

The Impact of Community-Based Participatory DOHaD Research

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18.1 Introduction

As outlined in the preceding chapters, the Developmental Origins of Health and Disease (DOHaD) concept is a lifecourse approach that describes how environmental exposures in the early-life stages can impact later-life health outcomes. This paradigm has developed considerably since Barker's early findings, solidifying links between adverse early-life events in childhood, pregnancy, and preconception and later risk for non-communicable diseases (NCDs) [1, 2]. Such risk events are not experienced equally, with structural and social determinants such as economic stability, housing, access to health-care, and the wider built environment influencing the ability of individuals and communities to experience good health. Within the DOHaD field, there is increasing support for the integration of social justice and participatory lenses in research, acknowledging that all people deserve equal opportunities to be healthy [3–5]. Such approaches require partnerships that empower and collaborate with the communities who participate in research in order to reduce the power imbalance and better understand the contexts in which health challenges are situated [4]. This encourages the normalisation and inclusion of different types of evidence that are all valuable for addressing health issues, including scientific evidence, sociological factors, and local community knowledge. This chapter describes how a community-based participatory research (CBPR) approach used within the DOHaD field could significantly benefit researchers, communities, and health outcomes. It outlines what CBPR involves and current participatory DOHaD work being undertaken and draws on examples of our own CBPR in the Cook Islands.

18.2 Community-Based Participatory Research in DOHaD

18.2.1 What Is Community-Based Participatory Research?

Community-based participatory research is a collaborative approach to research that aims to engage researchers and community members in equal partnership throughout all stages of the research process [6]. It is widely understood that CBPR developed from action research, an approach proposed in the 1940s by social scientist Kurt Lewin as a way of addressing social problems by undertaking research with or by the study population [7]. Although referred to by a variety of terms, such as action research, participatory research, action science, co-operative inquiry, and community-based research, the shared idea between these concepts is participatory knowledge production that involves the study population [7]. A critical aspect of the CBPR approach is acknowledging that both

researchers and community members hold essential knowledge that is equally valuable for conducting rigorous and impactful research. Western research approaches have traditionally assumed that research phenomena can and should be separated from their broader context to conduct valid and reliable studies [7]. CBPR rejects this assertion and recognises the value of different types of knowledge and contextual evidence. In his work exploring the power of professionals and local communities working together, Corburn describes expertise not as an objective truth but as something that can be collaboratively produced to enable better research and policy solutions [8]. Researchers are trained in experimental, epidemiologic, and systematic data collection practices, validated by statistical significance and other professional standards [8]. This knowledge is typically tested via forums such as peer review processes and media. On the other hand, communities hold important local knowledge that has been acquired through experiences, cultural and social traditions, and intergenerational storytelling. This knowledge can be tested via forums such as public narratives, community stories, and media [8]. CBPR approaches emphasise that both forms of evidence are critical for improving research validity and driving social change within communities.

Table 18.1 outlines nine general principles of CBPR proposed by Israel and colleagues that reflect multiple approaches and lessons learned from previous participatory research structures [9].

Empowering communities to be actively involved in conceptualising and leading research is important from a social justice perspective. Criticisms of non-participatory research studies often include a lack of understanding of local socio-cultural factors, leading to limited acceptability of findings by the communities themselves [10]. In particular, research on Indigenous and marginalised communities has historically been conducted without community input, leading to uninformed conclusions that may not address community priorities and contributing to a general mistrust of research by those communities [11]. Fitzpatrick and colleagues acknowledge that 'researchers have often been perceived as doing research *on*, and not *with* Indigenous people, with little regard to local cultural protocols and languages and without seeking consent from communities' [11]. Social justice and empowerment are the foundations of CBPR, ensuring that communities are equal partners in setting research questions, conducting the research, and interpreting what the data mean. This approach not only values the community's expertise but also addresses their moral right to data ownership and leading research that affects their own community.

