

ORIGINAL RESEARCH **OPEN ACCESS**

# Community Warriors: Development and Validation of a Social and Emotional Well-Being Tool for Aboriginal and Torres Strait Islander Children and Youth

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## ABSTRACT

**Objective:** To develop and validate two age-specific, strength-based measures of social and emotional well-being (SEWB) for Aboriginal and Torres Strait Islander children and youth.

**Methods:** Following development of a conceptual framework comprising six domains of SEWB and identification of existing SEWB tools, an iterative process of item refinement took place. Items were assigned to corresponding SEWB domains, and their content validity and face validity were examined. Community-Controlled Health Services provided expert feedback. Statistical analyses were conducted to assess floor and ceiling effects, item redundancy, network structure, item stability, model fit and reliability. An ant colony optimisation (ACO) algorithm was employed to identify a reduced number of items with adequate model fit.

**Design:** Data on SEWB were generated as part of the baseline assessment for a national study involving Aboriginal and Torres Strait Islander Communities.

**Setting:** 11 Aboriginal and Torres Strait Islander Communities from six states and territories.

**Participants:** Aboriginal and Torres Strait Islander children and youth aged 2–18 years.

**Main Outcome Measures:** Network structure, item stability, model fit and reliability and reduced scales.

**Results:** Different sets of items were developed to accommodate the needs of different age groups. A total of 235 participants and 162 guardians answered the self-report and the carer-report tool, respectively. A unidimensional structure was identified for both scales. Adequate item stability, model fit and reliability were obtained.

**Conclusions:** The short versions of the SEWB tools offer a friendly, age-appropriate and time-efficient approach while capturing all relevant domains of SEWB.

## 1 | Introduction

Aboriginal and Torres Strait Islander Peoples in Australia are a growing and diverse population, with 50% (approximately 492 000

people) under the age of 24 years [1]. While they are custodians of the world's oldest living cultures, Aboriginal and Torres Strait Islander Peoples also represent a dynamic and youthful demographic. Ensuring that Aboriginal and Torres Strait Islander

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## Summary

- What is already known on this subject?
  - Aboriginal and Torres Strait Islander health is rooted in collective well-being, kinship ties, culture and connection to Country. The concept of social and emotional well-being (SEWB) reflects these connections and perspectives.
  - SEWB accounts for the impact of social, historical and political contexts on the well-being of Aboriginal and Torres Strait Islander Communities.
  - Existing tools for measuring SEWB in Aboriginal and Torres Strait Islander youth are often adapted from Western frameworks, leading to misalignment with Indigenous worldviews.
- What this paper adds?
  - This paper introduces a new SEWB measure grounded in Aboriginal and Torres Strait Islander concepts of well-being. The short formats offer age-appropriate and time-efficient tools that capture relevant domains of SEWB.
  - The tool is designed to track SEWB trajectories across developmental stages, from early childhood to adolescence, enabling its use in longitudinal studies and national surveys.
  - By emphasising collective strength and cultural significance, this measure provides a valuable resource for shaping public policies and practices that focus on positive drivers of well-being for Aboriginal and Torres Strait Islander Communities.

children and young people achieve optimal well-being is essential not only for their individual development but also for the vitality of their Communities. Emerging First Nations voices play a crucial role in shaping leadership, fostering cultural continuity, caring for Country and driving positive change across generations [2–4].

For Aboriginal and Torres Strait Islander Peoples, health is fundamentally rooted in collective well-being, kinship ties, culture and a profound connection to Country [5]. Understanding drivers of well-being for Aboriginal and Torres Strait Islander children needs to be anchored by these cultural perspectives rather than confined to a strictly biomedical paradigm. Mainstream approaches not only fail to capture the complexities of Aboriginal and Torres Strait Islander health but may also obscure the nature of existing health inequities [6, 7]. Aboriginal and Torres Strait Islander leaders have emphasised the need to advance understandings of health and well-being by integrating culture as a key determinant of Indigenous health [6, 8]. The significance of culture has been, to some extent, recognised in policies addressing Aboriginal and Torres Strait Islander health and well-being since 1989 [9]. In this context, the framework of Social and Emotional Wellbeing (SEWB) has evolved as an important concept for decolonising the understandings of health and well-being for Aboriginal and Torres Strait Islander Communities [10, 11]. SEWB adopts an ecological approach that embodies Aboriginal and Torres Strait Islander worldviews, reflecting the inseparable connections between body, mind, spirit, ancestry, culture and country [5].

