I trust myself, I still felt pain, but I notice I care for it much better [rather] than always criticising.*

We are still early on in our therapeutic journey, and it does feel like I am faking being a psychologist by not immediately ‘fixing things’, but were both using listening as our anchor and our compass. It helped to know that Anna also felt she was faking things, but that we can both name it now more effectively. It felt hard to not be in ‘the expert seat’ or be the someone who is certain they can ‘fix you’ but it felt *honest*. It has been really important to make space to see the whole Anna and for her to have a space to see herself too and trust herself as her guide and mine. So right now, were learning together to notice it, name it, then navigate forward to do ‘the next right thing’ or just ‘let it go’.

Anna is now starting to run a group for young survivors of stroke, and these are her and my take home messages:

- Acknowledge and validate who you are first—remember you can only be you—work with that as a clinician and as a survivor.
- Remember ‘*it's the brain that matters most; not just the brain injury*’; if you get to know the brain, the person first and partner with them to develop a clear formulation that involves them as a whole, not just their injury or what they or others want to ‘fix’, it can really help identify shared choices for intervention.
- It is sometimes easy to only see the stroke. Try to see the person, if they let you—the stroke is a part of them (and important!) but make space for the whole person too.
- Honesty and representation matters, it is very easy as a young survivor of stroke to get sucked into either I can (and will) be ‘fixed’ as I am not like those ‘old folks’. Or by the thoughts that I will never be the same, that I am truly broken and alone in my experiences. Finding a ‘tribe’ helps, even if it's a very small tribe of people who you feel get you.
- Find shared experiences, shared values that can guide you.
- Buckle in for the rollercoaster ride: ‘*Wow, I can be different things, feel different things, fail, succeed, be lost and be found but know it doesn't always last and know I will still be me*’.

- Remember that internal states or thoughts we have are like the weather in Wellington. Annie likes the words ‘radical acceptance’ I say ‘It is just what it is’ and try to treat those internal states like we treat weather in Wellington: all weather will pass eventually but have layers just in case.

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## The Importance of Considering Sleep and Mood in Neuropsychological Assessment

Katie Douglas

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Sleep disturbances are the most commonly reported mental health symptom in the general population, with international rates of insomnia ranging from 6% to 30% depending on the definition used (Roth, 2007). In Aotearoa New Zealand (NZ), approximately one-quarter of adults may suffer from a chronic sleep problem (e.g. insomnia) (Paine et al., 2005). Common sleep problems include difficulty falling asleep, repeated arousal from sleep, difficulty getting back to sleep, waking too early in the morning and unrefreshing sleep. Sleep disturbances can have a range of causes that are often multiple and interacting, including biological/physical (e.g. obstructive sleep apnoea, pain, medication use), psychosocial (e.g. anxiety, rumination), lifestyle (e.g. caffeine consumption, alcohol use, shift-work, jet-lag) and environmental (e.g. light, noise) factors (Faulkner & Bee, 2016).

Sleep disturbance has been shown to have a detrimental impact on cognitive function. In otherwise healthy adults, short-term sleep disruption and longer-term sleep deprivation have been related to difficulty maintaining attention (increased ‘lapses’), reduced vigilance/alertness, slowed processing speed and impaired memory formation and decision-making (Killgore & Weber, 2014; Stout et al., 2021). Research on primary sleep disorders (e.g. sleep apnoea) has also shown impaired attention and alertness (Stubbs et al., 2016). These cognitive problems have serious real-life implications, including difficulties in day-to-day functioning in work, home-life and relationships.

### Complex interplay between sleep, cognitive function and mood

The prevalence of sleep disturbances is substantially higher in people with mental illnesses, and up to 80% of those with psychotic illnesses experience sleep disturbance (Faulkner & Bee, 2016). Problems with sleep are diagnostic features of depression and bipolar disorder (i.e. decreased need for sleep in mania, insomnia/hypersomnia in unipolar and bipolar depression) and often persist into the inter-episode period (Harvey et al., 2005). In addition, research shows elevated rates of insomnia, hypersomnia, circadian rhythm disturbance and sleep apnoea (Steinan et al., 2016; Stubbs et al., 2016; Takaesu, 2018) in depression and bipolar disorder, with generally higher rates in the latter.

Outside of the impact of sleep disturbance on cognitive function, mood disorders have their own profile of cognitive impairment. Cognitive impairment is a core feature of both depression and bipolar disorder. In both disorders, impairment is evident across a range of cognitive domains (learning and memory, attention, executive function, psychomotor speed, social cognition) (Porter et al., 2015; Rock et al., 2014), often persists into recovery (Semkowska et al., 2019) and strongly relates to problems in occupational and psychosocial functioning (Depp et al.,

*Katie Douglas is a Senior Research Fellow and Clinical Psychologist at the Department of Psychological Medicine, University of Otago, Christchurch. She is a current recipient of the Sir Charles Hercus Fellowship from the Health Research Council of New Zealand. Her main research interest is in understanding cognitive impairment in mood disorders and the development of novel interventions to address cognitive impairment.*

2012). Targeting cognition has therefore been identified as an important area of treatment research in mood disorders (Miskowiak et al., 2017).

The interplay between sleep problems, cognitive impairment and mood is clearly complex, and important to further clarify. That is, how do sleep problems in mood disorders contribute to the picture of cognitive impairment? Can some aspects of the cognitive impairment seen in mood disorders be attributed to sleep disturbance? In depression, research in this area is very preliminary. A key recent study by Cha et al. (2019) involving 100 people with major depressive disorder found that perceived sleep quality (measured using the Pittsburgh Sleep Quality Index) was independently associated with both subjective and objective cognitive impairment. That is, when people reported having sleep problems, it impacted their performance on cognitive tests and perceived cognitive competence. This effect held even when adjusted for depression severity. However, a current gap in the depression literature is whether objective sleep problems (e.g. using polysomnography, diagnoses of sleep conditions [obstructive sleep apnoea] or accelerometry/actigraphy) also relate to cognitive impairment. This question is warranted given the lack of correlation between objectively assessed and subjectively reported sleep abnormalities in mood disorders (Bradley et al., 2017; Harvey et al., 2005).

Research investigating the association between sleep and cognitive function in bipolar disorder is more advanced than that in depression, possibly because sleep disruption is perhaps a stronger and more well-researched feature of bipolar disorder. Sleep disruption is present in all stages of bipolar disorder, including euthymia (Boland & Alloy, 2013). Studies using objective and subjective measurements of sleep data have reported high rates of sleep disturbances in euthymic bipolar disorder samples, ranging from 70% (Harvey et al., 2005) to 100% (Millar et al., 2004). Sleep disruption is also one of the most common factors in precipitating either manic or depressive episodes. A study that most comprehensively attempted to answer the question of how sleep disturbance impacted the profile of cognitive impairment in bipolar disorder was recently published by Bradley et al. (2020). In that study, the relationship between *objective* cognitive function and *objective* sleep problems was assessed. Bradley et al. used partial polysomnography and standardised rating scales to diagnose sleep apnoea, and used accelerometry for 21 days (e.g. wearing a wrist accelerometer watch) alongside a sleep diary for circadian rhythm measurement. Key findings from that study were that while those with bipolar disorder performed significantly worse than healthy control participants across a range of cognitive domains (as expected), those with bipolar disorder but with normal sleep were not cognitively impaired. That is, sleep disturbance in the bipolar disorder sample appeared to be the main driver of cognitive dysfunction. Although further replication of these findings is required, they highlight the importance of assessing sleep problems alongside cognitive assessment.

### **Implications for Aotearoa NZ**

The inclusion of objective measures of sleep in neuropsychology clinics in New Zealand may be unrealistic given its reliance on expensive equipment and highly technical data interpretation. Outside of referral to a sleep clinic, Table 1 offers suggestions for realistic and well-used sleep measures that could provide valuable information in considering the impact of sleep on cognition, but also in treatment planning. Taking a long-term perspective in a neuropsychological assessment may be valuable in determining how mood changes and sleep problems have affected an individual's cognitive abilities and general functioning. Furthermore, the inclusion of psychological strategies to improve sleep in any intervention designed to improve cognitive function in mood disorders is also clearly important.

Table 1  
*Recommended Sleep Assessment Tools for Clinical Practice*

Measure	Reference	Sleep dimension of focus	Description
Pittsburgh Sleep Quality Index	Buysse et al. (1989). The Pittsburgh sleep quality index – a new instrument for psychiatric practice and research. <i>Psychiatry Research</i> , 28, 193–213.	Sleep quality	Self-rated, 19-item questionnaire that assesses sleep quality and disturbances over a 1-month period. Comprises seven component scores: 1) subjective sleep quality, 2) sleep onset latency, 3) sleep duration, 4) habitual sleep efficiency, 5) sleep disturbance, 6) use of sleep medications and 7) daytime functioning. Five additional items rated by bed partner or roommate.
Biological Rhythms Interview of Assessment in Neuropsychiatry	Giglio et al. (2009). Development and use of a biological rhythm interview. <i>Journal of Affective Disorders</i> , 118(1–3), 161–165.	Circadian rhythm disruption	Clinician-administered interview that asks 18 questions answered in a format of 1 (no difficulties) to 4 (serious difficulties). Items are divided into four areas: sleep, activities, social rhythms and eating. A semi-structured manual is used to facilitate rater consistency.
Social Rhythm Metric	Monk et al. (1990). The Social Rhythm Metric: An instrument to quantify the daily rhythms of life. <i>Journal of Nervous and Mental Disease</i> , 178(2), 120–126.	Circadian and social rhythm	Self-report monitoring form that allows the person to keep track of key daily activities such as time of going to bed, getting out of bed, going to work and eating meals. Mood is also documented each day. Ideally, having person complete this for at least 3 weeks will be most helpful in terms of seeing sleep patterns over time.

### Take Home Messages

- Sleep impacts cognitive function: Sleep problems are core features of depression and bipolar disorder, and likely contribute to cognitive impairment and the relapsing nature of these conditions
- Develop your own set of measures to assess sleep as part of neuropsychological assessment: Although objective assessment of sleep may be unrealistic in clinical practice in NZ, there are many tools/questionnaires available that are useful to consider including in neuropsychological assessment to determine severity of sleep disruption and for monitoring change in sleep patterns.

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# A Personal Journey of Neuropsychology Within the Youth Justice System

Leanne Matthews

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## How it all Started

As a neuropsychologist I had the privilege of spending 18 months completing neuropsychological assessments in two youth justice residential sites. The aim of the project was to provide an increased understanding of neuropsychological sequelae for each youth assessed to better inform intervention, increase diagnostic clarification, improve knowledge of cognitive strengths and weaknesses and improve referral pathways. Through my experience on the project I found that cognitive abilities could impact a young person's capacity both to engage with the justice system and benefit from rehabilitation, education and intervention. Neuropsychological assessment can fill the gap by providing better understanding of individuals' history, cognitive strengths and weaknesses and better inform how best to work with an individual through understanding, and provision of strategies to assist with areas of difficulty.

## The Complexity of Youth Justice

As a neuropsychologist, I found the environment of youth justice very different and complex compared with community and hospital settings. Furthermore, youth justice also often lends to involvement with Oranga Tamariki, which again, greatly differs from other rehabilitation settings. Even though the complexity of the environment can initially be daunting, working within youth justice and Oranga Tamariki is exceptionally rewarding because of the positive impacts that can come from neuropsychological assessment.

The role of neuropsychologists in youth justice began after relationships had been established between Laura Fergusson Brain Injury Trust and the activities officer from the youth unit at a prison in Christchurch. An initial project involved completing brief traumatic brain injury (TBI) screening with all rangatahi to gather data on the incidence of TBI in this setting. If there were supporting medical notes that could be sourced showing a TBI had been reported, then an Accident Compensation Corporation (ACC) referral for further assessment/intervention could be made. However, it was clear from the study that injuries were rarely lodged with ACC, so funding was not available.

The initial project also highlighted that many rangatahi in youth justice had complex histories that included multiple factors that could impact cognitive development. Such factors included trauma, polysubstance use, neglect, hypoxia, maternal consumption of substances in-utero, intellectual disability, neurodevelopmental disorders and head injury. It can be difficult to access funding for assessment, which is often required to qualify for support services. As such, funding was sought to provide neuropsychological assessment to all of those in a youth forensic setting with a second setting included later in the project. The aim was to provide neuropsychological assessment to assist in developing strategies and identifying appropriate support services. The intention was to improve capacity for more effective rehabilitation and support of the young men, particularly once they returned to the community. With increased engagement of appropriate services there was hope for reduced recidivism and breaking the cycle of incarceration.

*Leanne Matthews completed training in clinical neuropsychology in Australia and worked for many years in regional Australia, across the hospital system, mental health and private practice. She relocated to New Zealand in 2020 to work with Laura Fergusson Brain Injury Trust. Her role included completing neuropsychological assessments in two youth forensic residential settings as part of a research project.*

### **Relationship Building**

From the start of the project, building relationships with staff and rangatahi was crucial. Corrections is a very complex environment with many demands on staff time. Relationship building led to an increased opportunity to educate staff on the benefit of neuropsychological assessment and thereby increase the time staff were willing to dedicate to support the project. To increase engagement and build relationships, regular meetings with staff (including the principal corrections officer, educators, activities officer and case managers) were crucial for continued discussion and relationship building. Weekly presence in the unit was also important. Such strategies enabled open discussion and constructive criticism to develop and adapt the service to suit the environment. For example, a longer feedback summary of neuropsychological assessment was initially provided to youth that presented with reasonable cognitive abilities, whereas a one-page simple language summary was provided to those of low abilities. Educators suggested providing the one-page summary to all young men, which led to significant improvement in feedback. Open discussions with staff also highlighted issues that were not evident to me as an external provider, which led to increased information gathering and improvement to referral processes. Most importantly, continued relationship building with staff provided the space for continued education and demonstration of the benefits of neuropsychological assessment.