Key benefits of CBPR include the potential for research findings to be more acceptable and impactful, leading to community-led action and, in turn, increased potential for long-term benefits [12]. Salimi and colleagues systematically reviewed CBPR health projects and found that they enhanced skills and capabilities within the community, resulting in community-level action [13]. CBPR approaches can also be valuable in ensuring the participation and retention of historically marginalised ethnic groups who are traditionally underrepresented in health research [14]. A review by Cook found reciprocal benefits of working together, stating:

Academic researchers reported that community collaboration had been valuable in making the studies possible and valid and in generating credible data. Community partners helped academic researchers to recruit and retain study participants . . . (and) to render research more culturally sensitive and acceptable to the participants and relevant to the local context. [12, p. 669]

Table 18.1 General principles of CBPR [9]

Principles	Explanation
1. Acknowledges the community as a unit of identity.	Identifying and working with groups that share a common membership or identity, such as a social network, ethnic group, or geographical neighbourhood.
2. Builds on the strengths and resources within the community.	Developing the strengths, expertise, and assets that already exist within a community.
3. Facilitates a collaborative, equitable partnership across all research phases.	Requires a foundation of mutual respect and trust to ensure all partners share decision-making and control throughout the research.
4. Fosters reciprocal exchange and capacity building among all partners.	Recognising that all parties bring diverse and valuable knowledge and experiences.
5. Integrates knowledge generation and translation of research findings for the mutual benefit of all partners.	Making a commitment to ensuring research findings are translated into action.
6. Focuses on public health concerns that are relevant to the community using an ecological perspective that recognises the multiple determinants of health.	Recognising the individual, community, and societal contexts and considering broader determinants of health and disease.
7. Involves systems development using a cyclical and iterative process.	Within the system or partnership, this involves a cycle of feedback to develop and improve each stage of the research.
8. Disseminates findings to all partners and engages them in wider dissemination.	Ensuring the research is disseminated in ways that are useful and appropriate for all partners.
9. Prioritises a long-term process and commitment to sustainability.	Making a long-term commitment to ensuring the sustainability of projects or action outcomes beyond a single funding period is critical.

To create better and more robust DOHaD knowledge for action and social change, particularly for Indigenous and disadvantaged groups, partnerships between researchers and the communities that contend with the real-world challenges are essential.

18.2.2 CBPR in the DOHaD Field

Penkler and colleagues argue that better understandings of the health contexts where communities engage are critical to equitably improving intergenerational health and well-being [4]. Utilising CBPR and actively engaging communities in co-developing research projects can provide major benefits for DOHaD research, local community capabilities, and health outcomes [4]. While CBPR approaches remain limited in the DOHaD field, there are key examples where partnerships and participatory frameworks have enhanced the research and knowledge translation processes. Presented below is a snapshot of three participatory approaches grounded in DOHaD theory. Each carries out important work to contribute to the health and well-being of their communities.

In recognition of the inequitable health outcomes faced by Australia's Aboriginal population, for example the increased likelihood of premature birth and poorer infant outcomes compared to the rest of the population, the Gomeroi Gaaynggal programme was established [15]. Initially designed by reproductive scientists, the study underwent an extensive two-year community consultation phase with Aboriginal organisations and health services, Elders, young mum's groups, men's and women's groups, prison staff, and wider community members that revealed key community priorities [15, 16]. As a result, Gomeroi gaaynggal became a two-pronged approach, including a research study and a community-focused arts health programme. Working in partnership with Aboriginal communities in New South Wales, the programme's research focuses on understanding the drivers of adverse health outcomes during pregnancy among Indigenous women and how that affects long-term health and infant health. One study on the prospective cohort of Aboriginal women and infants showed that less than 50 per cent of breastfeeding women were meeting nutrient requirements for folate, iodine, and calcium. Although breastfeeding initiation was high at 85.9 per cent, the median duration of breastfeeding was only approximately 42 days, in contrast to the recommended six months [17]. The research identified the need for promoting sustained breastfeeding practices and improving education on optimal nutrition for mothers and infants.

The arts health portion of the programme was initiated after Aboriginal partners identified a widely held view among the community that existing antenatal education classes were not culturally appropriate for their community [15]. Acknowledging that antenatal class attendance can have benefits not only for improving education and access to healthcare but also for increasing social connectedness and support networks, Gomeroi Gaaynggal established a culturally appropriate arts health centre [15, 16]. A range of topics are covered in the education programme, including antenatal care, mental health, and dietetics [18]. The centre also facilitates cooking classes, cultural art activities, baby health checks, and spaces for local artists and Elders to share stories. The programme continues to evolve in line with what is needed and relevant as decided by the community themselves. By fostering strong relationships with Aboriginal families, Elders, and community members, the Gomeroi gaaynggal research team recognised the positive impact this had on building an Aboriginal research cohort, study retention, and improvements in health literacy and antenatal outcomes from the arts health programme. While acknowledging that this participatory approach can be a costly and lengthy process, the benefits for research, translation of research findings, and, importantly, for the health and social outcomes of the local Aboriginal community are clear [15].