Currently, there is a significant lack of empirical research focusing on healthy developmental trajectories among Aboriginal and

Torres Strait Islander children and youth. SEWB provides a framework that enables the identification of positive drivers of well-being, contributing to an important shift towards strength-based research and programme development. It also accounts for social, historical and political contexts that influence well-being among Aboriginal and Torres Strait Islander Communities [5]. Without consideration of issues related to power, colonialism and racism, there is a risk of defining complex social phenomena, such as the disproportionate impact of suicidality among Aboriginal youth [12], in purely medical and individualistic terms. Colonisation has disrupted Aboriginal and Torres Strait Islander ways of Knowing, Doing and Being, including the transmission of culture, language and traditional practices across generations [13]. The forced removal of children and the unacceptably high incarceration rates of First Nations youth have had an enduring intergenerational impact on the well-being of Aboriginal and Torres Strait Islander families [14, 15]. Additionally, studies have shown that experiences of racism during childhood and adolescence have a profoundly negative effect on the mental health and well-being of Aboriginal and Torres Strait Islander peoples [16, 17]. SEWB provides a valuable tool for critically engaging issues of power in Aboriginal and Torres Strait Islander health, while also offering new pathways to build on Community strengths.

Robust measurement of SEWB is critical for identifying factors driving positive well-being and for informing culturally appropriate policies. The first generation of SEWB tools employed to measure this construct among Aboriginal and Torres Strait Islander children and youth was adapted from Western frameworks, often failing to provide valid measures of well-being due to significant misalignment with Aboriginal and Torres Strait Islander perspectives [18–20]. In response, new tools have been proposed and developed specifically for Aboriginal and Torres Strait Islander adolescents, acknowledging the holistic nature of SEWB. In general, the new tools remain heavily focused on clinical symptomatology such as psychological distress and depression [21, 22]. Existing tools have typically been validated in geographically restricted populations, with research showing limited applicability among Aboriginal and Torres Strait Islander youth groups from other regions of Australia [23]. To the best of our knowledge, there are no validated tools developed for Aboriginal and Torres Strait Islander children. Despite important advancements, there is still a shortage of comprehensive, culturally appropriate tools for measuring SEWB among Aboriginal and Torres Strait Islander children and youth at a national level.

In this study, we aimed to develop and validate two age-specific, strength-based SEWB measures for Aboriginal and Torres Strait Islander children and youth. The new measures will be employed to assess the impact of a national oral health programme, designed in collaboration with the Aboriginal Community-Controlled Health sector, on the well-being of Aboriginal and Torres Strait Islander individuals aged 2–18 years.

## 2 | Methods

This project was underpinned by a strength-based approach that guided all stages of research, including development of the conceptual framework, item pooling and item refinement. Strength-based approaches focus on the capabilities, talents and resources

intrinsic to Aboriginal and Torres Strait Islander Communities, rather than reproducing a rhetoric of disadvantage and deficit. By recognising the centrality of culture in fostering individuals and collective well-being, these approaches offer both a language and a paradigm to leverage local assets and support Community-owned solutions. We focused on key elements of strength-based approaches to Aboriginal and Torres Strait Islander Communities such as resilience, holistic approaches, self-determination and protective factors.

## 2.1 | Team Positionality

Our team brings together a diversity of professional backgrounds and lived experiences. Our team is co-led by a senior Aboriginal researcher and a senior non-Indigenous researcher with extensive experience working in Aboriginal and Torres Strait Islander health. Team members have a record of meaningful research collaborations with Aboriginal and Torres Strait Islander Communities, bringing expertise in qualitative research, psychometrics and epidemiology. Indigenous voices are an integral part of the research process. Our team includes researchers with a long record of community-based research on SEWB. We also consulted with recognised leaders in the field for the development of the conceptual framework. As a team, we critically examine and challenge conventional academic practices grounded in colonial thinking, while recognising that non-Indigenous researchers have benefited from these structures. Our commitment extends to honouring and respecting the significance of Indigenous Sovereignty to all health-related matters, including health research [24].

## 2.2 | Conceptualising Aboriginal and Torres Strait Islander Children and Youth SEWB

Development of the tool was grounded on a conceptual framework derived from a scoping review conducted by the research team [in press]. The scoping review comprehensively synthesised qualitative evidence on existing conceptualisations of SEWB for Aboriginal and Torres Strait Islander children and youth. The framework focused on the shared meanings attributed to SEWB across several Aboriginal and Torres Strait Islander Communities. Based on qualitative evidence from 17 publications, the developed conceptual framework comprised six domains of SEWB: 1. Feeling strong in my body; 2. Feeling strong in my mind; 3. Feeling strong in my identity; 4. Feeling loved and safe; 5. Feeling resilient; and 6. Feeling empowered. The conceptual model also acknowledges the role of grounding elements that support the SEWB of Aboriginal and Torres Strait Islander children and youth: Community, spirit, spirituality, ancestors, culture, Country, friends and role models. A graphical representation of the model was proposed as a tree; grounding elements were represented as roots and SEWB domains as branches.

We adopted an Aboriginal and Torres Strait Island child development framework to inform relevant age brackets that reflect SEWB trajectories [25]. In the early years of life (2–6 years), Aboriginal and Torres Strait Islander children learn to communicate and establish strong connections with family and

Community, which are vital for providing a safe and nurturing environment for their development. During the middle years (7–11 years), children start attending school, further explore social, emotional and critical skills and strengthen their cultural identity. As Aboriginal and Torres Strait Islander children reach adolescence (12–18 years), they experience important physical and emotional transitions and challenges. During this stage, external factors such as the media, teachers and cultural group experiences can influence their own notion of identity. They will also be exposed to cultural learnings about men's and women's business regarding sexual and gender roles.

