

Original Article

Approach to treatment of mental illness and substance dependence in remote Indigenous communities: Results of a mixed methods study

Tricia Nagel,^{1,2,4,5} Gary Robinson,³ John Condon² and Tom Trauer⁶

¹Top End Mental Health Services, ²Menzies School of Health Research, ³School for Social and Policy Research, Institute of Advanced Studies, Charles Darwin University, Darwin, Northern Territory, ⁴School of Medicine, Flinders University, Adelaide, South Australia, ⁵School of Medicine and Dentistry, James Cook University, Brisbane, Queensland, and ⁶Department of Psychiatry, University of Melbourne, Parkville, Victoria, Australia

Abstract

Objective: To develop and evaluate a culturally adapted brief intervention for Indigenous people with chronic mental illness.

Design: A mixed methods design in which an exploratory phase of qualitative research was followed by a nested randomised controlled trial.

Setting: Psycho-education resources and a brief intervention, motivational care planning (MCP), were developed and tested in collaboration with aboriginal mental health workers in three remote communities in northern Australia.

Participants: A total of 49 patients with mental illness and 37 carers were recruited to a randomised controlled trial that compared MCP (n = 24) with a clinical control condition (treatment as usual, n = 25).

Intervention: The early treatment group received MCP at baseline and the late treatment group received delayed treatment at six months.

Main outcome measures: The primary outcome was mental health problem severity as measured by the health of the nation outcome scales. Secondary measures of well-being (Kessler 10), life skills, self-management and substance dependence were chosen. Outcome assessments were performed at baseline, six-month, 12-month and 18-month follow up.

Results: Random effects regression analyses showed significant advantage for the treatment condition in terms of well-being with changes in health of the nation

outcome scales ($P < 0.001$) and Kessler 10 ($P = 0.001$), which were sustained over time. There was also significant advantage for treatment for alcohol dependence ($P = 0.05$), with response also evident in cannabis dependence ($P = 0.064$) and with changes in substance dependence sustained over time.

Conclusions: These results suggest that MCP is an effective treatment for Indigenous people with mental illness and provide insight into the experience of mental illness in remote communities.

KEY WORDS: co-morbidity, community psychiatry, health service, Indigenous, self-management.

Introduction

Aboriginal and Torres Strait Islander people are over-represented in inpatient mental health care nationwide and hospitalisations for 'mental and behavioural disorders due to psychoactive substance use' are three and four times the rate of non-Indigenous women and men, respectively.^{1,2}

Furthermore, most Indigenous people live in remote and rural areas with limited access to specialist mental health services³ and marked differences in literacy, language and worldview.^{4,5} In light of these challenges, there is a need to develop culturally adapted psychological interventions that can be delivered in primary care settings.

'Brief interventions' are a collection of techniques that include motivational interviewing^{6,7} and regular follow up. A systematic review and meta-analysis of primary care indicated that brief alcohol intervention was effective in reducing alcohol consumption,⁸ while a number of recent studies have shown good response to similar strategies in the setting of co-morbid psychosis and substance use.^{9–11} Furthermore, another brief therapy, problem-solving therapy, has been described as the most

Correspondence: Dr Tricia Nagel, Menzies School of Health Research, Charles Darwin University, Rocklands Drive, Casuarina, Northern Territory, 0810, Australia. Email: tricia.nagel@menzies.edu.au

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What is already known on this subject:

- There is evidence that brief therapies offer effective treatment for mental illness and substance misuse. For example, a meta-analysis by Cuijpers et al in 2007 showed problem-solving therapy to be an effective brief treatment for depression.
- It is not known which brief treatments are effective in remote Indigenous mental illness.
- There is a need for culturally adapted psychological interventions in the remote setting as rates of emotional distress are high and there is limited access to specialist services.

accessible form of psychological intervention for primary care practitioners¹² and has also shown effectiveness as a brief intervention.¹³

This study aimed to develop and test a brief intervention for remote settings and sought to answer two questions as follows: ‘can a culturally appropriate brief intervention be developed that incorporates local Indigenous perspectives of mental health and mental illness?’ and ‘does the brief intervention improve patient mental health outcomes compared with treatment as usual (TAU)?’

Methods

Design

The study was undertaken in three remote island communities in the Top End of the Northern Territory (NT). The mixed methods design incorporated an exploratory phase of qualitative research followed by a nested randomised controlled trial. The research team included the principal investigator, a psychiatrist who has lived and worked in the NT for 25 years and two Indigenous associate investigators of Walpiri-Gurindji (Katherine west) and Larrakiah (Darwin area) traditional owner heritage.