In Alberta, Canada, the ENRICH research team has developed similar CBPR approaches. In particular, their collaborative work with a large Cree First Nations community aims to address the disproportionate health burden experienced by Indigenous women by exploring better ways of supporting women and families in pregnancy and post-partum [19]. After an initial year and a half of strong engagement with the community, a research partnership was formalised via a Community Advisory Committee, which included Elders, health and social service professionals, and wider community members [20]. This committee collaborated with researchers to jointly design research protocols, interpret data, and contribute to dissemination. This resulted in several research and knowledge translation pathways, including exploring Cree men's experiences of their partner's pregnancy, implementing cultural sensitivity interventions for primary care staff, and understanding effective prenatal care for Cree women

[19, 20]. The latter involved an ethnographic CBPR study investigating views and perceptions of prenatal healthcare providers in the Cree community of Maskwacis, Alberta [20]. Interview findings showed that strong relationships, cultural understanding, and a sense of trust and non-judgement were key for First Nations women to receive effective prenatal care, while a lack of cultural appropriateness could lead to poorer outcomes and sustain health inequities. The study emphasised that time invested in such healthcare interactions to build relationships and trust should be standard and not viewed as extra [20]. The authors encouraged healthcare providers to actively engage with local Indigenous communities, stressing that reviewing literature or completing cultural competency courses is not enough to gain meaningful understandings of Indigenous experiences. By using a CBPR approach, the ENRICH team and the Cree First Nations community have built a strong research–community partnership that can investigate and address important health issues to improve the overall well-being of the Indigenous community.

Another example of research–community collaboration is the *Abuela, Mamá y Yo (AMY)* project. The AMY project was established by a partnership between the Oregon Health and Science University and *Familias en Acción*, a non-governmental community organisation focused on the health of Latino families in Oregon, the United States. The research-based programme partners with Latinx families and Latinx-serving organisations and is centred on DOHaD and intergenerational well-being, recognising the high rates of obesity and type 2 diabetes in the local Latino community [21]. *Abuela, Mamá y Yo* provides a culturally specific food equity nutrition education programme that addresses the root causes of health inequities and builds participants' knowledge around upstream determinants [21]. Community leaders have been trained to facilitate the AMY curriculum in community classes with core topics including the first 1000 days, breastfeeding, and decolonising food systems [22, 23]. Although evaluation is ongoing, initial mixed methods research, including pre- and post-surveys, has reported an increase in participant knowledge across all topics, particularly in relation to the first 1000 days concept. Similarly to other CBPR approaches in the DOHaD field, AMY researchers acknowledge the benefits of close community partnership, including the ability to constantly adapt and tailor to the community's needs, ensuring their work is relevant and impactful for the population of interest [22].

These research–community partnerships emphasise the importance of strong and sustained relationships in DOHaD research. This process can be particularly impactful for Indigenous and/or low- and middle-income communities where there may be mistrust due to past experiences of exploitative, one-sided research. Simply presenting to a community and requesting permission to undertake a research proposal is inadequate [24]. Community engagement and collaboration before a proposal is created and throughout each stage of research can ensure respect and integrity. Such collaborations build a greater level of trust and can strengthen 'buy-in' or willingness to participate in studies. When communities are actively leading research, there can also be a better understanding of where research needs to be targeted. The participatory DOHaD projects above describe how continuous feedback loops enable communities to contribute perspective and guidance regarding research directions and issues of local relevance and ultimately lead to the translation of evidence into action. CBPR approaches that co-construct research priorities and co-design studies ensure that the dignity of communities is upheld and can result in more relevant and impactful interventions. This is

particularly important for Indigenous, historically marginalised, and low-income communities that are often disproportionately impacted by risk factors and, as a result, can experience poorer health outcomes.

18.3 A Case Study in the Cook Islands

We have previously published a systematic review that found a lack of DOHaD research occurring in low- and middle-income countries, particularly within the Pacific region [5]. The Cook Islands, with a resident population of 14,802, is one such Pacific nation that lacks research into DOHaD and early-life causes, despite experiencing some of the highest rates of NCDs and related-risk factors worldwide. Through a CBPR partnership focused on addressing these health challenges, researchers and the Cook Islands community co-developed research questions, data collection methods, and ways of knowledge translation. This section outlines the background of our Cook Islands partnership and the importance of using local models in research and explores a selection of research studies that have been carried out under this collaboration.

