

Protocol

# Developing a Virtual Reality Application for Social and Emotional Wellbeing and Cultural Determinants of Health Support With an Aboriginal Community of Sydney, New South Wales, Australia: Protocol for an Acceptability and Feasibility Study

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## Abstract

**Background:** As the first peoples of Australia, Aboriginal and Torres Strait Islander peoples have continuing cultures that are essential to wellbeing. Complex sociocultural, health, and wellbeing inequities stemming from colonization, settler-colonialism, and mental health system challenges have led to high rates of negative mental health and wellbeing for Aboriginal and Torres Strait Islander peoples. Improving Aboriginal and Torres Strait Islander mental health and wellbeing outcomes is a national public health priority. Social and emotional wellbeing (SEWB) and the cultural determinants of health (CDH) provide evidence-based approaches for providing culturally centered wellbeing support. There is a need to increase the availability, accessibility, and effectiveness of culturally relevant, holistic, and strengths-based wellbeing supports. It is essential that Aboriginal communities have self-determined opportunities to develop and implement culturally centered wellbeing supports informed by SEWB and the CDH. Aboriginal digital health and wellbeing support research is an emerging field offering potential to help improve wellbeing outcomes. This study aims to explore how virtual reality (VR) could be used to provide SEWB and CDH support for Aboriginal and Torres Strait Islander peoples.

**Objective:** This study protocol outlines a 3-phase mixed-methods approach that will inform the co-design and codevelopment of a VR application that aims to provide SEWB and CDH support. In partnership with Tribal Warrior, an Aboriginal Community Controlled Organization, Studio Gilay, an Aboriginal-led animation and storytelling studio, and Phoria, an Australian immersive storytelling technology company, this study will assess cultural relevance, acceptability, and feasibility of the VR application.

**Methods:** Using Indigenist and Participatory Action Research methodologies, purposive sampling will be used to recruit 35 Tribal Warrior staff and Aboriginal community members to participate in each phase of research. Qualitative data collection will occur in each phase through yarning circles. Reflexive thematic analysis will guide qualitative analysis. Phase 3 will involve a quantitative survey, generating cultural relevance, acceptability, and feasibility evidence. Descriptive statistics analysis will be used to report results.

**Results:** As of April 2026, data collection and analysis for phases 1 and 2 are complete. This study will culminate in the development and assessment of a co-designed and codeveloped VR application that aims to provide SEWB and CDH support for Aboriginal peoples. Findings from each phase will be published in academic papers and nonacademic outputs. The VR application will be implemented by Tribal Warrior into existing community programs and supports.

**Conclusions:** Findings from this study have potential implications for improving availability and accessibility to culturally centered wellbeing supports for Aboriginal and Torres Strait Islander peoples. Assessing the cultural relevance, acceptability, and feasibility of using VR technology to provide culturally centered wellbeing support will contribute novel evidence to the fields of public health, digital health, and design-based research.

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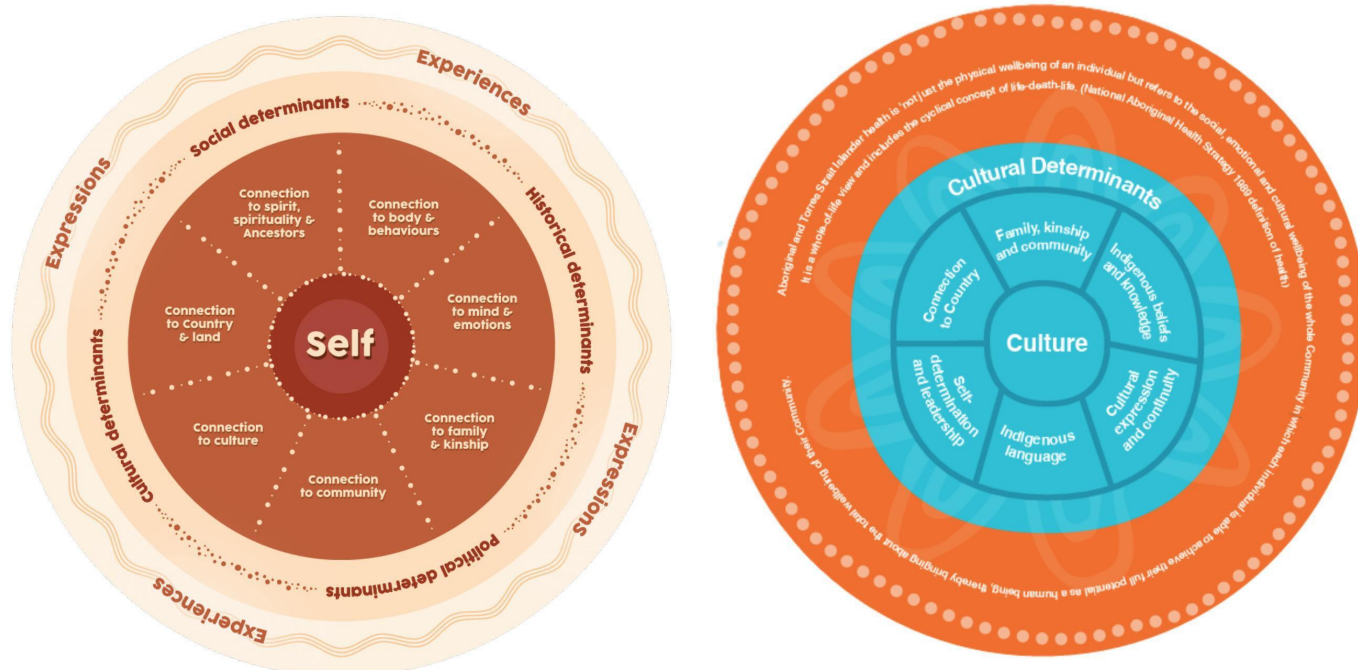
## Introduction

### Background

As the first peoples of Australia, Aboriginal and Torres Strait Islander peoples (herein, respectfully referred to as Aboriginal peoples) have continuing cultures that are essential to wellbeing [1]. Social and emotional wellbeing (SEWB) and the cultural determinants of health (CDH) are models that conceptualize how culture supports Aboriginal health and wellbeing [2,3]. Comprised of cultural knowledges, practices, beliefs, and values, SEWB and the CDH provide

evidence-based approaches for providing wellbeing support that is culturally centered [4,5]. Evidence suggests that culturally safe, holistic, and strengths-based approaches are essential factors of culturally centered wellbeing supports [6-9]. For Aboriginal peoples, supports targeting SEWB and CDH have been recognized as effective for improving wellbeing outcomes [10-13]. Improving the availability, accessibility, and effectiveness of culturally centered wellbeing supports for Aboriginal peoples is a longstanding national public health priority [5-7,10-14]. A visual overview of SEWB [15] and the CDH [9] is provided, as Figure 1 shows:

**Figure 1.** Social and emotional wellbeing and the cultural determinants of health. SEWB diagram adapted from Gee et al (2024) [16]. SEWB: social and emotional wellbeing.



Culturally centered wellbeing supports help to counter the impacts of colonization and settler-colonialism [17-19]. It is well known that these factors are the underlying contributors toward unjust Aboriginal health, wellbeing, and social determinant disparities [20,21]. Government efforts to counter colonial harms have failed to address the

racial oppression, cultural disconnection, and dispossession experienced intergenerationally by Aboriginal peoples [22-28]. In turn, Aboriginal communities have not been adequately afforded opportunities to provide culturally centered wellbeing supports that help to mitigate these challenges [29-32]. This has led to widespread experiences of complex

mental health and wellbeing challenges for Aboriginal peoples. As of 2022-2023, a total of 30% of the adult Aboriginal population experienced high or very high rates of psychological distress [33]. The largest contributors to the total burden of disease were mental and substance use disorders (23%), with anxiety and depressive disorders being the leading causes behind this outcome. Aboriginal males and females are respectively 2.9 and 2.6 times more likely than non-Indigenous peoples to have a cause of death by suicide [34]. For Aboriginal youth aged 10-24, suicide and self-inflicted injuries made up the highest contribution toward the total burden of disease [35]. To improve Aboriginal wellbeing outcomes, mental health system reforms are required [36-39].

Culturally centered wellbeing supports for Aboriginal peoples are not adequately available in the Australian mental health system [10,11]. Despite a greater need for targeted wellbeing support, evidence has demonstrated that Aboriginal peoples are less likely to seek help when necessary [40-44]. Additionally, Aboriginal peoples experience subjective sociocultural challenges that impede engagement with available supports. Racial discrimination, lack of cultural safety, predominantly Western biomedical approaches to care, and an insufficient Aboriginal wellbeing workforce are key challenges [45,46]. When receiving support that is not culturally centered, feelings of shame and mistrust in non-Indigenous services often lead to disengagement with the mental health system [47-49]. Despite widespread awareness of these gaps, mental health system reforms have not led to sufficient improvements in Aboriginal mental health and wellbeing outcomes [50,51]. Increased investment in the co-design, implementation, and evaluation of culturally centered wellbeing supports is essential.

### **Digital Health Applications and Aboriginal Wellbeing Support**

Growing evidence demonstrates how digital health applications can offer benefits for Aboriginal wellbeing support [52-57]. Aboriginal digital health and wellbeing support studies have encompassed a wide range of technologies and definitions; electronic health, digital mental health services, telehealth, mobile health applications, and mobile diagnostic tools [52,58]. Engagement with diverse communities, technologies, research design, and wellbeing challenges is reported in the literature [59-61]. Aboriginal digital health and wellbeing support research, conducted in partnership with Aboriginal Community Controlled Organizations (ACCOs) and communities, has targeted psychological distress [60], suicide [62-65], anxiety and depression [66,67], and alcohol use [68]. Aboriginal self-determination and governance, genuine co-design, culturally relevant content, and strengths-based approaches are emphasized as essential factors of effective Aboriginal digital health and wellbeing support [52, 58]. Fundamentally, digital health applications offer novel opportunities to provide culturally centered wellbeing support that is not currently available for Aboriginal peoples.

Digital health applications have been recognized as useful for addressing mental health system gaps and challenges impeding Aboriginal peoples seeking wellbeing support

[55]. Structurally, digital health applications can improve accessibility to enhanced options of remote health care; supports that do not exist in communities can be provided, with reduced costs for patients [57,63]. Systemic challenges, such as racial discrimination, lack of cultural safety, and an inadequate Aboriginal wellbeing workforce, can also be countered [53,56,57,69]. In countering these challenges, digital health approaches can allow practitioners to provide remote support, informed by cultural safety, and holistic, strengths-based approaches [70]. Importantly, digital health applications can enhance access to culturally centered wellbeing supports, while Aboriginal peoples remain in Country and in community [52].

At present, gaps in knowledge exist within Aboriginal digital health and wellbeing support research [54]. There is a recognized need to better understand the cultural relevance, acceptability, feasibility, and effectiveness of digital health applications aiming to support Aboriginal wellbeing [56]. Addressing these gaps, the eHealth Research Collaboration for Aboriginal and Torres Strait Islander Health (eHRCAT-SIH) has conducted foundational research [53]. Established in 2019, the central aim of eHRCATSIH is to develop the first Aboriginal evidence-based best practice framework for culturally safe electronic health. Underpinning this work are review papers that have assessed the current state of Aboriginal digital health and wellbeing support research [52, 54].

In a narrative review, important characteristics of electronic health interventions for Aboriginal peoples were assessed [52]. Of the 39 included studies, mobile health, telehealth, and mobile diagnostic tools were used to provide wellbeing support. Authentic co-design, Aboriginal governance, and partnerships were reported as foundational qualities of Aboriginal electronic health research and practice [52]. These qualities are recognized as essential for Aboriginal electronic health interventions to be culturally safe, sustainable, and impactful [52]. The necessity of prioritizing the development of research partnerships with ACCOs, using Indigenist and Participatory Action Research (PAR) approaches, is emphasized by eHRCATSIH [52].

Another systematic review examined the effectiveness, facilitators, and barriers of studies involving digital health mental services (DHMSs) for Aboriginal peoples [58]. Findings highlighted variations in the effectiveness of DHMS across mental health outcomes and interventions [58]. DHMSs were found to be effective supports for specific wellbeing support purposes: assessment of conditions, monitoring of status, and providing education [58]. While findings demonstrated DHMSs could improve general mental health support, limited evidence identified effective support for more severe conditions [58]. Key facilitators of effective DHMSs included Aboriginal community leadership and governance, culturally relevant design, and clinician-supported tools [58]. Barriers included digital exclusion, low literacy, and privacy issues [58].

Two Aboriginal digital health and wellbeing support studies exemplify this approach: iBobbly and Stay Strong.

Both studies contribute valuable evidence reinforcing the importance of exploring, understanding, and assessing how digital health applications could support improved Aboriginal wellbeing outcomes. In partnership with Aboriginal community members in Western Australia, iBobbly was developed as a self-help mobile application based on acceptance-based therapies. iBobbly provided targeted support for Aboriginal youth wellbeing, addressing suicidal ideation, depression, psychological distress, and impulsivity. From a 2-arm randomized controlled trial involving 61 participants, a significant reduction in depression symptoms and psychological distress in the target population was reported [63]. As a co-designed tablet and mobile application, Stay Strong provides culturally adapted cognitive behavioral therapy (CBT), mindfulness-based activities, and trauma-informed wellbeing support for Aboriginal peoples. As a holistic wellbeing intervention, the Stay Strong app involves a gamified approach to support mental health literacy, emotional regulation, help-seeking, and goal setting. Stay Strong has been adapted to provide wellbeing support for specific subpopulations, including Aboriginal youth [62], people with kidney failure [61], and people in prisons [60]. In a nonrandomized prepost mixed methods study involving 30 Aboriginal young people, feasibility, acceptability, and use of the AIMhi youth Stay Strong app were assessed [67]. Findings showed statistically and clinically significant improvements in wellbeing measures for psychological distress and depression [67]. Participants reported that Stay Strong had good usability, was culturally relevant, and useful for wellbeing support. Although a diversity of digital health applications for wellbeing support have been explored in this context, evidence on the use of virtual reality (VR) to support Aboriginal wellbeing is minimal.