The initial phase of the study focused on understanding local perspectives of mental health through collaboration with local aboriginal mental health workers (AMHWs). These perspectives were then incorporated into a brief motivational care planning (MCP) intervention that was compared with TAU. Quantitative and qualitative data were collected between December 2004 and August 2007. Qualitative data providing rich description of the personal experiences of patients were gathered concurrently with the randomised controlled trial and integrated into the final analysis.¹⁴

What this study adds:

- This paper reports the first randomised controlled trial in remote Indigenous mental health in Australia.
- This study provides new evidence of effective psychological treatment in Indigenous mental health.
- The culturally adapted brief intervention improved well-being and substance dependence compared with treatment as usual.

Research in remote Indigenous communities requires sensitive research design. Poor design has stigmatised research within the Indigenous community.¹⁵⁻¹⁹ Liamputtong and Ezzy highlight that in ‘vulnerable’ or ‘hard to reach’ populations, in which the risk of miscommunication is high, flexible investigative methods allow sensitivity, and can promote access to different cultures and life experiences.²⁰ The strength that qualitative approaches bring to an experimental trial in this setting are twofold: an understanding and description of people’s personal experiences of phenomena (i.e. the ‘emic’ or insider’s viewpoint), and the ability to describe, in rich detail, phenomena as they are embedded in local contexts.^{18,21-23}

This paper presents the outline of the overall methodology and the key findings, while later papers will provide further detail of the qualitative components of the study.

Phase 1: development of the intervention

A participatory action research model was chosen involving close collaboration with community-based AMHWs.¹⁸ This phase of the study sought to understand local Indigenous perspectives of mental illness. Ten local AMHWs participated in the study as key informants and co-researchers. The AMHWs invited a recovered patient to assist in this phase of the study as well. The engagement of AMHWs as key informants recognised their special expertise and experience in delivery of mental health services at primary care level. Meanwhile, the engagement of a consumer allowed the story of mental health to also be told from the personal perspective of illness and recovery.

This exploratory phase of the study was conducted over 12 months. Data were collected during 15 field trips of one- to three-day duration. Group and individual interviews were supplemented by informal observation. Field trips were recorded through field notes, audio-taped interviews and music, and hundreds of pho-

TABLE 1: Social and baseline clinical characteristics of patients

Baseline characteristic <i>n</i> (%)	All (<i>n</i> = 49)	Early treatment group (<i>n</i> = 24)	Late treatment group (<i>n</i> = 25)
Age (years)	33	33.4	32.2
Men	28 (57)	15 (62.5)	13 (52)
Schizophrenia	18 (37)	9 (37.5)	9 (37.5)
Schizoaffective disorder	1 (2)	1 (4)	0
Major depressive disorder	22 (45)	9 (37.5)	13 (54)
Substance induced psychotic disorder	5 (10)	3 (12.5)	2 (8)
Bipolar affective disorder	3 (6)	2 (8)	1 (4)
Substance use, <i>n</i> (%)	40 (82)	18 (75)	22 (88)
Cannabis use	32 (65)	12 (50)	20 (80)
Alcohol use	31 (63)	15 (62.5)	17 (68)
Both cannabis and alcohol use	23 (47)	9 (37.5)	15 (60)
No substance use	9 (18)	6 (25)	3 (12)

tographs and short videos. The AMHW and patient responses were grouped into three overall themes: 'strengths', 'worries' and approaches to treatment. The responses were then incorporated into the content and process of the assessment and care-planning tools, the psycho-education resources (videos, flipcharts and information sheets) and the brief intervention.

Three key themes from these perspectives were: the importance of family, the strength gained from traditional and cultural activities, and the importance of a story-telling approach to sharing information.²⁴

Phase 2: randomised controlled trial

Participants

Participants were current patients of the health centre and were referred to the trial by the local mental health workers (Table 1). Carers were recruited to accompany patients during assessment and treatment. Organic mental illness, intellectual disability, inability to give informed consent and age less than 18 years were criteria for exclusion. Chronic mental illness was defined as duration of symptoms greater than six months or at least one previous episode of relapse.

Moderate to large effect sizes (0.5 SD to 0.8 SD) using the health of the nation outcome scales (HoNOS) as the key outcome measure required a target sample size of at least 50 subjects based on statistical power calculation at a power level of 0.8 and type 1 error rate of 0.05.²⁵ The study recruited 49 Indigenous patients with mental illness and 37 carers.