18.3.1 The Cook Islands

The Cook Islands is a self-governing state in free association with New Zealand. Its current health status is greatly influenced by a history of colonisation, Westernisation, and changing trade policies. Food imports have increased considerably since the late twentieth century, influencing a nutrition transition from traditional diets sourced from the land and ocean to more processed foods high in fat and sugar [25]. Approximately, 88.5 per cent of adults aged 18–64 years old are overweight and 61.4 per cent are obese [26]. Insufficient physical activity is reported among 33 per cent of adults, raised blood pressure affects 28.5 per cent, and raised blood glucose levels impact 23.5 per cent of adults [26]. Non-communicable diseases affect approximately 30 per cent of the population and contribute to 80 per cent of all deaths in the country, 36 per cent of which occur before 60 years old [27]. Risk factors among younger age groups are also of concern, with a 2015 global school health survey reporting 63.7 per cent of Cook Islands students aged 13–17 years were overweight/obese [28]. Although biannual school health checks are conducted in the Cook Islands to assess body mass index, lice, and skin conditions, there was a lack of in-depth data on metabolic health and, concurrently, no data on how this might be influenced by the early-life environment. This gap was identified, and action was taken to begin to address it within the work of The Pacific Science for Health Literacy Project (PSHLP) [29], a CBPR partnership between researchers, health professionals, educators, and community members.

The Pacific Science for Health Literacy Project is a multi-sectoral community-based participatory research project established initially across partners in the Cook Islands, Tonga, and New Zealand, and currently in action via an ongoing partnership between the Cook Islands Ministry of Education, Te Marae Ora Cook Islands Ministry of Health, and the Liggins Institute, University of Auckland. The partnership was established in 2012 via a pre-feasibility grant from the New Zealand Ministry of Foreign Affairs and Trade, which identified perceived commonalities in goals between potential partners, those being the Ministries of Education and Health in Tonga and the Cook Islands, and the University of Auckland's Liggins Institute in New Zealand. Staff from the Ministry of Foreign Affairs and Trade in New Zealand, Tonga, and the Cook Islands facilitated

partner introductions over a period of four months, resulting in an agreement to enter into a six-month pre-feasibility study. The purpose of this study was to build relationships by enabling potential partners to meet, share, and listen, examine the potential of a partnership, and, importantly, co-write a grant application for pilot funding [30].

The PSHLP phase I pilot was funded from 2013 to 2016 and extended through to 2017, examining the potential of the school curriculum for developing scientific, sociological, and health literacies and facilitating adolescent-led actions [31]. Learning programmes were established that facilitated this development via the exploration of local community health challenges such as diabetes, obesity, and nutrition. This included examining the science of DOHaD using local and international evidence. By involving teachers from science, health and physical education, and social sciences, the programme encouraged the examination of issues from a systems perspective while also promoting educational goals associated with assessing multiple perspectives in relation to complex issues [32–34]. Engagement in the programme encouraged further locally led questions and provided opportunities for research capability development. In 2016, the funder and community representatives decided that a deliberation process should be undertaken to identify whether and how the programme should be developed. Stakeholders including community leaders, health and education experts, parents, diplomats, and representatives from non-governmental organisations and government agencies such as sport, child development, and agriculture met over a period of two days. This resulted in a plan to again work in partnership to propose the next phase of this CBPR and seek funding. Achieving funding to scale up took a further two years, during which time all partner schools from the pilot continued to use and grow the programmes. Resourcing partnership building and acknowledging the importance of local evidence guided by local frameworks that can inform community interventions and policies is key to effective CBPR.