## 2.3 | Item Pooling

We searched peer-reviewed and grey literature to identify scales measuring domains related to the SEWB of Aboriginal and Torres Strait Islander children and youth. We only considered strength-based scales that were specifically developed for or appropriately validated in this population. We specifically looked at measured constructs that were part of the ones identified as domains of SEWB (e.g., resilience) or sections of SEWB scales that were strength-based. Subscales or items assessing psychopathology symptoms (e.g., anxiety, depression or suicidal ideation) and instruments that failed to demonstrate construct validity were excluded. This study aimed to develop a comprehensive tool to measure SEWB for Aboriginal and Torres Strait Islander research. While tools that focus on psychopathology symptoms often aim to enable screening based on individual risk, we explicitly focused on Community resilience to generate a tool designed for strengths-based research.

## 2.4 | Item Refinement

Through a collaborative and iterative process involving multiple sessions with the research team, we assessed items for construct validity, cultural safety and age-appropriate language and content. Our deliberations were guided by principles of Relational Yarning and strengths-based research [24]. In the first phase, this process included the identification and elimination of items deemed unsatisfactory due to being ill-defined, not relevant and deficit-focused, having low content validity or not meeting standards of cultural safety. We critically assessed existing tools to identify gaps in the measurement of SEWB.

In the second phase, remaining items were categorised according to the six domains of the SEWB framework. We also evaluated item relevance to different stages of child development. Items with similar meanings or measuring similar concepts were identified and, where appropriate, collapsed. The team collaboratively examined and discussed the meanings of each item, iteratively refining its structure and wording. This approach was rooted in a dialectical and collaborative environment that emphasised creativity, exploration of different solutions and inclusion of diverse perspectives from experts and individuals with lived experiences. In most cases, the items developed were completely new and the item pooling was used as a strategy to identify important aspects of SEWB to be considered and measured. In our approach, we aimed to ensure that the tool reflects the deep connection between SEWB and lore. Domains and

items explicitly incorporated cultural values related to spirit, language, cultural identity, bush foods, cultural activities and kinship structures.

We sought expert feedback from Aboriginal Health Workers at a collaborating Aboriginal Community-Controlled Health Organisation. Their input confirmed the relevance of the items, and no further changes were deemed necessary at this stage.

## 2.5 | Data Generation

Data on SEWB were generated as part of the baseline assessment for a cluster randomised trial involving Aboriginal and Torres Strait Islander children and youth aged 2–18 years. The study included regional and remote Communities across six states and territories. Recruitment strategies were tailored for the context of each participating Community, leveraging extensive Community consultation. Strategies included engaging with Community leaders, distributing posters and written resources, utilising social media platforms, attending Community events and visiting Community groups. Carers (for participants aged 2–6 years) and participants (aged 7–18 years) were invited to answer the appropriate version of the SEWB tool.

## 2.6 | Consultation

This project builds upon long-term relationships with Aboriginal and Torres Strait Islander Communities. These relationships, established by senior researcher LJ and Indigenous Oral Health Unit director JH, were cultivated through oral health initiatives, advocacy and continuous Community engagement. The project included comprehensive consultation and dialogue with Aboriginal Community Controlled Health Organisations (ACCHOs) from 11 Communities across six states and territories in Australia. ACCHOs provided guidance on research protocols, data collection, Community engagement and cultural protocols. To ensure cultural safety standards, we prioritised continuous engagement with Community-led organisations, Indigenous leadership, feedback mechanisms and culturally appropriate methodologies. Data collection was conducted by Aboriginal research officers following local cultural protocols. Continuous training and capacity-building opportunities were undertaken to ensure that all members of the research team were equipped with the skills needed to foster relationships with Communities grounded in trust, respect, reciprocity, responsibility, equity and integrity. Advisory committee members provided feedback through partnering organisations as in-kind support for the project. Community members who provided insights into the development of the tool were remunerated with AU\$50 gift cards for their lived experiences and relevant contributions. All contributions have also been recognised in the acknowledgement section.

Members of the Cultural Advisory Committee from an Aboriginal Community-Controlled Health Organisation were consulted for their valuable perspectives and experience in youth SEWB. During the first round of consultation, the advisors noted that the tool was overly extensive and recommended the development of a shortened version. In the second round of

consultation, changes to the wording of four items were suggested, in addition to the incorporation of a pictorial face scale alongside response options. The name of the tool was inspired by a conversation with a young participant who, after answering the SEWB tool, expressed a desire to become a 'Community Warrior'.