### ***VR and Indigenous Wellbeing Support***

Research on the use of VR to support wellbeing has been conducted over many decades. Common themes of this research include mental health support [71-74], empathy and communication skills development [75-77], pain management [78-80], physiotherapy and rehabilitation [81-83], and surgical training [84-86]. VR offers specific affordances that can be leveraged to provide heightened psychological and physiological experiences [87]. Key affordances include immersion, presence, simulation, interactivity, and embodiment [88,89]. VR research has demonstrated that when meaningful sociocultural contexts are explored, and VR affordances are leveraged effectively, potential exists to influence emotions, perspectives, and wellbeing [90]. Yet for Aboriginal, First Nations, and Indigenous peoples (herein, respectfully referred to collectively as Indigenous peoples), the use of VR to support subjective sociocultural and psycho-social wellbeing has been largely overlooked.

Despite this, Indigenous peoples worldwide have been involved in VR uptake and development [91]. In 2021, analysis from FourthVR, an online Indigenous VR database, reported that 43 Indigenous VR works were available in the database [91]. From a paper involving analysis of 3 Indigenous VR works, recurring design and experiential themes were identified [91]. Embodying connections of

the past-present-future, demonstrating interconnectivity of all living things, native languages in virtual worlds, and Indigenous futurism and activism were identified as recurring themes. These findings correlate with global conceptualizations of Indigenous wellbeing and align with evidence-based approaches to providing Indigenous wellbeing support [92-95]. Although some studies have begun to explore specific Indigenous VR wellbeing support use cases [96-99], many gaps within the evidence exist. Understanding how VR experiences and affordances might offer subjective wellbeing benefits for Indigenous peoples, and the clinical acceptability, feasibility, and effectiveness of VR wellbeing supports, are major gaps. At present, studies have not reported on genuine improvements in mental health and wellbeing outcomes through the use of VR.

However, 4 notable studies have begun to explore the potential of using VR to provide wellbeing support for Indigenous peoples. In 2024, the Transforming Trauma project received significant Australian federal government funding to develop Indigenous-led VR wellbeing support tools. In the coming years, this research will aim to provide trauma support through VR for Aboriginal peoples in regional and remote communities [100]. In partnership with ACCOs and wellbeing service providers, trauma support will be provided to young mothers and young men transitioning from the justice system. Future research will evaluate cultural, psycho-social, and health impacts from engagement with the VR applications. The Digital Songlines project approached VR as a medium for cultural heritage preservation and education [101]. Collaboration with Aboriginal communities involved collecting, designing, and sharing Aboriginal cultural heritage knowledge in VR. Research evidence reported on the development of community engagement protocols, culturally grounded methodologies, and development toolkits for VR [101]. In 2023, Digital Songlines partnered with Menzies School of Health Research and local mental health services to facilitate a pilot program, supporting Aboriginal youth wellbeing in the Northern Territory, Australia [102]. For Stolen Generation Survivors and families, VR was approached as a digital health tool conducive to healing from colonial traumas [98,99]. The Carrolup-Marribank mission site was reconstructed in VR, serving as a living digital memorial where support could be provided for cultural disconnection, loss of identity, and community displacement. Stolen Generation Survivors and Aboriginal communities co-designed the VR application, using lived experiences and cultural knowledges. Findings reported that the VR application was supportive as an emotive and healing mechanism for truth-telling and reconciliation [99]. In Quebec, Canada, research with Inuit communities of Nunavik led to the development of a co-designed culturally adapted VR-CBT intervention [96,97]. The research addressed 3 challenges limiting psychotherapy access for Inuit: geographic location and limited access to high-quality care, lack of cultural safety, and lack of Inuk therapists. Outputs from participatory co-design included a culturally adapted CBT manual and 2 complementary VR-CBT Inuit therapy environments [96,97]. Further research is underway through a proof-of-concept 2-arm randomized controlled

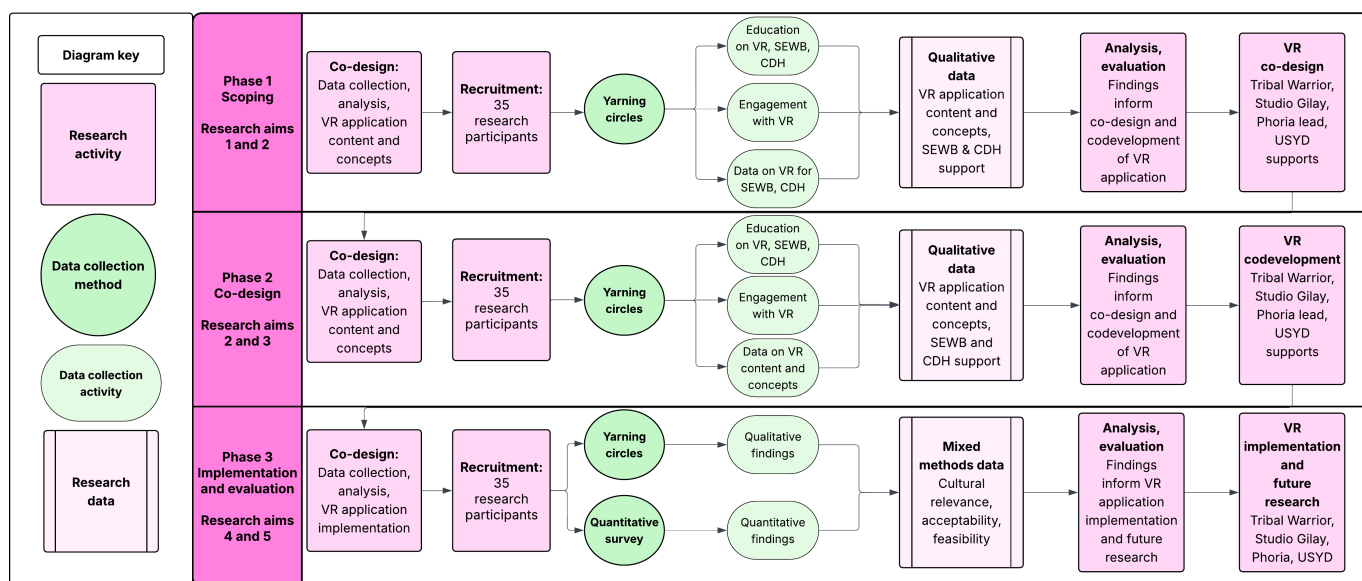
trial involving 40 Inuit [96]. Evidence from this study will include feasibility, self-rated mental wellbeing, and objective psychophysiological measures, and the identification of primary outcome measures.

Based on Aboriginal digital health and wellbeing support evidence, including the use of VR applications, there is a clear direction for future research. Understanding how VR could be used to support Indigenous wellbeing requires partnerships with Indigenous communities, emphasizing cultural governance and leadership. Participatory research approaches need to identify the wellbeing support needs of Indigenous communities, and how VR could address gaps in mental health systems. Through co-design and codevelopment processes, cultural factors conducive to positive Indigenous wellbeing can be understood, enabling adaptation into VR application content. Cultural content for VR applications should align with evidence-based Indigenous wellbeing supports, allowing meaningful experiences to be provided for users. Resulting from the availability of VR applications designed to support wellbeing, research on cultural relevance, acceptability, feasibility, and effectiveness can then occur.

### VR and Culturally Centered Wellbeing Support

Our study will explore the potential of using VR to provide SEWB and CDH support for Aboriginal peoples. This protocol outlines a 3-phase mixed-methods indigenist and PAR cultural relevance, acceptability, and feasibility study. The central aim of this study is to co-design and codevelop a VR application that provides culturally centered wellbeing support, informed by SEWB and the CDH. Upon availability of the VR application, cultural relevance, acceptability, and feasibility will be assessed by participants. Cultural relevance will assess whether VR application experiences and content align with SEWB and CDH domains. Acceptability will assess whether the VR application experiences and content could be beneficial for providing SEWB and CDH support. Feasibility will assess how, where, and why implementation of the VR application could be effective as a digital health and wellbeing support application (Figure 2). The research aims and study design are provided below, as Table 1 shows.

**Figure 2.** Research phases, aims, and methods. CDH: cultural determinants of health; SEWB: social and emotional wellbeing; USYD: University of Sydney; VR: virtual reality.



**Table 1.** Research aims.

Aims	Description
1	Explore the perspectives of Aboriginal peoples on how VR <sup>a</sup> could be used to provide SEWB <sup>b</sup> and CDH <sup>c</sup> support.
2	Use Aboriginal cultural knowledges and practices, sociocultural lived experiences of the Aboriginal community, and qualitative data to co-design and codevelop the VR application.
3	Assess the cultural relevance, acceptability, and feasibility of using the VR application to provide culturally centered SEWB and CDH support.
4	Support implementation of the VR application as a digital health application that facilitates SEWB and CDH cultural education and connection.
5	Engage in interdisciplinary and cross-industry knowledge translation and dissemination activities based on research findings.

<sup>a</sup>VR: virtual reality.

<sup>b</sup>SEWB: social and emotional wellbeing.

<sup>c</sup>CDH: cultural determinants of health.

## **Research Partnership Positionality**

Tribal Warrior Corporation (SP) is a nonprofit ACCO located in Gadigal Country, Eora Nation (Sydney, New South Wales, Australia). Tribal Warrior is directed by Aboriginal people to empower the community by supporting the health and wellbeing through connection to culture and family [103]. They provide targeted supports and programs across health, wellbeing, cultural education, justice systems, and tourism. Studio Gilay (JD and MA) is an Aboriginal-led animation storytelling studio, also based on Gadigal Country, Eora Nation. They prioritize respectful interpretation of voices, stories, and knowledges when consulting with diverse communities to enable the creation of meaningful digital content shared with broad audiences [104]. Phoria (JP) is an immersive technology studio based in Narrm, Wurundjeri Country, Kulin Nation (Melbourne, Victoria, Australia), specializing in the use of virtual and mixed reality technologies (VR, augmented reality, mixed reality, and extended reality) to generate social impact and achieve positive change [105]. Our research team and project at The University of Sydney (USYD) is led by Aboriginal Australian authors (JG and MD) and supported by non-Indigenous authors (JM-S and JN), who work in the Sydney School of Public Health and have expertise in public health and qualitative health research. Non-Indigenous authors (MC and LH) working in the School of Architecture, Design, and Planning at the USYD provide expertise in human-computer-interaction and design-based research. We position our research partnership as an interdisciplinary, cross-industry, innovative collaboration.

Tribal Warrior owns the full intellectual, cultural, and economic rights to the VR application and research data. Phoria and Studio Gilay do not gain financial profit from the VR application or research outputs. Both partner organizations will be provided with funding from the research grant and Tribal Warrior to complete co-design and codevelopment of the VR application. Funding was provided by Meta as an “unrestricted free gift.” This grant structure provides full autonomy for the research partnership to independently conduct research and develop the VR application without any involvement or expectations of Meta, Australia.

## **Theoretical Approach: Using VR to Provide SEWB and CDH Support**

This study starts from the position that VR could serve as a culturally centered wellbeing support mechanism. Findings from SEWB and CDH research demonstrate that cultural education and connection activities are essential factors for Aboriginal wellbeing support [6,106]. Arts-based programs, engaging with Elders, and empowering connections within the community have been recognized as effective modalities and approaches [107,108]. In theory, this evidence signifies that the experiential nature of VR could be useful for providing culturally centered wellbeing support for Aboriginal peoples. Co-design and codevelopment would enable the VR application to provide supportive wellbeing experiences informed by SEWB and CDH. Qualitative evidence, provided by Aboriginal peoples, could identify SEWB and

CDH supports required in the community context, outlining effective modalities and approaches. Complementing this evidence, ACCOs could provide expertise and experiences of providing SEWB and CDH supports, further identifying those currently unavailable or ineffective. Together, cultural knowledges, practices, and contexts would inform VR application experiences, content, and use cases that allow the provision of relevant culturally centered wellbeing support.

As a mechanism of providing culturally centered wellbeing support, informed by SEWB and CDH, VR applications could counter gaps in mental health systems and ACCO supports. By addressing challenges and barriers of colonization and settler-colonialism, VR applications could serve as a novel approach to providing self-determined SEWB and CDH support. Therefore, the VR application would be adapted into existing ACCO services, programs, and supports as a new approach to providing SEWB and CDH support. Thus, this study aims to explore how VR applications could be used to provide SEWB and CDH support for Aboriginal peoples.

To be effective, VR applications providing SEWB and CDH support would need to leverage the affordances of VR [88,90]. This study theorizes that VR affordances, when leveraged within supportive wellbeing experiences targeting SEWB and CDH, could offer subjective benefits for Aboriginal peoples. Cultural contexts that no longer exist, or have been negatively impacted, could be adapted into immersive VR environments. Embodiment of avatars, or being positioned in specific viewpoints, could provide experiences that help Aboriginal peoples to experience presence, reconnecting with traditional contexts and cultural components precolonization. Specific simulations could be embedded, where Aboriginal peoples could benefit from interactivity with cultural practices and sociocultural histories. This could help to counter cultural disconnection by enhancing access to opportunities for cultural engagement and strengths-based perspective-taking using VR. By leveraging specific VR affordances to provide cultural experiences and content informed by SEWB and the CDH, the VR application could serve as a mechanism for providing culturally centered wellbeing support. This study will explore this theoretical approach, as outlined in the research aims.