18.3.2 Local Models and Methodologies

Research conducted using mainstream research frameworks and resulting programmes often have limited transferability for Indigenous and historically marginalised communities [35]. Framing research using local customs, traditions, and ways of knowing is one way to ensure it is contextualised and culturally relevant to the community of interest. Cook Islands collaborators within the PSHLP discussed the importance of utilising local frameworks and methodologies to ensure the research had a strong foundation in local knowledge. *Oraanga pitoenua*, or health and well-being, is a holistic concept in the Cook Islands that refers to what makes people healthy, happy, and well [34]. The five dimensions include *kopapa* (physical well-being), *tu manako* (mental and emotional well-being), *vaerua* (spiritual well-being), *kopu tangata* (social well-being), and *aorangi* (total environment) [34]. Like other holistic health models, *oraanga pitoenua* includes considerations for the health of one's body, thoughts and feelings, values, and beliefs, and for social and family relationships. It also incorporates *aorangi* and the recognition that one's connections with the land, the sky, and the ocean are important aspects of holistic health and well-being. This concept of *oraanga pitoenua* was central to the adolescent health research conducted in the Cook Islands, acknowledging that well-being is not simply an individual issue but related to our community relationships and connections to the environment.

Another key framework used in this research was the Tivaevae model, a Cook Islands research methodology first established by Teremoana Maua-Hodges in 1999 [36]. The

framework uses the traditional tivaevae quilt-making process as a metaphor for a collaborative approach to research [37]. In the Cook Islands, tivaevae are colourful, hand-sewn patchwork quilts commonly created by a group of women and led by one *ta'unga* (expert). The three key stages of tivaevae-making are 1. *Koikoi* (picking), the preparation stage where patterns for the quilt are discussed and selected, 2. *Tuitui* (stitching), whereby patterns are stitched together and sewn onto the blank canvas, and 3. *Akairianga* (reviewing), where the completed tivaevae are gifted or displayed at birthdays, graduations, and other special occasions [38]. Five key principles underpin this tivaevae-making process: *taokotai* (collaboration), *akairi kite* (shared vision), *tu inangaro* (relationships), *uriuri kite* (reciprocity), and *tu akangateitei* (respect). The Tivaevae model applies this same process and key principles to research. *Koikoi* represents the initial stages of a research project where collaborations, ideas, and knowledge sharing occur to conceptualise research questions and plan a project. *Tuitui* is the 'making' stage of research where data are collected, analysed, and interpreted to create a story. *Akairianga* refers to disseminating research findings and determining how the evidence can be translated into real outcomes for the community. The Tivaevae model ensured PSHLP research was grounded in local Cook Island ways of knowing and emphasised the importance of having a shared vision and reciprocal relationships between researchers and the community.

18.3.3 Partnerships for DOHaD Research

The PSHLP partnership between researchers and the Cook Islands community embedded the Tivaevae model and local concepts of *oraanga pitoenua* from the beginning of the research process. As discussed previously, the PSHLP was formed to support health and science literacies within Cook Islands schools. Over time, knowledge sharing and collaborative discussions of DOHaD resulted in local partners questioning why there was no local evidence, given the high rates of NCDs and related risk factors. Cook Islands students participating in the PSHLP learning programme at school also began to consider the lack of local evidence and became increasingly interested in having access to and understanding their own health data. These discussions from Cook Islands students, educators, and health professionals within the PSHLP led to a research project aimed at extending local adolescent health measurements, linking these back to birth records to explore potential DOHaD associations and considering how to translate this evidence into positive outcomes for students themselves and the wider community.

We have previously published a short report on the process and key results from this initial study [39]. Educators, health professionals, and researchers worked together to facilitate and measure a range of health indicators among Year 9 adolescents (approximately 13 years old) in Cook Islands high schools from 2016 to 2018. Measures included height, weight, waist circumference, blood pressure, blood glucose, and total cholesterol levels. To support participating adolescents in understanding and having access to their own data, the PSHLP team co-created a resource named 'My Health Profile' where students could record and chart their measurements, alongside simple, informative health facts [40]. Teachers supported the development of these understandings during class time. Of the 195 students included in the study, our findings showed that approximately 68 per cent were overweight/obese, 46 per cent were affected by central obesity, and 43 per cent had raised blood pressure [39]. When linked with birth data, this study

found a significant inverse association between birthweight and central obesity in Rarotongan adolescents. Data sense-making workshops with collaborators and community members emphasised the potential for DOHaD and investment into the early-life environment in the Cook Islands in order to optimise *oraanga pitoenua* later in life and across generations. They also recognised key areas of improvement for future research, including larger sample sizes, increasing the accuracy of measures, and further exploring the influence of school, home, and community contexts.