Patient participants were randomly allocated to two groups using a block randomisation random number sequence technique after completion of baseline measures. Participants and carers and AMHWs were given an explanation of the project in plain English in spoken,

written and pictorial format. Where necessary, translation to local language was provided by the AMHWs in order to ensure that informed consent was obtained. The treatment was delivered at baseline in the first group, the 'early treatment' group, and at six months in the second group, the 'late treatment' group.

The intervention

The intervention consisted of two one-hour treatment sessions two to six weeks apart, which integrated problem-solving, motivational therapy and self-management principles.²⁶ Treatment was conducted by the principal investigator with an aboriginal research officer and where possible a local AMHW.

The MCP involved four steps: discussion about family support, exploration of strengths and stresses, followed by goal-setting. The second session, two to six weeks later, reviewed progress and developed new strategies as appropriate. The intervention incorporated family in three sections: first, through engagement of carers in the treatment sessions; second, through incorporation of carers on a 'family map' in step one of the intervention; and third, by involving family in the goal-setting phase of the care-planning. Two brief psycho-educational videos were shown in each session with distribution of matching handouts. In terms of fidelity of treatment, there were minor variations: the presence of carer and AMHWs in sessions was inconsistent, and the number of videos viewed and handouts received. The average length of a treatment session was 50 min.

All participants received TAU throughout the course of the trial. The local health centre nurses and aboriginal health workers, supported by general practitioners, specialist mental health services and the local mental health team, offered assessment, review, supportive counselling and medication.

Outcome measures

The primary outcome measure was the HoNOS. This is a 12-item clinician-rated instrument measuring behaviour, impairment, symptoms and social functioning developed in the UK specifically for use with people with mental illness as a measure of severity of mental health disorder.²⁷ The abbreviated life skills profile-16 was also used. This measure requires the clinician to rate 16 items in four broad domains (withdrawal, antisocial behaviour, self-care and compliance) according to their assessment over the last three months.²⁸ These two clinician-rated outcome measures have been mandated for use throughout all Australian public mental health services since 2003²⁹ and were chosen because they each measure symptoms and behaviours expected to be affected by the intervention.

A key concern about the application of such standardised measures across different cultural groups is that of the lack of cultural competence of clinicians to assess the meaning, impact and influence of cultural factors.^{5,30–32} Recent cross-cultural studies have found that although actual scores might be different, the *change* in scores might not be, and have recommended careful attention to attribution and cultural factors, communication factors and collateral information when using these measures.^{30,31,33}

Communication, collateral history and cultural perspective were given specific attention in this study by conducting separate semistructured interviews with patient, carer and AMHW at each data collection point, and by these interviews being conducted by the principal investigator and Indigenous researchers (trained mental health workers) with local AMHWs wherever possible.

In addition, two of the study authors were also collaborators in a concurrent trial in Queensland. This trial sought to render the use of these standardised measures more culturally appropriate through revision of the glossary and instructions of these tools as discussed by Haswell-Elkins *et al.* in a recent paper.³¹ The revised version of the glossary and instructions was used in the course of this project.

The clinician-rated measures were completed by the principal investigator and were complemented by three patient-rated measures of well-being, substance dependence and self-management.

Well-being was measured by the Kessler 10 scale (K10).³⁴ The K10 is one of three consumer measures mandated for use throughout all Australian public mental health services and, although not formally validated, has been used with Indigenous people in full and abbreviated form in statewide and national surveys, and has been approved for use again in the next national Indigenous health survey.^{35–38}

Substance dependence was measured by the five-item severity of dependence scale that focuses on the psychological aspects of dependence, such as impaired control over drug use. It is a brief, easily administered instrument that has been shown to be a reliable and valid screening tool in different cross-cultural settings,^{39,40} in the setting of dual diagnosis⁴¹ and for a range of different substances.^{41–43} A cut-off score of 3 was used in this study as indicative of cannabis and alcohol dependence.^{40,41} The above self-rated scales were slightly modified to include pictures of the different substances and a visual scale.

Illness behaviour and knowledge was measured by an adapted version of the partners in health scale, which has demonstrated potential to be a reliable and valid measure of chronic condition self-management.⁴⁴ This self-rated instrument measures knowledge of illness, knowledge of treatment, recognition of early warning signs of relapse and compliance with medication on a nine-item scale. It was abbreviated to five items for the purposes of this study with minor wording alterations to plain English. All of the self-rating scales were chosen for their brevity and face validity. Health centre and hospital file audits were also used to monitor progress.