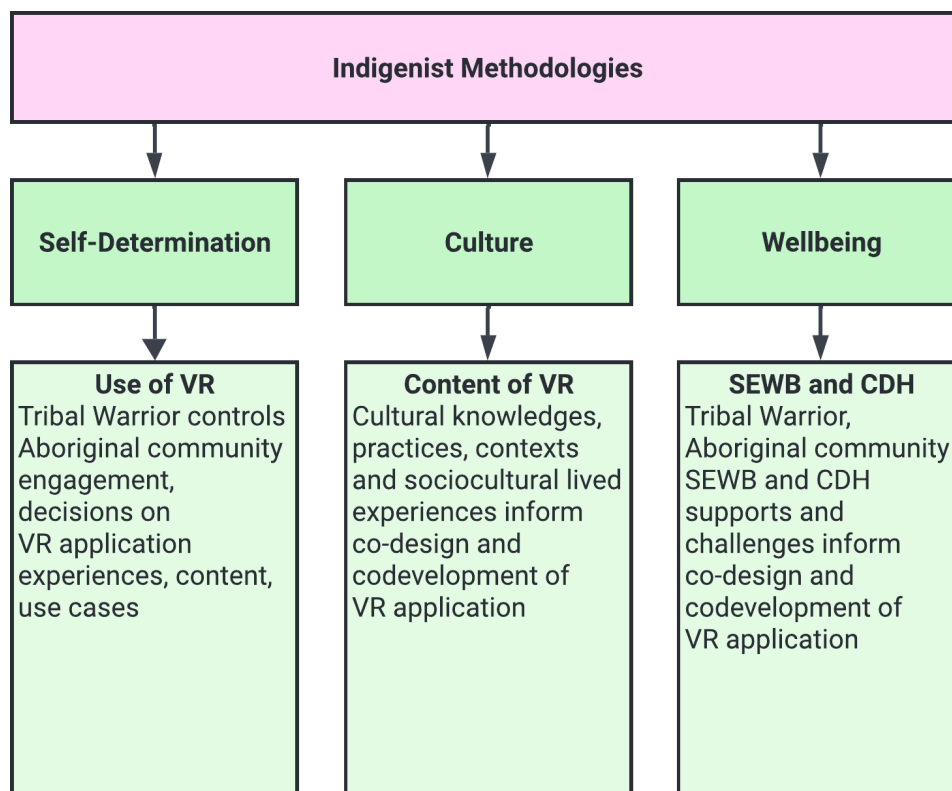
## **Research Design: Indigenist Methodologies**

Indigenist research methodologies offer beneficial processes for research design, engagement, and facilitation for Indigenous peoples and researchers [109]. In Australia, the concept of Indigenist research emerged as a collaborative effort between Indigenous researchers and communities. Promoting self-determination, decolonization, and liberation from colonial oppression, the interconnected principles of resistance, political integrity, and prioritizing Indigenous voices are foundational principles of Indigenist research [110]. Indigenist approaches emphasize support for Aboriginal worldviews, knowledge systems, and social norms taking precedence in research, helping to ensure Indigenous perspectives are not subordinated to Western

research standards [111]. Internationally, Indigenist methodologies with similar interpretations and applications have been endorsed by numerous Indigenous and First Nations scholars [112-115]. Through Indigenist research, emphasis is placed on equitable involvement of all peoples. This enables Indigenous communities to meaningfully contribute toward decision-making, governance, and leadership across all research components [116-119]. Indigenist methodologies were chosen as the most suitable methodological approach to inform our research design. This respects and enacts self-determination for Tribal Warrior and Aboriginal community members within this study. Our Indigenist research design will ensure the VR application is co-designed

and codeveloped from a culturally centered positionality. Qualitative findings and iterative co-design outcomes will inform VR application content codevelopment, prioritizing cultural knowledges, lived experiences, SEWB, and CDH support needs. Our use of Indigenist methodologies will ensure that the work of USYD researchers, Studio Gilay, and Phoria is responsive to self-determined decisions made by Tribal Warrior. This governance and leadership commitment will enable the partnership to align VR application co-design and codevelopment with how Tribal Warrior provides SEWB and CDH support for the local Aboriginal community. A visual overview of how Indigenist methodologies inform the research design is provided, as (Figure 3) shows:

**Figure 3.** Research facilitation—participatory action research methodology. USYD: University of Sydney; VR: virtual reality.



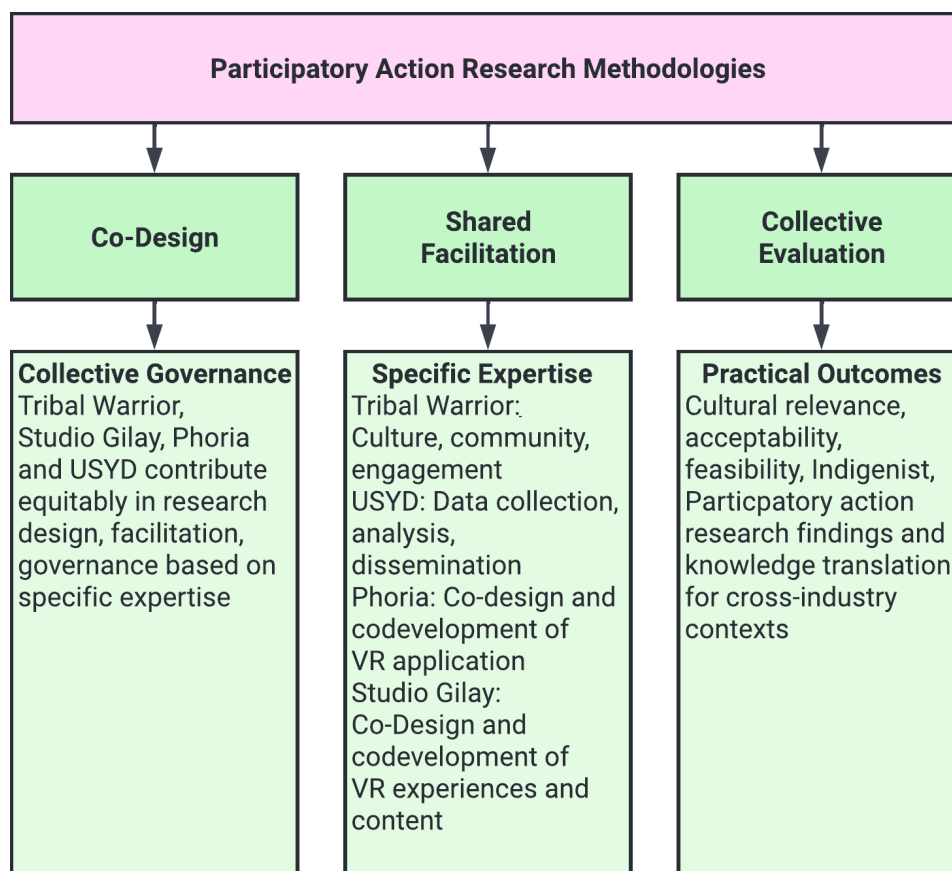
**Research Facilitation: PAR Methodology**

PAR methodologies emphasize the central role of research participants. PAR promotes that consistent and equitable participant involvement across all components of research is necessary for ethical, sustainable, and impactful research [120-122]. This requires the prioritization of forming practical partnership dynamics, having relational accountability, and consistently communicating progress or challenges with all involved in the research. PAR processes operate cyclically, encompassing reflection, planning, action, observation, and subsequent action. For participants, this means consistently providing leadership and governance, aiming to produce relevant and beneficial outcomes of importance to participant needs and contexts [123]. PAR expects that all stakeholder perspectives are valued equally across all components of research [124,125]. For research aiming to explore, comprehend, and define potential improvements with specific people and contexts, PAR is recognized as a suitable

methodology. Furthermore, PAR has been identified as an effective method for conducting research with Aboriginal, Indigenous, and First Nations peoples. Several successful applications of PAR have been documented across various health and wellbeing projects involving Aboriginal, Indigenous, and First Nations peoples [126-138]. PAR methodologies will inform research facilitation of this study, ensuring Tribal Warrior staff and Aboriginal community members are involved across all components of research. For Tribal Warrior, our PAR approach will ensure all research planning, facilitation, co-design, and codevelopment of VR application content will occur based on constant communication, integration of feedback, and shared decision-making. The use of our PAR approach for research facilitation will uphold respect for the expertise of Tribal Warrior, an ACCO with longstanding expertise in supporting SEWB and CDH of the local Aboriginal community. Additionally, our PAR approach will assist the integration of SEWB and CDH support into the

VR application, based on the lived experiences and perspectives of Aboriginal community members. A visual overview of how PAR methodologies inform the research facilitation is provided, as shown in (Figure 4):

**Figure 4.** Research design–indigenist methodologies. CDH: cultural determinants of health; SEWB: social and emotional wellbeing; VR: virtual reality.



## Methods

### Study Design

This study design includes a 3-phase mixed-methods co-design approach: phase 1 is regarding scoping; phase 2 is regarding co-design; and phase 3 is regarding implementation and evaluation. Participants will include 35 Tribal Warrior staff and/or Aboriginal community members. Qualitative yarning circles will generate data in each phase. Phase 1 thematic findings will guide iterative VR application co-design and codevelopment meetings before phase 2. Cultural knowledges, sociocultural lived experiences, SEWB, and CDH support the needs of the Aboriginal community and will inform the content of the VR application. Phase 2 will provide participants with opportunities to assess and give feedback on low-fidelity digital assets of the VR application. Thematic findings and further iterative co-design meetings will enable the redesign of content to be included in the fully developed VR application. Phase 3 will involve mixed-methods cultural relevance, acceptability, and feasibility assessment of the VR application.

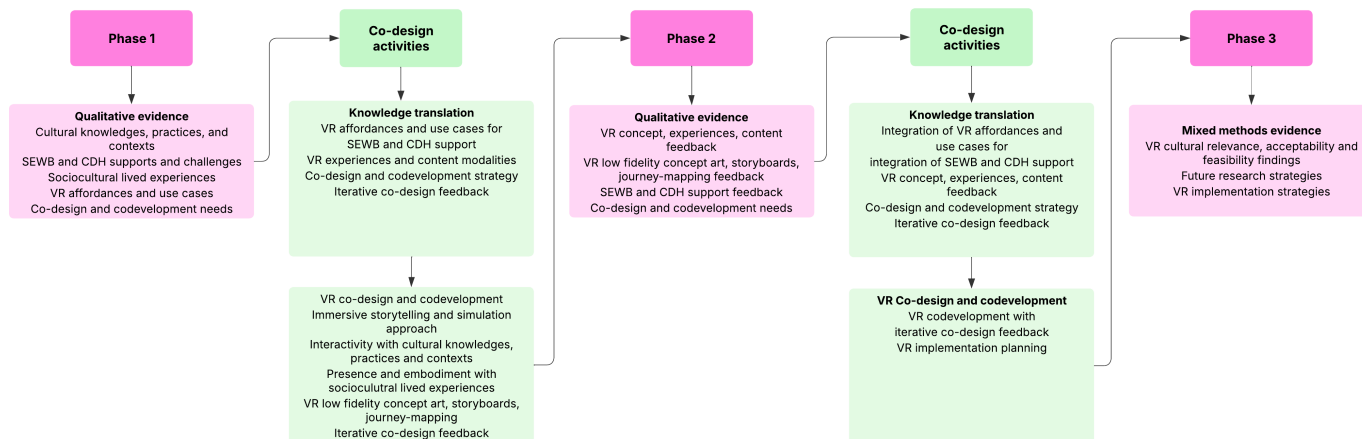
### Co-Design and Codevelopment of the VR Application

Figure 5 shows how we codevelop the VR application. Our partnership will use an iterative co-design process. Phase 1 of qualitative findings will inform each co-design activity, ensuring participant evidence guides integration of cultural, SEWB, and CDH content. Findings from phase 1 will be reviewed during partnership knowledge translation meetings. Phoria will support Tribal Warrior to understand how certain VR affordances and modalities could be used to codevelop specific content conducive to providing SEWB and CDH support. Low-fidelity digital assets will then be codeveloped by Phoria, based on knowledge translation outcomes provided by Tribal Warrior. These will include concept art, storyboards, and journey-mapping outputs. Integration of feedback on content will occur until approval to proceed with VR application codevelopment is provided by Tribal Warrior. At this point, the VR application concept, content, SEWB, and CDH support experiences will be finalized. Phase 2 will generate feedback on these outputs, as well as exploring potential implementation and use case scenarios for the VR application. Repeating the above iterative co-design process, evidence will be integrated into the codevelopment of the VR application, led by Phoria and Studio Gilay. Regular partnership knowledge translation meetings will

ensure codevelopment of content aligns with evidence from phases 1 and 2 and the direction provided by Tribal Warrior. Upon availability of the fully developed VR application, phase 3 will generate mixed-methods evidence of cultural

relevance, acceptability, and feasibility. A visual overview of this theoretical approach is provided in the logic model, as [Figure 5](#) shows :

**Figure 5.** Virtual reality application co-design and codevelopment process. CDH: cultural determinants of health; SEWB: social and emotional wellbeing; VR: virtual reality.



### Data Collection: Mixed Methods

Qualitative data collection will occur through yarning circles in each phase. Yarning is a culturally specific qualitative research method often used when working with Aboriginal peoples [139]. As a semistructured and circuitous research method, yarning helps to facilitate supportive relational and communication processes between Aboriginal research participants and researchers [140]. Through yarning, Aboriginal research participants are supported within culturally safe and strengths-based data collection environments. Having these environments assists participants in sharing subjective cultural knowledge and lived experiences of relevance to the research [141]. Yarning involves 4 interdependent phases of relationality and communication (social yarning, research yarning, therapeutic yarning, and collaborative yarning), which concurrently support meaningful research engagements and data collection [142]. Due to our participants being Tribal Warrior staff or Aboriginal community members, the method of yarning circles was selected.