A key part of the Tivaevae model is *akairianga*, referring to the appropriate dissemination and knowledge translation of the evidence collected. Collaborators discussed how the local early-life data collected in addition to international evidence could be translated into positive outcomes for the community. A key discussion point was the need to increase community awareness of early-life concepts and provide an easily accessible, localised resource for new mothers, fathers, and families. We have previously published a paper that reports the CBPR process we undertook with a range of professional and lay groups in Rarotonga, Cook Islands, in order to co-design a local early-life resource [41]. With recruitment led by our Cook Islands collaborators, we conducted a series of collaborative focus group workshops with the House of Ariki and Koutu Nui (traditional chiefs and leaders in the Cook Islands), health professionals, pregnant women, current mothers of young children, Takamoa Theological College students, the Cook Islands National Youth Council, Internal Affairs, and the Child Welfare Association. After a series of co-designing workshops and draft reviews, a finalised resource titled 'Lifelong health: Our Tamariki' was created. Participants discussed the lack of physical resources available to expecting mothers and fathers, particularly emphasising the lack of locally relevant, contextualised information. They expressed that Cook Islanders would be able to relate to and form an attachment with the finalised resource and that it would help to start the conversation of nutrition, early-life health, and intergenerational impacts [41]. Although initially delayed by COVID-19, research is underway to assess the understanding of DOHaD and early-life concepts in the community both before and after the booklet is released. Local collaborators are also planning the initial launch of the resource in the community and its distribution to antenatal clinics, workplaces, and high schools across the islands.

The research described above is just a portion of the ongoing PSHLP work in the Cook Islands with other studies including investigations into adolescent physical activity levels, mental health, and the co-development of other health literacy resources as requested by the community. The CBPR approach has enabled strong relationships and reciprocal exchanges of knowledge between researchers and community members. Local partners set research directions that they feel are important and relevant for their community. Side-by-side collaboration throughout data collection and interpretation phases not only enabled 'buy-in' but also allowed for insight into relevant contextual factors that may explain specific data trends. Taking a CBPR approach has also proved beneficial for research translation. Ensuring the community was involved from the beginning helped to increase the acceptability of findings and strengthen community-led action. The views held among communities are not always homogenous, and thus it is important that this process of building and maintaining relationships is given the necessary time and breadth. CBPR is an approach that respects the dignity of local communities, prioritises shared power and reciprocal knowledge, and can ensure research evidence is translated to be impactful.

18.4 Future for CBPR in DOHaD

Although there is increasing recognition from researchers in the DOHaD field about the need to conduct research alongside community partners, projects where this has occurred remain limited. This may be due to the challenges of developing strong community engagement. First and foremost, building relationships and trust with a community can be a lengthy and sometimes difficult process. Many communities already harbour a mistrust of science and research due to historical experiences of exploitation. Developing strong, trusting relationships should therefore be a long-term commitment and is not typically acknowledged under the traditional role of a researcher [7]. Additionally, as funding structures require a research proposal to be set out before funding is allocated, this can lead to many hours of unpaid work to develop strong collaborations with communities that can then together put forward a project proposal. However, ensuring a 'cyclical and iterative process' where research projects are able to be sustainable and fully owned by the community to ensure continuation beyond research funding limits is important and achievable via CBPR [7]. Regardless of the challenges, there is a need for more DOHaD research to adopt CBPR moving forward. The current examples in the DOHaD field typically relate to community awareness or education programmes within Indigenous and historically marginalised communities. While this is important and needed, researchers outside these spaces should also consider adopting CBPR principles and local cultural models for both quantitative and qualitative DOHaD research to ensure relevancy and contextually appropriate outcomes. CBPR can ensure the reciprocal sharing of different forms of knowledge, develop capabilities, and contribute to improving overall health and well-being.

18.5 Conclusion

Community-based participatory research aims for equal partnership and sharing of knowledge between researchers and communities. It has its foundations in social justice and empowerment and can be used to build trust and capabilities in underprivileged communities. There are examples in the DOHaD field of how CBPR positively guides how research is conducted. Our own work in the Cook Islands shows that CBPR relationships may develop slowly and over a long time. However, what can result is a community that is empowered to learn, ask questions, and make positive social changes, and researchers that can also learn and adapt research contextually. Institutions and funding bodies should acknowledge and promote such forms of collaborative partnerships to ensure that research can be appropriately conducted and sustainably embedded with the goal of improving long-term and intergenerational well-being.

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