Before starting assessments, we organised small group sessions as a ‘get to know the neuropsychologist’ session to explain the purpose of the project and gain the trust of the rangatahi. To be honest, I was very intimidated by the entire process. I worried that one wrong step would unravel a project I greatly believed in. The young men talk to each other; I could only wonder what would happen if one or two of the rangatahi spoke negatively of the sessions. The casual environment for conversation and games in small group sessions allowed for a more relaxed approach as the role of a neuropsychologist was explained and the youths’ questions were answered. Importantly, the focus of assessment was explained. It was about getting to know cognitive strengths and weaknesses, assisting in accessing services and providing strategies to help; the focus was not on offending.

Surprisingly, insecurity about working as a neuropsychologist with Tourette’s syndrome became a strength. The rangatahi were curious. It became a relatable gateway to explain the benefits of neuropsychological assessment in a genuine way that fostered increased connection with the youth. Tourette’s syndrome was explored in reference to areas of the brain and the dopamine system as it relates to movement, cognition, reward and mood. Interestingly, discussion around Tourette’s syndrome relating to inattention and hyperactivity frequently gained the youths’ interest as they related this to their own experiences, such as struggling to focus in a classroom. As the young men engaged, it also became an unlikely means of gaining greater acceptance of myself and belief in my own abilities as a neurodivergent health professional.

Once weekly neuropsychological assessments started, the rangatahi grew to trust me and wanted to complete a neuropsychological assessment. After time, I began to hear comments across the youth unit yard such as ‘Miss, when is it my turn to come and see you?’ or ‘Miss, can I come and see you again?’ The most interesting comment I received was after returning from leave; a young man questioned where I had been, and after I replied, he stated, with a grin, ‘Don’t be so lazy, we don’t get a holiday’. The comment had come from a young man I had assessed many months prior; I was surprised that he had noted my absence and felt confident enough to engage with his very individual dry humour.

### **Lessons Learned regarding the Interview and Assessment**

Neuropsychological assessments were completed once consent was given by the young men. The assessments included testing instruments such as the WAIS-IV, WMS-IV, RAVLT, RCFT, Trails A & B, STROOP, COWAT, assorted questionnaires and validity measures. There were many aspects that differed from a typical assessment, such as the locked room, ensuring constant supervision of the young men and difficult engagement due to poor attention or hyperactivity. Nevertheless, there were many lessons quickly learned.

The rangatahi were in an environment with very little choice and limited engagement with those external to corrections. As a neuropsychologist, I was an external person, a novelty, who was genuinely interested in their lives. It was easy to build rapport, which increased their engagement with neuropsychological assessment. Similarly, choice was imperative at the initial stage of consent, interview and completion of tasks; the young men were provided with choice as to whether they continued, needed a break or wanted further conversation. Further conversation often ensued as the young men became more comfortable and spoke of their lives and difficulties. As the young men described their lives, a balance of the inquiring mind of a neuropsychologist as opposed to therapist was needed. The majority of rangatahi had a history of trauma and mental health difficulties. Therefore, there was a need for a trauma informed approach while still ensuring completion of a neuropsychological assessment. At times, this led to containing the rangatahi by acknowledging and validating their experiences, and then redirecting focus to the completion of tasks. In some instances, previous reports were used to obtain background history as opposed to interview because of the severity of trauma history.

Similarly, neuropsychological assessment needed to encompass the cultural perspectives of the rangatahi. Time and time again, the importance of family, origins and upbringing were observed to impact on how a young person could engage with the assessment process. Simple questions regarding birth, where each person lived, the culture they identified with and using language such as Pakeha or Māori, were small ways to emphasise cultural background. As a white Australian, it was important to ensure correct pronunciation of Māori or Pasifika names as a means to respect culture. I even found greeting someone in Te Reo was helpful.

### **Impact of Reports and Providing Feedback**

The assessment process was followed by writing two summary documents. A short report was provided to staff and a feedback letter in simple language was given to the young men. Consultation with staff and rangatahi was crucial as we continually adapted and changed the format of documents to ensure ease of understanding, effective communication of recommendations and increased understanding of how cognitive difficulties impacted the youth. Education sessions were provided to staff, including case leaders, the activity officer, principal correction officers, psychologists and education staff; these sessions were beneficial to improve the capacity to use reports to facilitate changes in approach and intervention.

Anecdotal evidence suggested that rangatahi do not often receive feedback following their assessments when the assessment is conducted by corrections staff members. Forensic and Court assessments in Corrections are normally written in technical language for court settings; these reports are not written for the typical audience of youth who frequently have poor literacy skills and low cognitive abilities. In this study, the young men were provided with a feedback session and a one-page simple language summary. Initially it seemed that the brief feedback sessions that frequently only lasted 10 minutes were reflective of the young persons' disinterest; however, my perception quickly changed. Feedback from multiple case leaders, educators and the youth demonstrated the positive impact of such discussion. Many of the youth benefitted from further understanding themselves in terms of strengths and weaknesses, why they

experienced certain difficulties and strategies they could use to help. Numerous rangatahi sought further clarification once they had processed the initial feedback, discussed their cognitive strengths and weaknesses with others in the unit and even requested assistance from educators in the unit to identify potential employment that focused on their strengths.

Providing strategies around difficulties was important. This further understanding enabled a strengths-based approach and increased self-esteem in the young person. For example, one young person with very severe attention deficit hyperactivity disorder and poor literacy skills was identified as having above average abilities in his visuospatial reasoning and visual memory. These findings provided concrete evidence of his capacity to achieve his dream of a career that involved artistic skills. He also gained understanding of why he performed poorly in school. Similarly, another young man was identified as having a left sided frontal TBI as an infant. The TBI explained emotional dysregulation and poor verbal reasoning; he was not 'just stupid' as he had previously believed. Highlighting areas of strength increased his confidence at a period of time when his mental health had greatly deteriorated; he referred to feedback as a 'light in the dark'. I even received a very surprising hug 2 months later when I walked past him in the corridor.

When appropriate, whānau were also contacted with consent of the young person. The feedback to whānau was given by either me or a social worker. This feedback often provided relief for whānau as they gained more understanding of their child, validation of difficult experiences and in most cases, increased support for their child. This was particularly apparent for rangatahi who received a diagnosis of intellectual disability. Similarly, the report assisted those working with the youth in the residential facilities. Identification and understanding of individual cognitive strengths allowed staff to adapt to individual areas of difficulty, while employing a strengths-based approach. For example, a case leader described chunking information and using breaks to assist a youth with attentional difficulties. His educational pursuits transitioned to a focus on agriculture with a hands-on strength-based approach. Furthermore, support staff were educated regarding alternative ways to manage behaviour and increase understanding of cognitive abilities. This was imperative for rangatahi with low cognitive ability; such individuals were at times treated as someone with higher intellectual ability. Expectations around the individual's ability to generalise new skills and cognitive factors contributing to behaviour were better understood by staff. Therefore, the neuropsychological assessments assisted in changing intervention and expectations around rehabilitation and behaviour.

As case leaders gained greater understanding of the neuropsychological report and assessment process, reports were supplied to external providers including social workers, disability services, support services and probation officers. The assessments and reports also enabled engagement with such services as ACC, sensitive claims support, community-based welfare organisations, culture-specific services, disability support services and more appropriate housing post-release. Surprisingly, this was even demonstrated within the courts, whereby neuropsychological assessment reports have been requested by multiple judges to assist in better understanding the rangatahi and their needs.

### **Boundaries Encountered**

Despite the overall success of the process, there remained many barriers were encountered to providing a neuropsychological service in youth forensics.

### **Differing Processes Between Services**

Delivery of the neuropsychological service was difficult at times. There were completely different processes across the two facilities. Both residences had different approaches because of the age

of those within facilities. For example, the consent process was different between each facility. Similarly, for those aged under 16 years, parental consent was often difficult to obtain.

### **Capacity to Make Referrals as an External Provider**

As an external provider, identification of appropriate and specific services to refer to was difficult from the outset of the project. The initial goal of the neuropsychological project was to employ a research assistant to make suitable referrals within the community for the young men. This approach was not successful because of the complexity of the Corrections system and frequently changing factors. Such factors included uncertainty and changeable release dates, factors that changed at time of court appearance, changing release locations, offences committed by prisoners while they were serving time and changes in location of youth within Corrections. The project transitioned to identifying types of services required, as opposed to specific services. This was to enable those providing ongoing support to the young men (e.g. probation officers, case leaders, case managers and community-based workers) to make more effective referrals and apply for relevant funding/services available at the most appropriate time.

### **Confidentiality and Distribution of Reports**

Confidentiality and distribution of reports proved to be another significant obstacle. In Corrections, high levels of privacy are required to protect those incarcerated. However, it means that often crucial information is not provided to those working with the young men. At the start of the project in the Youth Unit, the report was provided to those working with the young men including the principal corrections officers, educators, activities officer and case officers. With ongoing meetings and discussion, different strategies were employed to increase accessibility to the report with consent of the rangatahi. Nevertheless, report access remained an issue; if a provider is unaware of the report, they are unable to request a copy.

Distribution and storage of reports within the youth unit was identified as a significant barrier that impacted the efficacy of the project. Through a long period of consultations and meetings the process was expanded to improve the use of reports through many means. First, the health unit stored the report on their electronic record system, which means a community general practitioner can access the report and a paper copy of the report is kept in the person's penal file. Those running rehabilitation programmes in the prison can request the report from the electronic record base with the young person's consent. Second, the case leader, with the consent of the young man, referred to the report in their recommendations to the court, summarised important sections of the report, and noted how the report can be obtained, provided the report to external providers they made referrals to on behalf of the young man and provided a copy of the report to the probation officer upon the young man's release. Third, copies of the report were provided to the rangatahi's whanau when consent was provided and it was found to be suitable; this was particularly important when whanau were a likely support base on release.

### **Obtaining Corroborative History**

Obtaining corroborative history was difficult for a number of reasons. First, many of the rangatahi came from complex backgrounds, which means it can be difficult to ascertain the appropriateness of contacting family members. Second, previous Oranga Tamariki involvement can also signal trauma within the family home or frequent transitions between different homes, therein limiting suitable persons from whom to obtain corroborative history. Moreover, it was often difficult to obtain contact details of those individuals the youth provided consent to speak with. Finally, the history obtained was often limited. Even Oranga Tamariki records, which were also very difficult to request (given the sensitive nature of information), did not reveal information beyond what the young person or other documentation could provide, such as medical information available from Health One.

## Overall Reflections

The youth justice setting is both emotionally difficult and rewarding with respect to the positive impact of neuropsychology. Neuropsychological assessment, reports and feedback can facilitate greater understanding of both strengths and weaknesses for youth, whānau and individuals supporting the young men in the justice setting. This can potentially lead to reduced recidivism and break the cycle in Corrections. However, there are many considerations that can improve the way an assessment is completed in terms of relationship building, the way an interview and assessment are completed and the form of feedback or provision of reports. With greater understanding of cognitive sequelae and implementation of neuropsychological assessment, rehabilitation can be tailored for better use of services. Nevertheless, there are barriers that impact the extent that neuropsychological assessments can be used.

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## Evaluation of a Group Programme for Adult Family Members of Individuals with Traumatic Brain Injury in Aotearoa New Zealand

Nic Ward, Siobhan Palmer, Nalita Naidu & Kristin Gozdzikowska

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*Traumatic brain injury (TBI) has adverse, long-term impacts on injured individuals and their whānau/family members. Family often have a critical role in rehabilitation, especially in New Zealand culture, which is traditionally family-centric. An established family education programme (the Brain Injury Family Intervention Programme) was applied with six multi-family groups in New Zealand between 2017 and 2020. Outcomes were evaluated using pre- and post-group questionnaires (Perceived Stress Scale, Family Needs Questionnaire, Brief Coping Orientation to Problems Experienced questionnaire, and a satisfaction survey). The results showed a significant reduction in stress and coping by 'behavioural disengagement', and a trend away from coping by 'denial', with significant increases in met emotional and professional support needs. Group members reported better coping, improved understanding of TBI, and benefitting from peer-support. These findings enhance existing evidence that curriculum-based family/whānau groups can improve understanding and coping of family members. Challenges of evaluating clinical interventions are discussed.*

**Keywords:** Brain Injury, Rehabilitation, Family, Education, Group

In Aotearoa New Zealand (NZ), the Accident Compensation Corporation (ACC) funds interventions for traumatic brain injury (TBI). In their TBI Strategy and Action Plan, the ACC proposed developing group education programmes so that

*...people with TBIs and their whānau (extended family) feel informed and prepared to meet the challenges that come with TBI. Through improved understanding and networking with others who have had similar experiences, they gain knowledge that supports self-determination and the new ways of living needed in facing the challenges associated with TBI. (ACC, 2017–2021, p.21)*

*Dr Nic Ward is a Clinical Psychologist and Neuropsychologist with the Laura Fergusson Brain Injury Trust, where she works as the Clinical Lead for Psychology. She also continues to chair the New Zealand Special Interest Group in Neuropsychology (NZSIGN), which she has helped establish and develop since 2011.*

*Siobhan is a UK trained clinical psychologist/ neuropsychologist who has worked with the Laura Fergusson brain injury trust since 2018. She is co-author of 'A relational approach to rehabilitation' a book focussing on different ways of formulating and supporting people and their families after brain injury.*

*Nalita Naidu is a Clinical Psychologist and Neuropsychologist who graduated from the University of Canterbury in 2017. Since this time she has worked for the Laura Fergusson Brain Injury Trust, working primarily in the area of brain injury rehabilitation and neuropsychological assessment.*

*Dr Kristin Gozdzikowska is a Speech-Language Pathologist, trained at the University of Washington-Seattle. She received her doctoral degree in 2016 from the University of Canterbury. Kristin supports the Laura Fergusson Brain Injury Trust as a Clinical Researcher. Her clinical research has a focus on co-design and incorporating the lived experience of individuals, particularly in working with individuals following traumatic brain injury.*

This inspired a review of family support services in the Laura Fergusson Brain Injury Trust (LFBIT) and the start of a family/whānau education and support group. This paper describes the evaluation of the group programme between 2017 and 2020. A population-based study in NZ found the total incidence of moderate to severe TBI was 41 per 100,000 population (Feigin et al., 2013). Therefore, over 2,000 families per year are estimated to be affected by TBI in NZ. As NZ is a country with low population relative to its size, TBI services cover large, often remote, geographical areas.