Aboriginal researchers (JG and MD) from the USYD will lead facilitation of yarning circles, as they have expertise with this research method. Non-Indigenous staff from Phoria (JP), responsible for leading co-design and codevelopment of the VR application, will be involved through observation

during phase 1 and 2 data to ensure the VR technological, design, and implementation support needs of Tribal Warrior are integrated into iterative co-design activities. At least 1 Aboriginal researcher, 1 male, and 1 female, will be present during data collection, to uphold gendered and cultural representation. Yarning circles will be approximately 2 hours for each phase, taking place on campus at the USYD, at the office of Tribal Warrior, or at a location in the local Aboriginal community deemed suitable by Tribal Warrior. Audio recordings of each yarning circle will be transcribed using a professional and confidential academic service.

Quantitative data will be collected in phase 3 to generate evidence about the cultural relevance, acceptability, and feasibility of the VR application. Collecting quantitative data through the phase 3 survey provides an opportunity to capture perspectives of individual participants regarding cultural relevance, acceptability, and feasibility of the VR application. REDCap (Research Electronic Data Capture; Vanderbilt University) software will be used to design the survey, collect data, and perform analysis [143]. Participants will complete the survey on iPads (Apple Inc), laptops, or mobile phones. The results will be presented using a summary table in the phase 3 paper. The phase 3 survey questions and associations to cultural relevance, acceptability, and feasibility are provided below, as [Table 2](#) shows:

**Table 2.** Phase 3 survey questions.

Questions	Characteristics
Question 1: what is your age? (years)	<ul style="list-style-type: none"> <li>• 13-24</li> <li>• 25-34</li> <li>• 35-44</li> <li>• 45-54</li> <li>• 55-64</li> <li>• 65-74</li> <li>• 75 and older</li> </ul>

Questions	Characteristics
Question 2 is regarding acceptability and feasibility: do you think the VR <sup>a</sup> application could be used as an effective SEWB <sup>b</sup> and CDH <sup>c</sup> support for Aboriginal peoples?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Unsure</li> <li>• No</li> </ul>
Question 3 is regarding cultural relevance: from the list below, which SEWB domains did the VR application explore?	<ul style="list-style-type: none"> <li>• Connection to country and land</li> <li>• Connection to culture</li> <li>• Connection to spirit, spirituality, and ancestors</li> <li>• Connection body and behaviors</li> <li>• Connection to mind and emotions</li> <li>• Connection to family and kinship</li> <li>• Connection to community</li> </ul>
Question 4 is regarding cultural relevance: from the list below, which CDH domains did the VR application explore?	<ul style="list-style-type: none"> <li>• Family, kinship, and community</li> <li>• Indigenous beliefs and knowledges</li> <li>• Cultural expression and continuity</li> <li>• Indigenous language</li> <li>• Self-determination and leadership</li> </ul>
Question 5 is regarding acceptability and feasibility: from the list below, in which contexts do you think the VR application could be used to provide SEWB and CDH support for Aboriginal peoples?	<ul style="list-style-type: none"> <li>• Connection to country</li> <li>• Personal use at home</li> <li>• Aboriginal community-controlled organizations</li> <li>• Aboriginal medical services</li> <li>• Mental health services</li> <li>• Virtual therapy</li> <li>• Hospitals/emergency departments</li> <li>• Rehabilitation programs</li> <li>• Youth justice or prisons</li> <li>• Schools or universities</li> <li>• Professional workplaces</li> <li>• Cultural competency training</li> <li>• Online social spaces</li> <li>• Other: (free text entry)</li> </ul>

<sup>a</sup>VR: virtual reality.

<sup>b</sup>SEWB: social and emotional wellbeing.

<sup>c</sup>CDH: cultural determinants of health.

## Data Analysis, Rigor, and Handling

Data analysis will be led by USYD researchers. The reflexive thematic analysis by Braun and Clarke [144] will guide qualitative data analysis. Inductive analysis will be used for each yarning circle transcript [145]. A total of 2 Aboriginal and 2 non-Indigenous researchers will undertake preliminary open-ended coding of 2 transcripts. Collaborative yarning meetings will review preliminary findings, assessing similarities and differences in coding outcomes from all 4 researchers [146]. Any disagreements or differences resulting from reflexive thematic analysis will be resolved during collaborative yarning meetings. Upon agreement on preliminary coding and analysis insights, broader themes will be established to guide further analysis. Further data analysis will then be conducted by researchers using NVivo software (version 15; Lumivero) [147]. The lead researcher (JG) will continue with reflexive thematic analysis for each transcript, based on the themes established in collaborative yarning meetings. At least 1 other researcher will be involved in the analysis of all transcripts. When analysis of each phase is complete, USYD researchers will engage in knowledge translation meetings with Tribal Warrior, Studio Gilay, and Phoria staff. As part of the iterative co-design process,

findings will be used to support Tribal Warrior with co-designing and codevelopment of VR application content. Participants will be provided with 1-page plain English summaries of findings when findings are shared in academic papers.

In phase 3, descriptive statistics analysis will be used to summarize frequencies (n) and percentages (%) of participant responses to each survey question and response option [148]. Analysis and interpretation of survey data will provide cultural relevance, acceptability, and feasibility evidence. Cultural relevance will be assessed through questions 3 and 4, quantifying participant perspectives on which SEWB and CDH domains were engaged with through the VR application experience. Acceptability and feasibility will be assessed through questions 2 and 5, quantifying whether participants accept that the VR application could be used to provide SEWB and CDH support, and in which contexts this could feasibly occur.

## Recruitment and Sampling

Purposive sampling will be used, aiming to recruit the same 35 participants for each phase [149]. It may be necessary to recruit different Tribal Warrior staff and/or

Aboriginal community member participants across phases, due to organizational changes and the unavailability of Aboriginal community members. However, all participants who become involved in this study will receive invitations to participate in future phases of data collection. Dropouts across phases will not negatively influence data collection, as involvement of different participants will increase the diversity of knowledge, perspectives, and lived experiences shared during data collection. Tribal Warrior will make self-determined decisions on which participants are recruited in each phase. All communication and engagement with potential participants will be managed by Tribal Warrior. This approach enacts self-determination and allows existing community connections and networks to be used effectively for recruitment. The sample size was selected intentionally, with Tribal Warrior confirming this approach would not be burdensome, enabling approximately one-third of all Tribal Warrior staff to be involved. Logistically, this sample size permits each yarning circle to involve 4 participants, using 4 VR headsets, in a timely yet meaningful manner. Further, this sample size aligns with previous Aboriginal wellbeing qualitative research conducted by the authors and across other Aboriginal wellbeing studies. Participant eligibility includes being a Tribal Warrior staff member and/or identifying as an Aboriginal community member. Diversity among participants will be prioritized, aiming to include representatives from each Tribal Warrior support program team and Aboriginal community members from differing cultural communities, lived experiences, ages, and genders. Ineligibility for our research includes being younger than 13 years of age [150], due to current health and safety advice on ethical use of VR hardware for young people and children. Upon confirmation of participants by Tribal Warrior, USYD researchers will provide plain English 1-page documents outlining each phase of research, how to become involved, and who to contact from the research team for further information. Upon confirmation, USYD researchers and Tribal Warrior staff will communicate details on expectations, timing, location, and phase-specific details. In each phase, participants will receive an Aus \$200 (a currency exchange rate of Aus \$1 = US \$0.71 was applicable) visa-gift card for their time and contributions.

### **Ethical Considerations**

Our research has ethics approval from the Aboriginal Health and Medical Research Council of New South Wales, project number “2070/23.” From this, ethics approval was endorsed by the USYD Human Research Ethics Committee. Aboriginal Health and Medical Research Council principles and the Australian Institute of Aboriginal and Torres Strait Islander Studies code of ethics will be upheld during our research [151,152]. Data collected during this research will be stored safely and securely, as per the USYD Research Data Management Policy [153]. All Tribal Warrior staff and Aboriginal community members have the right to withdraw consent for any reason, up to the point of data analysis. All data used in academic publications and any output resulting from the research will be deidentified. Ethical facilitation of research will be ensured, prioritizing self-determination, cultural safety, and strengths-based approaches

when engaging with Tribal Warrior. Owning all intellectual, economic, and cultural properties resulting from the research, Tribal Warrior will control all co-design, codevelopment, and implementation decisions for the VR application. It is the responsibility of each research partner to provide expertise toward these aspirations. Co-design and codevelopment progress will be reported consistently, enabling iterative communication and feedback outcomes to inform the VR application. Regular meetings with all research partners will include discussion and resolution of any potential ethical challenges or arising issues.

Our research team acknowledges that perceived conflicts of interest exist within the research partnership. Tribal Warrior’s ownership of all intellectual, economic, and cultural properties negates any potential motivations for Phoria and Studio Gilay to inflict bias during co-design and codevelopment. Specific Phoria staff have ethics approval to assist with co-designing and observing data collection. This ensures that the VR technological, design, and implementation support needs of Tribal Warrior can be understood and factored into iterative co-design activities. Phoria and Studio Gilay will not participate in data collection and analysis. Fundamentally, the research partnership has been designed to co-design and codevelop the VR application based on the self-determined guidance of Tribal Warrior as an ACCO.

## **Results**

### **Overview**

As of April 2026, data collection and analysis for phases 1 and 2 are complete. Tribal Warrior, Studio Gilay, and Phoria have used these findings to inform iterative co-design and codevelopment processes of the VR application. Phase 3 data collection is planned for June 2026. Upon availability of the VR application, academic papers will be submitted. Nonacademic outputs will be shared with Tribal Warrior and participants.

### **Dissemination and Translation Plans**

Knowledge translation and dissemination activities will center on the strategic implementation of the VR application by Tribal Warrior. Phase 3 findings will provide cultural relevance, acceptability, and feasibility evidence, informing knowledge translation meetings and implementation planning. Upon availability of the VR application, academic and nonacademic written outputs will be shared with interdisciplinary and cross-industry stakeholders. Academic papers from each phase of research will be published in peer-reviewed journals, with a focus on open-access papers to maximize accessibility. Community-focused dissemination outputs will include plain English language written documents and mixed-media outputs. These will focus on explaining the research, the intention of the VR application, user manuals, and implementation plans. Presentations at interdisciplinary conferences will engage broader research and industry community stakeholders. Conference presentation delivery will be led by Tribal Warrior staff and

Aboriginal researchers. As a research partnership, we aspire to engage with future targeted research, building on the cultural relevance, acceptability, feasibility, and mixed-methods evidence generated through this study.

## Discussion

### *Anticipated Findings*

The results from this study will contribute novel evidence on the cultural relevance, acceptability, and feasibility of using VR to support Aboriginal wellbeing. To the best of our knowledge, this is the first Australian research engaging with an urban ACCO and Aboriginal community to explore the use of VR for Aboriginal wellbeing support. Cultural relevance, acceptability, feasibility, and wellbeing support findings will help to inform similar research in the future. Phase 1 findings could present implications for how VR applications are understood as a digital health wellbeing support application for Aboriginal peoples. This study will advance knowledge on how SEWB and CDH education, immersion, and connection can be facilitated through digital health application co-design and codevelopment. Phase 2 findings will contribute evidence on ethical Indigenist and PAR co-design and codevelopment processes when working with ACCOs and Aboriginal communities. Both strengths and challenges will be reported, enabling future research and partnerships to benefit from practical insights. Phase 3 findings will share cultural relevance, acceptability, and feasibility evidence, helping to understand how VR could be used to provide SEWB and CDH support for Aboriginal peoples. Future research will be conducted based on these collective results.

### *Limitations*

As this is an Indigenist and PAR study, data collection, analysis, and publication processes may need to be

deprioritized. This is necessary to ensure Tribal Warrior is ethically and meaningfully involved as the lead partner during the entire research, co-design, and codevelopment process. Additional time may also be necessary to ensure Tribal Warrior sufficiently understands VR application co-design and codevelopment processes. It is necessary to acknowledge that the VR application content, concepts, and research findings will not represent the broader Aboriginal community or differing groups within the local community context of inner-city Sydney, New South Wales, Australia. Many cultural and community groups exist within inner-city Sydney, New South Wales, Australia, and it is not the intention to be representative of all these groups. Findings will report on cultural relevance, acceptability, and feasibility of using VR to provide SEWB and CDH support. This will enable our research partnership to engage in future research, from formative evidence indicating whether and how participants believe the VR application could be used to provide SEWB and CDH support.

### *Conclusions*

Little evidence exists on the use of VR to support Aboriginal wellbeing. This study aims to explore, identify, and understand how VR could be used to provide SEWB and CDH support for Aboriginal peoples. Cultural relevance, acceptability, and feasibility evidence will be gained through this study. Indigenist and PAR outcomes will help to better understand the potential of co-designing and codeveloping culturally centered wellbeing support for VR. This study protocol has outlined a 3-phase mixed-methods indigenist and PAR approach that will guide our research.

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No generative artificial intelligence was used in any portion of this paper's generation. All authors agree to be accountable for all aspects of research. Any questions related to the accuracy or integrity of any part of the research will be appropriately investigated and resolved.

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### **Authors' Contributions**

Conception and design of research: JG, SP, JP, MD, MC, LH, JN, JM-S

Drafting and revision of manuscript: JG, MC, LH, JM-S

Final approval of manuscript to be published: JG, SP, JD, MA, JP, MD, MC, LH, JM-S, JN

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### **Conflicts of Interest**

The authors declare that no conflicts of interest exist in this study, despite some perceived conflicts of interest. Fundamentally, this study and partnership have been designed to ensure that Tribal Warrior always maintains self-determination as an Aboriginal Community Controlled Organization. Funding from Meta, Australia, was in the form of an "unrestricted free gift." This provided full autonomy for the research partnership to independently conduct our research and develop the virtual reality (VR) application without any involvement or expectations of Meta. Specific Phoria staff have ethics approval to assist with

co-designing and observing data collection. This ensures that the VR technological, design, and implementation support needs of Tribal Warrior can be understood and factored into iterative co-design activities. Phoria and Studio Gilay will not participate in data collection and analysis. Phoria and Studio Gilay do not gain financial profit from the VR application or other research outputs. Tribal Warrior owns all intellectual, economic, and cultural properties, negating any potential bias for Phoria or Studio Gilay.