## 2.7 | Analysis

Building upon feedback obtained from Community partners, the statistical analysis aimed to reduce the number of items in the SEWB scale while ensuring that it remained meaningful, comprehensive and theoretically grounded. The goal was to create a simplified tool that retained its depth and relevance for assessing SEWB among Aboriginal and Torres Strait Islander children and youth. Response samples consisted of 261 participants aged 7–18 years and 187 participants aged 2–6 years. The analytical dataset comprised all participants with complete information on measures of SEWB (self-report: 90%; carer-report: 86.7%). The process of validation employed a network psychometric approach. First, we examined the distribution of item scores and checked for the presence of floor and ceiling effects (i.e., when a considerable proportion of participants score the maximum or minimum available scores, indicating a failure to discriminate individuals with high, medium or low levels of the construct). Subsequently, we assessed potentially redundant items (items that measured the same aspect of SEWB or worded very similarly) using the weighted topological overlap measure (wTO) available in the R package EGAnet. The wTO identifies redundant items by evaluating the similarity between pairs of items based on their shared connections with other items [26]. A threshold of 0.25 was applied as a recommended cut-off [26]. Items identified with substantial floor/ceiling effects or redundancy were inspected and, where appropriate, removed.

We employed an ant colony optimisation (ACO) algorithm to develop a short SEWB scale [27]. ACO is a sophisticated optimisation technique that selects a subset of items based on pre-defined criteria such as model fit. The algorithm learns across several iterations the optimal combination of items. It emulates the foraging behaviour of ants, where they randomly explore paths for food and leave pheromone trails that attract others. Shorter paths accumulate stronger pheromone trails faster, leading more ants to converge on these routes and establishing them as the primary path to the food source over time. Similarly, ACO will identify combinations of items. The algorithm will assign increased levels of pheromones (i.e., increased likelihood of selection) to the shortest pathway (i.e., combination of items with best model fit). The iterative process of identifying combinations of items, evaluating model fit and boosting likelihood of selection is repeated until the desired model fit criteria can no longer be improved.

The algorithm was set to find a solution comprising 12 items (2 items per theoretical domain). We tested increasingly restrictive cut-offs for model fit parameters, ultimately setting the model optimisation criteria to Comparative Fit Index (CFI) > 0.97 and Root Mean Square Error of Approximation (RMSEA) < 0.03. Each iteration tested 50 different models. Given ACO is a probabilistic approach that may generate different results with each

execution, we iteratively executed the ACO procedure until no new models were identified. The retrieved models were then scrutinised and evaluated against the theoretical framework, and the model that was the most consistent with the theoretical framework (i.e., better construct representation and content validity) was selected.

Exploratory graph analysis (EGA) employing the walktrap community-detection algorithm was used to evaluate the number of dimensions of the short scale [28]. Network loadings (i.e., the sum of a node's connections) were inspected to identify substantial cross-loadings (nodes with loadings greater than 0.15 in more than one community). The robustness of the dimensionality analysis was assessed through metrics of structural consistency (the proportion of times each dimension was exactly replicated across a number of bootstrap samples) and item stability (the proportion of times each item was assigned to its original dimension). The number of bootstrap samples was set to 1000. Confirmatory factor analysis was employed to assess the fit of the model structure to the data. Adequate model fit was indicated by  $CFI \geq 0.96$  and  $RMSEA \leq 0.05$ . Internal consistency reliability was assessed using McDonald's omega ( $\omega$ ). Internal consistency refers to the extent to which items designed to measure the same phenomenon are consistent in their responses (values above 0.7 were considered satisfactory internal consistency). Linear regression was used to determine the extent to which scores from the short SEWB scale explain the variance in scores from the full SEWB scale.

## 2.8 | Ethics

Ethics approval has been granted by the Australian Institute of Aboriginal and Torres Strait Islander Studies Human Research Ethics Committee, the Aboriginal Health Council of South Australia Human Research Ethics Committee, the Human Research Ethics Committee of the Northern Territory Department of Health and Menzies School of Health Research, the Far North Queensland Human Research Ethics Committee, the Aboriginal Health and Medical Research Council of New South Wales Human Research Ethics Committee and the Western Australian Aboriginal Health Ethics Committee.

## 3 | Results

### 3.1 | Tool Development

We identified 11 instruments specifically developed or validated for measuring domains related to the SEWB of Aboriginal and Torres Strait Islander children and youth [21, 22, 29–37]. Instruments focused on aspects related to resilience, empowerment, identity and quality of life. We sampled a total of 359 items. A substantial proportion of items were redundant or presented low content validity (not adequately measuring the construct).

Through continuous discussion and deliberation, the research team developed a final pool comprising 34 new items. Of these, 21 items were deemed relevant for all age groups, 2 items were specific for children aged 2–6 years, 10 items were specific for children aged 7–18 years and 1 item was specific for children

aged 11–18 years. Items were assigned to the relevant SEWB domains, ensuring all theoretical domains were adequately represented. The research team decided to adopt a standard 5-point Likert response scale with options ranging from 'Strongly agree' to 'Strongly disagree'. To accommodate the specificities of different age groups, we developed three versions of the tool:

- Carer-report version for children aged 2–6 years (23 items);
- Self-report version for children aged 7–11 years (31 items);
- Self-report version for youth aged 12–18 years (32 items).

