

The effectiveness of trauma-based therapies for Aboriginal and non-Aboriginal children and adolescents in out-of-home care



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Abstract

Purpose Aboriginal and Torres Strait Islander children are more likely to enter out-of-home care (OOHC) in New South Wales (NSW), Australia, than non-Aboriginal children. In response to recommendations (Tune 2015) that asserted the need for culturally responsive programs designed to meet the cultural needs of children and adolescents in OOHC, the NSW government initiated a pilot project across two regions in NSW, Australia. The LINKS Trauma Healing Service was established to provide multidisciplinary services to children and adolescents in OOHC. The service has a particular focus on culturally responsive effectiveness of therapies delivered to Aboriginal and Torres Strait Islander children, adolescents and their families. Three earlier evaluations of the LINKS program have highlighted positive trends in outcomes for children and their families in NSW OOHC. This study aimed to further investigate the effectiveness of culturally responsive therapies for both Aboriginal and Torres Strait Islander and non-Aboriginal children and adolescents in OOHC in NSW, Australia.

Methods An analysis was conducted on the LINKS data collected from 144 children and adolescents (70 Aboriginal/Torres Strait Islander children and 74 non-Aboriginal children) aged 3 to 16 years. Data were analysed using mixed measures analysis of variance (ANOVA), to investigate effectiveness of culturally adapted trauma therapies for Aboriginal and Torres Strait Islander children participating in the LINKS program. Data were analysed in unison with outcomes for non-Aboriginal children and young people.

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Main findings Data supported statistically significant reductions in difficulties and trauma symptoms for both Aboriginal/Torres Strait Islander and non-Aboriginal children and adolescents. Eye movement desensitisation and reprocessing and parent–child interaction therapy treatments were found to be most beneficial in reducing trauma symptoms overall. The results further indicate no significant differences in outcomes between Aboriginal and non-Aboriginal children, with comparable rates of improvement for both groups.

Principal conclusions Trauma treatments utilised within the LINKS service show effectiveness in reducing difficulties and trauma symptoms for Aboriginal/Torres Strait Islander and non-Aboriginal children/adolescents in OOHC. This study provides some support for embedding culturally responsive approaches into mental health services delivered to children/adolescents in OOHC. It highlights the necessity for clinicians to align service delivery with the cultural values and needs of communities. Future research should address clinician cultural parity and incorporate control groups to strengthen the evidence base.

Keywords: Aboriginal and Torres Strait Islander children/adolescents; Culture; Trauma therapies; Interventions; Out-of-home care

Highlights

- Evidence-based trauma interventions provided by LINKS clinicians demonstrate effectiveness, resulting in statistically significant positive outcomes for both Aboriginal and non-Aboriginal children and adolescents in out-of-home care.
- Increasing the employment of Aboriginal clinicians within the service may enhance the understanding and interpretation of the study's results.
- The results highlight the significance of culturally responsive clinicians in the delivery of trauma therapies, particularly those that modify protocols to integrate the Social and Emotional Wellbeing (SEWB) framework. This underscores the notion that cultural responsiveness is a vital component of effective therapeutic practices.

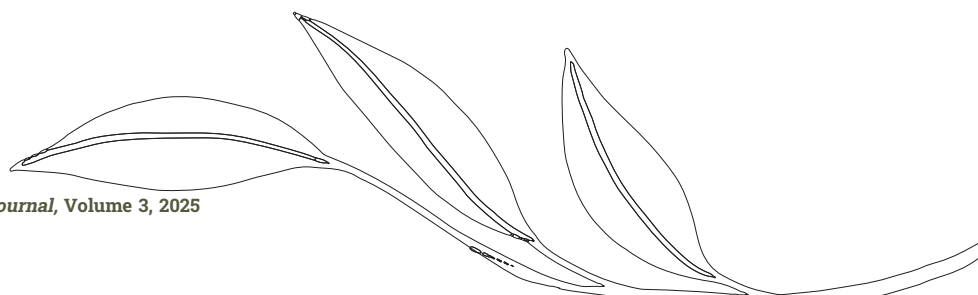
Introduction

The effect of colonisation on Aboriginal and Torres Strait Islander¹ peoples has significantly impacted Aboriginal culture, language, community, spirit and families (Aboriginal Healing Foundation 2013; Aboriginal Child, Family and Community Care State Secretariat (ABSEC) 2018; Atkinson 2002; Human Rights and Equal Opportunity Commission (HREOC) 1997). Under the

premise of protection and assimilation, the removal of Aboriginal 'half-caste' children from their families was enforced through law (Davis 2019; HREOC 1997). This resulted in generations of Aboriginal people being disconnected from their culture, family and land/Country (HREOC 1997).

According to Davis (2019) and HREOC (1997), the impact of colonisation on Aboriginal people has manifested in significantly higher rates of psychological distress, death, infant mortality, low

¹Aboriginal people, children and adolescents will henceforth be used to include Aboriginal and Torres Strait Islander people, children and adolescents.





healthcare, suicide, substance abuse, interpersonal violence and imprisonment when compared with non-Aboriginal Australians ([Aboriginal Healing Foundation 2013](#); [AIHW 2011](#); [Atkinson 2002](#); [2013](#); [Davis 2019](#); [Dudgeon et al. 2014](#); [HREOC 1997](#)). Consequently, Aboriginal children are at an increased risk of experiencing trauma and the intergenerational impacts of trauma ([Atkinson 2002](#); [2014](#); [Bevis et al. 2020](#)).

Evidence of trauma observed in Aboriginal children and adolescents includes trauma-related behaviours and attitudes, such as participation in violence, incarceration, substance abuse and sexually inappropriate behaviour, all of which devastate individuals, families and communities ([Atkinson 2014](#)). [Moore et al. \(2015\)](#) reported that one in five Aboriginal children aged 3 to 11 years are in out-of-home care (OOHC) across Australia.