## References

1. Jones R, Thurber KA, Chapman J, et al. Study protocol: *our cultures count*, the Mayi Kuwayu Study, a national longitudinal study of Aboriginal and Torres Strait Islander wellbeing. *BMJ Open*. Jun 27, 2018;8(6):e023861. [doi: [10.1136/bmjopen-2018-023861](https://doi.org/10.1136/bmjopen-2018-023861)] [Medline: [29950481](https://pubmed.ncbi.nlm.nih.gov/29950481/)]
2. Dudgeon P, Milroy H, Walker R, editors. *Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice*. 2nd ed. Canberra: Telethon Kids Institute, Kulunga Aboriginal Research Development Unit, Department of the Prime Minister and Cabinet; 2014. URL: <https://www.thekids.org.au/globalassets/media/documents/aboriginal-health/working-together-second-edition/working-together-aboriginal-and-wellbeing-2014.pdf> [Accessed 2026-05-16]
3. Verbunt E, Luke J, Paradies Y, et al. Cultural determinants of health for Aboriginal and Torres Strait Islander people - a narrative overview of reviews. *Int J Equity Health*. Aug 12, 2021;20(1):181. [doi: [10.1186/s12939-021-01514-2](https://doi.org/10.1186/s12939-021-01514-2)] [Medline: [34384447](https://pubmed.ncbi.nlm.nih.gov/34384447/)]
4. Bourke SC, Chapman J, Jones R, et al. Developing Aboriginal and Torres Strait Islander cultural indicators: an overview from Mayi Kuwayu, the National Study of Aboriginal and Torres Strait Islander Wellbeing. *Int J Equity Health*. Aug 17, 2022;21(1):109. [doi: [10.1186/s12939-022-01710-8](https://doi.org/10.1186/s12939-022-01710-8)] [Medline: [35978345](https://pubmed.ncbi.nlm.nih.gov/35978345/)]
5. Dudgeon P, Derry KL, Mascall C, Ryder A. Understanding Aboriginal models of selfhood: The National Empowerment Project's Cultural, Social, and Emotional Wellbeing Program in Western Australia. *Int J Environ Res Public Health*. Mar 29, 2022;19(7):4078. [doi: [10.3390/ijerph19074078](https://doi.org/10.3390/ijerph19074078)] [Medline: [35409761](https://pubmed.ncbi.nlm.nih.gov/35409761/)]
6. Murrup-Stewart C, Whyman T, Jobson L, Adams K. "Connection to culture is like a massive lifeline": yarning with Aboriginal young people about culture and social and emotional wellbeing. *Qual Health Res*. Aug 2021;31(10):1833-1846. [doi: [10.1177/10497323211009475](https://doi.org/10.1177/10497323211009475)] [Medline: [33938295](https://pubmed.ncbi.nlm.nih.gov/33938295/)]
7. Dudgeon P, Gibson C, Walker R, Bray A, Agung-Igusti R, Derry K, et al. *Social and Emotional Wellbeing: A Review*. Lowitja Institute; 2025. URL: [https://www.lowitja.org.au/wp-content/uploads/2025/02/SocialandEmotionalWellbeing\\_aReview.pdf](https://www.lowitja.org.au/wp-content/uploads/2025/02/SocialandEmotionalWellbeing_aReview.pdf) [Accessed 2026-05-16]
8. Dudgeon P, Walker R, Scrine C, Shepherd C, Calma T, Ring I. *Effective strategies to strengthen the mental health and wellbeing of Aboriginal and Torres Strait Islander people*. Australian Institute of Health and Welfare; 2014. URL: <https://www.aihw.gov.au/getmedia/6d50a4d2-d4da-4c53-8aeb-9ec22b856dc5/ctgc-ip12-4nov2014.pdf?v=20230605181212&inline=true> [Accessed 2026-05-16]
9. *Culture is key: towards cultural determinants-driven health policy – final report*. Lowitja Institute; 2020. URL: [https://www.lowitja.org.au/wp-content/uploads/2023/06/Lowitja\\_CultDetReport\\_210421\\_D14\\_WEB.pdf](https://www.lowitja.org.au/wp-content/uploads/2023/06/Lowitja_CultDetReport_210421_D14_WEB.pdf) [Accessed 2026-05-16]
10. Commonwealth of Australia. *National Strategic Framework for Aboriginal and Torres Strait Islander Peoples' Mental Health and Social and Emotional Wellbeing 2017–2023*. Department of the Prime Minister and Cabinet; 2017. URL: [https://healthinfonet.ecu.edu.au/healthinfonet/getContent.php?linkid=551949&title=National+strategic+framework+for+Aboriginal+and+Torres+Strait+Islander+peoples%27+mental+health+and+social+and+emotional+wellbeing+2017-2023&contentid=33834\\_1](https://healthinfonet.ecu.edu.au/healthinfonet/getContent.php?linkid=551949&title=National+strategic+framework+for+Aboriginal+and+Torres+Strait+Islander+peoples%27+mental+health+and+social+and+emotional+wellbeing+2017-2023&contentid=33834_1) [Accessed 2026-05-16]
11. Commonwealth of Australia. *National Aboriginal and Torres Strait Islander Health Plan 2021–2031*. Department of Health; 2021. URL: [https://www.health.gov.au/sites/default/files/2025-01/national-aboriginal-and-torres-strait-islander-health-plan-2021-2031\\_0.pdf](https://www.health.gov.au/sites/default/files/2025-01/national-aboriginal-and-torres-strait-islander-health-plan-2021-2031_0.pdf) [Accessed 2026-05-16]
12. Commonwealth of Australia. *National Aboriginal and Torres Strait Islander Health Plan 2013–2023*. Department of Health and Ageing; 2013. URL: <https://www.health.gov.au/sites/default/files/documents/2021/02/national-aboriginal-and-torres-strait-islander-health-plan-2013-2023.pdf> [Accessed 2026-05-16]
13. Commonwealth of Australia. *Closing the gap report 2020*. Department of the Prime Minister and Cabinet; 2020. URL: <https://www.niaa.gov.au/sites/default/files/reports/closing-the-gap-2020/sites/default/files/pdf/closing-the-gap-report-2020.pdf> [Accessed 2026-05-16]
14. Garvey G, Anderson K, Gall A, et al. What Matters 2 Adults (WM2Adults): understanding the foundations of Aboriginal and Torres Strait islander wellbeing. *Int J Environ Res Public Health*. Jun 8, 2021;18(12):6193. [doi: [10.3390/ijerph18126193](https://doi.org/10.3390/ijerph18126193)] [Medline: [34201090](https://pubmed.ncbi.nlm.nih.gov/34201090/)]
15. *Transforming Indigenous mental health and wellbeing project: the National Empowerment Project (NEP): Cultural, Social and Emotional Wellbeing (CSEWB) program*. University of Western Australia; 2021. URL: <https://timhwb.org>.

- [au/wp-content/uploads/2023/10/TIMHWB-Fact-Sheet-B-The-National-Empowerment-Project-CSEWB.pdf](#) [Accessed 2026-05-16]
16. Gee G, Dudgeon P, Schultz C, Hart A, Kelly K. Aboriginal and Torres Strait Islander social and emotional wellbeing. In: Dudgeon P, Milroy H, Walker R, editors. Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice. 2nd ed. Commonwealth of Australia; 2014:55-68. URL: <https://www.thekids.org.au/globalassets/media/documents/aboriginal-health/working-together-second-edition/working-together-aboriginal-and-wellbeing-2014.pdf> [Accessed 2026-05-26]
  17. Dudgeon P, Bray A, D'costa B, Walker R. Decolonising psychology: validating social and emotional wellbeing. Aust Psychol. Aug 1, 2017;52(4):316-325. [doi: [10.1111/ap.12294](https://doi.org/10.1111/ap.12294)]
  18. Smallwood R, Usher K, Woods C, Sampson N, Jackson D. De-problematising Aboriginal young peoples' health and well-being through their voice: an indigenous scoping review. J Clin Nurs. May 2023;32(9-10):2086-2101. [doi: [10.1111/jocn.16308](https://doi.org/10.1111/jocn.16308)] [Medline: [35352432](https://pubmed.ncbi.nlm.nih.gov/35352432/)]
  19. Biles BJ, Serova N, Stanbrook G, et al. What is Indigenous cultural health and wellbeing? A narrative review. Lancet Reg Health West Pac. Nov 2024;52:101220. [doi: [10.1016/j.lanwpc.2024.101220](https://doi.org/10.1016/j.lanwpc.2024.101220)] [Medline: [39664592](https://pubmed.ncbi.nlm.nih.gov/39664592/)]
  20. Sherwood J. Colonisation - it's bad for your health: the context of Aboriginal health. Contemp Nurse. Dec 2013;46(1):28-40. [doi: [10.5172/conu.2013.46.1.28](https://doi.org/10.5172/conu.2013.46.1.28)] [Medline: [24716759](https://pubmed.ncbi.nlm.nih.gov/24716759/)]
  21. Griffiths K, Coleman C, Lee V, Madden R. How colonisation determines social justice and Indigenous health—a review of the literature. J Pop Research. Mar 2016;33(1):9-30. [doi: [10.1007/s12546-016-9164-1](https://doi.org/10.1007/s12546-016-9164-1)]
  22. Bond CJ, Singh D. More than a refresh required for closing the gap of Indigenous health inequality. Med J Aust. Mar 2020;212(5):198-199. [doi: [10.5694/mja2.50498](https://doi.org/10.5694/mja2.50498)] [Medline: [32030749](https://pubmed.ncbi.nlm.nih.gov/32030749/)]
  23. Dudgeon W, Wright M, Paradies Y, Garvey D, Walker I. Aboriginal social, cultural and historical contexts. In: Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice. Commonwealth Department of Health; 2014:3-24. URL: <https://www.thekids.org.au/globalassets/media/documents/aboriginal-health/working-together-second-edition/working-together-second-edition/wt-part-1-chapt-1-final.pdf> [Accessed 2026-05-16]
  24. Gatwiri K, Rotumah D, Rix E. BlackLivesMatter in healthcare: racism and implications for health inequity among Aboriginal and Torres Strait Islander Peoples in Australia. Int J Environ Res Public Health. Apr 21, 2021;18(9):4399. [doi: [10.3390/ijerph18094399](https://doi.org/10.3390/ijerph18094399)] [Medline: [33919080](https://pubmed.ncbi.nlm.nih.gov/33919080/)]
  25. Larson A, Gillies M, Howard PJ, Coffin J. It's enough to make you sick: the impact of racism on the health of Aboriginal Australians. Aust N Z J Public Health. Aug 2007;31(4):322-329. [doi: [10.1111/j.1753-6405.2007.00079.x](https://doi.org/10.1111/j.1753-6405.2007.00079.x)] [Medline: [17725009](https://pubmed.ncbi.nlm.nih.gov/17725009/)]
  26. Short D. Reconciliation, assimilation, and the Indigenous peoples of Australia. Int Political Sci Rev. Oct 2003;24(4):491-513. [doi: [10.1177/01925121030244005](https://doi.org/10.1177/01925121030244005)]
  27. Short D. Reconciliation and Colonial Power: Indigenous Rights in Australia. Routledge; 2016. ISBN: 1315603934
  28. Paradies Y. Colonisation, racism and indigenous health. J Pop Research. Mar 2016;33(1):83-96. [doi: [10.1007/s12546-016-9159-y](https://doi.org/10.1007/s12546-016-9159-y)]
  29. Morley SR. What works in effective indigenous community-managed programs and organisations. Australian Institute of Family Studies; 2015. URL: [https://aifs.gov.au/sites/default/files/publication-documents/cfca-paper32-indigenous-programs\\_0.pdf](https://aifs.gov.au/sites/default/files/publication-documents/cfca-paper32-indigenous-programs_0.pdf) [Accessed 2026-05-16]
  30. Mackean T, Freeman T, Musolino C, et al. Leading the way: the contribution of Aboriginal community controlled health organisations to community health in Australia. Aust J Prim Health. Apr 2025;31(3):PY24223. [doi: [10.1071/PY24223](https://doi.org/10.1071/PY24223)] [Medline: [40228094](https://pubmed.ncbi.nlm.nih.gov/40228094/)]
  31. Panaretto KS, Wenitong M, Button S, Ring IT. Aboriginal community controlled health services: leading the way in primary care. Med J Aust. Jun 16, 2014;200(11):649-652. [doi: [10.5694/mja13.00005](https://doi.org/10.5694/mja13.00005)] [Medline: [24938346](https://pubmed.ncbi.nlm.nih.gov/24938346/)]
  32. Campbell MA, Hunt J, Scrimgeour DJ, Davey M, Jones V. Contribution of Aboriginal community-controlled health services to improving Aboriginal health: an evidence review. Aust Health Rev. Apr 2018;42(2):218-226. [doi: [10.1071/AH16149](https://doi.org/10.1071/AH16149)] [Medline: [28263705](https://pubmed.ncbi.nlm.nih.gov/28263705/)]
  33. National Aboriginal and Torres Strait Islander health survey, 2022–23. Australian Bureau of Statistics. Nov 26, 2024. URL: <https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/national-aboriginal-and-torres-strait-islander-health-survey/latest-release> [Accessed 2026-05-16]
  34. Causes of death, Australia. Australian Bureau of Statistics. Nov 14, 2025. URL: <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/latest-release> [Accessed 2026-05-16]
  35. Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2018. Australian Institute of Health and Welfare; 2022. URL: <https://www.aihw.gov.au/getmedia/1656f783-5d69-4c39-8521-9b42a59717d6/aihw-bod-32.pdf?v=20230605164213&inline=true> [Accessed 2026-05-16]
  36. Zubrick SR, Holland C, Kelly K, et al. The evolving policy context in mental health and wellbeing. In: Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice. Telethon Institute