### 3.2 | Self-Report Scale (7–18 Years)

The self-report tool was validated with a sample of 235 Aboriginal and Torres Strait Islander children and youth aged 7–18 years. Of these, approximately 22% lived in remote Communities (Table 1). Given similarities in the structure of items across children aged 7–11 years and 12–18 years, we combined both samples for analysis. Item 12 was excluded for lacking construct validity for both age groups (Table 2). Six items were removed from the self-report SEWB scale due to strong ceiling effects (items 3, 10, 14, 16, 19 and 27). No substantial levels of item redundancy were found among the remaining items ( $wTO < 0.25$ ). The remaining 25 items of the self-report scale were included in the ACO procedure. A reduced set of 12 items, two items per domain, was identified by the ACO (items 1, 2, 4, 6, 15, 17, 22, 23, 25, 30, 31 and 32).

A network was estimated with the reduced item set and a structure comprising 3 dimensions was identified by EGA. Structural

**TABLE 1** | Distribution of participants according to demographic factors.

	Self-report	Carer-report
Total	235	162
Mean age	11.2 ± 3.2	4.3 ± 1.5
Gender		
Boy	113 (48.1)	83 (51.2)
Girl	120 (51.1)	78 (48.1)
Other/rather not say	2 (0.8)	1 (0.6)
State		
WA	79 (33.6)	56 (34.6)
NSW	31 (13.2)	18 (11.1)
VIC	73 (31.1)	32 (19.8)
SA	22 (9.4)	20 (12.3)
NT	2 (0.8)	4 (2.5)
QLD	28 (11.9)	32 (19.8)
Remoteness		
Regional	183 (77.9)	106 (65.4)
Remote	52 (22.1)	56 (34.6)

**TABLE 2** | Process of item reduction for the self-report scale.

Item <i>n.</i>	Domain/Item	Decision
Domain feeling strong in my mind		
1	Positive things often happen to me (e.g., won a game at school, made new good friends...).	Retained by ACO. Language recommended to be changed ('Good things sometimes happen to me'). Kept in final tool.
3	I'm passionate about certain things (e.g., sports, fishing, music, school, art and pets).	Removed due to ceiling effect.
8	I don't keep anger inside, I express what I'm upset about in a positive way.	Not retained by ACO.
25	I am a strong and deadly person.	Retained by ACO. Kept in the final tool.
Domain feeling strong in my body		
6	I feel fresh and rested when I wake up because I slept well.	Retained by ACO. Language recommended to be changed ('I feel good in the morning because I slept well'). Kept in final tool.
31	I think I am good looking.	Retained by ACO. Kept in final tool.
5	I feel full of energy to do the things I like to do.	Not retained by ACO.
11	I recover quickly when I get sick or injured.	Not retained by ACO.
29	I eat healthy foods that make me feel strong.	Not retained by ACO.
Domain feeling empowered		
4	I express what I think and people take on board.	Retained by ACO. Language recommended to be changed ('I let people know what I think and people listen'). Kept in final tool.
2	I have people in my life that I admire and want to be like.	Retained by ACO. Removed due to low item stability
7	Other people tell me there is something I'm good at.	Not retained by ACO.
14	My family helps me when I need it.	Removed due to ceiling effect.
28	In my community, people help me learn new skills.	Not retained by ACO.
Domain feeling loved and safe		
22	I feel I belong in my community, I'm loved and safe.	Retained by ACO. Kept in final tool.
15	I can talk to someone I trust when I'm sad or upset.	Retained by ACO. Removed due to cross-loadings.
10	I have a friend that is a good friend.	Removed due to ceiling effect.
16	I have a safe place that I can go to when I need to heal.	Removed due to ceiling effect.
19	I have people in my life who are there for me (e.g., teachers, cousins...).	Removed due to ceiling effect.

(Continues)

TABLE 2 | (Continued)

Item <i>n.</i>	Domain/Item	Decision
26	I like going to my school (e.g., to play with friends, to learn new things...).	Not retained by ACO.
Domain feeling strong in my identity		
30	I do things that make my spirit strong.	Retained by ACO. Kept in final tool.
32	Being Aboriginal or Torres Strait Islander makes me proud.	Retained by ACO. Kept in final tool.
9	Seeing the Aboriginal and/or Torres Strait Islander flag makes me feel proud.	Not retained by ACO.
13	I feel strong in my spirit.	Not retained by ACO.
21	I'm happy with the opportunities that I have to learn and speak my language.	Not retained by ACO.
24	I have many chances to prepare and share bush tucker.	Not retained by ACO.
Domain feeling resilient		
17	When I fail, I keep trying.	Retained by ACO. Kept in final tool.
23	When I start something, I try to finish it.	Retained by ACO. Kept in final tool.
18	I adapt quickly to major changes in my life.	Not retained by ACO.
20	If I'm sad, I do things that make me feel better.	Not retained by ACO.
27	When I have problems, I try to solve them or look for help.	Removed due to ceiling effects.

consistency (the proportion of times the composition of each empirically derived dimension was exactly retrieved from the bootstrap samples) was adequate for dimension 2 (79.8%), whereas poor structural consistency was found for dimensions 1 (35%) and 3 (30.3%). We further evaluated network loadings and item stability. Item 15 was removed due to substantial levels of cross-loadings (community 1: 0.298; community 2: 0.209). The network was re-estimated and a unidimensional structure was retrieved. Five items presented poor item stability (below 0.7). We removed the item with the lowest item stability (item 2) and re-estimated the network. A 10-item unidimensional structure was found (Figure 1A). A unidimensional structure was retrieved in 71.8% of the bootstrap samples. All items displayed adequate item stability (Figure 2A).