When compared with non-Aboriginal children, Aboriginal children are eight times more likely to experience substantiated child protection reports for abuse and neglect and nine times more likely to enter OOHC in New South Wales (NSW) ([ABSEC 2018](#); [2020](#)). The rate of Aboriginal children and adolescents in OOHC is disproportionately high, reflecting a need for systemic change. For Aboriginal children and adolescents, the OOHC system compromises their social and emotional wellbeing as it entails removal from Country, absence of community support and loss of connection to culture. Although Aboriginal parenting practices have been compromised by intergenerational trauma resulting from enforced removals, if Aboriginal children are placed with a non-Aboriginal family, this further compromises the ability of these children and adolescents to parent in the future ([Davis 2019](#)) because they lose the opportunity to learn Aboriginal parenting practices that strengthen

connection to Country, culture and community. Consequently, OOHC entry rates are predicted to substantially increase over the next 10 years ([ABSEC 2018, 2020](#); [AIHW 2011](#); [Davis 2019](#)).

Reports written by [Atkinson \(2013\)](#) and the [Aboriginal Healing Foundation \(2013\)](#) have outlined important considerations when delivering trauma treatment to Aboriginal children/adolescents. These considerations include a focus on connection to Country and cultural identity, community inclusion, prevention and restoration, where necessary, and alignment with current trauma-informed research and neurodevelopmental approaches, including the application of the social and emotional wellbeing model (SEWB) to mental health intervention ([Aboriginal Healing Foundation 2013](#); [Atkinson 2013](#); [Dudgeon et al. 2014](#)).

In 2015, David Tune OAM was commissioned by the NSW Government to conduct an independent review of the OOHC system within NSW ([Tune 2015](#)). The review concluded that the current system was ineffective and unsustainable, with outcomes for Aboriginal children/adolescents significantly poorer than non-Aboriginal children/adolescents. This review recommended that programs align with the cultural needs of communities and include Aboriginal positions within each team. The LINKS Trauma Healing Service (LINKS) was internally commissioned by the NSW Department of Communities and Justice (DCJ) to deliver evidence-based programs to children and adolescents who are currently in NSW OOHC. Two multidisciplinary teams were established within the NSW DCJ over two key NSW regions: Hunter/Central Coast and Penrith/Blue Mountains ([Parenting Research Centre et al. 2018](#); [2019](#); [2020](#); [Their Futures Matter 2017](#)). Teams included service provision by psychologists, including one identified Aboriginal





psychologist, occupational therapists, speech pathologists and psychiatrists. Children and adolescents and their carers/families were to receive one of four evidence-based interventions or a combination of an intervention for the child/adolescent and Tuning in to Kids/Teens (TIK) for the carer/parent.

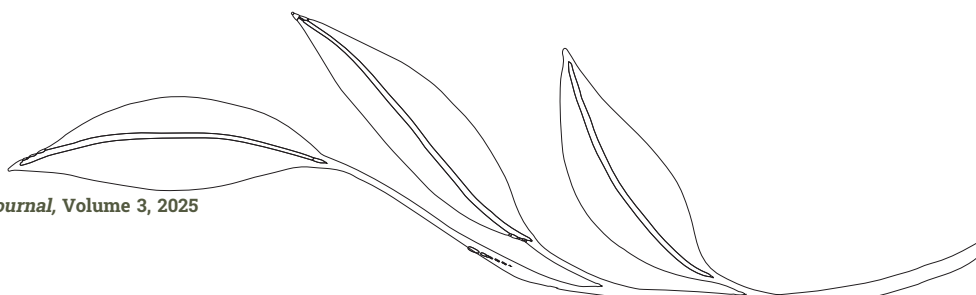
The [Parenting Research Centre et al. \(2020\)](#) reported that almost half of the 455 referrals into the LINKS program identified as Aboriginal. Aboriginal clinicians were consulted to implement culturally appropriate materials within each trauma treatment, as well as providing consultation and collaboration with local Aboriginal organisations and assisting with supporting Aboriginal families and children/young people in the program. SEWB ([Dudgeon et al. 2014](#)) was implemented to the extent that clinicians delivered treatment in Aboriginal organisations away from government offices, the option of receiving service from an Aboriginal clinician was offered, the period for engagement and rapport building was extended, and consideration was given to extending the duration of treatment for longer than six months (Parts 4, 5, 6). The SEWB materials were not used with non-Aboriginal children. Pre-outcomes and post-outcomes were assessed via several validated psychological measurements. In addition to other measures, trauma symptom outcomes were measured on the Trauma Symptoms Checklist for Young Children (TSCYC) (3 to 12 years) and the Trauma Symptom Checklist for Children (TSCC) (≥ 12 years) ([Briere 1996](#)); behavioural outcomes were measured utilising the Strengths and Difficulties Questionnaire (SDQ) ([Goodman 2001](#); [Parenting Research Centre et al. 2018](#); [2019](#); [2020](#)).

Three evaluation reports were completed by the Parenting Research Centre in partnership with the

Cultural and Indigenous Research Centre and Deakin Health Economics ([Parenting Research Centre et al. 2018](#); [2019](#); [2020](#)). Key findings support the effectiveness of the LINKS program ([Parenting Research Centre et al. 2018](#); [2019](#); [2020](#)) with results showing positive significant effects on the wellbeing of children and adolescents in OOHC. Furthermore, results from the final evaluation indicated no significant differences in treatment outcomes between Aboriginal and non-Aboriginal children/adolescents ([Parenting Research Centre et al. 2020](#)).