The impact of TBI on injured individuals and their families is lifelong (Dillahunt-Aspillaga et al., 2013; Perlesz et al., 1999; Kolakowsky-Hayner et al., 2001; Clark-Wilson & Holloway, 2020) and the value of supporting family members during the rehabilitation journey has been documented and demonstrated (e.g. Bowen et al., 2010; Hart et al., 2018). TBI can introduce a variety of stressors such as changed roles in relationships, grief, loss and emotion regulation challenges (e.g. increased irritability, emotional lability). Changes in cognitive or physical functioning can increase dependence in everyday tasks. While some families adjust well, many continue to present with high levels of distress (Gagnon et al., 2016). A relationship has been identified between caregiver well-being and survivor outcome; Oddy and Herbert (2003) suggested that a caregiver's ability to cope with changes directly impacts the injured person. Sander and colleagues (2002) reported that a well-adjusted family can contribute greatly to success in rehabilitation, general functioning, independence and employability. Vangel and colleagues (2011) showed that social support for caregivers can moderate outcomes for injured individuals; perceived poor caregiver support was associated with reduced psychological well-being for the injured relative. This may be summarised as 'family support and education by professionals are integral for patients' and the family systems' optimal recovery and outcome' (Klonoff et al., 2017, p.364).

Family interventions described in international literature generally aim to involve relatives in rehabilitation through provision of information, psychological support, coping skills and facilitation of community support (Backhaus et al., 2010; Charles, et al., 2007; Damianakis et al., 2016; Petersen & Sanders, 2015; Kreutzer et al., 2010a). Family interventions are frequently in group format to create opportunities to share experiences. There are multiple descriptions of group formats, with differing duration and frequency of meetings. The outcomes consistently include benefits relating to understanding and coping. Some groups involve the individual with TBI (Couchman et al., 2014) and others involve only family members (Tyerman & Booth, 2001; Charles et al., 2007). Couchman et al. (2014) conducted a 12-week multifamily group therapy for individuals with acquired brain injury (ABI) and their caregivers. They documented that connection with others within the group, sharing experiences and the gaining of knowledge and understanding were crucial to this process. A multifamily group was also trialled by Charles and colleagues (2007) in Australia, who implemented a 12-session programme over 6-months for families with a parent with ABI. That study reported unequivocal positive feedback from participating families, and the evaluation showed reduced shame and isolation, increased understanding of brain injury, and movement from blame towards compassion. Those authors recommended more multifamily group work in brain injury services.

Petersen and Sanders (2015) ran a five-session group that offered education about brain injury, grief, loss and coping strategies. Caregivers identified greater awareness of their grief as a result of participating in this programme. Backhaus and colleagues (2010) reported that participation in a 12-session brain-injury-skills coping group led to increased understanding of TBI and rehabilitation processes, increased feelings of control and increased communication skills for survivors of brain injury and their caregivers. Tyerman and Booth (2001) described six half-day relatives' workshops held annually for education and support. Perceived positive aspects of the



workshops reported by participants were direct educational content, talking to others in a similar situation and the realisation that they are not alone. Finally, Damianakis and colleagues (2016) demonstrated benefit to family members using a web-based video-support group for caregivers.

Despite documented benefits of groups for families impacted by TBI, there are currently no evidence-based guidelines regarding the specific format, content or frequency of such groups. There is inconsistency in support and education offered across countries, clinical settings and mechanism of injury, and no guidelines are available for the NZ context. Foster and colleagues (2012) reported that facilitating engagement of family members in rehabilitation in NZ required attention to: early engagement, meeting cultural needs, keeping families together, active listening, active involvement, education, skills training and support for community re-integration.

The strongest evidence we found for a replicable family education and support group was the Brain Injury Family Intervention programme (BIFI; Kreutzer et al, 2009), which is a curriculum-based programme designed to be delivered to the injured person, alongside their family members. This programme is manualised but can be adapted. It is grounded in family systems theory and cognitive behaviour therapy, with interventions including education, skill building and support. In a controlled comparison trial, caregivers in the BIFI group showed an increase in met needs, greater satisfaction with services and reduced burden relative to baseline, whereas controls did not (Kreutzer et al., 2015; Kreutzer et al., 2010b).

The LFBIT is based in Canterbury and offered inpatient and community rehabilitation at the time of this project. The Brain Injury Association (BINZ) offers group support, advocacy and signposting to services across NZ, but Canterbury falls outside of BINZ cover, meaning no service existed to support families during the inpatient admission or following discharge. The clinical challenge was therefore to run an accessible group to support families at various stages post injury, with education and sign-posting for other services/resources as indicated, within the resources available under ACC rehabilitation contracts. LFBIT provided inpatient and community rehabilitation services at the time and therefore held a database of clients with TBI in the region.

The present study aimed to evaluate a modified version of the BIFI programme that was offered to whānau, but not injured individuals. This could therefore be run as a multi-family group rather than one group per family to improve efficiency and feasibility. It was expected that the modified BIFI would lead to an increase in met needs, as seen with the original format. As the BIFI curriculum provides education about coping strategies, our evaluation also included measures of how overloaded ('stressed') participants felt, and assessed coping strategies used pre- and post-group. The essential components of this intervention were hypothesised to be education about TBI, coping and the opportunity to talk about one's personal experience. This service evaluation adds to the growing evidence base regarding interventions for families affected by TBI, especially in NZ.

## **Method**

### **Participants**

Participants were recruited via the LFBIT rehabilitation services client database. Inclusion criteria were clients aged  $\geq 16$  years with a partner or family member diagnosed with moderate to severe TBI. Potential participants were contacted by letter, in person or by telephone. Posters advertising the group were displayed around LFBIT services. Those who expressed an interest in this study were given an information sheet (aims, content, location, times) and invited to opt in. Participants were informed that this group would be evaluated but they would not be excluded if

they declined the questionnaire component. A total of 82 family members signed up to attend the groups between 2017 and 2020.

### **Materials**

The BIFI programme and handouts can be sourced online. Our first session was used for introductions, talking about where we were from and building relationships (whakawhanaungatanga). The BIFI programme topics then followed in sequence. We adapted the BIFI programme by removing the ‘problem solving’ session as this was aimed more towards the injured individual rather than family. An outline of the topics covered in each session is presented in Box 1.

#### **Box 1: Session topics covered as part of the adapted BIFI programme**

1. Getting to know each other: introduction to the effects of brain injury on the family.
2. Effects of brain injury on the survivor and family: what is normal after brain injury, how does it affect the whole family?
3. Understanding recovery: emotional and physical recovery, mastering the art of patience, coping with loss and change.
4. Managing stress and intense emotions.
5. Strategies for optimal recovery: taking care of yourself, focusing on gains and accomplishments.
6. Recap, additional education topics to be decided by group, completing final questionnaires.

### **Procedure**

The group was held face-to-face, once a week on a weekday evening for 90 minutes at the LFBIT residential rehabilitation facility, over 6 consecutive weeks. Group members were sent a reminder text on the day of the session. Sessions were run by two clinical psychologists with experience in TBI rehabilitation. The lead author was consistently present, and another psychologist joined for each group series. The lead author supervised the other psychologist in advance of each session. Because of the availability of psychologists in the service, all facilitators were female. Overall, the facilitators had practiced as therapists for an average of 5 years (range 1–15 years).

The first group in a series was opened with a short karakia, and the final group was similarly closed with a karakia. The format of the sessions was 1-hour of guided discussions and structured exercises (using our modified BIFI curriculum), followed by a break for refreshments/kai and informal group-led discussion. Conversation was encouraged by the facilitators using open-ended questions, and occasionally direct questions to include quieter individuals. Voluntary homework tasks and readings were provided after each session, as per the BIFI curriculum.

### **Measures**

Participants were asked to complete the measures outlined below during the first and last group sessions.

**Family Needs Questionnaire-Revised (FNQ-R; Kreutzer & Marwitz, 2008).** In this 37-item self-report measure, family members are asked to indicate how well their needs are met (met, partly met, not met) in areas relevant to TBI. Factor analysis (Serio et al., 1997) identified six need domains: Health Information, Emotional Support, Instrumental Support, Professional Support, Community Support network and Involvement with Care. The FNQ-R has documented content validity and clinical utility, and is well targeted for assessing family need after TBI (Røe et al., 2020). The FNQ-R was selected for this study because it was used in the original BIFI evaluation.

**The Perceived Stress Scale (PSS; Cohen et al., 1983).** This 10-item self-report measure assesses individual perceived stress. The PSS has adequate reliability and validity, and was correlated with depression but measures a separate construct (Cohen et al., 1983). Scores range from 0–40, with higher scores indicating higher stress.

**The Brief Coping Orientation to Problems Experienced (Brief COPE; Carver, 1997).** This is a 28-item questionnaire that assesses use of different coping strategies. There are 14 domains aligned with different coping styles, each comprising two items that are rated 1 to 4 (Cooper et al., 2008).

**Satisfaction survey.** This four-question self-report measure was administered after the group. In this survey, overall programme helpfulness is rated from 1 to 4 ('not at all', 'a little', 'moderately' and 'very'). Participants were also asked the following three questions. (1) Would you recommend this programme to other families? (2) How do you think the family support programme was helpful for you? (3) How has this group helped your injured relative?

### **Data Analysis**

Analyses were conducted using SPSS-28. A one sample t-test was used to assess whether the level of stress (PSS) differed significantly between pre- and post-intervention. Data from the Brief COPE and FNQ-R were used to evaluate within-subject differences; therefore, only complete pre- and post-datasets were analysed. As the latter data would not meet parametric assumptions, the Wilcoxon signed-rank test was used to explore changes in individual coping styles and needs met post-group.

### **Ethical Considerations**

The project was identified as out of scope by the New Zealand Health and Disability Ethics Committees (HDECs) online scope of review form, and therefore did not require review by the HDECs. The evaluation met HDECs criteria for an audit study of usual practice (HDECs Standard Operating Procedures, Section 3). LFBIT does not have access to an alternative ethics or research and development committee. All participants provided written informed consent for their outcome data and feedback to be included anonymously in this evaluation study.

## **Results**

### **Participant Characteristics**

In total, 78% of those who opted to participate in this study were female and 22% were male. The majority of participants were partners or parents of the injured individual. There were also two grandparents, 12 adult children, five siblings, three aunts and one individual whose husband and son had been injured so she had a 'dual' role (see Table 1). Many participants who completed the initial questionnaires did not finish the group and therefore did not complete the post-group questionnaires. Some participants chose not to complete the questionnaires or made mistakes that invalidated their scores. One participant was Nepalese and had limited English;

that participant was provided with some translated handouts, but did not complete the questionnaire measures as these were only available in English. All other participants were fluent in English. In total, 37 valid pre-group and 27 valid post-group questionnaires were completed.

Table 1  
*Sample Characteristics*

		Relationship to injured person								
		Male	Female	Spouse/ partner	Parent	Grand parent	Dual role	child	Sibling	Aunt
Groups attended	≥4	7	28	15	14	1	1	2	1	0
	1-3	7	18	9	5	1	0	6	3	2
	0	4	18	6	10	0	0	4	1	1
	% sample	22%	78%	37%	35%	1%	1%	15%	6%	4%

### Attrition

Of the 82 individuals who opted into the group, 46 came to the first session. Sixteen participants completed the entire group series and a further 19 attended all but one or two sessions. Reasons for non-attendance included: travel time, providing care to the injured or other family member or work commitments. Group attendance is summarised in Table 2.

Table 2.  
*Individual Group Data*

Group	Opted in	DNA first session	Attended first session	Attended ≥4 sessions	Attended ≤3 sessions	Attended 1 session only	Attended 0 sessions
1	13	4	9	9	4	2	0
2	13	3	10	9	4	1	2
3	7	2	5	4	3	2	0
4	12	6	6	1	11	3	4
5	20	16	4	4	16	1	13
6	17	5	12	8	9	3	3
Total	82	36	46	35	47	12	22

Chi-square analysis indicated that the likelihood of attending three or fewer groups was not independent of the relationship of the individual with the injured person ( $\chi^2(1, 41) = 3.56, p = .059$ ). Post hoc analysis indicated that children were significantly less likely to complete the group than parents. However, there was no significant relationship between gender and attendance ( $\chi^2(1, 82) = 0.136, p = .713$ ).

