

Article

Developing a co-designed, culturally responsive physical activity program for Pasifika communities in Western Sydney, Australia

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Abstract

Pasifika communities in Western Sydney experience significant health disparities, particularly related to chronic diseases such as cardiovascular conditions and diabetes. Physical activity is known to improve both physical and mental health, yet access to culturally responsive physical activity programs for Pasifika communities is limited. This study leveraged expertise from an Advisory Committee to adopt community-based participatory research (CBPR) through Talanoa to co-design a physical activity program specifically tailored for Pasifika people in Western Sydney. Pasifika mothers were identified as a priority population due to their central role in family health and well-being. The co-design process followed the four stages of Engage, Gather, Understand and Improve, guided by the Fonofale Model of Health to ensure a culturally responsive approach. We report on each stage of the co-design process and the results gathered, highlighting key findings such as the need for culturally safe environments, flexible scheduling, ensuring programs are community-led and addressing key barriers including caregiving responsibilities, sociocultural expectations and health status. The results from this study will guide the implementation of a culturally tailored physical activity program that meets the unique needs and values of the Pasifika community in Western Sydney.

Keywords: community, Pasifika, Pacific Island, Western Sydney, health, physical activity, exercise, Talanoa, co-design, community-based participatory research

Contribution to Health Promotion

- This research highlights the need for culturally responsive physical activity programs to address health disparities for Pasifika communities in Australia.
- It shows how community-based participatory research can incorporate cultural practices to tailor programs to community needs and priorities.
- Key social and cultural considerations, such as caregiving responsibilities and accessibility, were identified to enable participation in physical activity.
- The findings provide crucial insights for future health interventions aimed at reducing health inequities in Pasifika communities.

BACKGROUND

Pasifika is a term often used in Australia to collectively group Melanesian, Micronesian and Polynesian (excluding Māori) people with spiritual, cultural and genealogical connections

to the nations within these geographic areas (Enari and Haua, 2021). Ongoing debate surrounds the term ‘Pasifika’, highlighting its distinction from Māori in Aotearoa/New Zealand and the need for further consultation to address its potential

oversimplification of diverse Pacific identities (Borell, 2005). In the absence of a widely recognized term, this paper will use the above definition of *Pasifika*, while acknowledging the existing limitations of the terminology and need for further consultation and research to better acknowledge and respect the nuanced differences within these cultures and communities.

Australia has a large and growing Pasifika population, with the majority being of Tongan, Samoan, Cook Islander and Fijian heritage, as well as a significant Māori population (Gerace et al., 2023). According to the 2021 Australian Census, the combined population of Pasifika and Māori communities in Australia is 415 033, representing 1.6% of the total population. This marks an increase of 165 000 individuals between 2011 and 2021 (Australian Bureau of Statistics, 2021). Of this growing population, it has been reported that approximately one-quarter live in Sydney, specifically in Western Sydney, with 87 658 Pasifika individuals having self-identified within the area in the year 2021, with the majority being of Tongan, Samoan, Cook Islander and Fijian heritage, as well as a significant Māori population (Gerace et al., 2023). The 'Pasifika Communities in Australia: 2021 Census' report (Gerace et al., 2023) reveals that the geographic area of Western Sydney, particularly Blacktown, Liverpool and Campbelltown, has one of Australia's highest concentrations of Pasifika people, with 78.5% of Sydney's Pasifika community residing there, the second largest number in NSW. Importantly, this report also highlighted significant disparities in key social determinants of health, including education, employment and household income between Pacific and non-Pacific communities.

'Moving' in on health inequities

Social and economic deprivation, coupled with unemployment, can significantly impact health outcomes, with research showing links to reduced access to health services, likely contributing to health inequities among Pasifika communities in Australia (Adler et al., 2016). For example, several studies of Pasifika people in Aotearoa (New Zealand) have identified the increasingly poor mental health, including high rates of depression, suicidality and anxiety (Foliaki et al., 2006; Kokaua et al., 2009). Compounding these mental health disparities are the high rates of comorbid physical health disorders (Scott et al., 2011). For example, Pasifika people are twice as likely to be admitted to hospital with a preventable chronic disease, e.g. obesity, type 2 diabetes and cardiovascular diseases (Queensland Health, 2011; Hill et al., 2017). Data from populations of Pacific Islands have described a 'noncommunicable diseases (NCDs) crisis' responsible for 70% of all deaths with alarmingly high prevalence of modifiable risk factors including smoking, alcohol intake and physical inactivity (Kessaram et al., 2015). Urbanization, migration and subsequent acculturation have been identified as key factors influencing the nutritional behaviours and levels of physical activity of many Pasifika in the area, adding to the increasing risks for chronic diseases (WHO, 2010).

Physical activity, defined as 'any bodily movement produced by skeletal muscles that results in energy expenditure' (Caspersen et al., 1985), and cardiorespiratory fitness are strong and independent predictors of cardiovascular and metabolic health as well as all-cause mortality (Wahid et al., 2016; Huang et al., 2022). An updated definition for physical activity by Piggan considers the broader sociocultural aspects of physical activity, i.e. 'people moving, acting and performing within culturally specific spaces and contexts, and influenced

by a unique array of interests, emotions, ideas, instructions and relationships' (Piggan, 2020). Importantly, individuals who engage in more physical activity have a reduced risk of cardiovascular diseases and diabetes and lower mortality rates, independent of changes in weight (Barry et al., 2014). Additionally, physical activity is effective in improving symptoms associated with mental illnesses, including depression, anxiety and trauma (Firth et al., 2020; Sabe et al., 2022), and there is emerging research which points to physical activity as a potential protective factor against specific mental illnesses including depression and psychosis (Firth et al., 2020; Pearce et al., 2022).