The positive findings of these evaluations support the value of the LINKS program as a successful treatment model for Aboriginal children/adolescents. However, further analysis of the data regarding key recommendations proposed by the [Aboriginal Healing Foundation \(2013\)](#) and [Atkinson \(2013\)](#) concerning treating trauma and achieving a reduction in trauma symptoms in Aboriginal children/adolescents in OOHC is needed. Trauma therapy research with Aboriginal children is sparse in peer reviewed literature ([Atkinson 2013](#)), demonstrating an ongoing need for evaluation and documented evidence.

The current study is an analysis of existing data collected within the LINKS project. Therefore, this study investigated culturally appropriate evidence-based psychological interventions that have been successful in reducing trauma symptoms in children/adolescents who are in OOHC within the Hunter/Central Coast and Penrith/Blue Mountains regions of NSW. It sought to compare the different therapeutic modalities offered through the LINKS program across Aboriginal and non-Aboriginal children/adolescents. Informed consent was obtained from all individual participants who participated in the study, or their legal guardians.





Method

Ethical considerations

Cultural protocol was adhered to as per the code of ethics outlined by the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS 2020) and community consultation was conducted with Aunty Laurel Williams, Elder/leader/mentor of Awabakal/Biripai land and Aunty Bronwyn Chambers, Elder in Residence and Elder/leader/mentor from Darkinjung land. Aunty Laurel and Aunty Bronwyn are listed as honorary research members of the project. Elders are Aboriginal people who have completed traditional cultural lore ceremonies at all levels, mentors are Aboriginal people who are considered to be knowledgeable, in a cultural context, by other Aboriginal people, and leaders are Aboriginal people who demonstrate leadership capacity within society and specific community environments (L. Williams, personal communication, 25 May 2021). Involvement and collaboration with the local Hunter Aboriginal Reference Group was also sought to oversee the use of and interpretation of the data, before an application to the Aboriginal Health and Medical Research Centre (AH&MRC-1760/20) was submitted and approval granted. Lastly, applications to the Human Research Ethics Committee (HREC- H-2021-0191) and NSW Department of Communities and Justice Research Partnerships were completed and approved before analysis of the data commenced.

Participants

Four hundred and fifty-five referrals were accepted into the LINKS program with 144 total data completers from October 2017 to August 2020. Complete data were unavailable for 170 non-Aboriginal clients and 141 Aboriginal clients. Data were entered manually by administration staff and often missed. In addition, many children and/or their carers withdrew from

participation. Participants were aged 3 to 16 years, had either finished the treatment program or completed a series of sessions, and completed pre-outcome and post-outcome assessments. Pre-outcome and post-outcome completed data were available for 70 Aboriginal and 74 non-Aboriginal children. Participation was voluntary throughout the course of the treatment phase with referral into the LINKS program submitted via the child/adolescent's caseworker. Informed consent was sought from carers and adolescents (aged 11 to 16 years) before entry into the program. Mental health clinicians within the LINKS team consisted of three Aboriginal identified mental health clinicians and 10 non-Aboriginal mental health clinicians. All clinicians had undertaken connection to Country training and all non-Aboriginal clinicians consulted with Aboriginal clinicians regarding cultural responsiveness based on the SEWB framework (see Parenting Research Centre studies: [Parenting Research Centre et al. 2018; 2019; 2020](#)).

Materials

Carers of children/adolescents accepted into the program completed standardised and normed assessment measures for children/adolescents, at pre- and post-intervals. These included the TSCC for adolescents aged 13 years and over or the TSCYC for children aged 12 years or younger, and the SDQ ([Briere 1996](#)) (see [Supplementary Materials](#) for details). The SDQ and the TSCYC/TSCC questionnaires used within this study have been used with Aboriginal and Torres Strait Islander peoples; however, evidence for reliable use is sparse. Both questionnaires are large age range standardised. Although some recent research ([Chau et al. 2023](#)) has shown problems with the use of the SDQ with Aboriginal children, the SDQ has been used in numerous studies with both Aboriginal and non-Aboriginal children (e.g. [Williamson et al. 2014](#)). Further, [Williamson et al. \(2014\)](#) suggested





that only the Difficulties subscales be applied to Aboriginal children.

Procedure

Allocation of a child/young person to a clinician was determined by the carer/child's preference of culture of the clinician. Children/adolescents and their carers were allocated to one of five treatments: trauma-focused cognitive behavioural therapy (TF-CBT: [Cohen et al. 2006](#); [Ramirez de Arellano et al. 2014](#)), which aims to reduce symptoms of post-traumatic stress disorder, was delivered over 12 to 18 weeks in weekly one-hour sessions to both children/young people and their carers; eye movement desensitisation and reprocessing (EMDR: [Brown et al. 2017](#); [Moreno-Alcázar et al. 2017](#); [Rodenburg et al. 2009](#)), which aims to improve post-traumatic stress symptomatology, was delivered to children/young people in weekly 50 to 90-minute sessions over 12 to 14 sessions; parent-child interaction therapy (PCIT: [Rae and Zimmer-Gembeck 2007](#); [Thomas and Zimmer-Gembeck 2011](#); [Ward et al. 2016](#)), which aims to improve carer-child relationships, was delivered over 14 weeks in weekly sessions of one hour; TIK ([Kehoe et al. 2014](#)), which aims to reduce anxiety, depression, behaviour problems and somatic complaints, was delivered to groups of carers/parents weekly over eight consecutive weeks, in two hourly sessions, which included a trauma component; or a combination of an individual treatment for the child/young person and the TIK for the carer (COMB). Allocation to treatment was determined by the clinician in consultation with the child/adolescent (see [Supplementary Materials](#) for further details.)