- for Child Health Research/Kulunga Research Network; 2014:69-90. URL: <https://www.thekids.org.au/globalassets/media/documents/aboriginal-health/working-together-second-edition/wt-part-1-chapt-5-final.pdf> [Accessed 2026-05-16]
37. Page IS, Leitch E, Gossip K, Charlson F, Comben C, Diminic S. Modelling mental health service needs of Aboriginal and Torres Strait Islander peoples: a review of existing evidence and expert consensus. *Aust N Z J Public Health*. Apr 2022;46(2):177-185. [doi: [10.1111/1753-6405.13202](https://doi.org/10.1111/1753-6405.13202)] [Medline: [34978362](https://pubmed.ncbi.nlm.nih.gov/34978362/)]
  38. National Suicide Prevention Office. National Suicide Prevention Strategy 2025–2035. 2025. URL: <https://www.mentalhealthcommission.gov.au/sites/default/files/2025-02/the-national-suicide-prevention-strategy.pdf> [Accessed 2026-05-16]
  39. Department of Health and Aged Care. National Aboriginal and Torres Strait Islander suicide prevention strategy. Gayaa Dhuwi (Proud Spirit); Dec 2024. URL: <https://www.health.gov.au/sites/default/files/2024-12/national-aboriginal-and-torres-strait-islander-suicide-prevention-strategy.pdf> [Accessed 2026-05-16]
  40. Hepworth J, Askew D, Foley W, et al. How an urban Aboriginal and Torres Strait Islander primary health care service improved access to mental health care. *Int J Equity Health*. Jun 6, 2015;14(1):51. [doi: [10.1186/s12939-015-0183-x](https://doi.org/10.1186/s12939-015-0183-x)] [Medline: [26048616](https://pubmed.ncbi.nlm.nih.gov/26048616/)]
  41. Fielke K, Cord-Udy N, Buckskin J, Lattanzio A. The development of an “Indigenous team” in a mainstream mental health service in South Australia. *Australas Psychiatry*. Aug 2009;17 Suppl 1(sup1):S75-S78. [doi: [10.1080/10398560902950510](https://doi.org/10.1080/10398560902950510)] [Medline: [19579113](https://pubmed.ncbi.nlm.nih.gov/19579113/)]
  42. Calma T. Creating futures: influencing the social determinants of mental health and wellbeing in rural, Indigenous and Island peoples. *Australas Psychiatry*. 2007;15 Suppl 1(1\_suppl):S5-S9. [doi: [10.1080/10398560701701122](https://doi.org/10.1080/10398560701701122)] [Medline: [18027128](https://pubmed.ncbi.nlm.nih.gov/18027128/)]
  43. Kilian A, Williamson A. What is known about pathways to mental health care for Australian Aboriginal young people?: A narrative review. *Int J Equity Health*. Jan 27, 2018;17(1):12. [doi: [10.1186/s12939-018-0727-y](https://doi.org/10.1186/s12939-018-0727-y)] [Medline: [29374482](https://pubmed.ncbi.nlm.nih.gov/29374482/)]
  44. Westerman T. Engaging Australian Aboriginal youth in mental health services. *Aust Psychol*. Sep 1, 2010;45(3):212-222. [doi: [10.1080/00050060903451790](https://doi.org/10.1080/00050060903451790)]
  45. Goetz CJ, Mushquash CJ, Maranzan KA. An integrative review of barriers and facilitators associated with mental health help seeking among Indigenous populations. *Psychiatr Serv*. Mar 1, 2023;74(3):272-281. [doi: [10.1176/appi.ps.202100503](https://doi.org/10.1176/appi.ps.202100503)] [Medline: [36065579](https://pubmed.ncbi.nlm.nih.gov/36065579/)]
  46. Nolan-Isles D, Macniven R, Hunter K, et al. Enablers and barriers to accessing healthcare services for Aboriginal people in New South Wales, Australia. *Int J Environ Res Public Health*. Mar 15, 2021;18(6):3014. [doi: [10.3390/ijerph18063014](https://doi.org/10.3390/ijerph18063014)] [Medline: [33804104](https://pubmed.ncbi.nlm.nih.gov/33804104/)]
  47. Garay J. Aboriginal young people’s experiences of Cultural Safety in mental health services in two regions of New South Wales, Australia. *IJIH*. 2024;19(1):1-13. [doi: [10.32799/ijih.v19i1.41297](https://doi.org/10.32799/ijih.v19i1.41297)]
  48. Garay J, Williamson A, Young C, et al. Aboriginal young people’s experiences of accessibility in mental health services in two regions of New South Wales, Australia. *Int J Environ Res Public Health*. Jan 18, 2023;20(3):1730. [doi: [10.3390/ijerph20031730](https://doi.org/10.3390/ijerph20031730)] [Medline: [36767098](https://pubmed.ncbi.nlm.nih.gov/36767098/)]
  49. Vicary D, Westerman T. That’s just the way he is’: some implications of Aboriginal mental health beliefs. *Aust e-J Adv Mental Health*. Jan 2004;3(3):103-112. [doi: [10.5172/jamh.3.3.103](https://doi.org/10.5172/jamh.3.3.103)]
  50. Commonwealth Closing the Gap 2024 annual report and Commonwealth Closing the Gap 2025 implementation plan. Commonwealth of Australia; 2025. URL: <https://www.niaa.gov.au/sites/default/files/documents/2025-02/NIAA%20CTG%20Combined%20Report.pdf> [Accessed 2026-05-19]
  51. Closing the gap annual data compilation report July 2024. Productivity Commission; Jul 2024. URL: <https://assets.pc.gov.au/2025-06/closing-the-gap-annual-data-compilation-july2024.pdf?VersionId=5RqOqnlV8gC4zBnDIGJAXWL36oiQCfs4> [Accessed 2026-05-19]
  52. Chelberg GR, Goodman A, Musuwadi C, et al. Towards a best practice framework for eHealth with Aboriginal and Torres Strait Islander peoples - important characteristics of eHealth interventions: a narrative review. *Med J Aust*. Sep 16, 2024;221(6):336-345. [doi: [10.5694/mja2.52419](https://doi.org/10.5694/mja2.52419)] [Medline: [39177008](https://pubmed.ncbi.nlm.nih.gov/39177008/)]
  53. Chelberg GR, Batten K, Mahoney R, eHRCATSIH Group. Correction: culturally safe eHealth interventions with Aboriginal and Torres Strait Islander people: protocol for a best practice framework. *JMIR Res Protoc*. Oct 18, 2022;11(10):e43413. [doi: [10.2196/43413](https://doi.org/10.2196/43413)] [Medline: [36256833](https://pubmed.ncbi.nlm.nih.gov/36256833/)]
  54. Goodman A, Chelberg G, Lawler S, Musuwadi C, Mahoney R. Is eHealth research with or on our people?: Lessons learned using the Aboriginal and Torres Strait Islander quality appraisal tool. *Stud Health Technol Inform*. Sep 24, 2024;318:48-53. [doi: [10.3233/SHTI240890](https://doi.org/10.3233/SHTI240890)] [Medline: [39320180](https://pubmed.ncbi.nlm.nih.gov/39320180/)]
  55. Puszka S, Dingwall KM, Sweet M, Nagel T. e-Mental health innovations for Aboriginal and Torres Strait Islander Australians: a qualitative study of implementation needs in health services. *JMIR Ment Health*. Sep 19, 2016;3(3):e43. [doi: [10.2196/mental.5837](https://doi.org/10.2196/mental.5837)] [Medline: [27644259](https://pubmed.ncbi.nlm.nih.gov/27644259/)]

56. Goodman A, Mahoney R, Spurling G, Lawler S. Influencing factors to mHealth uptake with Indigenous populations: qualitative systematic review. *JMIR mHealth uHealth*. Jun 23, 2023;11(1):e45162. [doi: [10.2196/45162](https://doi.org/10.2196/45162)] [Medline: [37351947](https://pubmed.ncbi.nlm.nih.gov/37351947/)]
57. Povey J, Mills P, Dingwall KM, et al. Acceptability of mental health apps for Aboriginal and Torres Strait Islander Australians: a qualitative study. *J Med Internet Res*. Mar 11, 2016;18(3):e65. [doi: [10.2196/jmir.5314](https://doi.org/10.2196/jmir.5314)] [Medline: [26969043](https://pubmed.ncbi.nlm.nih.gov/26969043/)]
58. Zhai S, Goodman A, Smith AC, Diminic S, Zhou X. The effectiveness, facilitators, and barriers of digital mental health services for First Nations people in Australia: systematic scoping review. *Interact J Med Res*. Jan 27, 2026;15(1):e80386. [doi: [10.2196/80386](https://doi.org/10.2196/80386)] [Medline: [41592169](https://pubmed.ncbi.nlm.nih.gov/41592169/)]
59. Perdacher E, Kavanagh D, Sheffield J, Healy K, Dale P, Heffernan E. Using the Stay Strong app for the well-being of Indigenous Australian prisoners: feasibility study. *JMIR Form Res*. 2022;6(4):e32157. [doi: [10.2196/32157](https://doi.org/10.2196/32157)]
60. Perdacher E, Kavanagh D, Sheffield J, Dale P, Heffernan E. The use of a digital well-being app (Stay Strong app) with Indigenous people in prison: randomized controlled trial. *JMIR Ment Health*. 2024;11(1):e53280. [doi: [10.2196/53280](https://doi.org/10.2196/53280)]
61. Nagel T, Dingwall KM, Sweet M, et al. The Stay Strong app as a self-management tool for first nations people with chronic kidney disease: a qualitative study. *BMC Nephrol*. Jul 9, 2022;23(1):244. [doi: [10.1186/s12882-022-02856-x](https://doi.org/10.1186/s12882-022-02856-x)] [Medline: [35804297](https://pubmed.ncbi.nlm.nih.gov/35804297/)]
62. Nagel T, Dingwall KM, Sweet M, Povey J, Friel J, Mills R. Implementing Stay Strong AIMhi for youth: protocol for evaluation. *JPSSR*. 2024;4(2):1-9. [doi: [10.53902/JPSSR.2024.04.000564](https://doi.org/10.53902/JPSSR.2024.04.000564)]
63. Tighe J, Shand F, Ridani R, Mackinnon A, De La Mata N, Christensen H. iBobbly mobile health intervention for suicide prevention in Australian Indigenous youth: a pilot randomised controlled trial. *BMJ Open*. Jan 27, 2017;7(1):e013518. [doi: [10.1136/bmjopen-2016-013518](https://doi.org/10.1136/bmjopen-2016-013518)] [Medline: [28132007](https://pubmed.ncbi.nlm.nih.gov/28132007/)]
64. Tighe J, Shand F, McKay K, Mcalister TJ, Mackinnon A, Christensen H. Usage and acceptability of the iBobbly App: pilot trial for suicide prevention in Aboriginal and Torres Strait Islander youth. *JMIR Ment Health*. Dec 1, 2020;7(12):e14296. [doi: [10.2196/14296](https://doi.org/10.2196/14296)] [Medline: [33258782](https://pubmed.ncbi.nlm.nih.gov/33258782/)]
65. Shand F, Mackinnon A, O'Moore K, et al. The iBobbly Aboriginal and Torres Strait Islander app project: study protocol for a randomised controlled trial. *Trials*. Apr 5, 2019;20(1):198. [doi: [10.1186/s13063-019-3262-2](https://doi.org/10.1186/s13063-019-3262-2)] [Medline: [30953556](https://pubmed.ncbi.nlm.nih.gov/30953556/)]
66. Titov N, Schofield C, Staples L, Dear BF, Nielssen O. A comparison of Indigenous and non-Indigenous users of MindSpot: an Australian digital mental health service. *Australas Psychiatry*. Aug 2019;27(4):352-357. [doi: [10.1177/1039856218789784](https://doi.org/10.1177/1039856218789784)] [Medline: [30058351](https://pubmed.ncbi.nlm.nih.gov/30058351/)]
67. Dingwall KM, Povey J, Sweet M, et al. Feasibility and acceptability of the Aboriginal and Islander mental health initiative for youth app: nonrandomized pilot with First Nations young people. *JMIR Hum Factors*. Jun 7, 2023;10:e40111. [doi: [10.2196/40111](https://doi.org/10.2196/40111)] [Medline: [37285184](https://pubmed.ncbi.nlm.nih.gov/37285184/)]
68. Lee KK, Conigrave JH, Dale E, et al. Acceptability and quality of the "Grog Survey App" brief intervention: helping Aboriginal Australians reflect on their drinking using a digital health tool. *Drug Alcohol Rev*. Jan 2025;44(1):119-132. [doi: [10.1111/dar.13964](https://doi.org/10.1111/dar.13964)] [Medline: [39449109](https://pubmed.ncbi.nlm.nih.gov/39449109/)]
69. Woodall H, Evans R, McArthur L, Sen Gupta T, Ward R, Brumpton K. Can culturally safe general practice telehealth overcome barriers to care for Aboriginal and Torres Strait Islander Australians? A qualitative study. *BMJ Open*. Apr 2, 2025;15(4):e089436. [doi: [10.1136/bmjopen-2024-089436](https://doi.org/10.1136/bmjopen-2024-089436)] [Medline: [40180410](https://pubmed.ncbi.nlm.nih.gov/40180410/)]
70. Hensel JM, Ellard K, Koltek M, Wilson G, Sareen J. Digital health solutions for Indigenous mental well-being. *Curr Psychiatry Rep*. Jul 1, 2019;21(8):68. [doi: [10.1007/s11920-019-1056-6](https://doi.org/10.1007/s11920-019-1056-6)] [Medline: [31263971](https://pubmed.ncbi.nlm.nih.gov/31263971/)]
71. Carl E, Stein AT, Levihn-Coon A, et al. Virtual reality exposure therapy for anxiety and related disorders: a meta-analysis of randomized controlled trials. *J Anxiety Disord*. Jan 2019;61:27-36. [doi: [10.1016/j.janxdis.2018.08.003](https://doi.org/10.1016/j.janxdis.2018.08.003)] [Medline: [30287083](https://pubmed.ncbi.nlm.nih.gov/30287083/)]
72. Freeman D, Reeve S, Robinson A, et al. Virtual reality in the assessment, understanding, and treatment of mental health disorders. *Psychol Med*. Oct 2017;47(14):2393-2400. [doi: [10.1017/S003329171700040X](https://doi.org/10.1017/S003329171700040X)]
73. Li Pira G, Aquilini B, Davoli A, Grandi S, Ruini C. The use of virtual reality interventions to promote positive mental health: systematic literature review. *JMIR Ment Health*. Jul 6, 2023;10(1):e44998. [doi: [10.2196/44998](https://doi.org/10.2196/44998)] [Medline: [37410520](https://pubmed.ncbi.nlm.nih.gov/37410520/)]
74. Valmaggia LR, Latif L, Kempton MJ, Rus-Calafell M. Virtual reality in the psychological treatment for mental health problems: an systematic review of recent evidence. *Psychiatry Res*. Feb 28, 2016;236:189-195. [doi: [10.1016/j.psychres.2016.01.015](https://doi.org/10.1016/j.psychres.2016.01.015)] [Medline: [26795129](https://pubmed.ncbi.nlm.nih.gov/26795129/)]
75. Barbot B, Kaufman JC. What makes immersive virtual reality the ultimate empathy machine? Discerning the underlying mechanisms of change. *Comput Human Behav*. Oct 2020;111:106431. [doi: [10.1016/j.chb.2020.106431](https://doi.org/10.1016/j.chb.2020.106431)]
76. Kyaw BM, Saxena N, Posadzki P, et al. Virtual reality for health professions education: systematic review and meta-analysis by the digital health education collaboration. *J Med Internet Res*. Jan 22, 2019;21(1):e12959. [doi: [10.2196/12959](https://doi.org/10.2196/12959)] [Medline: [30668519](https://pubmed.ncbi.nlm.nih.gov/30668519/)]