Currently, Pasifika communities in Australia face limited access to culturally tailored physical activity programs. Given the potential benefits of physical activity in enhancing community well-being, reducing social isolation and building social capital (Brady et al., 2020), there is a need to improve access to physical activity initiatives that meet the needs of this community. Efforts to improve health through tailored lifestyle programs, including physical activity, have shown some success among Pasifika communities (Ni Mhurchu et al., 2019; Firestone et al., 2021). However, many interventions fail to integrate cultural, psychosocial and behavioural considerations, rendering them not culturally responsive and misaligned with the communities' needs, beliefs and values (Palu et al., 2022). This disconnect is often due to an inadequate level of community consultation and a lack of appreciation for sociocultural values. That said, recent work by Ndwiga and colleagues (Ndwiga et al., 2020, 2021), including initiatives such as the *Le Taeao Afua* program in South Western Sydney, exemplifies research that successfully engaged Samoan communities to co-develop and implement culturally responsive, church-based lifestyle interventions to address diabetes and its key risk factors, including physical activity. Despite these successes, examples of initiatives that leverage 'lived experience' through participatory research methods like co-design remains scarce, and limited access to sustainable, culturally responsive health initiatives for Pasifika communities in Australia persists (Akbar et al., 2023). This reinforces the need to consult further with communities to expand, replicate and adapt existing programs to develop culturally appropriate, sustainable solutions to health inequities, thus improving health outcomes for the broader Pasifika community.

Community-based participatory research through Talanoa

Consultation and collaboration require a focus on improving access to evidence-based health services that are tailored to the needs of the community, are culturally safe and tackle systemic barriers, thereby improving well-being and equity for Pasifika communities in Australia (Ndwiga et al., 2021). Community-based participatory research (CBPR) involving co-design allows people with lived experiences to have a significant influence in shaping the services and programs they use, encapsulated in the ethos 'design with, not for people' (McKercher, 2020). The co-design process can be delivered through various means, often rooted in Western consultation methods. To better suit the cultural and social needs of the target population, the Talanoa method has been utilized to facilitate CBPR. Talanoa is a cultural practice recognized in many Pasifika communities, encompassing an oratory tradition that combines 'tala' (to tell or talk) and 'noa' (anything or nothing in particular) (Fa'avae et al., 2016). The nature and focus of Talanoa are determined by the participants' interests, surroundings and worldviews, and it can occur formally or informally and between two people or within a group.

Talanoa can also be used in research contexts through CBPR methods that reflect the lived experiences and cultural practices of Pasifika people, particularly those from Samoa, Fiji, Tonga, Cook Islands, Niue, Hawai'i and the Solomon Islands (Vaiotele, 2006). Numerous studies have successfully employed Talanoa in research to gather insights into Pasifika health and well-being (Vaka et al., 2016; Akbar et al., 2023), yet despite their benefits, such cultural participatory approaches are underutilized within health promotion initiatives.

With this context, CBPR involving Talanoa was utilized to identify the essential elements required to inform the rollout of a culturally tailored and responsive physical activity program for Pasifika communities in Sydney's Western Suburbs. This manuscript aims to (i) describe the key stages which led to the formation of the 'Pasifika Moving' research team, (ii) detail the culturally responsive CBPR methods (i.e. 'Talanoa') used in co-designing a physical activity program and (iii) outline findings from these Talanoa according to a Pasifika model of health, being the Fonofale model and, finally, (iv) describe key lessons learned.

METHODS

Adopting CBRP

With CBPR and co-design recognized as the gold standard in facilitating collaboration between community stakeholders

and academic researchers (Wallerstein and Duran, 2010), co-design methodology was central in informing the design and implementation of a culturally responsive physical activity program and followed four key stages (i.e. Engage, Gather, Understand and Improve) as outlined in the NSW Government Agency for Clinical Innovation *Co-design Toolkit* [Agency for Clinical Innovation (ACI), 2024] (see Figure 1). Below, we outline the methodology used at each stage, noting that each successive stage was shaped by the insights gained from the previous one. This allowed for a flexible and iterative research approach, aligning with the feedback and advice from various stakeholders engaged throughout the process.

Engage—Stage 1

The need to address health disparities in Pasifika communities arose from a clear gap in accessible physical activity initiatives in Western Sydney. This was highlighted by a respected leader, health worker and health advocate in the Western Sydney Pasifika community. It is well-recognized that 'champions' play a pivotal role in driving health interventions by leveraging their influence and fostering trust, which significantly enhances the effectiveness and sustainability of such initiatives (Wood et al., 2020). Further, these champions provide crucial leadership, credibility and motivation within the community, which is essential to building community capacity and program sustainability.