Data analysis

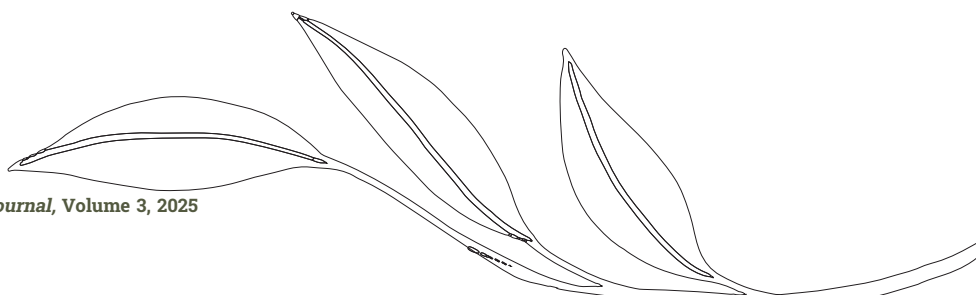
Data included the TSCC and the TSCYC. Given that the focus of this study was on trauma symptoms, only the Difficulties score from the SDQ was analysed. Individual missing data points for all questionnaires

were calculated using mean imputation within the subscale from which the data were missing. Where pre- or post-data included more than one imputed score for a subscale, the participant was excluded from analyses. As proposed by [Lanktree et al. \(2008\)](#), the TSCYC and TSCC generally converge in their assessment of trauma symptomatology, thus data collected for the TSCYC and the TSCC were not separated. The total overall trauma symptom scores were then converted into Z scores.

The data were analysed using mixed measures analysis of variance (ANOVA). The dependent variables were the Difficulties score on the SDQ and the Z score of the TSCC and TSCYC. A significance level of .05 was set for all analyses. Where necessary, Greenhouse-Geisser corrections were applied to adjust degrees of freedom if the assumption of sphericity was violated. Post hoc comparisons were conducted using Tukey's Honestly Significant Difference (HSD) corrected alpha levels to test for differences between individual means where relevant.

Post hoc power analysis

A post hoc power analysis was performed to assess the statistical power of a repeated measures ANOVA that examined a within-between interaction. This analysis utilised an assumed medium effect size of $F = 0.25$, an alpha level of .05, and included a total sample size of 144 participants. The experimental design featured 10 groups for between-subject comparisons and involved two repeated measurements. It was assumed that the correlation between the repeated measures was .50, and the non-sphericity correction factor (ϵ) was set to 1.00, which aligns with the assumption of sphericity. The results of the analysis indicated a non-centrality parameter (λ) of 36.00 and a critical F value of 1.95, with degrees of freedom of 9 for the numerator and 134 for the



denominator. The calculated statistical power was .99, suggesting a very high likelihood of detecting an effect of the specified size. This finding confirms that the study was sufficiently powered to identify a within-between interaction effect based on the defined parameters.

Results

Table 1 shows the means and standard deviations for pre- and post-test scores for each of the treatment programs for Aboriginal and non-Aboriginal children for the Difficulties total of the SDQ, and the TSCYC and TCCC. It can be seen that numbers in some of the treatment cells, particularly EMDR and TIK, were low.

Trauma Symptom Checklist for Children/Young Children

To test whether Aboriginal children/adolescents (mean 0.39, 1.13) have higher scores on the TSCC/

TSCYC at pre-test than non-Aboriginal children/adolescents (mean 0.23, SD 0.95), an independent samples *t* test was conducted on pre-test scores. Although mean scores were higher for Aboriginal children/adolescents, representing more trauma symptoms, the difference between the groups on pre-test scores was not significant ($t(133) = 0.92; P = .36$).

To investigate whether evidenced-based trauma therapies would reduce trauma symptoms on the TSCC/TSCYC in Aboriginal children/adolescents and non-Aboriginal children/adolescents, a mixed measures three-way (cultural identity of client x treatment x time [pre/post]) ANOVA was conducted. There was a significant main effect of time (pre/post) ($F(1,112) = 33.43, P \leq .001, \eta^2_p = 0.230$) and of treatment ($F(4,122) = 2.52, P = .044, \eta^2_p = .076$). These two main effects were qualified by a significant interaction

Strengths and Difficulties Questionnaire								
Treatment	Pre-test				Post-test			
	Aboriginal client		Non-Aboriginal client		Aboriginal client		Non-Aboriginal client	
	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)
Combined	21	19.38 (3.72)	14	21.21 (5.09)	21	19.86 (4.02)	14	17.5 (4.36)
EMDR	8	17.25 (3.81)	7	21.14 (3.19)	8	16.75 (5.12)	7	18 (5.51)
PCIT	12	20.83 (6.75)	8	19.38 (5.48)	12	16.67 (4.21)	8	15.5 (4.04)
TF-CBT	22	20.09 (4.77)	30	20.03(5.47)	22	16.05 (4.36)	30	17.7 (5.04)
TIK	7	14.29 (4.46)	15	16.33 (4.01)	7	14.57 (2.23)	15	15.2 (3.63)
Trauma Symptoms Checklist for Young Children/Trauma Symptoms Checklist for Children								
Treatment	Pre-test				Post-test			
	Aboriginal client		Non-Aboriginal client		Aboriginal client		Non-Aboriginal client	
	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)
Combined	19	3.02 (0.95)	13	0.51 (0.75)	19	-0.01 (0.94)	13	-0.31 (0.74)
EMDR	7	0.09 (0.89)	7	0.61 (0.54)	7	-0.57 (0.68)	7	-0.35 (1.17)
PCIT	11	1.06 (1.67)	7	0.28 (0.72)	11	-0.34 (0.88)	7	-0.68 (0.43)
TF-CBT	20	0.48 (1.31)	28	0.31 (1.09)	20	-0.22 (0.94)	28	-0.03 (0.93)
TIK	6	-0.42 (0.54)	14	-0.48 (0.83)	6	-0.61 (0.49)	14	-0.75 (0.55)