77. Ventura S, Badenes-Ribera L, Herrero R, Cebolla A, Galiana L, Baños R. Virtual reality as a medium to elicit empathy: a meta-analysis. *Cyberpsychol Behav Soc Netw*. Oct 2020;23(10):667-676. [doi: [10.1089/cyber.2019.0681](https://doi.org/10.1089/cyber.2019.0681)] [Medline: [32757952](https://pubmed.ncbi.nlm.nih.gov/32757952/)]
78. Goudman L, Jansen J, Billot M, et al. Virtual reality applications in chronic pain management: systematic review and meta-analysis. *JMIR Serious Games*. May 10, 2022;10(2):e34402. [doi: [10.2196/34402](https://doi.org/10.2196/34402)] [Medline: [35536641](https://pubmed.ncbi.nlm.nih.gov/35536641/)]
79. Malloy KM, Milling LS. The effectiveness of virtual reality distraction for pain reduction: a systematic review. *Clin Psychol Rev*. Dec 2010;30(8):1011-1018. [doi: [10.1016/j.cpr.2010.07.001](https://doi.org/10.1016/j.cpr.2010.07.001)] [Medline: [20691523](https://pubmed.ncbi.nlm.nih.gov/20691523/)]
80. Pourmand A, Davis S, Marchak A, Whiteside T, Sikka N. Virtual reality as a clinical tool for pain management. *Curr Pain Headache Rep*. Jun 15, 2018;22(8):53. [doi: [10.1007/s11916-018-0708-2](https://doi.org/10.1007/s11916-018-0708-2)] [Medline: [29904806](https://pubmed.ncbi.nlm.nih.gov/29904806/)]
81. Asadzadeh A, Samad-Soltani T, Salahzadeh Z, Rezaei-Hachesu P. Effectiveness of virtual reality-based exercise therapy in rehabilitation: a scoping review. *Inf Med Unlocked*. 2021;24:100562. [doi: [10.1016/j.imu.2021.100562](https://doi.org/10.1016/j.imu.2021.100562)]
82. Brepohl PCA, Leite H. Virtual reality applied to physiotherapy: a review of current knowledge. *Virtual Real*. Mar 2023;27(1):71-95. [doi: [10.1007/s10055-022-00654-2](https://doi.org/10.1007/s10055-022-00654-2)]
83. Howard MC. A meta-analysis and systematic literature review of virtual reality rehabilitation programs. *Comput Hum Behav*. May 2017;70:317-327. [doi: [10.1016/j.chb.2017.01.013](https://doi.org/10.1016/j.chb.2017.01.013)]
84. Alaker M, Wynn GR, Arulampalam T. Virtual reality training in laparoscopic surgery: a systematic review & meta-analysis. *Int J Surg*. May 2016;29:85-94. [doi: [10.1016/j.ijssu.2016.03.034](https://doi.org/10.1016/j.ijssu.2016.03.034)]
85. Mao RQ, Lan L, Kay J, et al. Immersive virtual reality for surgical training: a systematic review. *J Surg Res*. Dec 2021;268:40-58. [doi: [10.1016/j.jss.2021.06.045](https://doi.org/10.1016/j.jss.2021.06.045)] [Medline: [34284320](https://pubmed.ncbi.nlm.nih.gov/34284320/)]
86. Moglia A, Ferrari V, Morelli L, Ferrari M, Mosca F, Cuschieri A. A systematic review of virtual reality simulators for robot-assisted surgery. *Eur Urol*. Jun 2016;69(6):1065-1080. [doi: [10.1016/j.eururo.2015.09.021](https://doi.org/10.1016/j.eururo.2015.09.021)]
87. Jerald J. *The VR Book: Human-Centered Design for Virtual Reality*. Association for Computing Machinery and Morgan & Claypool; 2015. [doi: [10.1145/2792790](https://doi.org/10.1145/2792790)]
88. Bailenson J. *Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do*. Norton & Company; 2018. ISBN: 0393253708
89. Bown J, White E, Boopalan A. Looking for the ultimate display: a brief history of virtual reality. In: *Boundaries of Self and Reality Online*. Academic Press; 2017:239-259. [doi: [10.1016/B978-0-12-804157-4.00012-8](https://doi.org/10.1016/B978-0-12-804157-4.00012-8)]
90. Bailenson JN, DeVaux C, Han E, Markowitz DM, Santoso M, Wang P. Five canonical findings from 30 years of psychological experimentation in virtual reality. *Nat Hum Behav*. Jul 2025;9(7):1328-1338. [doi: [10.1038/s41562-025-02216-3](https://doi.org/10.1038/s41562-025-02216-3)] [Medline: [40404915](https://pubmed.ncbi.nlm.nih.gov/40404915/)]
91. Wallis K, Ross M. Fourth VR: Indigenous virtual reality practice. *Convergence: Int J Res New Media Technol*. Apr 2021;27(2):313-329. [doi: [10.1177/1354856520943083](https://doi.org/10.1177/1354856520943083)]
92. Gall A, Anderson K, Howard K, et al. Wellbeing of Indigenous peoples in Canada, Aotearoa (New Zealand) and the United States: a systematic review. *Int J Environ Res Public Health*. May 28, 2021;18(11):5832. [doi: [10.3390/ijerph18115832](https://doi.org/10.3390/ijerph18115832)] [Medline: [34071636](https://pubmed.ncbi.nlm.nih.gov/34071636/)]
93. Garvey G, Anderson K, Gall A, et al. The fabric of Aboriginal and Torres Strait Islander wellbeing: a conceptual model. *Int J Environ Res Public Health*. Jul 21, 2021;18(15):7745. [doi: [10.3390/ijerph18157745](https://doi.org/10.3390/ijerph18157745)] [Medline: [34360037](https://pubmed.ncbi.nlm.nih.gov/34360037/)]
94. Anderson K, Elder-Robinson E, Gall A, et al. Aspects of wellbeing for Indigenous Youth in CANZUS countries: a systematic review. *Int J Environ Res Public Health*. Oct 21, 2022;19(20):13688. [doi: [10.3390/ijerph192013688](https://doi.org/10.3390/ijerph192013688)] [Medline: [36294264](https://pubmed.ncbi.nlm.nih.gov/36294264/)]
95. Bourke S, Wright A, Guthrie J, Russell L, Dunbar T, Lovett R. Evidence review of Indigenous culture for health and wellbeing. *Int J Health, Wellness, Soc*. 2018;8(4):11-27. [doi: [10.18848/2156-8960/CGP/v08i04/11-27](https://doi.org/10.18848/2156-8960/CGP/v08i04/11-27)]
96. Seon Q, Mady N, Yang M, et al. A virtual reality-assisted cognitive behavioral therapy for and with Inuit in Québec: protocol for a proof-of-concept randomized controlled trial. *JMIR Res Protoc*. May 24, 2023;12:e40236. [doi: [10.2196/40236](https://doi.org/10.2196/40236)] [Medline: [37223973](https://pubmed.ncbi.nlm.nih.gov/37223973/)]
97. Linnaranta O, Cardona LG, Seon Q, Tukkiapik A, Outerbridge J, Bouchard S. Views on a culturally safe psychotherapeutic treatment by Inuit in Quebec: co-design of cognitive behavioral therapy manual and virtual exposure environments. *Cogn Behav Pract*. Nov 2025;32(4):513-525. [doi: [10.1016/j.cbpra.2024.04.006](https://doi.org/10.1016/j.cbpra.2024.04.006)]
98. Tiwari R, Stephens JR. Trauma and healing at Western Australia's former native missions. *AlterNative: Int J Indigenous Peoples*. Sep 2020;16(3):248-258. [doi: [10.1177/1177180120948277](https://doi.org/10.1177/1177180120948277)]
99. Tiwari R, Stephens JR, Scott (Noongar) KJ, Parnell R, Morrison (Minang) J, Hussein FFM. Commemorating Stolen Generation experiences through virtual reality. *AlterNative: Int J Indigenous Peoples*. Sep 2024;20(3):339-350. [doi: [10.1177/11771801241251445](https://doi.org/10.1177/11771801241251445)]

100. Menezes S. Virtual reality project healing indigenous trauma receives \$28m MRFF grant. University of New South Wales. Oct 11, 2024. URL: <https://www.unsw.edu.au/newsroom/news/2024/10/VR-project-healing-indigenous-trauma-receives-2-8m-MRFF-grant> [Accessed 2026-05-26]
101. Leavy B, Wyeld TG, Hills J. DIGITAL SONGLINES: Digitising the Arts, Culture and Heritage Landscape of Aboriginal Australia New Heritage. Routledge; 2007:310-319. [doi: [10.4324/9780203937884-29](https://doi.org/10.4324/9780203937884-29)]
102. Children explore virtual reality as part of trial for new NT youth mental health project. Australian Broadcasting Corporation; 2023. URL: <https://www.abc.net.au/news/2023-02-19/virtual-reality-technology-trial-mental-health-nt-youth/101991982> [Accessed 2026-05-19]
103. Tribal Warrior Corporation. URL: <https://www.tribalwarrior.org> [Accessed 2026-05-19]
104. Studio Gilay. URL: <https://studiogilay.com> [Accessed 2026-05-19]
105. Phoria. URL: <https://www.phoria.com.au> [Accessed 2026-05-19]
106. Murrup-stewart C, Searle AK, Jobson L, Adams K. Aboriginal perceptions of social and emotional wellbeing programs: a systematic review of literature assessing social and emotional wellbeing programs for Aboriginal and Torres Strait Islander Australians perspectives. *Aust Psychol*. Jun 1, 2019;54(3):171-186. [doi: [10.1111/ap.12367](https://doi.org/10.1111/ap.12367)]
107. Jersky M, Titmuss A, Haswell M, et al. Improving health service access and wellbeing of young Aboriginal parents in an urban setting: mixed methods evaluation of an arts-based program. *Aust N Z J Public Health*. Apr 2016;40:S115-S121. [doi: [10.1111/1753-6405.12448](https://doi.org/10.1111/1753-6405.12448)]
108. Gupta H, Tari-Keresztes N, Stephens D, Smith JA, Sultan E, Lloyd S. A scoping review about social and emotional wellbeing programs and services targeting Aboriginal and Torres Strait Islander young people in Australia: understanding the principles guiding promising practice. *BMC Public Health*. Oct 29, 2020;20(1):1625. [doi: [10.1186/s12889-020-09730-1](https://doi.org/10.1186/s12889-020-09730-1)] [Medline: [33121463](https://pubmed.ncbi.nlm.nih.gov/33121463/)]
109. Wilson S. What is an Indigenous research methodology?. *Can J Native Educ*. 2001;25(2):175-179. URL: <https://ojs.library.ubc.ca/index.php/CJNE/article/view/196968/192001> [Accessed 2026-05-26]
110. Rigney LI. Internationalization of an Indigenous Anticolonial cultural critique of research methodologies: a guide to indigenist research methodology and its principles. *Wicazo Sa Rev*. 1999;14(2):109. [doi: [10.2307/1409555](https://doi.org/10.2307/1409555)]
111. Martin-Booran Mirraoopa K. Ways of knowing, being and doing: a theoretical framework and methods for indigenous and indigenist re-search. *J Aust Stud*. Jan 2003;27(76):203-214. [doi: [10.1080/14443050309387838](https://doi.org/10.1080/14443050309387838)]
112. Smith LT. *Decolonizing Methodologies: Research and Indigenous Peoples*. University of Otago Press; 1999. URL: <https://nycstandwithstandingrock.wordpress.com/wp-content/uploads/2016/10/linda-tuhiwai-smith-decolonizing-methodologies-research-and-indigenous-peoples.pdf> [Accessed 2026-05-19]
113. Wilson S. Guest editorial: what is an indigenist research paradigm. *Can J Native Educ*. 2007;30(2):193-195. [doi: [10.14288/cjne.v30i2.196422](https://doi.org/10.14288/cjne.v30i2.196422)]
114. Absolon KE. *Kaandossiwin: How We Come to Know: Indigenous Re-Search Methodologies*. 2nd ed. Fernwood Publishing; 2022. ISBN: 9781773635170
115. Wilson D, Mikahere-Hall A, Sherwood J. Using Indigenous kaupapa Māori research methodology with constructivist grounded theory: generating a theoretical explanation of Indigenous womens realities. *Int J Soc Res Methodol*. May 4, 2022;25(3):375-390. [doi: [10.1080/13645579.2021.1897756](https://doi.org/10.1080/13645579.2021.1897756)]
116. Kite E, Davy C. Using indigenist and Indigenous methodologies to connect to deeper understandings of Aboriginal and Torres Strait Islander peoples' quality of life. *Health Promot J Austr*. Dec 2015;26(3):191-194. [doi: [10.1071/HE15064](https://doi.org/10.1071/HE15064)] [Medline: [26686300](https://pubmed.ncbi.nlm.nih.gov/26686300/)]
117. Kurtz DLM. Indigenous methodologies: traversing Indigenous and Western worldviews in research. *AlterNative: Int J Indigenous peoples*. Sep 2013;9(3):217-229. [doi: [10.1177/117718011300900303](https://doi.org/10.1177/117718011300900303)]
118. Saunders V, West R, Usher K. Applying Indigenist research methodologies in health research: experiences in the Borderlands. *AJIE*. 2010;39(S1):1-7. [doi: [10.1375/S1326011100001071](https://doi.org/10.1375/S1326011100001071)]
119. Kelly J, Saggars S, Taylor K, et al. "Makes you proud to be black eh?": reflections on meaningful indigenous research participation. *Int J Equity Health*. Aug 8, 2012;11(40):40. [doi: [10.1186/1475-9276-11-40](https://doi.org/10.1186/1475-9276-11-40)] [Medline: [22873769](https://pubmed.ncbi.nlm.nih.gov/22873769/)]
120. Baum F, MacDougall C, Smith D. Participatory action research. *J Epidemiol Community Health*. Oct 2006;60(10):854-857. [doi: [10.1136/jech.2004.028662](https://doi.org/10.1136/jech.2004.028662)] [Medline: [16973531](https://pubmed.ncbi.nlm.nih.gov/16973531/)]
121. Chevalier JM, Buckles DJ. *Participatory Action Research: Theory and Methods for Engaged Inquiry*. 2nd ed. Routledge; 2019. ISBN: 1351033255
122. Dudgeon P, Bray A, Darlaston-Jones D, Walker R. Aboriginal participatory action research: an indigenous research methodology strengthening decolonisation and social and emotional wellbeing. *Lowitja Institute*; Sep 2020. URL: [https://www.lowitja.org.au/wp-content/uploads/2023/05/LI\\_Discussion\\_Paper\\_P-Dudgeon\\_FINAL3.pdf](https://www.lowitja.org.au/wp-content/uploads/2023/05/LI_Discussion_Paper_P-Dudgeon_FINAL3.pdf) [Accessed 2026-05-19]
123. Cornish F, Breton N, Moreno-Tabarez U, et al. Participatory action research. *Nat Rev Methods Primers*. 2023;3(1):34. [doi: [10.1038/s43586-023-00214-1](https://doi.org/10.1038/s43586-023-00214-1)]
124. Smith L, Bratini L, Chambers DA, Jensen RV, Romero L. Between idealism and reality: meeting the challenges of participatory action research. *Action Res*. Dec 2010;8(4):407-425. [doi: [10.1177/1476750310366043](https://doi.org/10.1177/1476750310366043)]