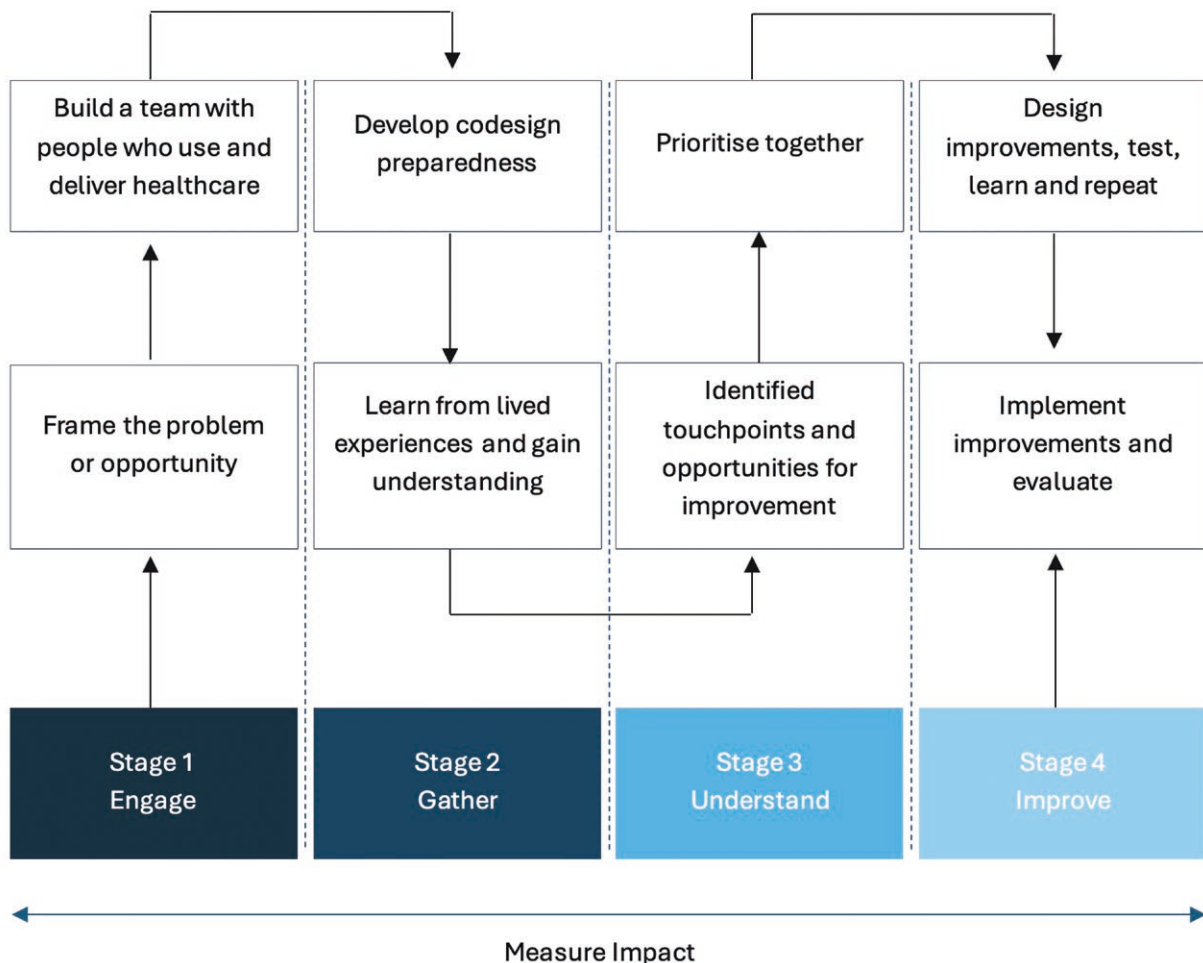


Fig. 1: Stages of co-design. Adapted from NSW Government Agency for Clinical Innovation. (2024) *Co-design Toolkit*. Retrieved 28 June 2024, from <https://aci.health.nsw.gov.au/projects/co-design/step-by-step>. © Copyright – Agency for Clinical Innovation 2024.

Engagement with the broader research team was achieved by leveraging existing relationships across multiple sectors, including public health [Western Sydney Local Health District (WSLHD)], community organizations (Collective Leisure) and academia [University of Technology Sydney (UTS)]. The local champion and health worker from the Pasifika community played a vital role in facilitating this collaboration. It was through this newly formed partnership between WSLHD, Collective Leisure and UTS that the *Pasifika Moving* team was formed, and a proposal for a physical activity program was conceived, specifically designed by Pasifika communities in Western Sydney. Shortly after, seed funding was secured through the UTS Social Impact Grant Scheme, supporting community-engaged research to generate insights that will inform the design and implementation of future culturally responsive programs. Existing relationships between a dominant Pasifika health network in the local area, Pacific Island Mount Druitt Action Network (PIMDAN), was essential, as endorsement from this network enabled for program promotion and recruitment to the research program. Moreover, these collaborations laid the foundations for further connections and relationships, providing potential opportunities for wider reach and engagement with more Pasifika communities.

Formation of a Pasifika Moving Advisory Committee consisting of experts in Pasifika Health, Academics in physical activity research and individuals with lived experience (i.e. Pasifika people residing in Sydney's Western Suburbs) served as an additional critical point of engagement. The aim of the Advisory Committee was to understand the current health status and priorities for Pasifika people in Western Sydney and to advise on the strategic direction and implementation of a culturally responsive physical activity program. This included advice surrounding recruitment methods, data collection, promotion and dissemination. These recommendations would lay the foundation for the following stages of the co-design process (described below in Stages 2–4 of the methodology, with the outcomes of each stage reported in the 'Results' section). The continuous feedback and recommendations from the Committee, through regular meetings, were integral to informing and improving each phase of the co-design process.