Abbreviations: EMDR, eye movement desensitisation and reprocessing; PCIT, parent-child interaction therapy; TF-CBT, trauma-focused cognitive behavioural therapy; TIK, Tuning in to Kids/teens

Table 1: Pre- and post-test means, standard deviations and number of clients in each of the treatment groups for Aboriginal and non-Aboriginal clients for the Difficulties total of the Strengths and Difficulties Questionnaire and the Trauma Symptoms Checklist for Young Children and the Trauma Symptoms Checklist for Children



between time (pre/post) and treatment ($F(4,122) = 2.80, P = .03, \eta^2_p = .08$). As can be seen in Figure 1 and confirmed by Tukey's HSD post hoc tests, scores indicated that the post-test scores were significantly better than the pre-test scores for: COMB ($P = .021$); EMDR treatment ($P = .03$); PCIT treatment ($P < .001$); and TF-CBT treatment ($p = .005$). The TIK treatment did not show a significant difference on the TSCC/TSCYC ($P = .99$). The main effect of cultural identity was not significant ($F(4,122) = 0.16, P > .05, \eta^2_p = 0.001$). No interaction involving cultural identity of client reached significance. A supplementary two-way ANOVA (cultural identity of client x time) indicated that

the main effect for cultural identity was not significant ($F(1,133) = 0.68, P > .05, \eta^2_p = 0.005$) and neither was the interaction between cultural identity of client and time ($F(1,133) = 0.34, P > .05, \eta^2_p = 0.003$). The main effect of time was significant ($F(1,133) = 57.23, P < .001, \eta^2_p = 0.301$), indicating improved scores on the TSCYC/TSCC at post-test.

Analysis of the Difficulties score on the Strengths and Difficulties Questionnaire

To test whether there was a significant difference between SDQ scores for Aboriginal children/adolescents and non-Aboriginal children/adolescents, an independent *t* test was conducted on pre-test

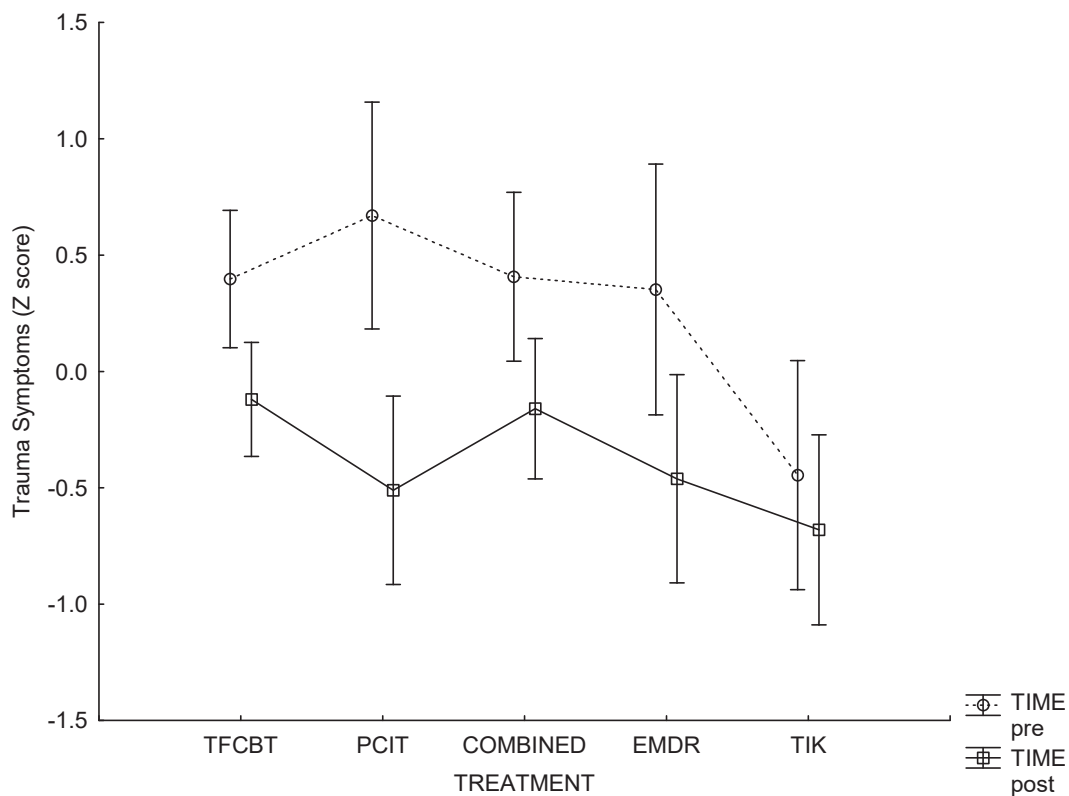
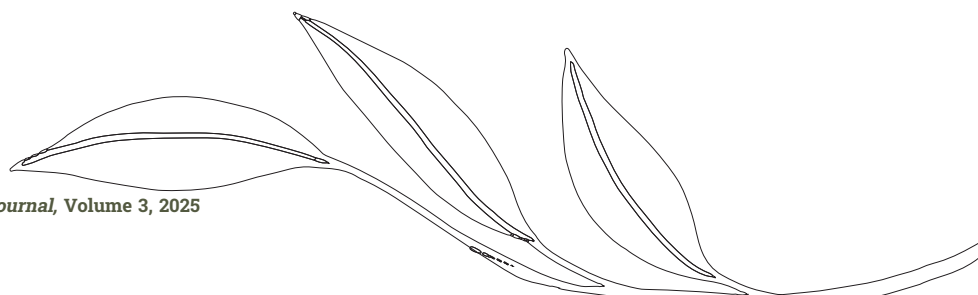