Analysis

'Intention to treat' analysis was conducted. All patients were treated in the groups in which they were assigned and those who did not receive treatment continued to be allocated to that treatment group. Mixed model regression analysis compared the outcome scores against two variables – 'time' and 'treatment condition' (Fig. 1). The 'time' variable represents time from baseline. Treatment condition represents the outcome scores six months post treatment. The control condition is represented by all other data collection points. The mixed model regression took into account that the data were not independent and provided a one-step means to handling missing data through estimating 'maximum likelihood' of missing variables.

The study received the required ethics approval of the Menzies School of Health Research and Department of Health and Community Services Joint Ethics Committee.

Results

There was a high level of engagement and retention in the study. Eighty per cent of the eligible patients in the communities agreed to participate and 100% of their carers. Most (96%) patients in the early treatment group and 88% of patients in the late treatment group attended at least one treatment session (Fig. 2). Three patients formally withdrew consent and two committed

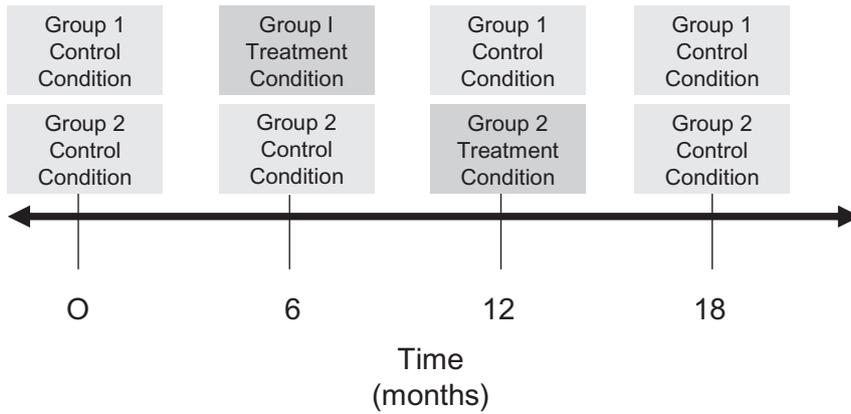


FIGURE 1: Treatment condition and time by group.