Gather—Stage 2

Talanoa was identified as the most appropriate and effective method for gathering community insights on preferences, perceived barriers, strengths and practical considerations related to a culturally responsive physical activity program. The Fonofale Model of Health (Pulotu-Endemann and Tu'i-tahi, 2009), a Pasifika model of well-being, was adopted to guide conversations, ensuring that cultural relevance and unique priorities were addressed. Two Talanoa sessions, inviting Pasifika mothers, their families and Pasifika health workers from the local community, were conducted. The sessions were co-led by a Pasifika health worker (Y.P.) experienced in delivering Talanoa, and a non-Pasifika academic team member, experienced in co-design methodology with culturally and linguistically diverse communities (G.M.). Each Talanoa lasted approximately 60 minutes and took place at a facility that was both accessible and familiar to participants. Afternoon tea was provided, and participants were reimbursed for their time. On the advice of the expert Advisory Committee, non-recorded methods of data capture were deemed best suited, minimizing the formality of the Talanoa and ensuring

alignment with cultural practices. Instead, participants documented their views in response to guiding questions through interactive group activities that involved writing responses on butchers' paper. With participants consent, field notes were also taken during each Talanoa by a member of the Pasifika Moving research team. This project was approved by the UTS Human Research Ethics Committee (approval number: ETH24-9524).

Recruitment for Talanoa

Members of the Pasifika community were recruited to the Talanoa's through local advocacy and promotion within the WSLHD's Multicultural Health Service and Priority Populations team at a local Multicultural Community Health Centre. Additionally, in-services at community groups, including the PIMDAN, were conducted. Through the support and endorsement of PIMDAN, information about the program was further distributed on the PIMDAN social media page to reach a wider audience. A QR code was created to allow participants to express interest easily, and those who scanned the code were subsequently contacted by a member of the research team for further information. This ensured that recruitment was both targeted and leveraged existing platforms. Inclusion criteria required participants to self-identify as members of Western Sydney's Pasifika community, while exclusion criteria involved individuals who were unable to commit to the Talanoa sessions.

Understand—Stage 3

In defining the key priorities for a culturally responsive physical activity program, Talanoa data were evaluated under the culturally specific health framework of the Fonofale Model of Health (see Figure 2). The Fonofale model was used to ensure that the guiding principles for a future program align with health beliefs that are significant to the Pasifika community.

Improve—Stage 4

On the guidance of the Pasifika Moving Advisory Committee, it was recommended that a 12-week pilot program be implemented, based on the findings from the Talanoa sessions, with an evaluation framework to allow participant feedback for continuous improvement. Ongoing research is crucial to assess the program's feasibility, acceptability and effectiveness, providing guidance for future expansion and replication. Engaging the community and considering cultural and practical factors through Talanoa and Pasifika health models were highlighted as essential for designing, delivering and refining a pilot program. Outcome measures and research strategies should be selected for their feasibility, cultural sensitivity and relevance to the target population.

Data collection and evaluation methods

Data collection varied between each stage of the program's implementation, aligning with co-design principles. These data collection methods are described below.

Engage: Advisory Committee recommendations

The information gathered during the meetings of the Pasifika Moving Advisory Committee was systematically recorded in minutes, which were subsequently reviewed and summarized to extract key recommendations.

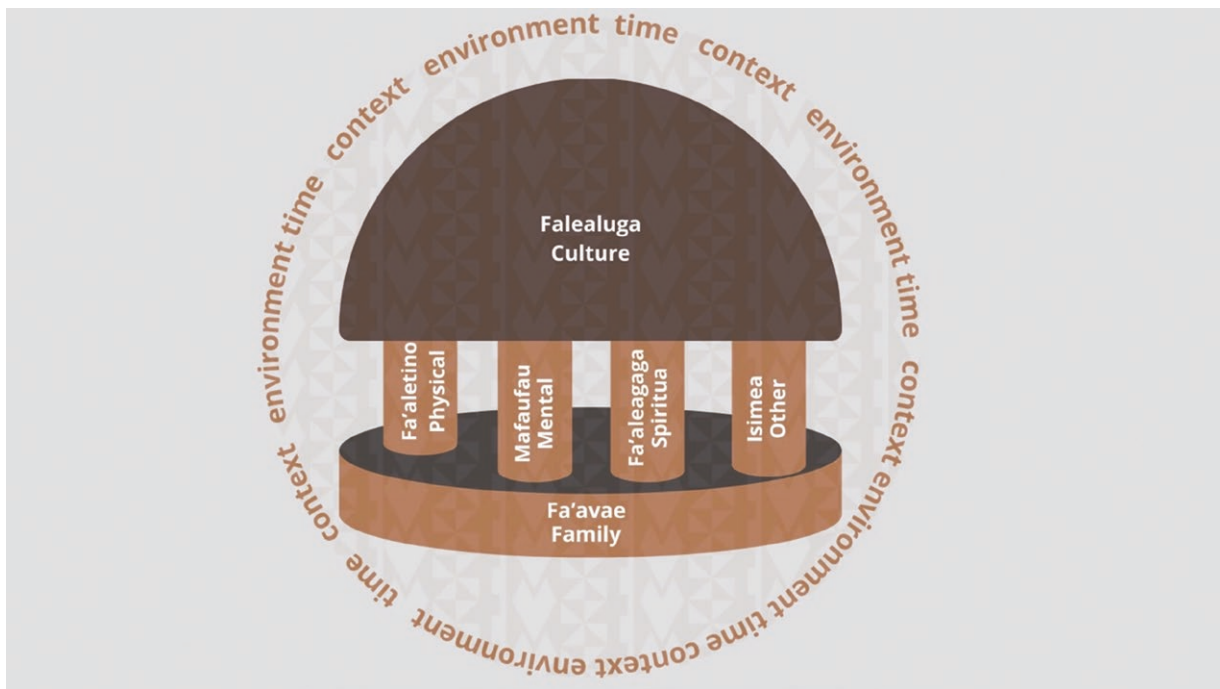


Fig. 2: Fonofale Model of Health (Moors-Mailei *et al.*, 2022).