Figure 1: Trauma Symptom Checklist for Young Children (TYCTC) and Trauma Symptom Checklist for Children (TSCC) scores (time pre/post) for Aboriginal and non-Aboriginal children/adolescents (combined) across treatments. Note: Higher Z scores represent higher trauma scores. Bars represent 95% confidence intervals. EMDR, eye movement desensitisation and reprocessing; PCIT, parent-child interaction therapy; TF-CBT, trauma-focused cognitive behavioural therapy; TIK, Tuning in to Kids/teens.





scores. Non-Aboriginal children/adolescents (mean 19.54, SD 5.1) scored higher on pre-test difficulty scores than Aboriginal children/adolescents (mean 19.10, SD 5.0), and this difference was not significant ($t(142) = -0.5, P = .60$). To investigate whether evidenced-based therapies showed effectiveness in reducing difficulties for Aboriginal children/adolescents and non-Aboriginal children/adolescents, a mixed measures three-way (cultural identity of client x treatment x time (pre/post)) ANOVA was performed on the difficulties score of the SDQ. There was a significant main effect of time (pre/post) ($F(1,134) = 21.55, P < .001, \eta^2_p = 0.139$). Post-test difficulties symptom scores (mean 17.97) were lower than pre-test scores (mean 19.31). The main effect of treatment was also significant ($F(4,134) = 2.52, P = .004, \eta^2_p = 0.107$). Tukey's post hoc tests showed that overall COMB treatment scores were lower than TIK/T treatment ($P \leq .05$). No other significant main effects or interactions were found. Results showed that Aboriginal children/adolescents experience no significant differences when compared with non-Aboriginal children/adolescents across the five treatments. A supplementary two-way ANOVA (cultural identity of client x time) indicated that the main effect for cultural identity was not significant ($F(1,142) = 0.014, P > .05, \eta^2_p = 9.67 \times 10^{-5}$) and neither was the interaction between cultural identity of client and time ($F(1,142) = 0.69, P > .05, \eta^2_p = 0.005$). The main effect of time was significant ($F(1,142) = 26.47, P < .001, \eta^2_p = 0.157$), indicating that all children had improved scores on the Difficulties score on the SDQ at post-test.

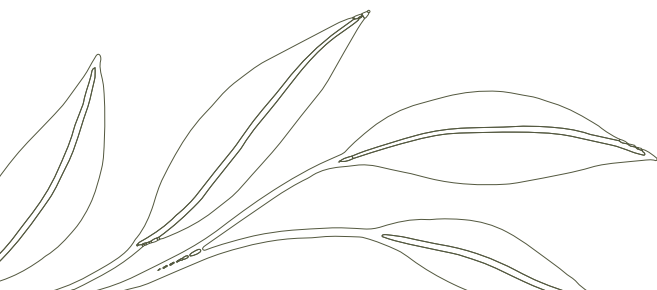
Discussion

This study investigated the effectiveness of trauma therapies for Aboriginal children and adolescents in OOH. There were no statistically significant differences between Aboriginal and non-Aboriginal

children/adolescents on the pre-test TSCYC/TSCC or SDQ Difficulties scores. The differences between pre- and post-testing on the TSCYC/TSCC and SDQ Difficulties scores significantly differed for both Aboriginal and non-Aboriginal children/adolescents, indicating an improvement in outcomes for both groups for all treatments other than TIK. These differences in scores were not significantly different between Aboriginal and non-Aboriginal children and adolescents, indicating that the treatments were equally effective for Aboriginal and non-Aboriginal children.

Atkinson (2002; 2013; 2014), Aboriginal Healing Foundation (2013) and Dudgeon et al. (2014) have documented significant symptoms of trauma in Aboriginal children/adolescents through the ongoing effects of intergenerational trauma (e.g. child removal, disadvantage and imposed non-Aboriginal policy). To date there has been minimal quantitative evidence in the literature regarding implementing trauma treatments investigating the reduction in trauma symptoms for Aboriginal children, adolescents, their families and communities. It is believed that the current study is the first quantitative study of trauma treatments administered by Aboriginal and non-Aboriginal clinicians within a multidisciplinary service and delivered to Aboriginal and non-Aboriginal children/adolescents in OOH in NSW.

Significant differences between pre- and post-test scores occurred across all five trauma treatments for Aboriginal and non-Aboriginal children/adolescents. Parent-child interaction therapy showed the largest statistical positive effect on trauma symptoms for Aboriginal and non-Aboriginal children. Although no existing literature has specifically identified PCIT as an efficacious trauma treatment for Australian Aboriginal children, its effectiveness in reducing behavioural





symptoms of children in OOHC is well documented internationally (Abrahamse et al. 2012; Leung et al. 2009, 2015; Matos et al. 2006, 2009). According to Domenech et al. (2012), specific adaptations to PCIT must include cultural sensitivity to ensure compatibility with the client's culture, language and values whilst maintaining treatment fidelity (see [Supplementary Materials](#) for further information on cultural adaptations to the PCIT protocol).