The 10-item unidimensional model presented excellent fit to the data (Appendix S1). CFI was 0.998 and RMSEA was 0.022 (95% CI: 0.000–0.072). Reliability measured by McDonald's Omega was adequate ( $\omega$ : 0.75, 95% CI: 0.69, 0.81). Scores of the short SEWB scale explained 91.4% of the variance in the scores of the long-form scale.

### 3.3 | Carer-Report (2–6 Years)

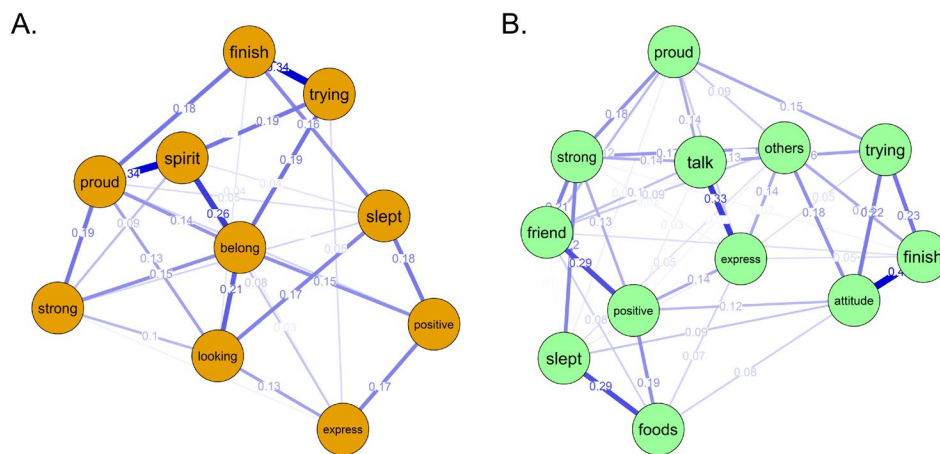
The carer-report tool was validated with a sample of 162 Aboriginal and Torres Strait Islander children aged 2–6 years. Approximately one-third of the participants lived in remote Communities (Table 1).

Table 3 outlines the process of item reduction for the carer-report scale. One item was removed from the carer-report scale due to ceiling effect (item 5). No signs of redundancy were found among the 22 remaining items ( $WTO < 0.25$ ). The ACO procedure identified a reduced set of 12 items, two items per domain (items 1, 2, 6, 7, 8, 10, 12, 13, 16, 17, 19 and 21). The EGA procedure retrieved a unidimensional structure (Figure 1B). A unidimensional structure was retrieved in 97% of the bootstrap samples. All items presented excellent stability (Figure 2B).

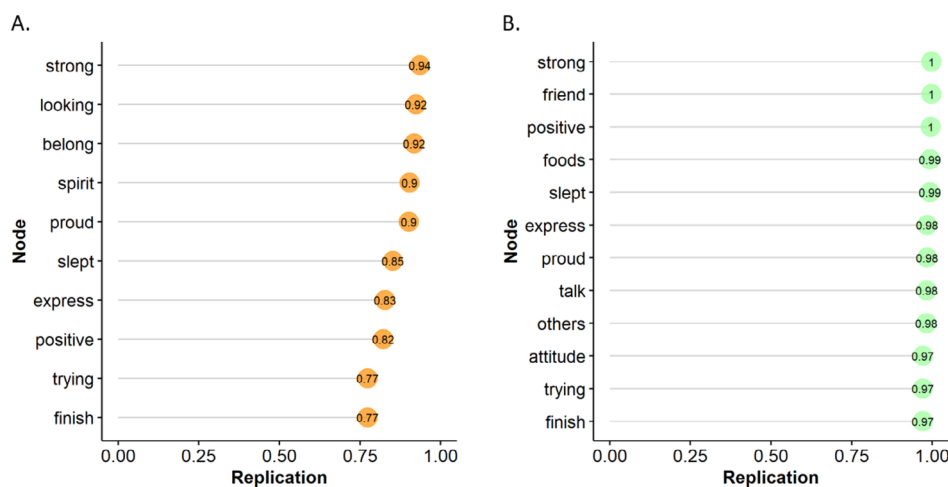
The 12-item unidimensional model presented adequate fit to the data. CFI was 0.959 and RMSEA was 0.056 (95% CI: 0.000–0.019) (Appendix S2). Reliability was excellent ( $\omega$ : 0.91, 95% CI: 0.89, 0.93). Scores of the 12-item carer-report SEWB scale explained 95.4% of the variance in the scores of the long carer-report scale.