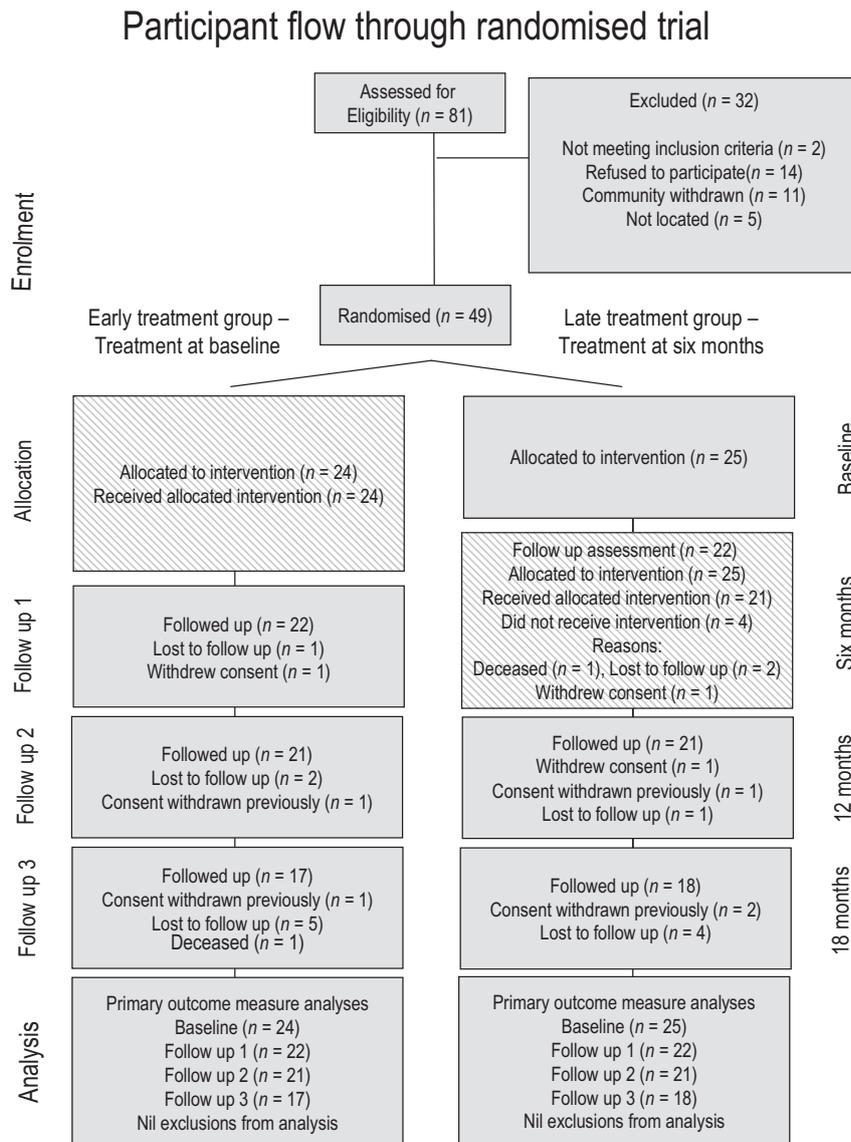


FIGURE 2: Participant flow through the trial.

TABLE 2: Baseline outcome measures of patients

Baseline score mean (SD)	All (<i>n</i> = 49)	Early treatment group (<i>n</i> = 24)	Late treatment group (<i>n</i> = 25)	<i>P</i> -value*
HonOS score	23.4	23.12 (5.99)	23.64 (5.5)	NS
LSP score	9.2	9.62 (6.47)	8.76 (4.6)	NS
K10 score	27.6	26.08 (9.37)	29.04 (8.64)	NS
Partners in health score	23.7	21.92 (10.08)	25.36 (10.16)	NS
SDS cannabis score	7.63	8.09 (1.97)	7.38 (3.4)	NS
SDS alcohol score	6.90	7.8 (3.36)	6.3 (3.35)	NS

*Two-tailed *t*-test. HonOS, health of the nation outcome scales; K10, Kessler 10 scale; LSP, life skills profile; SD, standard deviation; SDS, severity of dependence scale.

TABLE 3: Mixed model regression: effect of condition and time on score

	Coefficient	Confidence interval	<i>P</i> -value
Health of the nation outcome scales			
Constant	11.95	25.73–30.42	0.000
Treatment condition	–2.88	–5.13–0.62	0.012
Time	–1.19	–2.08–0.30	0.009
Partners in health			
Constant	22.87	20.41–25.32	≤0.001
Treatment condition	–1.21	–4.07–1.64	0.404
Time	1.67	0.55–2.79	0.004
Severity of dependence scale (SDS) alcohol			
Constant	6.94	5.94–7.94	≤0.001
Treatment condition	–0.91	–1.82–0.0009	0.05
Time	–0.39	–0.77–0.008	0.045
SDS cannabis			
Constant	–0.98	7.05–9.14	≤0.001
Treatment condition	–0.98	–2.02–0.057	0.064
Time	–0.44	–0.85–0.02	0.016

suicide during the 18 months. Between one and five patients were not able to be located at any given follow-up assessment point. Thirty-five (71%) participants were followed up at the final assessment point 18 months later. Clinical diagnosis was determined with reference to DSM IV criteria following review of file audit and assessment data throughout the 18 months.⁴⁵ Baseline data are shown in Tables 2 and 3.

There were no significant differences between the groups at baseline in terms of age, diagnosis, overall substance use (χ^2 1.38, $P = 0.24$), alcohol use (χ^2 0.23, $P = 0.63$) or cannabis use (χ^2 3.64, $P = 0.057$). The mean HoNOS and K10 scores at baseline in this study were 27.6 and 23.4. These are markedly higher than the comparable scores available in the national dataset,⁴⁶ suggestive of high emotional distress in this sample of Indigenous people. Both groups showed high rates of substance use and most of the participants (92%) who

used substances were psychologically dependent on that substance.

The results show a trend in HoNOS scores (repeated across all analyses), which suggest that MCP improved outcomes compared with TAU and that the improvements were sustained over time (Fig. 3). Both groups show improved mean scores after baseline, but marked differences between the scores of the two groups emerge at six months, and again at 12 months. The regression analyses confirm a significant relationship between outcome (HoNOS, life skills profile, K10 and severity of dependence scale alcohol) and treatment condition (MCP) and time (Table 3) while age, sex and community differences were not significant ($P = 0.186$, 0.226 and 0.445, respectively).