### Perceived Stress

Pre-group, 37 participants completed the PSS and their average score (17.4) was significantly higher than the population mean ( $t(36) = 4.43, p < .001$ ). After the group, 27 participants completed the PSS; the average score was reduced (13.9) and no longer significantly different to the population mean ( $t(26) = 1.03, p = .154$ ).

## Family Needs

The FNQ-R was completed by 36 participants pre-group and by 27 participants post-group. There were 22 matched-pairs data sets. Matched-pairs analysis showed the extent of needs rated as ‘met’ post-group was significantly higher than pre-group in the domains of emotional support ( $Z = 2.57, p = .010$ ) and professional support ( $Z = 2.33, p = .019$ ). There were no significant differences for the other domains. Figure 1 illustrates these findings. There was a trend towards increased met needs in health information, and reduced rating of needs met in the instrumental support, community support and involvement with care domains.

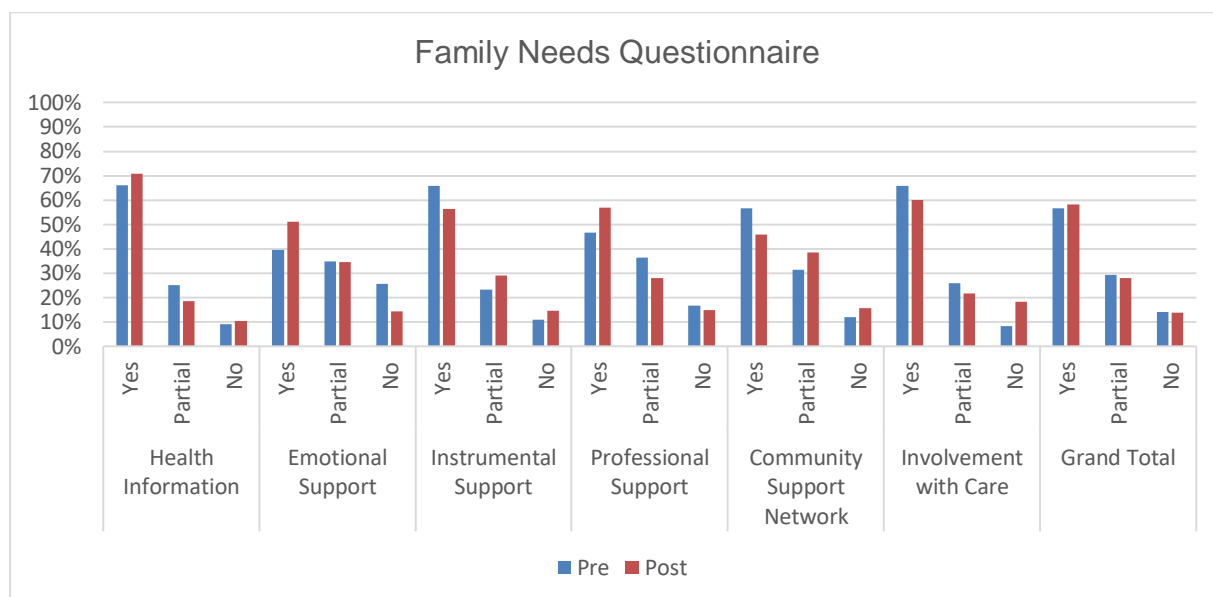


Figure 1. Needs met, partially met and not met pre- and post-group.

## Coping

Matched-pairs analysis showed a significant decrease in frequency of using ‘behavioural disengagement’ post group ( $Z = -2.070, p = .038$ ). This domain covered ‘I’ve been giving up trying to deal with it’ and ‘I’ve been giving up the attempt to cope’. There was a trend towards significance in the ‘denial’ subscale ( $Z = -1.63, p = .102$ ), suggesting reduced use of denial. Denial comprised ‘I’ve been refusing to believe that it has happened’ and ‘I’ve been saying to myself “this isn’t real”’. There were no other significant differences.

## Satisfaction Survey

The satisfaction survey was given to all participants in the last group irrespective of how many sessions they had attended. When asked to rate the helpfulness of the programme, the majority indicated ‘Very’ (69%), followed by ‘Moderately’ (26%) and ‘A little’ (5%). All respondents confirmed they would recommend the group to others. Participants reported feeling less alone and benefitting from sharing, improved understanding of TBI, increased awareness of the injured individual’s experience and improved coping.

Examples of participants’ comments include:

*‘We realised we are not alone...’*

*‘...the support of others who understand, acknowledging things will never be the same...and sharing feelings has helped process my thoughts’.*

*‘...seeing those earlier in the journey has made me grateful for our recovery’.*

*'Great to hear other people's stories...to share ways of coping'.  
'Gave skills in handling difficult circumstances'.  
'Topics raised and discussed were often things I had never talked about with anyone...breaking it down and sharing ideas was helpful'.*

When asked, 'How has this group helped your injured relative?' participants reported:

*'He knows we're not alone'.  
'I am more understanding, have more patience'.  
'They have understood that their condition takes a toll and feel happier that I can get support. He doesn't have to feel sole responsibility'.  
'This programme made us aware of [injured family member's] feelings and what it's been like for him'.*

### Discussion

This service evaluation reviewed application of the BIFI programme with a multi-family group in NZ to establish the programme's clinical utility in supporting family members of individuals with TBI. A mixed methods design was used to evaluate the group with widely used psychological measures administered pre- and post-group. At baseline, participants' scores indicated they were more stressed than average. Their scores improved markedly and were within the normal range post-group. There was a significant decrease in participants endorsing 'behavioural disengagement' as a coping style, and a trend towards reduced denial. This trend did not meet statistical significance, potentially because of a lack of power, and further investigation with a larger sample size is warranted. There was a significant increase in the extent to which emotional support and professional support needs were rated as met. As needs related to professional support and emotional support subscales have been frequently rated as unmet (Spencer et al., 2019; Anke et al., 2020) the findings of this study were encouraging, despite the small sample size. Domains of improvement related directly to the format and content of the group and with outcomes of previous BIFI evaluations, suggesting that the observed changes related directly to the intervention. Finally, when asked if they would recommend this group to other families, 100% of respondents said 'yes'. Data from the satisfaction survey suggested that both the content of the programme and the sharing of experiences were useful.

There were also trends indicating participant needs in domains of instrumental support, community support and involvement with care were met *less* post-group. The authors hypothesised that this was attributable to family members reflecting during the group and realising that they were not feeling supported by their community, leading to worsened post-intervention self-ratings. The positive aspects of this programme identified by participants were consistent with those reported in other support programmes, including direct educational content, the chance to talk to others in a similar situation and feeling less alone (Tyerman & Booth, 2001).

These results suggested that positive changes can be elicited by the modified BIFI group. Consistent with recommendations of the ACC TBI Strategy and Action Plan (ACC, 2017) this format could be feasibly integrated into rehabilitation provision. These findings contribute to existing evidence demonstrating group programmes are a viable and valuable means of supporting families. Supporting whānau has benefits for the family and potentially for the injured relative, and contributes to the development of user-friendly clinical pathways in NZ.

## **Limitations and Future Directions**

There was a relatively low response rate to the psychometric measures, which may be attributable to by various factors. The authors therefore modified how the psychometrics data will be collected to enhance the response rate in future groups.

Despite 82 people opting in, only 46 attended the first session, and there was significant attrition across the sessions. The timing and location of group sessions was not suitable for all group members. Ideally, groups could be run more often and at different times to work around accessibility problems; however, the relatively small population of people with TBI in Canterbury means that there were not enough participants for this to be feasible. The low number of potential participants also made running a control (or wait-list control) group intervention problematic. This means that it is difficult to conclude with certainty that the effects seen in this study were not due to the passage of time or generic effect of participation in any kind of group. Further studies in more populous areas could run a waitlist control group to answer these questions. Internet-based interventions, including an online group, may provide an opportunity to reach more people, particularly given the rural population of NZ. Rural populations may have greater need for co-ordinated, accessible and tailored supports, as found in Australia (Bellon et al., 2015).

We did not record group members' cultural identity or ethnicity, which is information that would have been pertinent to collect. Māori and Pasifika groups are over-represented in the brain injury population, but the material covered was designed for an American population and did not reflect the biculturalism in Aotearoa NZ. We did start the programme with an additional session designed to promote whakawhanaungatanga; however, the needs of Māori or Pasifika whānau were not specifically addressed by this programme. The next stage of developing the BIFI programme for the NZ population could include changes such as explicitly referencing Māori models of health during the sessions and including Te Reo and Samoan translations of handouts. Evaluating such a programme would also require consideration of culturally sensitive questionnaire measures.

We noted that a higher proportion of adult child relatives dropped out of the groups compared with other relatives, which suggested that their needs may be different. However, given the small sample size, this would require further investigation. Given the small population in Canterbury, the groups brought together families at different stages in their journey. Although this may have been beneficial for some, potentially through creating an opportunity for peer support, it may also have contributed to the attrition of other members, as their primary needs could have been different. Current practice continues to invite family members to attend groups a second time if they would like to. Another means of increasing group size would be to merge families with TBI and ABI. A feasibility study could be considered for a cross-services model of family support that included families impacted by all types of non-progressive brain injury, particularly in smaller population areas. As TBI and ABI rehabilitation are funded through different streams in NZ, a viable funding model would need to be established for such an intervention to be sustainable.

## **Conclusions**

This project supports the growing evidence that professionally-led family/whānau support and education groups contribute positively to individual and family system outcomes after TBI. Clinical psychologists working in TBI services are strongly encouraged to develop similar groups that are tailored to our unique culture and explore ways of evaluating them to capture meaningful change. Groups could potentially be co-facilitated by other members of a multi-disciplinary team; however, because of their training in complex family systems and

psychological well-being, such groups are best led by clinical psychologists. This research supports ACC's proposal to develop group education programmes. However, there is no explicit ACC funding for such services. As the main funding body for TBI healthcare in Aotearoa NZ, ACC is strongly encouraged to allocate funding for such group programmes.

### Acknowledgements

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### Conflicts of Interest

The authors declare no financial, consultant, institutional or other relationships that may lead to bias or a conflict of interest. This project received no specific grant from any funding agency, commercial or not-for-profit sectors.

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## General Articles

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### **‘Nature Calms Him and it’s Almost Like a Friend he Doesn’t Have to Impress’. The Effects of an Outdoor Nature Classroom on Children’s Wellbeing: A Parent’s Perspective**

**Naisargi Shroff & Julia Ioane**

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*Increasing evidence has shown the benefits of an outdoor learning environment on children’s wellbeing and development, although there is limited research available from a parent’s perspective or from Aotearoa New Zealand. This honours dissertation study explored the effects of an outdoor-nature classroom on children’s wellbeing from the perspectives of their parents. Data were collected through semi-structured interviews and analysed thematically. Themes highlighted the effects of an outdoor-nature classroom on children’s wellbeing. Parents highlighted their children’s positive experiences that were impacted by nature-play. The study concludes with recommendations to enhance outdoor learning that is widely accessible to the community, to provide holistic learning opportunities for children.*

**Keywords:** outdoor play, children’s well-being, nature play, outdoor classroom

Free play for young children and adolescents is a multidimensional concept focusing on self-directed play. However, the key criteria that govern free play are freedom of choice, engaging in activities without worrying about the outcomes, and personal enjoyment (Hughes, 2003). The benefits of free play are developments in physical, emotional, cognitive, and social wellbeing or skills (Wells, 2000). Faber Taylor and Kuo (2011) focused on children with attention deficit hyperactivity disorder (ADHD) and noted milder symptom severity in children who regularly engaged in nature-play. Nature-play is initiated and directed by children, is conducted in an open, outdoor space (parks), and involves multitudinous nature activities (Erickson & Ernst, 2011).

The theoretical framework for these studies, was based on the theories of ecopsychology, developmental psychology and evolutionary biology. In ecopsychology, Kaplan’s attention restoration theory, proposes that exploration of nature reduces daily stressors, and provides time and opportunity for individuals to reflect on issues they are facing (Ohly et al., 2016). In developmental psychology, Vygotsky’s sociocultural theory, states that children’s social interactions in nature-play (with multicultural individuals and the surrounding environment) may facilitate skill-learning and development. Lastly, in evolution and biology, Wilson’s biophilia hypothesis, explains the importance of the human-nature connection for cognitive development, physical wellbeing, and emotional/mental wellbeing (Dowdell et al., 2011).

The present study focused on a nature-based programme in Aotearoa New Zealand (NZ) and how the programme may benefit children’s wellbeing. Wellbeing refers to the holistic state of an individual’s livelihood; the state of physical, emotional, environmental, spiritual, educational and social relationship development (Crisp, 2001). Cosgriff (2016) examined outdoor education in Aotearoa NZ and noted the importance of making use of local places. The research question examined in the present study was, ‘What are the effects of an outdoor-nature classroom on children’s wellbeing, from the perspective of their parents?’