Gather and understand: Talanoa

Data collected through Talanoa sessions were coded independently using deductive thematic analysis (Hsieh and Shannon, 2005) by two members of the Pasifika Moving research team: O.L. and A.M.-M. This study adopted a constructivist epistemological approach, recognizing that knowledge is co-constructed through interactions within specific cultural contexts, which aligns with the collaborative and relational nature of Talanoa (Kingsman and Davis, 2024). A member of team and the Pasifika community (A.M.-M.) provided a cultural lens during the data interpretation process, ensuring that the analysis was culturally informed and aligned with the values and nuances of the Pasifika community. Any discrepancies in interpretation were discussed and further clarity sought by another Pasifika member of the research team (Y.P.). This reflexive approach allowed team members to critically examine their influence on the research, considering how cultural backgrounds and implicit knowledge shaped the insights and interpretations derived from the data. The deductive analysis involved grouping outcomes according to the broad aspects of the Fonofale model, thereby ensuring that all elements of Pasifika health were comprehensively considered. This methodology has been successfully used in other research (Savila *et al.*, 2022) to evaluate qualitative data within Pasifika contexts. This approach allowed for a comprehensive understanding of the community's needs, addressing the foundation (family), the posts (physical, spiritual, mental and other dimensions of well-being), the roof (cultural values and beliefs) and the cocoon (the surrounding context, including environment and socio-economic conditions). By theming the data in this way, research team could comprehensively address each component of Pasifika health, ensuring a holistic and culturally responsive approach to physical activity.

Improve: pilot program

The outcome measures for a 12-week pilot physical activity program were determined by the Pasifika Moving research

team, with review and endorsement by the Advisory Committee. These measures also aligned with the 'Improve' phase of the Plan, Do, Study, Act (PDSA) cycle by facilitating systematic testing of changes, enabling continuous improvement (Taylor *et al.*, 2014). Table 1 describes the key outcome measures to be obtained through a pilot culturally responsive physical activity program.

RESULTS

Engage: Advisory Committee recommendations

Participants

The Advisory Committee consisted of 11 members with diverse expertise, including clinical practitioners, academics, and individuals with lived experience. Of these members, 70% identified as having a Pasifika background, 83% resided in Australia and 17% were based in Aotearoa (New Zealand).

Advisory Committee outcomes

The Advisory Committee identified key opportunities and considerations for a pilot program. Minutes and action items from each meeting were captured, and key recommendations were documented, as presented in Table 2.

Gather and understand: Talanoa

Participants

A key outcome from the Advisory Committee was the recognition of the need to prioritize 'Pasifika Mothers' as the target population. While Pasifika Mothers were the primary focus, family members were also invited to participate in Talanoas, allowing for the inclusion of broader familial perspectives on the experiences and challenges faced by Pasifika Mothers. Talanoa 1 consisted of seven participants and three children, and Talanoa 2 included nine participants and three children. Participants were predominately female ($n = 15$, 93%), as per the target population of 'Pasifika Mothers'.

Table 1: Outcome measures for a pilot culturally responsive physical activity program

Aspect	Method of evaluation
Feasibility	Descriptive data capturing; number of enrolments, weekly attendance and frequency of participation and dropout rates
Acceptability	Qualitative interviews (post-program) exploring participants experiences, satisfaction with the program, cultural relevance of activities, identified barriers and facilitators faced by participants and suggestions for improvement
Effectiveness	Mixed methods
	Qualitative interviews (post-program) using deductive thematic analysis to capture participants perceived effectiveness on health outcomes.
	Quantitative data—pre- and post-program outcome measures including physical activity levels, social connectedness and quality of life.

Table 2: Key recommendations from the Advisory Committee ($n = 11$)

Recommendation	Description
Tailored	The program needs to be designed to meet the community's needs and be culturally responsive.
Targeted	Recognizing the non-homogeneous nature of the Pasifika community, the program should target specific groups, particularly mothers, who are central to Pasifika families and often overlooked as a priority group. By addressing the specific needs of Pasifika mothers, who are high-risk, under-resourced and influential community leaders, a physical activity program could enhance their well-being and foster healthier lifestyles within the broader Pasifika community.
Culturally responsive research	Emphasized the importance of co-design using Talanoa approaches to ensure community engagement and relevance. Emphasized the importance of adopting Pasifika health frameworks, i.e. the 'Fonofale Model of Health' in the evaluation strategy
Community-driven initiatives	Encouraged initiatives driven by the community to foster ownership and sustainability.
Engage Pasifika community leaders and networks	Including community leaders and organizations (i.e. the PIMDAN) to strengthen the program's impact, reach and engagement.
Pilot program	Conduct a 12-week pilot program to obtain key information about its feasibility and acceptability with a focus on integrating culturally relevant evaluations under Pasifika models of health and ensuring continued feedback from the community. Focus on outcomes that are achievable to collect given the nature of the program and target population, ensuring they account for program feasibility, acceptability and effectiveness.
Holistic focus	Centre health messaging and outcomes within the pilot program on a holistic approach to health and well-being, rather than on clinical or disease-focused outcomes like weight loss.

Talanoa outcomes

Key outcomes from the Talanoa are described in [Table 3](#). Quotation marks in the table reflect comments made by the participants. Further descriptions surrounding each quotation provides contextual reference and clarity for the brief quotes, which were hand written as brief statements or quoted from written field notes. Examples of these comments are shown in [Figure 3](#).