The results show an advantage for MCP in terms of well-being, life skills and alcohol dependence, which is sustained over time. A similar trend is observed for

cannabis dependence, which does not achieve significance. The self-management (partners in health) findings support an improvement in self-management over time that is not specific to treatment condition.

These positive findings are further supported by a self-assessment questionnaire at six months post MCP, which showed that nearly one-third of patients (29%) assessed their own progress towards their goals as being 'extremely good', while 40% of patients rated their progress towards their goals as 'some', 29% as 'a little' and 2% as 'none at all'.

Further support for improved outcomes is provided by the assessment of AMHWs of the patient home environment. At 18-month follow-up, they reported decreased family domestic violence, substance misuse, self-harm behaviour and mental illness (19%, 16%, 26% and 26%, respectively) compared with 47%, 41%, 72% and 64% at baseline.

The TAU was monitored in terms of patient self-report of taking medication and file audit of service provision. The results show that overall, the percentage of patients who reported taking medication between baseline and 18 months did not change, that there was no correlation between self-report of taking medication and treatment condition (Table 4), and that change in TAU as measured by local health centre file audit of service provision did not appear to link with the observation of improved outcomes.

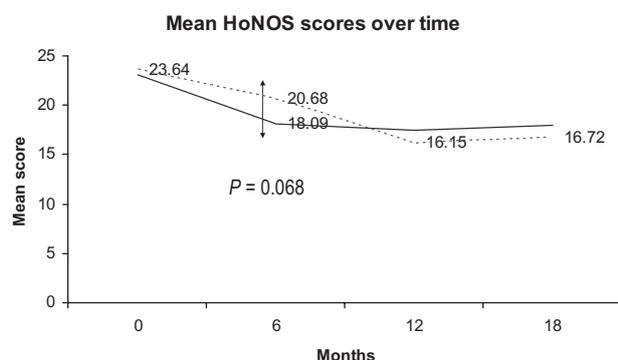


FIGURE 3: Change in mean health of the nation outcome scales (HoNOS) scores over time. (—) HoNOS early group; (----) HoNOS late group).

TABLE 4: Client self-report of taking medication

Data collection point n (%)	All (n = 49)	Early treatment group (n = 24)	Late treatment group (n = 25)
Baseline	24 (49)	15/24 (62)	9/25 (36)
6 months	24 (61)	12/23 (52)	12/16 (75)
12 months	20 (49)	10/20 (50)	10/21 (48)
18 months	17 (46)	10/18 (55)	7/19 (37)

The file audit showed that before the 18-month data collection point, 8% of patients had been assessed in the preceding three months, compared with 49% at baseline. Eight per cent of patients had current care plans at baseline, while at 18-month follow up none had care plans in place. The hospital file audit showed that seven patients at baseline had been admitted to hospital in the preceding 12 months, while four such admissions were recorded at 18 months. Once again, this did not appear to suggest that TAU had changed during the 18 months.

Discussion

This is the first detailed study of the profile of mental illness and the effectiveness of treatment in a remote Indigenous setting. The results show high baseline levels of emotional distress and high rates of co-morbid substance misuse and substance dependence. Nevertheless, the study findings suggest that MCP improved outcomes compared with TAU, and that the improvement was sustained over time. The patient-rated measures of well-being, substance dependence and self-management matched the changes in clinician-rated outcome measures. The concurrently collected qualitative data provide further support for positive change in response to treatment.

The results strengthen the evidence that brief interventions, which address co-morbid disorders in an integrated approach, can result in significant change, even in acutely unwell populations.^{10,11} In addition, this study also contributes a framework to guide practitioners in culturally adapted treatment, while providing some evidence that such cultural adaptation improves outcomes.

There are three main limitations to this study: there is uncertainty with regard to the validity of the chosen outcome measures in the Indigenous population as discussed earlier, the power of the study was limited by the low numbers and there is a likelihood of observer bias, as all clinician-rated measures were completed by the principal investigator. Observer bias was addressed by the inclusion of patient-rated measures, the incorporation of AMHW and carer information into clinician ratings in line with recent recommendations,³¹ and the collection of detailed qualitative data to strengthen the evidence.

In conclusion, this early pilot study suggests that a brief treatment, which engages with the individual's cultural and psychosocial perspective, and which encourages goal-setting congruent with that cultural context, is effective. Further studies might seek to confirm these findings and to explore what adaptations and tailoring of this approach can improve outcomes, especially in cannabis dependence, to what extent engagement of family is the key to the success and to what extent these findings translate to other Indigenous health settings, such as palliative care, chronic disease and family treatments.

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