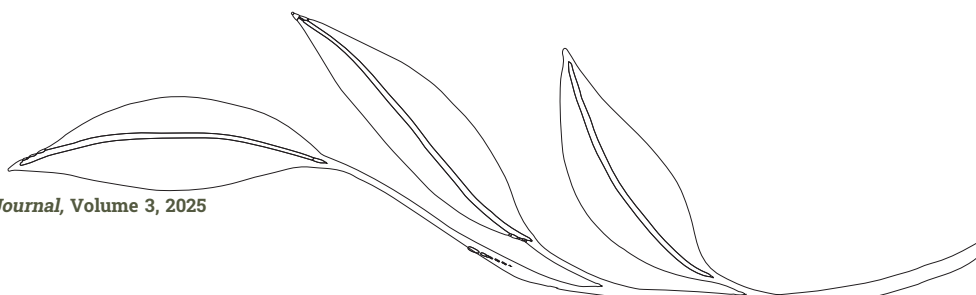
The findings of this study are consistent with Raman et al. (2017), who proposed that a trauma-informed therapeutic alliance focused on stabilising placements showed effectiveness in services delivered to Aboriginal children in OOHC. Moreover, the findings of the current study support the recommendations of Atkinson 2013; 2014, Aboriginal Healing Foundation (2013) and Dudgeon et al. (2014), which advocate a holistic approach to care consisting of prioritising Aboriginal worldviews, connection to Country and cultural identity, community inclusion, prevention and restoration, where necessary. The findings also support inclusion of the social and emotional wellbeing model (SEWB) to mental health intervention for both Aboriginal and non-Aboriginal children and adolescents (Dudgeon et al. 2014), aligning a trauma treatment service with current trauma-informed research and applying a neurodevelopmental approach (Atkinson 2013; 2014). (See [Supplementary Materials](#) for cultural considerations.)

Therefore, the current results may suggest that positive outcomes can be achieved for Aboriginal and non-Aboriginal children/adolescents when clinicians include a SEWB framework to mental health services. Within LINKS, to include cultural perspectives in interventions, non-Aboriginal clinicians can access regular cultural consultation with Aboriginal clinicians. This supports a holistic approach to care for Aboriginal

children/adolescents (Atkinson 2014; Dudgeon et al. 2014) and also for non-Aboriginal children/adolescents, where building strong alliances with non-government organisations and consistently working on rapport within families and placements assists placement stability, resulting in better outcomes. Connecting all children and adolescents to their culture and providing advocacy for competent cultural planning that meets the needs of the child/adolescent is a focus in the LINKS program.

This study focused on reductions in trauma symptoms and difficulties rather than increases in strengths. Given that the SEWB model focuses on building strengths within the seven domains, future research could include analysis of changes in strengths of participants in the program. Utilisation of an Aboriginal cultural assessment and evaluation tool (Milroy et al. 2022) based on the SEWB framework would be valuable to ensure that Indigenous research methods are utilised in programs delivered to Aboriginal children/adolescents (Dudgeon 2020) (see [Supplementary Materials](#) for future research considerations).

The limitations associated with the pre-post design and the use of data from a 'real-world' program further complicated the study's findings. The lack of a control group significantly weakened the design, particularly considering the possibility of natural regression to the mean over time, which could have affected the validity of the outcomes. This study's non-randomised design introduced potential biases, as the methods for allocating children to clinicians and assigning specific treatment strategies lacked randomisation. This limitation raises questions about the generalisability of the findings. Additionally, the study encountered significant challenges related to data completeness. Out of 544 children referred to the





LINKS program, 144 participants, or about one in four, had complete data available for analysis. This shortfall resulted from either incomplete data capture or participant dropout, potentially undermining the integrity of the results and the strength of the conclusions drawn. Participation in the treatment program was voluntary, necessitating approval from carers for children's involvement. This requirement introduced a risk of selection bias, which may have resulted in a sample that did not fully represent the broader population in need of such interventions.

Moreover, the study did not account for additional services provided within the multidisciplinary team, such as those from occupational therapists, speech pathologists and psychiatrists, which may have confounded the results. The experience of treating clinicians likely played a role in influencing outcomes; without a control group, the impact of non-therapeutic factors remained unexamined. During the data collection period, three clinicians identified as Aboriginal, compared with 10 who identified as non-Aboriginal, indicating variability in clinician experience and professional backgrounds.

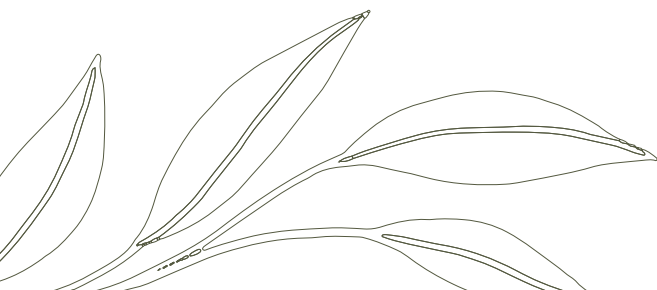
The SDQ and the TSCYC/TSCC measurements used within this study are not specifically validated for use with Aboriginal peoples and evidence for reliable use is sparse. Scoring of the measures may have also been influenced by the relationship that the carer had with the young person they were completing the questionnaires about, such as whether the child/young person was in foster care or in kinship placement. Attachment between kinship carers and children in their care could have affected how the carers scored the child's symptoms. Aboriginal kinship carers may have scored their kin lower on the TSCYC/TSCC and SDQ, as they had knowledge of and understood the

child's trauma experiences and their developmental trauma, resulting in a carer who was more responsive and invested in the therapeutic experience (Raman et al. 2017).

Furthermore, the absence of blind ratings and the reliance on treatment fidelity checks conducted by the treating clinicians constrained the ability to accurately assess treatment adherence. Given the limited number of Aboriginal clinicians within the study, the robustness of the results may have been compromised if the analyses considered the cultural backgrounds of both clinicians and clients. Nonetheless, addressing this aspect is an important recommendation within the current literature and should be prioritised in future research initiatives.