125. Kindon S, Pain R, Kesby M. *Participatory Action Research Approaches and Methods Connecting People, Participation and Place*. Routledge; 2010. ISBN: 9780415599764
126. Haynes E, Marawili M, Marika BM, et al. Community-based participatory action research on rheumatic heart disease in an Australian Aboriginal homeland: evaluation of the “on track watch” project. *Eval Program Plann*. Jun 2019;74(38-53):38-53. [doi: [10.1016/j.evalprogplan.2019.02.010](https://doi.org/10.1016/j.evalprogplan.2019.02.010)] [Medline: [30849711](https://pubmed.ncbi.nlm.nih.gov/30849711/)]
127. Miller A, Massey PD, Judd J, et al. Using a participatory action research framework to listen to Aboriginal and Torres Strait Islander people in Australia about pandemic influenza. *Rural Remote Health*. 2015;15(3):2923. [doi: [10.22605/RRH2923](https://doi.org/10.22605/RRH2923)] [Medline: [26223560](https://pubmed.ncbi.nlm.nih.gov/26223560/)]
128. Sharmil H, Kelly J, Bowden M, et al. Participatory Action Research-Dadirri-Gamma, using yarning: methodology co-design with Aboriginal community members. *Int J Equity Health*. Jul 12, 2021;20(1):160. [doi: [10.1186/s12939-021-01493-4](https://doi.org/10.1186/s12939-021-01493-4)] [Medline: [34247644](https://pubmed.ncbi.nlm.nih.gov/34247644/)]
129. Sherwood J, Kendall S. Reframing spaces by building relationships: community collaborative participatory action research with Aboriginal mothers in prison. *Contemp Nurse*. Dec 2013;46(1):83-94. [doi: [10.5172/conu.2013.46.1.83](https://doi.org/10.5172/conu.2013.46.1.83)] [Medline: [24716766](https://pubmed.ncbi.nlm.nih.gov/24716766/)]
130. Esler DM. Participatory action research in Indigenous health. *Aust Fam Physician*. Jun 2008;37(6):457-459. [Medline: [18523701](https://pubmed.ncbi.nlm.nih.gov/18523701/)]
131. Dickson G, Green KL. Participatory action research: lessons learned with Aboriginal grandmothers. *Health Care Women Int*. 2001;22(5):471-482. [doi: [10.1080/073993301317094290](https://doi.org/10.1080/073993301317094290)] [Medline: [11508099](https://pubmed.ncbi.nlm.nih.gov/11508099/)]
132. Mooney-Somers J, Maher L. The Indigenous Resiliency Project: a worked example of community-based participatory research. *NSW Public Health Bull*. 2009;20(8):112. [doi: [10.1071/NB09007](https://doi.org/10.1071/NB09007)]
133. Snijder M, Wagemakers A, Calabria B, et al. “We walked side by side through the whole thing”: a mixed-methods study of key elements of community-based participatory research partnerships between rural Aboriginal communities and researchers. *Aust J Rural Health*. Aug 2020;28(4):338-350. [doi: [10.1111/ajr.12655](https://doi.org/10.1111/ajr.12655)] [Medline: [32755008](https://pubmed.ncbi.nlm.nih.gov/32755008/)]
134. J. Schinke R, R. McGannon K, Watson J, Busanich R. Moving toward trust and partnership: an example of sport-related community-based participatory action research with Aboriginal people and mainstream academics. *J Aggress Confl Peace Res*. Sep 30, 2013;5(4):201-210. [doi: [10.1108/JACPR-11-2012-0012](https://doi.org/10.1108/JACPR-11-2012-0012)]
135. Gauld S, Smith S, Kendall MB. Using participatory action research in community-based rehabilitation for people with acquired brain injury: from service provision to partnership with Aboriginal communities. *Disabil Rehabil*. Jan 2011;33(19-20):1901-1911. [doi: [10.3109/09638288.2010.550382](https://doi.org/10.3109/09638288.2010.550382)]
136. Dew A, McEntyre E, Vaughan P. Taking the research journey together: the insider and outsider experiences of Aboriginal and non-Aboriginal researchers. *FQS Forum: Qual Soc Res*. Jan 27, 2019;20(1):18. [doi: [10.17169/fqs-20.1.3156](https://doi.org/10.17169/fqs-20.1.3156)]
137. Cox A, Dudgeon P, Holland C, Kelly K, Scrine C, Walker R. Using participatory action research to prevent suicide in Aboriginal and Torres Strait Islander communities. *Aust J Prim Health*. Oct 30, 2014;20(4):345-349. [doi: [10.1071/PY14043](https://doi.org/10.1071/PY14043)]
138. Peltier C. An application of two-eyed seeing: Indigenous research methods with participatory action research. *Int J Qual Methods*. Nov 20, 2018;17(1):1609406918812346. [doi: [10.1177/1609406918812346](https://doi.org/10.1177/1609406918812346)]
139. Bessarab D, Ng’andu B. Yarning about yarning as a legitimate method in Indigenous research. *IJCIS*. 2010;3(1):37-50. [doi: [10.5204/ijcis.v3i1.57](https://doi.org/10.5204/ijcis.v3i1.57)]
140. Burke AW, Welch S, Power T, Lucas C, Moles RJ. Clinical yarning with Aboriginal and/or Torres Strait Islander peoples—a systematic scoping review of its use and impacts. *Syst Rev*. Jun 23, 2022;11(1):129. [doi: [10.1186/s13643-022-02008-0](https://doi.org/10.1186/s13643-022-02008-0)] [Medline: [35739597](https://pubmed.ncbi.nlm.nih.gov/35739597/)]
141. Kennedy M, Maddox R, Booth K, Maidment S, Chamberlain C, Bessarab D. Decolonising qualitative research with respectful, reciprocal, and responsible research practice: a narrative review of the application of yarning method in qualitative Aboriginal and Torres Strait Islander health research. *Int J Equity Health*. Sep 13, 2022;21(1):134. [doi: [10.1186/s12939-022-01738-w](https://doi.org/10.1186/s12939-022-01738-w)] [Medline: [36100899](https://pubmed.ncbi.nlm.nih.gov/36100899/)]
142. Lin I, Flanagan W, Green C, Lowell A, Coffin J, Bessarab D. Clinical yarning education: development and pilot evaluation of an education program to improve clinical communication in Aboriginal health care – participant, and health manager perspectives. *BMC Med Educ*. Nov 30, 2023;23(1):908. [doi: [10.1186/s12909-023-04843-8](https://doi.org/10.1186/s12909-023-04843-8)] [Medline: [38036987](https://pubmed.ncbi.nlm.nih.gov/38036987/)]
143. Patridge EF, Bardyn TP. Research Electronic Data Capture (REDCap). *JMLA*. 2018;106(1):142. [doi: [10.5195/jmla.2018.319](https://doi.org/10.5195/jmla.2018.319)]
144. Braun V, Clarke V. *Thematic Analysis: A Practical Guide*. SAGE Publications; 2021. ISBN: 9781473953246
145. Braun V, Clarke V, Hayfield V. *Supporting Research in Counselling and Psychotherapy*. Palgrave Macmillan Cham; 2023:19-38. [doi: [10.1007/978-3-031-13942-0\\_2](https://doi.org/10.1007/978-3-031-13942-0_2)]
146. Shay M. Extending the yarning yarn: collaborative yarning methodology for ethical indigenist education research. *AJIE*. 2021;50(1):62-70. [doi: [10.1017/jie.2018.25](https://doi.org/10.1017/jie.2018.25)]
147. Dhakal K. NVivo. *J Med Libr Assoc*. Apr 26, 2022;110(2):270-272. [doi: [10.5195/jmla.2022.1271](https://doi.org/10.5195/jmla.2022.1271)] [Medline: [35440911](https://pubmed.ncbi.nlm.nih.gov/35440911/)]

148. Kaur P, Stoltzfus J, Yellapu V. Descriptive statistics. *Int J Acad Med*. 2018;4(1):60. [doi: [10.4103/IJAM.IJAM\\_7\\_18](https://doi.org/10.4103/IJAM.IJAM_7_18)]
149. Campbell S, Greenwood M, Prior S, et al. Purposive sampling: complex or simple? Research case examples. *J Res Nurs*. Dec 2020;25(8):652-661. [doi: [10.1177/1744987120927206](https://doi.org/10.1177/1744987120927206)] [Medline: [34394687](https://pubmed.ncbi.nlm.nih.gov/34394687/)]
150. Yamada-Rice D, Mushtaq F, Woodgate A, Bosmans D, Douthwaite A, Douthwaite I, et al. Children and virtual reality: emerging possibilities and challenges. *DigiLitEY*; 2017. URL: [https://drive.google.com/file/d/1-Hh47q01EfAB9\\_pneH8J\\_sthFjy5F4Nc/view?usp=sharing](https://drive.google.com/file/d/1-Hh47q01EfAB9_pneH8J_sthFjy5F4Nc/view?usp=sharing) [Accessed 2026-05-26]
151. New South Wales Aboriginal health ethics guidelines: key principles. Aboriginal Health and Medical Research Council of New South Wales; 2016. URL: [https://www.ahmrc.org.au/wp-content/uploads/2023/10/AHMRC\\_Health-Ethics-guidelines-2023\\_01.pdf](https://www.ahmrc.org.au/wp-content/uploads/2023/10/AHMRC_Health-Ethics-guidelines-2023_01.pdf) [Accessed 2026-05-19]
152. Australian institute of Aboriginal and Torres Strait Islander studies code of ethics for Aboriginal and Torres Strait Islander research. Australian Institute of Aboriginal and Torres Strait Islander Studies; 2020. URL: <https://aiatsis.gov.au/sites/default/files/2020-10/aiatsis-code-ethics.pdf> [Accessed 2026-05-19]
153. Research data management policy 2014. The University of Sydney; 2014. URL: <https://policyregister.sydney.edu.au/doctract/documentportal/08DE2219FEF9D53ED6A89D6C53B22831> [Accessed 2026-05-26]

## Abbreviations

**ACCO:** Aboriginal Community Controlled Organization  
**CBT:** cognitive behavioral therapy  
**CDH:** cultural determinants of health  
**DHMS:** digital health mental service  
**eHRCATSIH:** eHealth Research Collaboration for Aboriginal and Torres Strait Islander Health  
**PAR:** participatory action research  
**REDCap:** Research Electronic Data Capture  
**SEWB:** social and emotional wellbeing  
**USYD:** University of Sydney  
**VR:** virtual reality

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