Key aspirations for a physical activity program

In addition to data surrounding the 'Factors influencing engagement in physical activity for Pasifika Mothers', participants also identified their key hopes and aspirations for the program. These are summarized below.

1. Participants expressed a strong desire for a 'community vibe' and a positive, supportive environment in physical activity programs. Community, connection and support were repeatedly mentioned as key factors, with participants expressing the need for group-based programs that are accessible, inclusive and community-led, with opportunities for socializing and building relationships.
2. The need for a 'holistic approach' that includes fitness, nutrition and mental health was highlighted, with a focus on creating programs that cater to all fitness levels and ages.

3. There was a call for programs that offer variety and choice, with different activities like dance, boxing, swimming and yoga, ensuring that participants have control and agency over their involvement. The importance of culturally sensitive coaching, where coaches understand individual differences and can modify programs to suit personal needs, was emphasized.
4. Participants also discussed the need for ongoing support, with small class sizes, free food and flexibility in joining programs. The inclusion of goals, accountability measures, and the potential for participants to become champions and recruit others to the program were also noted.

DISCUSSION

The results from this research represent an important step forward in addressing health disparities within the Pasifika community in Western Sydney through culturally responsive and community-led initiatives. To the best of our knowledge, this research is the first of its kind to utilize Talanoa and the Fonofale Model of Health to co-design a community physical activity program for Pasifika communities in Australia. The key finding was the importance of prioritizing Pasifika mothers while incorporating social and cultural perspectives to create culturally responsive and inclusive

Table 3: Deductive analysis of Talanoa outcomes with respect to the Fonofale Model of Health domains ($n = 15$)

Domains of Fonofale Model of Health	Factors influencing engagement in physical activity for Pasifika mothers
The Cocoon: Time, Environment and Context	<p>Time</p> <p>Scheduling conflicts: ‘Schedule and time’ and ‘Too busy with work’, reflecting the competing demands on participants time, making it challenging to find time for physical activity and prioritize personal health. ‘Morning classes’ and ‘evening classes’ were suggested to accommodate different schedules, indicating a need for flexible program times.</p> <p>Environment</p> <p>Environmental barriers: The need for supportive, non-judgmental spaces was emphasized by the barrier ‘No judgment’.</p> <p>Participants shared a desire for a <i>supportive community environment</i> that fosters motivation and accountability. ‘Community vibe’, ‘Support with mental health’, ‘Creating a community’, ‘Buddy system to help with motivation and transport’.</p> <p>Participants discussed the importance of <i>creating culturally safe</i> and non-judgmental environments where they can engage in physical activity without feeling out of place or uncomfortable. This includes addressing cultural taboos and fostering open discussions about health and well-being.</p> <p>Accessibility: ‘Location, things are too far’, ‘Childcare facilities at the exercise program’, emphasizing how environmental context and accessibility impact participation.</p> <p>Context</p> <p>Social and environmental status: ‘If parents are at work, how would they get here? If the person with the car is at work how would the stay-at-home parent get here?’ reflects how socioeconomic and environmental factors directly affect participants’ engagement in the program.</p> <p>Community trust: Building trust within the community was seen as crucial for the success of the program. Participants highlighted the need for trust in the program organizers and for the program to be genuinely aligned with cultural values. ‘Where and who is making the event? (we) Need trust’.</p> <p>‘There’s a lot of people with good opinions, how do we get them to things if they don’t know? We need information to get to the right people’.</p>
Fa’avae (Foundation): Family	<p>Intergenerational expectations: ‘Her dad wasn’t even just taking care of his family but taking care of his parents to the detriment of his own families’, ‘Looking after parents, siblings, children’, ‘It’s the kids duty and responsibility to care for the parents’ reveals that there is a strong cultural expectation for children to care for their elders, which often overrides personal health priorities illustrating the complexities and dynamics of intergenerational roles.</p> <p>Caregiving responsibilities: Family care responsibilities, including ‘looking after parents’ and ‘siblings’ were mentioned as major commitments that overshadow personal health priorities. A strong cultural expectation exists for participants to care for their parents, which often takes precedence over their own health and well-being. This duty can limit their availability for participating in physical activities. Participants indicated that when ‘kids are sick’, mothers must stay home.</p> <p>Impact on personal health: ‘She is trying to change the cycle with her kids’, highlighting the struggle to balance family responsibilities with personal well-being.</p> <p>Cultural/gender roles within family: ‘You aren’t going to training; my dinner isn’t ready’, ‘My mum would be worried about my absence. She would want to come to the program with me’, indicating how traditional gender roles within the family can limit women’s participation in health-promoting activities.</p>
Pou (The Posts): Physical, Spiritual, Mental and Other Aspects of Health	<p>Physical</p> <p>Physical barriers: ‘Particularly for older people, this is an issue’ and ‘Being physically limited’.</p> <p>Chronic health conditions: ‘By age 30 she was diabetic, and she had no push or drive to want to do anything’, indicating how chronic conditions affect physical well-being.</p> <p>Clothing and gear: ‘Do not have the right sports bras’, and ‘You have to wear big, long shirts so that people can’t see your bum’, describing how lack of appropriate attire as well as the cultural expectations around modesty can influence their participation in physical activity.</p> <p>Transportation issues: ‘Transport, things are too far’, emphasizing the challenges posed by limited access to transportation.</p> <p>Mental</p> <p>Mental health struggles: ‘Mental health’, including the impact of ‘trauma’, were frequently cited. Participants discussed challenges with ‘excuses’, and the internal barriers these create. Issues such as ‘confidence’, ‘self-image’ and ‘insecurity’ were highlighted as important factors influencing participation, e.g. ‘Feeling like an idiot when not knowing how to do exercises’.</p> <p>Stress and motivation: ‘The mind, you want to, and what excuse do I have today?’, illustrating the internal motivational barriers to engaging in physical activity.</p> <p>Caregiver stress: ‘She breaks down sometimes looking after her mum and dad and what they are going through’, reflecting the mental health toll of caregiving.</p>