## 4 | Discussion

This paper describes the development, item refinement and psychometric evaluation of a novel SEWB measure for Aboriginal and Torres Strait Islander children and youth. Adopting a comprehensive and culturally grounded framework, we generated two age-specific, strength-based tools addressing relevant domains for the SEWB trajectories of Aboriginal and Torres Strait Islander children and adolescents. The short scales showed strong psychometric properties and explained a large proportion of the variance in scores of the original scales. The resulting SEWB tool is a culturally relevant, nonintensive and



**FIGURE 1** | Network structure of the self-report (A) and carer-report (B) tools.



**FIGURE 2** | Item stability of the self-report (A) and carer-report (B) tools.

psychometrically robust tool designed for measuring the SEWB of Aboriginal and Torres Strait Islander youth at both national and Community levels.

To the best of our knowledge, this is the first SEWB measure developed using a national sample of Aboriginal and Torres Strait Islander children and youth. It was designed to capture the trajectories of SEWB across key developmental stages, from early years to young adulthood. The tool has important implications for longitudinal studies and national surveys, particularly for studies monitoring changes in SEWB trajectories throughout different stages of development. Moreover, the tool will be employed to measure the impact of a national oral health initiative on the well-being trajectories of Aboriginal and Torres Strait Islander children and youth [38]. By focusing on collective strength and cultural significance, the tool represents a valuable asset for informing public policies in Australia and guiding practices that improve the well-being of Aboriginal and Torres Strait Islander Communities.

Psychometric evaluation is a critical step in the development and validation of a new instrument. However, it is important to acknowledge that psychometrics is a field rooted in Western scientific traditions, and it is important to adopt a *decolonial*

perspective to instrument development and validation [39]. A decolonial perspective means that psychological assessment is never used to maintain and conform to colonial systems of knowledge but to centre and privilege Aboriginal and Torres Strait Islander knowledge and experiences [40]. It is known, for instance, that Western conceptualisations of mental health are insufficient to describe the experiences of SEWB of Aboriginal and Torres Strait Islander Peoples [5], and so is the use of standard Western instruments [19, 20]. As such, throughout all stages of instrument development and psychometric validation conducted in our study, we privileged Aboriginal and Torres Strait Islander conceptualisations of SEWB and leadership.

This paper introduces a conceptual framework that reflects the dimensions of SEWB specific to Aboriginal and Torres Strait Islander children and youth. While the domains in the Community Warriors tool remain closely aligned with the foundational framework developed by Gee et al. (2014), we have strengthened our conceptualisation by incorporating qualitative evidence from Aboriginal and Torres Strait Islander Communities on the SEWB trajectories during early years, childhood and adolescence. This tailored framework ensures that the tool is grounded in the unique lived experiences of Aboriginal and Torres Strait Islander children and youth.

**TABLE 3** | Process of item reduction for the carer-report scale.

<b>Item n.</b>	<b>Domain/Item</b>	<b>Decision</b>
Domain feeling strong in my mind		
1	Positive things often happen to my child (e.g., won a game at school, made new good friends).	Retained by ACO. Kept in final tool.
4	My child is passionate about certain things (e.g., sports, dancing, music, school and pets).	Not retained by ACO.
17	My child has a good attitude.	Retained by ACO. Kept in final tool.
Domain feeling strong in my body		
5	My child feels full of energy to do the things they like to do.	Removed due to ceiling effect.
6	My child feels fresh and rested when they wake up because they slept well.	Retained by ACO. Kept in final tool.
9	My child recovers quickly when they get sick or injured.	Not retained by ACO.
21	My child eats healthy foods that make them feel strong.	Retained by ACO. Kept in final tool.
Domain feeling empowered		
3	My child has people in their life that they admire and want to be like.	Not retained by ACO.
2	My child expresses what they feel.	Retained by ACO. Kept in final tool.
7	Other people tell my child there is something they are good at (e.g., playing, sharing, good manners, listening, helping).	Retained by ACO. Kept in final tool.
11	My family helps my child when my child needs it.	Not retained by ACO.
20	Our community support our child's development (e.g., respect, kindness, culture).	Not retained by ACO.
Domain feeling loved and safe		
8	My child has a friend that is a good friend.	Retained by ACO. Kept in final tool.
12	My child can talk to someone they trust when they're sad or upset.	Retained by ACO. Kept in final tool.
18	My child likes going to their school and/or day care (e.g., to play with friends, to learn new things).	Not retained by ACO.
Domain feeling strong in my identity		
10	My child feels strong in their spirit.	Retained by ACO. Kept in final tool.
15	My child is happy with the opportunities they have to learn and speak their language	Not retained by ACO.
22	My child does things that make their spirit strong (e.g., being with family, going out bush, community ceremonies, playing sports, singing).	Not retained by ACO.
19	Being Aboriginal or Torres Strait Islander is important to my child.	Retained by ACO. Kept in final tool.
Domain feeling resilient		
13	When my child fails, they keep trying.	Retained by ACO. Kept in final tool.