Conclusion

This study supports the recommendations made by Atkinson (2014), Aboriginal Healing Foundation (2013) and Dudgeon et al. (2014) regarding the implementation of a holistic perspective to trauma treatment for Aboriginal children and adolescents in OOHC. This analysis found results to support the use of parent-child interaction therapy, trauma-focused cognitive behavioural therapy, eye movement desensitisation and reprocessing and the TIK program as efficacious trauma treatments for Aboriginal and non-Aboriginal children/adolescents in OOHC across the regions of Hunter/Central Coast and the Penrith/Blue Mountains areas of NSW. Importantly, this study supports positive outcomes for Aboriginal children and adolescents in OOHC when culturally responsive clinicians include ongoing cultural consultation to deliver evidence-based protocols that are culturally adapted. Recommendations proposed by Atkinson (2013) and the Aboriginal Healing Foundation (2013) regarding consideration of the culture of the treating





clinician could not be analysed within this study because there were three Aboriginal clinicians employed within the data collection period. Replication of this study with equal representation of Aboriginal and non-Aboriginal clinicians would lead to further understanding of these issues. Thus, there is a clear need for the employment of greater numbers of culturally responsive clinicians.

Positionality

We respectfully acknowledge the Traditional Owners of the lands where these data were collected, specifically the Awabakal, Wonaruah, Worimi, Dharug and Darkinjung peoples, and extend our respects to the Gamilaraay people, from whom the first author descends. We honour the enduring connections to land, sea and community and pay tribute to our Elders, both past and present, as well as all Aboriginal and Torres Strait Islander peoples across Australia.

This paper arose from extensive discussions among the authors regarding its significance for the mental health outcomes of children in the out-of-home care (OOHC) system and the clinicians who support them. The first, third and fourth authors' work in Aboriginal health and wellbeing, particularly concerning the Stolen Generations and their impacts, informed this research.

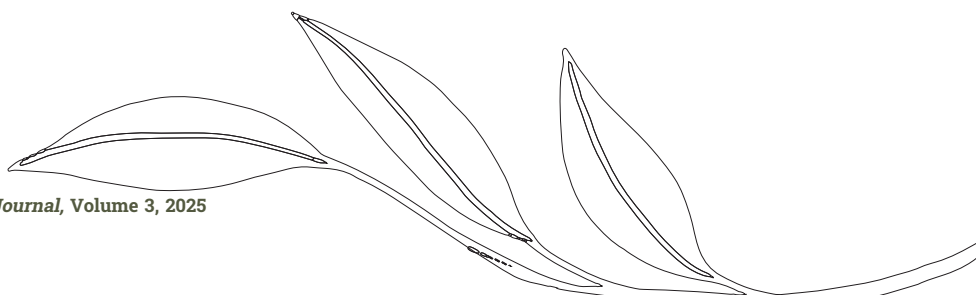
This team of Indigenous and non-Indigenous authors approached this conceptual paper in line with the National Health and Medical Research Council (NHMRC) and Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) ethical principles, emphasising respectful, high quality and beneficial research undertaken with Aboriginal and Torres Strait Islander peoples, prioritising cultural continuity, health equality and community engagement.

We recognise the importance of articulating our positionality, reflecting the diverse backgrounds and perspectives of each author. The first author (DH) is a Gamilaraay woman and clinical psychologist focused on improving mental health outcomes for children in OOHC. The second author (SH) is a non-Aboriginal researcher on Awabakal Country. The third author (LW) is a Biripi woman and senior educator, while the fourth author (BC) is a Darkinjung Elder and former Elder in Residence at the University of Newcastle. The fifth author (FHM) is a non-Indigenous senior researcher and primary supervisor for the first author.

The authors of this manuscript come with diverse perspectives. This diversity is essential to broaden our understanding of Aboriginal health and wellbeing research, particularly in relation to mental health outcomes for children in the OOHC system in New South Wales.

Author contributions

D. Haynes: conceptualisation, methodology, software, validation, formal analysis, investigation, resources, data curation, writing – original draft, writing – review and editing, visualisation, project administration. F. Heritage Martin: supervision, conceptualisation, methodology, formal analysis, writing – original draft, writing – review and editing, visualisation, project administration. S. Halpin: supervision, conceptualisation, methodology, formal analysis, writing – original draft, writing – review and editing, visualisation. Aunty L. Williams: conceptualisation, writing – original draft, writing – review and editing, visualisation. Aunty B. Chambers: conceptualisation, writing – original draft. Hunter Aboriginal Reference Group (HARG): conceptualisation, writing – original draft, writing – review and editing, visualisation.





Data sharing

Data will be held with NSW Department of Communities and Justice, and in accordance with the University of Newcastle data policy. All permissions given via research agreement NSW Department of Communities and Justice and The University of Newcastle.

Declaration of interests

Debbie Haynes reports a relationship with New South Wales Department of Communities and Justice that includes employment. All other authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Supplementary material

Supplementary material associated with this article can be found in the online version at <https://doi.org/10.1016/j.fnhli.2025.100070>

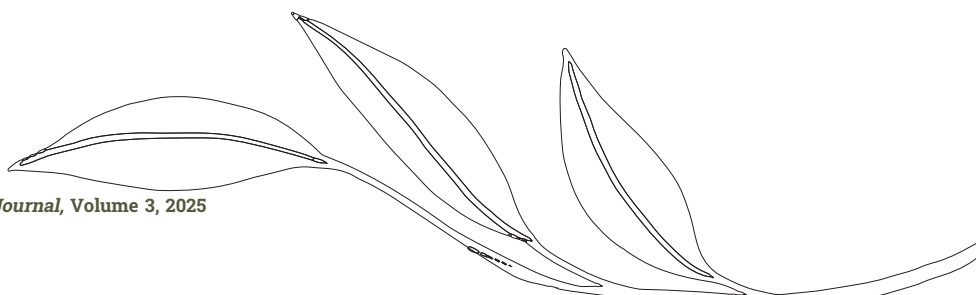
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