Table 3. Continued

Domains of Fonofale Model of Health	Factors influencing engagement in physical activity for Pasifika mothers
Falealuga (Roof): Cultural Beliefs and Values	<p>Cultural beliefs</p> <p>Beliefs: ‘There is still a belief within families that going to exercise is selfish’, connecting cultural beliefs to mental health challenges.</p> <p>‘In Samoan culture, it is taboo to talk about certain things’, reflecting how cultural norms restrict open discussions about health. ‘Choosing what you want from culture, taking the good because there is so much good stuff’, reflecting a need for participants to navigate cultural practices selectively to enhance their engagement in physical activity.</p> <p>Cultural values</p> <p><i>Culturally responsiveness</i> was highlighted as a key concern. ‘Slapping “Pasifika” on the front of it doesn’t make it relevant’. ‘Different speakers from different backgrounds make sure they are culturally appropriate’.</p> <p><i>Cultural expectations and norms</i> influence participants’ engagement with physical activity and their perceptions of well-being. ‘Our parents only knew so much coming from a small island to a big country. We are blessed and have the privilege of growing up in a country with a lot more opportunity’.</p> <p>Modesty and dress codes: Participants mentioned cultural expectations around modesty, such as the need to wear long clothing, which can be uncomfortable during exercise and act as a barrier to participation. ‘Culture is such a barrier. You have to wear big, long shirts so that people can’t see your bum and I sweat a lot, but I have to cover up so much...I don’t go to some church things because of dress expectations’.</p>

health interventions that address the unique challenges faced by Pasifika communities. Community-based participatory research was central to the success of this research. This was achieved through engaging, gathering, understanding and improving on the research, in collaboration with the Pasifika community.

During the engagement stage, the Advisory Committee provided key recommendations, emphasizing the need for a tailored, culturally responsive program that targets specific groups, particularly Pasifika mothers, who are often overlooked yet play a crucial role within their families and communities. By focusing on this specific group, our work builds on recent work by Ndwiga and colleagues (Ndwiga *et al.*, 2020, 2021) by examining the unique social, cultural and gender-related factors that influence the health of Pasifika mothers, thereby deepening our understanding of how to design and deliver health interventions that resonate with their specific needs. This approach not only promotes inclusivity but also addresses broader health disparities by empowering Pasifika mothers to engage in health-promoting behaviours, ultimately fostering sustainable improvements in health outcomes for the entire community.

Another complementary yet distinct aspect of our study was the emphasis on physical activity not only as a means to reduce health risks, such as diabetes, but also as a pathway to enhance social, mental and cultural well-being. This aligns with feedback from the Talanoa sessions, where participants expressed a preference for cultural dance, body-positivity (where body weight is not a primary focus), and the inclusion of social components around the program to foster cohesion and connectedness. These outcomes align with research indicating that, for physical activity to be sustainable, it should be enjoyable, intrinsically motivating and consistent with social and cultural values (Teixeira *et al.*, 2012). Evidence further suggests that physical activity can independently improve cardiometabolic health and mental well-being, even without weight changes, supporting the need to health messaging surrounding physical activity (Barry *et al.*, 2014; Stubbs *et al.*, 2018).

Through the gathering and understanding stages, the Talanoa approach and the Fonofale Model of Health framework

allowed the research team to collect and evaluate vital information while aligning with Pasifika cultural values and practices. Through this undertaking, key learnings were gathered surrounding the essential role of cultural values and social structures within Pasifika life. Our findings build on previous work by Shahab *et al.* (Shahab *et al.*, 2019) and Dearie *et al.* (Dearie *et al.*, 2019), who examined perceptions of lifestyle behaviours and their connection to diabetes risk among Pasifika people in Western Sydney. This work highlighted the importance of leveraging existing community groups and social structures (e.g. church), to support engagement and reinforce positive health messages. Taken together, these outcomes demonstrate that incorporating cultural and faith-based elements into health initiatives fosters community acceptance and long-term engagement. This knowledge informs the design of programs that address the unique social, cultural and gender-related needs within Pasifika communities, ultimately enhancing health outcomes and reducing health disparities.

Key learnings

Throughout the stages of co-design, many key learnings have been obtained, both incidentally and from intentional data collected through Advisory Committee feedback and Talanoa. One of the key learnings from this initiative was the effectiveness of informal and culturally relevant Talanoa sessions in engaging participants and eliciting honest feedback, particularly when discussions were not recorded. This approach aligns with the principles outlined by Vaoleti (Vaoleti, 2006), who emphasized the importance of Talanoa as a culturally appropriate method for Pacific research. Additionally, the presence of a local leader or ‘champion’ was pivotal in facilitating community partnerships and enabling effective recruitment, corroborating findings by Seal *et al.* (Seal *et al.*, 2022) that highlight the role of community leaders in successful health interventions. Outreach to local organizations, such as the Blacktown City Council and Wesley Mission, proved instrumental in garnering support for the program. This collaborative approach is consistent with key evidence that advocates for multisectoral partnerships to enhance program reach and sustainability