(Continues)

TABLE 3 | (Continued)

Item n.	Domain/Item	Decision
14	My child adapts quickly to major changes in their life (e.g., starting at a new school, parental divorce).	Not retained by ACO.
16	When my child starts something, they try to finish it.	Retained by ACO. Kept in final tool.
23	When my child has problems, they try to solve them or look for help (e.g., they come and tell me the problem).	Not retained by ACO.

Statistical analyses were designed to align with the holistic notion of SEWB. The reduction of items conducted using the ACO procedure was guided by the SEWB framework, while the network analysis reflects the interconnectedness between domains. This approach ensures that relationships between different aspects of well-being are identified and preserved in the analysis. Similarly, other researchers have developed creative approaches to ensure that traditional methods reflect and align with Indigenous perspectives. Howard et al. (2024) embedded psychometric methods within Indigenist methodologies, ensuring that Indigenous perspectives remained central to the process [41]. Collaborative Yarning provided a culturally meaningful structure for methodological decisions and interpretation of findings [24, 41].

Valid measures of SEWB for Aboriginal and Torres Strait Islander children and youth must account for age. Children and young people may experience and express the different domains of SEWB in multiple ways. These experiences evolve throughout different stages of life, reflecting the unique needs of childhood, adolescence and young adulthood [5]. We successfully identified a number of shared SEWB indicators across different age groups, in addition to developing specific items tailored for each life stage. The final version of the SEWB tool includes six core items common to all age groups, as well as additional items designed for specific developmental stages. Importantly, both sets of items (self-report and carer-report) are grounded on the same framework, ensuring a comprehensive assessment of SEWB that integrates information on the same domains: body, mind, identity, resilience, feeling loved and safe and empowerment. Understanding the SEWB of Aboriginal and Torres Strait Islander children and young people as an evolving journey of connection—with culture, family, Community and country—is paramount to measure the construct adequately as a dynamic process.

#### 4.1 | Limitations

Although the study involved a highly diverse population from six states and territories, the sample is not representative of the Aboriginal and Torres Strait Islander young population. Participants from Tasmania, the Australian Capital Territory (ACT) and metropolitan areas were not included in the study. We acknowledge that certain psychopathology symptoms and negative experiences, such as trauma and racism, are relevant for the SEWB of Aboriginal and Torres Strait Islander children. Our focus on resilience and positive drivers of SEWB should not

be interpreted as an attempt to minimise or overlook the structural disadvantages and adversities experienced by individuals. While we employed a strength-based framework for the development of the tool, not directly addressing the impact of adversity on SEWB is a limitation of our study. Because we evaluated model fit in the same sample that the model was developed, model fit indices might be inflated. Future research should further evaluate model fit of the tool in independent samples.

## 5 | Conclusion

This paper describes the development and validation of a new SEWB measure grounded on Aboriginal and Torres Strait Islander concepts of well-being. The short versions of the tools offer a friendly, age-appropriate and time-efficient approach, while capturing all relevant domains of SEWB outlined in the theoretical framework. Both short scales demonstrated excellent psychometric properties. This research offers a novel avenue for monitoring SEWB trajectories from early childhood to young adulthood at both national and local levels.

#### Author Contributions

**Gustavo Hermes Soares:** conceptualization, methodology, investigation, formal analysis, data curation, project administration, writing – original draft. **Pedro Henrique Ribeiro Santiago:** conceptualization, methodology, investigation, formal analysis, writing – review and editing. **Brianna Poirier:** conceptualization, methodology, writing – review and editing, formal analysis, investigation. **Sneha Sethi:** conceptualization, methodology, investigation, formal analysis, writing – review and editing. **Dandara Haag:** conceptualization, methodology, investigation, formal analysis, writing – review and editing. **Madison Cachagee:** conceptualization, methodology, investigation, formal analysis, writing – review and editing. **Emma Flanagan:** conceptualization, investigation, formal analysis, writing – review and editing. **Yvonne Cadet-James:** conceptualization, methodology, investigation, formal analysis, writing – review and editing. **Joanne Hedges:** conceptualization, investigation, funding acquisition, writing – review and editing, methodology, formal analysis. **Lisa Jamieson:** conceptualization, funding acquisition, writing – review and editing, methodology, investigation, formal analysis.

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## Ethics Statement

Ethics approval has been granted by the Australian Institute of Aboriginal and Torres Strait Islander Studies Human Research Ethics Committee (Ref. REC-0148), the Aboriginal Health Council of South Australia Human Research Ethics Committee (Ref. 04-22-1013), the Human Research Ethics Committee of the Northern Territory Department of Health and Menzies School of Health Research (Ref. 2022-4421), the Far North Queensland Human Research Ethics Committee (Ref. HREC/2022/QCH/89981), the Aboriginal Health and Medical Research Council of New South Wales Human Research Ethics Committee (Ref. 2019/22) and the Western Australian Aboriginal Health Ethics Committee (Ref. HREC1226).

## Conflicts of Interest

The authors declare no conflicts of interest.

## Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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### Supporting Information

Additional supporting information can be found online in the Supporting Information section.