*Naisargi Shroff is of Indian descent and a postgraduate student in psychology. She intends to apply for the clinical psychology programme working with children and adolescents. She has a working background in outdoor nature play and is currently conducting assessments in the disability sector.*

*Julia Ioane is of Samoan descent and is a registered clinical psychologist. She teaches in the clinical psychology programme at Massey University and works with children, young people and their whanau in care and protection and youth justice environments.*

## Literature Review

### Connection of Wellbeing and Nature

Howell et al. (2011) examined the connections between nature, wellbeing, and mindfulness, which highlighted a significant association between psychological wellbeing, social wellbeing, and nature immersion. Within the lens of Forest Schools, self-determination theory describes that wellbeing in nature-classrooms is fostered through fulfilling competency, autonomy, and relatedness/connection needs (Barrable & Arvanitis, 2019). Nature impacts concentration, encourages exploration, free-play, using natural resources to solve problems, increased cooperative play and decreased depression, stress and anxiety (Chawla, 2015). Largo-Wight et al. (2018) investigated a nature-classroom intervention for elementary children, from language, arts, and writing classes. The outdoor classroom identified fewer behavioural issues, better focus and attention to study tasks, and moderate increases in wellbeing.

### Physical Wellbeing and Nature-Play

Physical wellbeing refers to performing physical activities, safety management, developing resilience in the physical body and reduced experiences of fatigue (Dodge et al., 2012). Specifically, developing gross and fine motor skills alongside additional physical skills (Sibley & Etnier, 2003). Fjortoft (2004) investigated the effects of nature-play on children's motor development and concluded a significant increase in motor activity (coordination, balance). Dymont and Bell (2008) identified that 'green sites'<sup>1</sup> in schools inspired light-moderate physical activity, and reduced the risk for physical illnesses.

### Emotional Wellbeing and Nature-Play

Emotional wellbeing refers to an individuals' ability to cope with life stressors, contribute to their communities and engage in positive relationships (Gorman, 2010). Specifically, it is increased positive emotions, developing the ability to cope with adversity, self-acceptance, self-esteem, increased independence, and autonomy (Uhlmann et al., 2018). Korpela et al. (2014) identified a strong association between nature-based recreational play, emotional wellbeing and increased positive emotions. McCormick (2017) reviewed improved mental and cognitive wellbeing associated with increased access to nature/green spaces. Specifically, ADHD and depression symptoms moderately improved following nature-play.

### Behavioural Development and Nature-Play

Behaviour development refers to positive behaviour management, learning to communicate and conflict management in relationships (Dankiw et al., 2020). Specifically, it is developing self-confidence, leadership, safety awareness, concentration, active listening, better engagement in tasks and lowered behavioural challenges (Ying et al., 2016). A study which focused on the association between children's ADHD and changes in behaviour in the natural setting; showed increased concentration and creativity in the nature setting, and increased aggression, social isolation, inattention, and hyperactivity in the built setting<sup>2</sup> (van den Berg & Van den Berg, 2011). In addition, Guardino et al. (2019) reported that children with or without special needs displayed less off-task behaviour, less redirections in behaviour and more engagement/focus while in the outdoor-nature classroom. The theoretical framework was based on the

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<sup>1</sup> The term 'green sites' refers to changing the design, use and culture of school playgrounds to promote nature-play and learning experiences (involving natural shelters, trees, rocks, meadows) (Dymont & Bell, 2008).

<sup>2</sup> The term 'built setting' refers to a square and spacious piece of land, in the middle of a neighbourhood, compared with a natural setting, which was a spacious, quiet piece of land, in a wooded area (van den Berg & Van den Berg, 2011).

constructivist approach theory, which proposes that natural materials and time outdoors promotes learning.

### **Relationship Development and Nature-Play**

Relationship development refers to promoting connections with others, a sense of belonging within the community, building trust, and managing conflicts. A study based on the social network theory, explored the association between outdoor and free play, increased cooperative play, peer interactions, and social networks (Duque et al., 2016). Based on Vygotsky's sociocultural theory, Pic (2020) investigated conflict management skills among culturally diverse preschool children in an outdoor and free-play setting, and found lower conflicts in the outdoor setting, healthy conflict-resolution, opportunities for social and cognitive development, problem-solving, listening, friendship-building and negotiations.

### **Educational Development and Nature-Play**

Educational development refers to promoting educational teachings, and learning practical skills of communication, writing, reading, listening and problem-solving (Zimmerman, 1995). Bento and Dias (2017) assessed increased learning in the outdoors, connecting with natural elements, learning risk-taking, divergent thinking, problem-solving skills, and creativity. Specifically, outdoor classrooms supported the successful completion of annual literacy and science goals; this was theoretically based on Vygotsky's zone of proximal development, where guidance and encouragement from educators can support children in overcoming educational challenges (Bento & Costa, 2018).

### **Study Rationale**

The present study aimed to assess multiple components of wellbeing (physical, emotional, behavioural, relationships and educational development) in a community nature-based programme. As limited research is available on children's experiences of outdoor spaces, especially in Aotearoa NZ, this study explored children's experiences through their parents' perspectives. In addition, specific to the present study, Nicholson's theory of loose parts was pertinent behind the programme's philosophy (Fjortoft, 2004). For example, building huts with tarpaulin, ropes and tree branches as free play.

## **Method**

### **Study Design**

This study used a qualitative research design. Qualitative interviews were considered the most suitable approach to exploring the research question as these provide an insight into human behaviour, interactions, belief, values and attitudes (Potter & Hepburn, 2005; Queiros et al., 2017). Qualitative research provides a naturalistic setting and increases participants' level of comfort and openness to describe their experiences in detail; thereby facilitating assessment of reoccurring themes in their responses, to make inferences regarding wellbeing and nature-based play (Lord et al., 2009).

### **Measures and Materials**

The measures used in this study were 13 questions that explored changes in wellbeing that parents observed in their children after participating in the Conscious Kids programme. These questions incorporate different types of wellbeing, which are based on Roberts et al.'s (2020) systematic review. The review explored children's connection to nature, developments in physical and emotional wellbeing and positive impacts on behaviour, relationships and skills. Interviews were conducted via Zoom, and interview responses were recorded by the researcher.

## Procedure and Participants

Ethical approval was sought and obtained via the relevant Human Ethics Committee. The study advertisement and participation information were emailed to families, and participants were recruited on a first-come-first-served basis (random sampling and voluntary-based). Participants signed a consent form, and completed a 1-hour interview with the researcher. Participants were five parents of children currently engaged in the programme and that had completed at least one school term (10 weeks) of the 1-day programme. This programme is a 7-hour nature-based experience where children develop problem-solving skills and an awareness of the environment. Data were collected over a 7-week period. Upon completion of the interviews, the audio recordings were transcribed for thematic analysis (Clarke & Braun, 2014).

## Data Analysis

The approach used for data analysis was thematic analysis, which organises and identifies themes, infers meaning and finds common patterns from people's experiences (Clarke & Braun, 2014). The six phases of thematic analysis are: familiarising with the data and transcripts, generating initial codes, searching for themes, revising or removing potential themes, defining themes, naming these themes and producing a written report. However, there are concerns regarding the accuracy and reliability of coding themes, the researcher/coder's subjectivity, and its impacts on theme and pattern generation (Terry et al., 2017). This study focused on inductive coding (no set codes to begin with and codes were solely generated from the interview data). Similar codes from the interviews were combined, to form a narrative ('story' of the patterns/themes) and excerpts were selected to provide support for the chosen themes.

## Results

Participants were anonymised in the order they were interviewed (Participant A, Participant B, Participant C, Participant D and Participant E). The research question answered through the thematic analysis was, 'What are the effects of an outdoor-nature classroom on children's wellbeing from the perspective of their parents?' Following thematic analysis, five themes were created: (1) learning practical skills; (2) learning resilience and coping skills; (3) increasing self-confidence; (4) developing friendships and belonging within a mixed-age group; and (5) increasing connection to nature.

### Theme 1: Learning Practical Skills

The theme explored children learning practical skills from the nature-based classroom (increased gross motor skills, fine motor skills, safety management, hut-building and tree-climbing skills). These skills positively benefitted children's physical wellbeing and educational development.

*They've learned skills about safely using pocketknives, ropes for play and tree climbing. Now, they have a very strong sense of safety. Social science, physical education, dialogue, exposure to books, literacy, lovely practical skills with knives, building, wildlife and they've had a real interest in soil and rocks. (Participant A)*

*[Child] went on kayaks, climbed trees, played football and developed those physical skills. They can develop their fine motor skills, when they're making little natural clay things with their hands, peeling or whittling their sticks. (Participant C)*

### Theme 2: Learning Resilience and Coping Skills

This theme explored children developing resilience and coping skills to overcome challenges, through outdoor, nature play. As a result of learning these skills, children learned to clearly

communicate and cope with their emotional needs. These skills positively benefitted children's emotional wellbeing and positive behavioural development.

*The ability to stay outdoors...[Child] didn't like the rain to begin with but now, happy to be outside all day and coping with the wet weather. It's growing the resilience to cope with the physical nature of what they're doing. Emotional resilience is developed when you're outdoors for 7 or 8 hours a day. (Participant E)*

*His emotional wellbeing has gotten stronger. He's learning a lot of emotional language; he will tell you what he's feeling, or when he needs a break. He learned about filling people's cups, so now he will tell you if his cup is full. He can control a little better and takes time for himself. It has helped him become emotionally resilient in terms of other changes in his life. (Participant D)*

### **Theme 3: Increasing Self-Confidence**

The theme explored children's increasing self-confidence as an effect of attending the outdoor-nature classroom. Confidence benefitted children in multiple areas of their lives (persistence to try and willingness to contribute their experiences), and encouraged positive behavioural development.

*It has boosted their confidence, that they can take part in something like this and be okay. Confidence in nature just grows broadly; confidence to push their own boundaries, confidence, and knowledge to listen to their body. They did team work together, having to listen and problem-solve, they grew a lot of confidence within themselves. (Participant E)*

*Being more confidence, more independent. Climbing trees, jumping in a kayak and willing to try. Being less scared to try. [Child's] confidence with hanging out with older kids, not being afraid. The older ones, with the leadership skills. (Participant C)*

### **Theme 4: Developing Friendships and Belonging Within a Mixed-age Group**

The theme explored children developing strong friendships and a greater sense of belonging. They developed meaningful connections, which positively impacted their relationships, social development and emotional wellbeing, while elevating their sense of comfort and security within the programme.

*[Child] experienced the success of having friends and being part of a team. I think it was good for them to have friends within these different age brackets and that probably made them feel good, being friends with the older kids. (Participant C).*

*The space and no age separation mean children are free to figure out who they are alike. They can scaffold those hard conversations when there's problems or conflicts. Being honest, learning about each other and listening, so, their friendships are growing stronger. (Participant E)*

### **Theme 5: Increasing Connection to Nature**

The theme explored children developing an increased connection to nature and nature activities, through outdoor classrooms. Specifically, an interest in natural resources, which creates a positive impact on their emotional wellbeing and educational development (befriending and protecting the nature, recycling).

*Being out in the greenery. He goes into a hollow tree; it's helped with his sensory 'things'. The tree has spider webs, but he loves to sit and climb it. The nature calms him and it's almost like a friend he doesn't have to impress. For mental health and wellbeing, its huge.* (Participant D)

*He talks about conservation, recycling, asks where the water goes, how to get water out of a tap, and hates it when he finds rubbish anywhere. The whole sense of loving nature and loving your surrounds. Making friends with the animals because he almost gets to see they have personalities. He talks about birds, like the Pukeko, it's almost like they've made friends. At Churchill Park, he always used to speak about the eels, he'd come home with half the river in his boot.* (Participant D)

## Discussion

The aim of this study was to explore the effects of an outdoor-nature classroom on children's wellbeing and development from their parents' perspectives. Interviewing parents and collaborating with families to deliver nature-play to children was a beneficial approach because there is limited research available in this area (McCormick, 2017). These discussions yielded several important themes: (1) learning practical skills; (2) learning resilience and coping skills; (3) increasing self-confidence; (4) developing friendships and belonging within a mixed-age group; and (5) increasing connection to nature.

Parents highlighted that their children learned practical skills as an effect of the outdoor/nature classroom (Theme 1), and this contributed to their physical wellbeing and educational development. For example, development of gross motor skills, fine motor skills, safety management and increased physical education. This was consistent with Fjortoft's (2004) examination of nature-play that reported increased motor development and physical activity. Specifically, the present study aligns with the dynamic systems theory (Fjortoft, 2004), whereby nature-play enhances motor development and physical wellbeing. Furthermore, children learned practical skills of autonomy, decision-making, risk-taking, social sciences and exposure to books/literacy for educational development. Bento and Dias (2017) identified increased learning and problem-solving skills through nature-play, which supports the present study's findings.

As an effect of nature-play, parents identified the development of resilience and coping skills (Theme 2), which supported children in overcoming challenges and clearly communicating their emotional needs. This was congruent with Korpela et al.'s (2014) findings of a strong association between nature-play and increased positive emotions. Specifically, Shellman and Hill (2017) reported the development of resilience skills from attending an outdoor education programme and learning to communicate through emotional language. The present findings were also supported by Dankiw et al. (2020) who reported increased positive behaviour, improved communication in children and decreased behavioural challenges from attending outdoor-nature classrooms.

Learning self-confidence was a significant effect of the outdoor-nature classroom for children (Theme 3). Self-confidence contributed to positive behavioural development. For example, children became confident to push the boundaries, work together in teams, problem-solve, became independent in their own care and confident to try new things. These findings were consistent with previous studies (Duque et al., 2016; Pic, 2020) that explored nature-play or free-play and its positive impacts on growing confidence, relationship-building and problem-solving skills. Specifically, Vygotsky's sociocultural theory aligns with the present findings, as children's confidence was developed within social interactions.