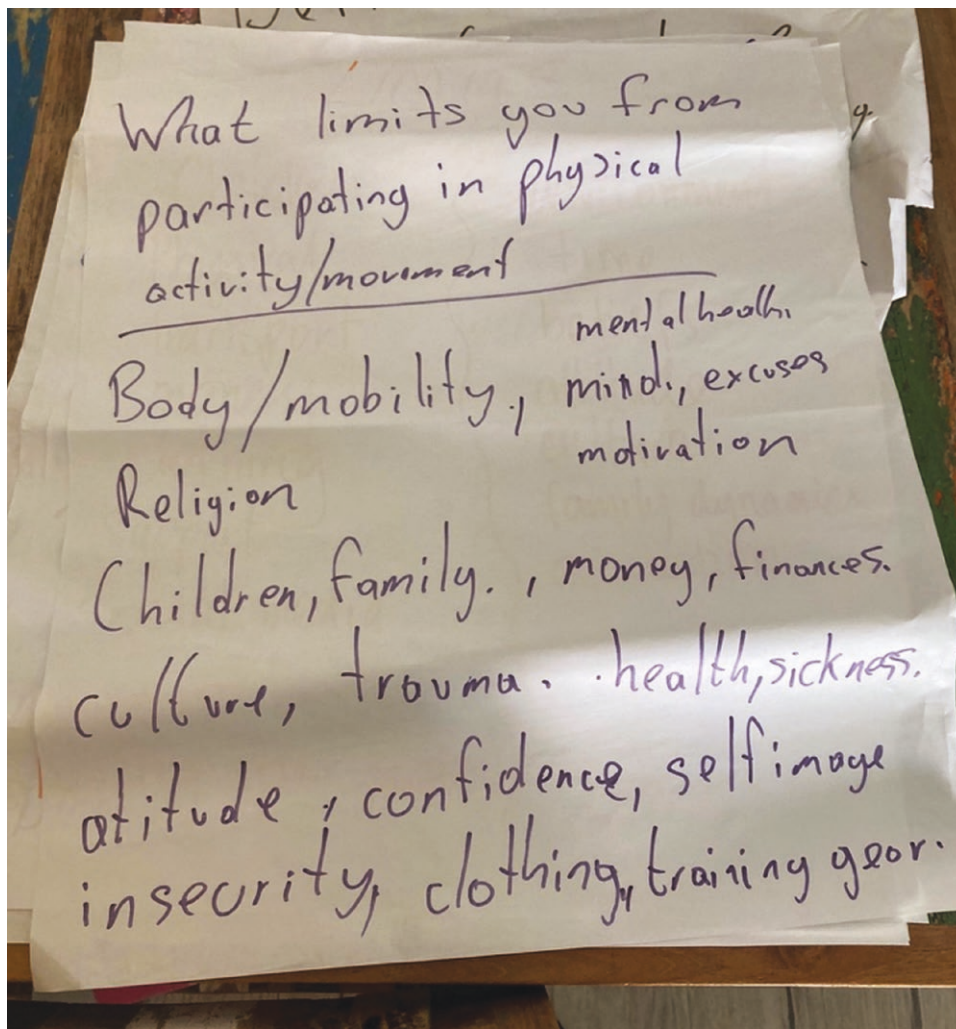


Fig. 3: Example image to reflect the group activity during Talanoa.

(Willis *et al.*, 2017). A recurring theme from both the Advisory Committee and Talanoa sessions was the emphasis on community-driven initiatives, reflecting the principle of self-determination. This was operationalized through the appointment of a Pasifika woman to lead the sessions for Pasifika mothers and by non-Pasifika members of the research team intentionally removing themselves from the physical activity sessions, thereby fostering a sense of ownership among participants. An unexpected yet insightful observation was that despite children not being formally invited, they attended the sessions. This underscores the necessity for future programs to incorporate childcare accommodations, aligning with studies that recognize the importance of addressing familial responsibilities to enhance participation in health services and initiatives (Kangasniemi *et al.*, 2015). Importantly, participants highlighted the need for ‘holistic approaches’ that include both physical activity and nutrition as key elements in reducing chronic disease risk. While the current study focused on developing a culturally relevant physical activity program, it is essential that future programs incorporate nutritional education and provide access to healthy food alternatives. This ensures that physical activity initiatives are responsive to the community’s desires, addressing both movement and dietary habits to support long-term health outcomes.

CONCLUSION

The outcomes generated through each stage of co-design provide insights into the unique cultural and social considerations of Pasifika mothers in Western Sydney. Through these outcomes, this research provides valuable insights to guide the design, implementation and evaluation of a culturally responsive physical activity program for this community. Future directions to ensure the program’s sustainability include advocating for continued funding and fostering collaborations with primary health care networks and Local Health Districts. Additionally, incorporating broader health promotion elements, such as health screenings and educational resources, could enhance the program’s effectiveness and empower participants to better manage their health. These efforts will help expand the program’s reach and impact, leading to improved health outcomes, increased community engagement and a more equitable health care landscape for Pasifika communities in Australia.

AUTHOR CONTRIBUTIONS

O.L., Y.P. and D.B. conceived the idea for the research project. Research study design was led by O.L. and C.M.C. D.B., Y.P. D.B. and G.M. were responsible for data collection. O.L.

and A.M.-M. conducted the analyses. O.L. and A.L. drafted the article, with all other authors, including Y.P., D.B., G.M., C.M.C., A.M.-M. and S.R. critically reviewing and approving the final manuscript.

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CONFLICT OF INTEREST

None declared.

DATA AVAILABILITY

The data underlying this article cannot be shared publicly due to ethical requirements.

ETHICS APPROVAL

This research was approved by UTS Human Research Ethics Committees (ETH24-9524).

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