Furthermore, in the present study, parents discussed the development of friendships and a sense of belonging, especially within a mixed-age group (Theme 4). Specifically, children developed meaningful interactions and comfort within the programme, which contributed to their relationship development and emotional wellbeing. The present study and that by Peters et al. (2016) collectively report meaningful connections to the outdoor space, a greater sense of belonging and improved social interactions. This study also aligned with Bronfenbrenner's biological systems theory, which posits that children's physical environments develop their social interactions (Pic, 2020). Interestingly, several parents shared that their children learned to interact with mixed-aged children (learned to cooperate, manage conflicts, and scaffold honest conversations with children older or younger than themselves). These findings were consistent with those reported by Peters et al. (2016) and Pic (2020) of improved conflict-management skills in outdoor settings for children.

Finally, parents highlighted their children's increased connection to nature (Theme 5) as an effect of attending outdoor, nature classrooms. In the present study, children developed interests in natural resources, which contributed to their emotional wellbeing and educational development. For example, children befriended and learned to protect nature, learned recycling and befriended animals (eels, birds), which helped calm their heightened sensory needs. This was congruent with Scannell and Gilford's three-dimensional model of place attachment; where the physical space or area of the nature-play is connected to emotional wellbeing. In addition, attention restoration theory (ART) is also aligned with the present study's findings. Stevenson et al., (2018) reported that ART associates nature experiences with lower mental stress, which implies that nature-play promotes improvements in emotional wellbeing. Together, Harvey et al. (2020) and the present study suggest; children's inherent need to connect with nature and forms of life for emotional wellbeing (biophilia hypothesis). The present study's findings contribute a novel perspective of 'befriending the nature and animals' for improvements in emotional wellbeing. Consistent with Sharma-Brymer and Bland (2016), parents discussed that redesigning nature sites in schools reduced physical illnesses, increased self-acceptance and positive emotions. There is a strong literature background for the identified themes of promoting nature-play in school settings.

### **Limitations and Future Research**

A limitation of this study was that although the outdoor, nature programme is open to the wider Auckland community, the experiences and themes discussed were not accessible across culturally- or age-diverse populations; because the five participants were New Zealand European females aged between 36–45 years, and high functioning adults in society. A possible limitation is that participants might have misinterpreted the interview questions, which would impact the identified themes capturing the different types of wellbeing (Doody & Noonan, 2013). Misinterpretations may be likely because of the nature of the Zoom interviews. For further research, collaborative interviews with children and their families or children independently may be beneficial to explore multiple perspectives of outdoor, nature classrooms and wellbeing. Ideally, further research could assess changes in children's wellbeing and types of development in the long-term within the programme.

### **Conclusion**

This study examined the effect of outdoor, nature classrooms on children's wellbeing and development through their parents' perspectives. The research builds on theoretical frameworks of the connection between nature and wellbeing (physical, emotional, behaviour, relationships and education). The effects of the programme included themes of learning practical skills, learning resilience and coping skills, increasing self-confidence, developing friendships, belonging within a mixed-aged group and increasing connection to nature. Exploring the effects of outdoor free-play and nature classrooms on different types of wellbeing, promotes widely accessible



nature play programmes for families and promotes change in the educational curriculum to incorporate nature programmes.

### Conflicts of Interest

The authors have no relevant conflicts or competing interests.

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# Physical Activity and Mental Health: There is a Connection, but is it Seized by Mental Health Practitioners in New Zealand?

Gary Barclay, Laura Munro & Codi Ramsey

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*Physical activity is widely regarded as a behaviour that can positively contribute to mental health and wellbeing. Researchers in a variety of countries have evaluated mental health practitioners' prescription of physical activity (PA) as part of client treatment regimens. The aim of this project was to gain insights into the use of PA as part of client treatment in New Zealand. Respondents (N=87) completed the Exercise in Mental Illness Questionnaire: Health Practitioner Version (New Zealand). The findings suggested that many respondents saw value in and used PA as part of client treatment, and all respondents felt that participation in PA could assist those with mental illness. Directions for future research in this area were identified.*

**Key words:** Psychology, Psychologist, Mental health, Exercise

## Introduction and Review of the Literature

The proportion of New Zealanders experiencing high levels of mental distress is continuing to rise, with young people (under 25 years) in particular experiencing greater anxiety and mental distress (Wilson & Nicolson, 2020). The Mental Health Foundation (MHF) (2018) of New Zealand (NZ) identified that one in five New Zealanders experience depression or anxiety by age 19 years. Individuals using mental health services in NZ have more than two times the mortality rate of the general population (Cunningham et al., 2014). The World Health Organization (WHO) stated that depression is a leading cause of disability worldwide, and indicated that depression is a major contributor to the global burden of disease (WHO, 2020).

The 2020/21 New Zealand Health Survey showed the rate of Māori and Pacific people living in NZ currently experiencing or having previously experienced a mood or anxiety disorder has increased since 2011/12 (Ministry of Health, 2021). Māori in NZ who access mental health services have a higher mortality rate than Māori with no mental illness (Cunningham et al., 2014). In addition, Māori living in NZ generally experience disproportionate negative health outcomes compared with the general NZ population (Reid & Robson, 2006).

With mental illness on an apparent rise, it is heartening to know that there is an ever-growing body of evidence supporting the benefits of regular physical activity (PA) for mental health and well-being. PA is a broad term that describes bodily movement produced by the skeletal musculature, which achieves low to high levels of energy expenditure while being positively correlated with physical fitness (Caspersen et al., 1985). A related term, *exercise*, which is a subset of PA, is also positively correlated with physical fitness and involves planned, structured and repetitive bodily movement to maintain or improve physical fitness (Caspersen et al., 1985). However, the terms 'exercise' and 'physical activity' tend to be used interchangeably. This paper is primarily concerned with the construct of PA but uses both terms where appropriate.

The Ministry of Health (2020) recommended NZ adults perform at least 2.5 hours of moderate or 1.5 hours of vigorous PA spread throughout the week. This recommendation includes exercise as well as active recreation and sport, active transport, active work, and activities of daily

*Gary is a Principal Lecturer in sport, exercise and health related psychology at Otago Polytechnic's Institute of Sport, Exercise and Health. He completed a Masters in Sport Psychology at the University of Otago in 2004 and has since completed Graduate studies in Psychology through Massey University. In addition to his teaching, Gary has consulted as a mental skills trainer with a variety of individuals and groups in sport and performing arts contexts. Gary currently enjoys coaching youth sport and researching in a variety of areas including the influence of physical activity on mental health and psychological recovery from injury.*

*Laura Munro is a Senior Lecturer at the Institute of Sport, Exercise and Health at Otago Polytechnic. Laura teaches with a particular focus on nutrition as it relates to performance, health and wellbeing. Her Master of Professional Practice was centred around the impact of social media on nutrition education.*

*Codi Ramsey is a Principal Lecturer at the Institute of Sport, Exercise and Health at Otago Polytechnic. Codi's research and teaching is centred around sport biomechanics and athletic performance and has a specific focus on women in sport. She completed a PhD from the University of Otago in 2018 – examining the effects of footwear on running-related injuries.*

living (e.g. gardening). This is considered the minimum amount of PA to achieve health benefits such as reduced risk for type 2 diabetes, some cancers, anxiety, depression and stress. Results from the 2020/21 New Zealand Health Survey suggest that only half of NZ adults (53%) meet this threshold for regular moderate PA (Ministry of Health, 2021).

Exercise prescription is defined as the frequency, intensity, time and type of PA in addition to the volume and progression of PA. These seven components are important to consider when developing an exercise programme for any individual (American College of Sports Medicine, 2000). In contrast, recommending PA simply recommends one 'moves more'. The American College of Sports Medicine (ACSM) suggest that most individuals can begin a formal PA programme without consulting with a healthcare provider. Clinical exercise physiologists (CEP) are formally trained in exercise prescription and are a recommended part of the multidisciplinary team when treating people with mental illness to reduce the burden of chronic disease in NZ (Pearce & Longhurst, 2021).

Bouchard and Shephard (1994) noted that those taking part in exercise may have health enhancement or performance improvement objectives that they are seeking to achieve because of their efforts. It is well established that regular PA is important for physical health. For example, the ACSM (2018) indicated in their *Prescription for Health* statement that PA can be used in the prevention and treatment of chronic diseases such as cancer, type 2 diabetes and heart disease. However, the benefits of PA have been found to transcend the physical benefits. A recent review of the evidence on the role of exercise and PA in mental health from the John W. Brick Mental Health Foundation highlighted the powerful link between activity and mental health. In their review, Vieten and colleagues (2020) concluded with recommendations for the inclusion of PA in treatment for depression, anxiety, bipolar disorder, schizophrenia and the development and maintenance of mental wellness. Additional research suggested that involvement in regular PA helped reduce the effects of anxiety as well as depression, a disorder so prevalent in Western societies that it is often referred to as the 'common cold' of mental illness (Asmundson et al., 2013). Unfortunately, such disorders can have a negative impact on quality of life and increase sufferers' risk for additional chronic illnesses such as coronary heart disease (Stansfield & Marmot, 2002). A recent cohort study conducted by Kandola et al. (2020) reported that participants with low cardiorespiratory fitness and grip strength were 1.8 times more likely to experience a common mental disorder. Low combined fitness was also associated with 2.0-times higher odds of depression.

Biddle et al. (2015) suggested that PA was associated with positive mood and may also benefit those with schizophrenia, non-clinical anxiety and those recovering from stressful life events. Furthermore, PA has been associated with feelings of improved energy and lower levels of fatigue (Puetz et al., 2006). PA has also been documented to provide a sense of accomplishment in helping improve the mental health of people recovering from and coping with serious injuries (Barclay & Middlemas, 2016). Excitingly, research has found that PA may serve to protect regular participants against the development of depression (Mammen & Faulkner, 2013; Schuch et al., 2018), while also having a moderate to large effect in the treatment of depression in those suffering the debilitating effects of this illness (Biddle et al., 2015). Fox (1999) reported that PA was linked to increased self-esteem and cognitive function, lower stress levels, improved mood and better sleep patterns.

Such is the evidence for the benefits of PA that the MHF, consistent with other international organisations, identified regular PA as one of five 'ways to wellbeing' and encouraged people to 'discover a physical activity you enjoy and one that suits your level of mobility and fitness. Do what you can, enjoy what you do, be active and move your mood' (MHF, 2020). Use of PA for its potential prevention of and assistance with recovery from mental illness may be of particular

importance at this time in NZ and globally, as people struggle to cope with the ongoing impacts of the COVID-19 pandemic and health systems increasingly struggle to cope with people's physical and mental healthcare needs.

Research examining issues similar to mental health practitioners' use of PA or exercise in treatment has been conducted in other countries. In Britain, McEntee and Halgin (1996) looked at therapists' attitudes to addressing the role of exercise in psychotherapy, as did Faulkner and Biddle (2001), whereas in Australia, Stanton and colleagues (2015) explored a call to action: 'exercise as treatment for patients with mental illness'. Fibbins et al. (2020) assessed self-reported PA levels of psychiatrists in Australia and their exercise referral practices. However, it is unknown whether practicing mental health professionals in NZ include PA as part of treatment regimens for their clients. The aims of this study were to discover whether clinical psychologists in NZ used PA as part of client treatment regimens and whether their own exercise behaviour was a predictor of whether they would recommend PA to people with mental illness. We also sought to identify factors that may help or hinder this occurring. This study has potential to help mental health professionals increase the use of a treatment strategy that has few negative side effects and a range of positive mental and physical benefits. The potential combination of both mental and physical benefits could have a significant positive impact on the NZ healthcare system by reducing overall morbidity and associated costs of on-going treatment.

## **Methods**

### **Recruitment**

Members of The New Zealand College of Clinical Psychologists (NZCCP) were invited to take part in the current project by way of an email invitation via the NZCCP. Members who agreed to be involved in the project followed a link embedded in the email to an anonymous online survey.

### **Data Collection**

The online survey used for this project was an adapted version of the Exercise in Mental Illness Questionnaire (EMIQ) originally developed by Stanton and colleagues at Central Queensland University in Australia (Stanton et al., 2014). The EMIQ comprises six parts that examine physical activity and exercise as one construct rather than two separate constructs. Part one assesses the professional's knowledge of exercise and their formal training in exercise. Part two examines their professional beliefs regarding exercise for people with mental illness. Part three assesses prescription of exercise for people with mental illness and Part four assesses barriers to prescribing exercise for those with mental illness. Part five asks about the practitioner's own physical activity behaviour and part six covers demographic questions. The version of the EMIQ used in this project was slightly modified to make it more relevant to NZ health practitioners and was referred to as the EMIQ Health Practitioner Version (New Zealand). These modifications were made to Part six (demographic questions), where the Australian-based citizenship and residency options were changed to NZ-relevant ethnic group options. The identification question for Aboriginal or Torres Strait Islander descent was removed. A gender diverse option was included when asking for identification of gender, and a civil union option was included in the marital status options. Participants were also asked to state which region in NZ their employment was based. All other questions remained the same. This project was approved by the Otago Polytechnic Ethics Committee.

### **Data Analysis**

Descriptive statistics were used to report demographic data and survey responses. Categorical data were presented in graphical form and continuous data using means and standard deviations.

## Results

Eighty-seven members of the NZCCP completed the EMIQ Health Practitioner Version (New Zealand). Of those, 94.3% identified as female and 5.7% as male. Overall, 25% of respondents considered themselves to have had formal training in exercise prescription.

Table 1  
*Demographic and Personal Characteristics of Respondents*

Characteristic	n
Total respondents	87
Female	82
Male	5
Formal training in exercise prescription	21
No formal training in exercise prescription	65

### **Exercise Prescription for Mental Illness**

Approximately 60% (n = 52) of respondents reported prescribing exercise to people with mental illness ‘most of the time’ or ‘always,’ and a further 33.3% ‘occasionally’ prescribed exercise to people with mental illness. The majority of respondents (90%) indicated that they were interested in prescribing exercise for people with mental illness, and all respondents felt that participation in exercise could help those with a mental illness. Interestingly, approximately 55% (n = 48) of practitioners who were untrained in exercise prescription also prescribed exercise to clients ‘most of the time’ and 9% (n = 8) ‘always’. Approximately 60% (n = 52) of respondents felt that they knew how to prescribe exercise for those they were working with, whereas almost 18% (n = 16) did not. Almost 50% of respondents felt that exercise did not need to be prescribed by an exercise professional and approximately 22% felt that this was necessary.

Unfortunately, only 17% of respondents answered the question relating to their knowledge of prescribing exercise for people with mental illness; of those, 13% rated their knowledge as poor, 40% rated their knowledge as average and 47% as good. Of those who responded to the question ‘how would you rate your confidence to prescribe exercise for people with mental illness?’, 53% felt that they had average confidence, 40% felt that they had good confidence and 7% reported excellent confidence in prescribing exercise for people with mental illness.

### **Assessing Suitability of Physical Activity**

Most (80%) respondents did not undertake a formal assessment of a client’s suitability for exercise before prescribing an exercise programme. However, several respondents identified that they had discussions with clients and sometimes other members of the client’s healthcare team, including doctors, before prescribing exercise. One respondent explained that formal assessment for exercise suitability was ‘outside my area of expertise...Certainly, assess level of knowledge, what is manageable, and refer to other professionals to support exercise’.

### **Knowledge Around Benefits of Exercise for Mental Health**

Respondents were provided with 10 common treatment strategies that they were asked to rank in order of importance in the care for people with mental illness; 59% of respondents ranked exercise in the top three (behind cognitive behavioural therapy and social support, first and second respectively).

When asked specific questions relating to knowledge of the benefits of exercise for mental health, approximately 78% (n = 68) of respondents agreed that people who regularly participated in PA were less likely to develop depression than those who did not. Most respondents 'disagreed' (49%) or 'strongly disagreed' (37%) with the statement that the physical and mental health benefits of exercise for people with a mental illness were not long lasting. When prescribing exercise for people with mental illness, the most commonly used method was personal discussion (59%), with 66% likely to refer clients to community-based programmes or exercise professionals. Most respondents (93%) felt that exercise was valuable for patients that were hospitalised with a mental illness in the same manner as those who were outpatients.

Approximately 41% of respondents either disagreed (n = 32) or strongly disagreed (n = 3) with the statement that people with a mental illness would not adhere to prescribed exercise. However, this question did not distinguish between short-term (e.g., 1 week) or long-term (e.g. over 6 months) adherence.

### **Barriers to Prescribing and Engaging in PA for People with Mental Illness**

When presented with a variety of statements relating to potential barriers to prescribing exercise for their clients, over 80% of respondents felt that a client's mental health did not remove their ability to participate in exercise. Most respondents (90%) indicated that they did not believe that exercise would make their client's condition worse. However, two respondents (4%) felt that this was the case. Almost 90% of respondents felt confident that they could include PA prescription as part of a manageable workload, whereas only 4% felt that prescription was not part of their job.

When asked to identify potential barriers to people with mental illness partaking in PA, respondents reported: lack of confidence in one's ability to exercise (57%); lack of knowledge about what to do (49%); lack of friends or family to exercise with (41%); side effects of medication (35%); not having a safe place to exercise (22%); and stigma associated with mental illness (20%).

### **Clinical Psychologists' Physical Activity Behaviour and Likelihood of Prescribing Exercise for Those with Mental Illness**

When asked about their own PA behaviour, respondents who reported partaking in vigorous PA themselves (number of days per week) also appeared to regularly prescribe exercise to people with mental illness (Figure 1). However, respondents who reported partaking in vigorous PA each day of the week did not regularly prescribe exercise for people with a mental illness (Figure 2).

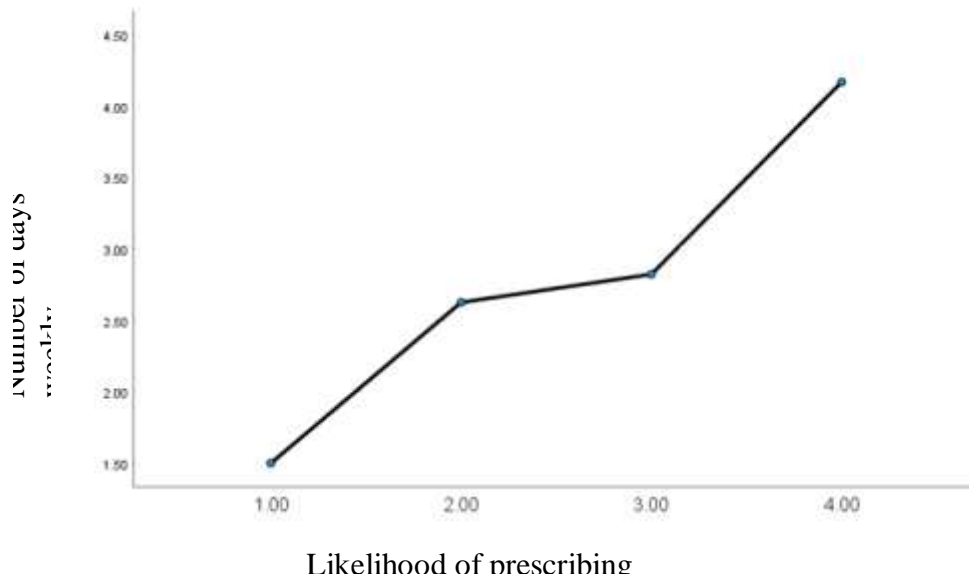


Figure 1. Reported number of days per week practitioners spent performing vigorous physical activity and their likelihood of prescribing exercise to people with mental illness. When asked about the likelihood of prescribing exercise to those with mental illness: 1 = never, 2 = occasionally, 3 = most of the time, 4 = always.

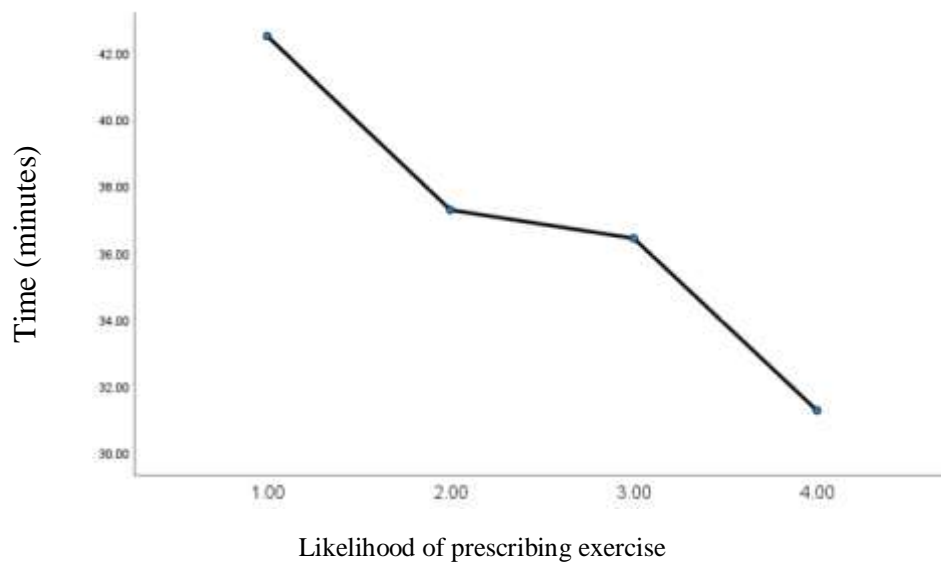
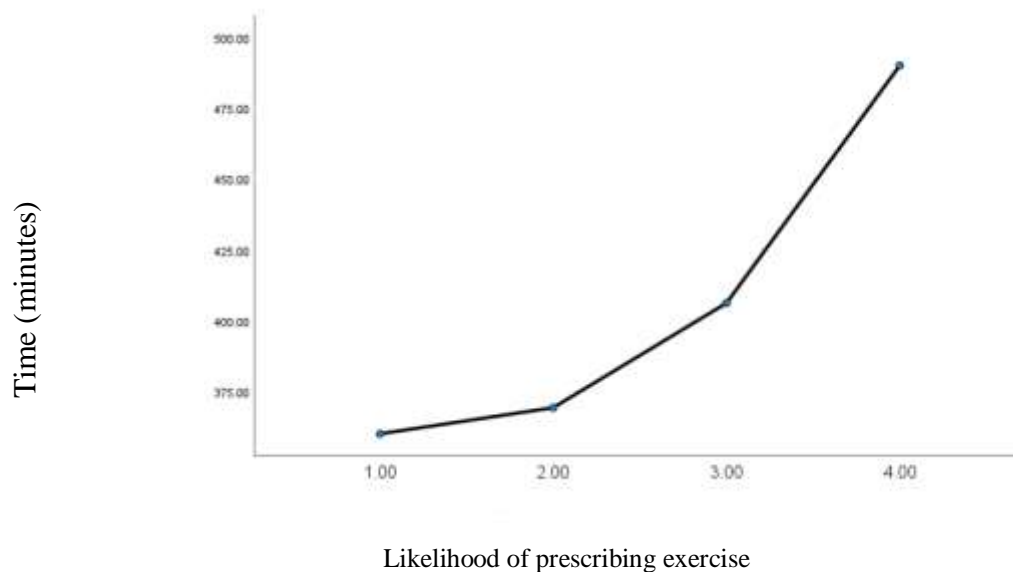


Figure 2. Reported time practitioners partook in vigorous physical activity per day and their likelihood of prescribing exercise to people with mental illness. When asked about the likelihood of prescribing exercise to those with mental illness: 1 = never, 2 = occasionally, 3 = most of the time, 4 = always.

As the time respondents reported sitting during weekdays increased, the more likely they were to also regularly prescribe exercise for those with mental illness (Figure 3).





*Figure 3.* Reported time practitioners spent sitting on weekdays and likelihood of prescribing physical activity to those with mental illness. When asked about the likelihood of prescribing exercise to those with mental illness: 1 = never, 2 = occasionally, 3 = most of the time, 4 = always.

### Discussion and Conclusions

A growing body of literature supports the benefits of PA for mental health (e.g. Vieten et al., 2020). The present study sought to identify whether mental health practitioners in NZ were using PA as part of client treatment regimens, thereby reaping the benefits of this potentially free and far-reaching adjunct to traditional forms of therapy. Encouragingly, the findings suggested that many clinical psychologists in NZ saw value in PA and used it as part of client treatment regimens. This contrasts with McEntee and Halgan (1996), who found that although therapists believed in the efficacy of regular exercise for mental health, few recommended exercise to their clients. Cook et al. (2010) found that only 17% of therapists reported recommending lifestyle changes such as exercise as part of client treatment. Barrow et al. (1987) found that 53% of psychotherapists recommended exercise to clients ‘occasionally’, and 10% recommended exercise ‘all the time’. Furthermore, Phongsavan et al. (2007) found that 51% of psychologists surveyed agreed that providing PA counselling was part of their job, with 40% stating they had recommended PA to clients.

Most respondents in this study were interested in prescribing PA for clients with mental illness, and all respondents thought that participation could assist those with a mental illness. This presents a chance to further explore opportunities and barriers in these contexts. A similar study conducted in Australia on attitudes towards mental health practitioners using PA counselling as part of their treatment protocol suggested the barriers most reported were lack of knowledge and confidence (Shrestha et al., 2020). The respondents in this study appeared to appreciate the potential protective benefits of PA in the prevention of depression as well as the long-term benefits for both physical and mental health. Therefore, the mental health practitioners who responded in this study appeared knowledgeable regarding the potential positive impact of PA on mental health.

Over 80% of respondents felt that a client’s mental or physical health did not create a barrier for them to participate in PA and 90% believed that performing PA would not make their clients’

condition worse. However, some respondents may be working with clients whose condition could be exacerbated by involvement in PA, as in the case of one respondent who identified they worked in the area of disordered eating. Participation in PA in this case may be counterproductive until their clients were at a suitable stage of recovery whereby PA could be gradually re-introduced in a safe manner for the client.

The majority of those who responded in this study felt that it would be manageable for them to include prescription of PA as part of their work with clients. Practitioners that already prescribed PA suggested that this was often carried out through discussion with clients and through use of referral processes to exercise professionals. Most respondents did not have training in exercise prescription per se, which highlighted opportunities to help clinical psychologists to develop the knowledge and confidence for recommending PA, or using the multidisciplinary team as part of mental health treatment (e.g. a CEP or physiotherapist to prescribe exercise). Of further interest was the finding that approximately 60% of respondents felt that they knew how to prescribe exercise for their clients, and almost 50% indicating that exercise did not need to be prescribed by an exercise professional. Depending on the frequency, intensity, time and type of exercise that practitioners are prescribing, a great deal of specific knowledge in this area may not be required. However, to ensure the utmost safety of their clients, some degree of upskilling and knowledge development in this area would be appropriate; this could be as simple as recommending clients find a physical activity they enjoy to support them meeting the Ministry of Health guidelines (2020).

Respondents felt that a lack of confidence and knowledge regarding PA were particularly strong barriers to clients' themselves partaking in PA. This further highlighted the opportunity for continued education within the community around how to incorporate PA into a holistically healthy way of life. Using community health providers is encouraged, including Māori health providers aiming to decrease inequalities in Māori health outcomes (Reid & Robson, 2006) and potentially assist in slowing the rise of mental health disorders among Māori living in NZ.

Practitioners who partook in vigorous exercise on multiple days of the week were also likely to prescribe exercise to those with mental illness. However, the more time a practitioner spent performing vigorous activity on each day of the week, the less they tended to prescribe exercise to their clients (Figure 2). As practitioners' vigorous exercise increased, the level of activity may seem to be outside the realm of what may be useful to improve their client's mental health, therefore limiting the translation between ones' own practice and the recommendation that others partake in exercise.

The majority of respondents suggested that 10–30 minutes of exercise would be a good starting point for their clients or 'starting small' and 'slowly building up'. This could indicate the 'some is better than nothing' mentality that was evident in the qualitative data gathered. This may also explain why time spent sitting on weekdays increased the likelihood of practitioners prescribing exercise to people with mental illness. There appeared to be emphasis on small amounts of exercise for positive benefits to clients' mental health. Practitioners in this study were aware of the benefits of PA for those with a mental illness; however, we were unable to determine if practitioners' own exercise behaviour translated into prescribing PA to clients. Unfortunately, because of the small sample size statistical analysis could not be conducted on these findings, which was a limitation of this study. However, other research suggested practitioners who do not meet national PA guidelines themselves were less likely to prescribe PA or exercise to their clients (Kleemann et al., 2020), and clinicians who were more active themselves were more likely to promote PA to their clients (Lobelo & de Quevedo, 2016; Fie et al., 2014).

## Where to From Here?

Mental health organisations and those working in mental health need to continue efforts to recognise, use and promote the benefits of PA for mental health. This extends beyond the clients that seek their assistance to wider society to capitalise on the potential protective benefits of PA. Using a multidisciplinary team, including a CEP, as part of the treatment protocol for those with mental illness could allow for specific exercise prescription; however, a large body of evidence suggests nearly all people would benefit from increasing PA without the need for consulting with a medical professional (American College of Sports Medicine, 2020). More research is needed to determine the link between practitioners' own exercise behaviour and their likelihood of prescribing exercise to their clients. The findings of this study suggest that there may be opportunities to help mental health practitioners develop competence and confidence in their ability to promote PA for their clients. As increasing numbers of mental health clients are encouraged to take part in PA as part of their treatment regimens, there will be further opportunities to gather information from clients regarding the perceived benefits and barriers of PA for their mental health.

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## Conflicts of Interest

There are no conflicts of interest to declare with regard to this article.

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## Reviews

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### Can Robots add Value in Therapy?

Tracy Wakeford

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I love technology and also love play. We know that anecdotally the two things can be put together but I was asked by the CEO and Founder of Kai's Clan, Bruce Jackson, if this could also be applied to my psychology work. Naturally, I was pleased for any excuse to try some new, fun technology.

Kai's Clan is a [collaborative coding](#) platform that encompasses several technologies into an all-in-one learning platform either digitally or physically. Kai's Clan brings multiple cross-curricular learning experiences to the classroom to engage and motivate students. It was founded with the aim of merging the physical and virtual worlds to become an interactive learning playground with the goal to nurture an interest in coding and robotics in children.

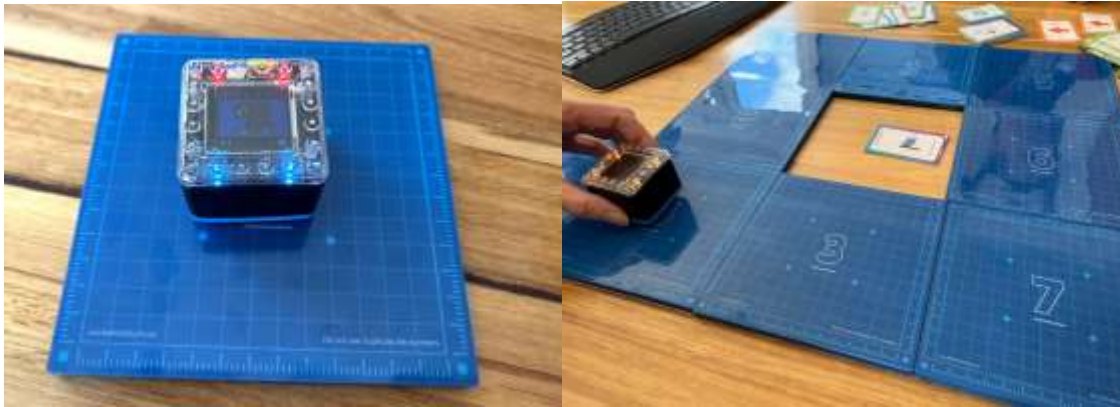
This year, the founders of Kai's Clan will release the new addition, 'KaiBot'. KaiBot, the world's first hybrid robot, will be able to be used for screen free coding, hybrid or just virtual, you choose. Its small size (fits in the palm of your hand) defies its big abilities. This robot can be used both in the physical world and virtually. You have the option of customising your robot including your own avatar on the robot and on screen. There are lesson plans available for teachers/parents/professionals and some of these lessons specifically focus on social-emotional learning (SEL). For example, users can code their robots to the SEL coding card that expresses their inner feelings, therefore requiring them to be mindful of how they are feeling and also providing a nonverbal way to communicate this inner experience. Similarly, the user could choose an avatar on the robot's screen that depicts how they are feeling on that day and change this as required. This encourages discussion around emotions and the fluidity of our emotions.

There is also the option of creating your own cards that go alongside the coding tiles that could be in a sequence related to social learning such as social skills steps or various strategies to use when feeling angry, upset and so forth. Users would need to think about what sequence to use before coding the robot to follow that sequence. KaiBot could also be used as a brain break, incentive or game during a therapy session. This provides opportunity to create a fun and hands-on session for young and older alike, including the therapist. It also could be useful when working with groups of children as a session could be designed to incorporate social skills with each child controlling their own robot. With some creativity the possibilities are endless!

The best thing about KaiBot is that the price point will be feasible for most practitioners, expecting to be around \$100 per robot. Although the tiles are purchased separately, there are a lot of resources that are provided free, such as the printable coding cards. I am hopeful that these will be further developed to include more therapy-related cards. The developers also have created Kainundrum, a virtual platform. In Kainundrum you can play single player to multiplayer to solve the maze, puzzle, hide 'n seek, cube or escape room challenges. Currently you can access Kainundrum free—have a go, it is fun! ([www.kainundrum.com](http://www.kainundrum.com)).

*Tracy Wakeford is a member of NZ Psychological Society, Associate Member of NZCCP, International Member of American Psychological Association, and Associate Member of EMDR NZ Association. She works in private practice in Northland, specialising in trauma as well as working with children and young people. She offers a range of services including psychological assessment, and treatment using one-to-one therapy and group programmes, as well as professional and clinical supervision and psychoeducational seminars.*

After having a go myself and trying out some things with my children, I am convinced that these robots could be a useful addition to the therapy space. They are easy to learn to use and there is good support from the developers. With some creativity, the KaiBot could add a lot of value to therapy without breaking the bank. Check them out at <https://kaiseducation.com/>



### **Conflicts of Interest**

Bruce Jackson is a friend of my husband. No other conflicts of interest or competing interests to declare.

### **Acknowledgements**

Thank you to Kai's Education for the demonstration and information related to these robots.

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## Review of Diane Clare's *Borderline Personality Disorder* Workshop. Reviewed by Jess Reedy

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*Bewitched, Bothered, Bewildered or Burnt Out by Borderline Personality Disorder—What Works?*  
NZCCP Otago/Southland branch workshop presented by Diane Clare, Dunedin Public Art Gallery, 11 March 2022.

After an intense period of what I would euphemistically describe as one too many 'exhilarating' interactions with clients, the provocative title of Diane Clare's 1-day workshop seized my attention. For a few of my clients with complex posttraumatic stress disorder (PTSD), the pandemic and repeated district-wide flooding among other life stressors had sharpened their sense of anguish to bewildering proportions. At times, the need for connection, understanding and relief felt by clients is expressed so compellingly and with such urgency that it shakes me to my core. It seeps into my dreams and elbows me wide awake, it muscles its way to the front of the queue stealing my focus while my 3-year-old daughter talks to me, it leads me to seriously question my capabilities and at these times I am confronted by my own vulnerabilities. I promptly signed up for the training.

Diane Clare presented her workshop in a direct, open-hearted and warm manner. Concepts such as the tidal wave effect were introduced to illustrate four positions therapists may find themselves occupying in their work with people with borderline personality traits (e.g. who experience intense fears of abandonment and who may respond to their intense distress in self-destructive, impulsive or highly controlling ways). Three of these positions (*on the beach, in a boat and among coastal trees*) are in dangerous proximity to the tidal wave of overwhelm. However, the fourth position (*on the hill*) offers a more expansive overview of the coast, enabling the therapist to perceive broader patterns of responding and relating expressed by their client and themselves in their therapeutic interactions and in their client's life beyond. This view from the hill offers crucial breathing space to reflect on how interactions in therapy may be informed by principles relating to attachment theory and psychodynamic processes—particularly, the centrality of the client and therapist's relationship in experiencing healthy attachment and reflecting on transference and countertransference responses and how this information can be used productively.

Throughout the workshop, emphasis was placed on the therapeutic standpoints of being mindful of stigma associated with borderline personality disorder (BPD), seeing the whole person as having rather than as the diagnosis and maintaining compassion for your client and yourself. For therapists working in a team setting, the workshop explored group dynamics that can arise when working with people with a diagnosis of BPD. It outlined ingredients for approaching this work in a transparent, coordinated and consistent way that proactively anticipates, monitors and addresses times when clients engage in 'checking/testing' for stability and safety (e.g. when a client's fears of being invalidated, victimised, rejected or judged intensify).

The afternoon part of the workshop explored evidence-based interventions for this work. Diane Clare presented several practical skills to teach clients which integrate principles from dialectical behaviour therapy, S.T.E.P.P.S. (systems training for emotional predictability and problem solving), and cognitive behavioural therapy.

The final stage of the workshop entailed breaking into smaller groups to discuss a case identified by a group member. These cases were then explored with the whole group. This exercise was

*Jess Reedy has worked as a clinical psychologist in Te Tai o Pontini o Te Waipounamu, the West Coast of the South Island, for the past 6 years. She now works part-time in her private practice, Kawatiri Psychology.*

valuable in bringing the real-life experiences, challenges and emotions, albeit implicitly, of workshop attendees into the room. It also modelled a key message emphasised by Diane Clare of the importance of discussing cases with others and clinical supervision. A further component of the case discussion that could have been of value, had time allowed, may have been the inclusion of a more transparent, explicit sharing of personal responses to the cases experienced by those presenting them. In this sense, as mental health professionals, having an emotionally safe place to recognise and make sense of reasonable but often concealed feelings of ambivalence we may experience in this very challenging area of work is essential for our own well-being and safe practice. Diane Clare's workshop covered a lot of ground in 1 day without creating information overload. It was thought provoking and contributed to restoring my sense of capability to be of service to clients. I am very grateful to the NZCCP for supporting my attendance in the form of a Travel Grant.

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The NZ College of Clinical Psychologists aims to encourage and facilitate continuing education opportunities for members, by providing nationally coordinated events to a high standard. Our goal is to coordinate training opportunities between branches with the goal of facilitating training in all regions. Please [consult the College website](#) for further information and links (<http://www.nzccp.co.nz/events/event-calendar/>)

## TRAINING TIMETABLE

### NZCCP Events

LOCATION	MONTH	PRESENTER/ CONTENT
Various	Various	<a href="#">NZCCP hosted "He Puna Whakaata" Roadshow, 2022/23</a>
Wellington	23-27 March 2023	<a href="#">SAVE THE DATES: NZCCP Conference &amp; Associated Workshops</a>

### Other Events

LOCATION	MONTH	PRESENTER/ CONTENT
Webinars	Various	<a href="#">DBTNZ webinar training series</a>
Various	Various	<a href="#">2022 Trauma Education presented by Dr Leah Giarratano</a>
Webinars	Various	<a href="#">NZSIGN Monthly Neuropsychology Webinar Series</a>
Various	Various	<a href="#">EMDR Institute Trainings</a>
Online training	N/A	<a href="#">Foundations in Suicide Prevention All New Online Training</a>
Online training	Various	<a href="#">Mindful-Somatic Trauma Therapy Trainings</a>
Online training	22-23 November	<a href="#">2-Day FREE Online Summit: Using Polyvagal Theory, IFS, ACT, DBT &amp; more to treat trauma, anxiety &amp; depression</a>
Auckland	10 February	<a href="#">Professional Disciplinary Tribunals: Research, Practice and New Directions</a>
Auckland	23-26 March	<a href="#">NZ Pain Society Conference</a>
Auckland	29-31 March	<a href="#">Schema Therapy Training for New Zealand</a>

