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First nation voices matter! Multi-level community consultations determine the design elements of a modified sport programme to promote healthy ageing in First Nation men

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ABSTRACT

Public health faces the global impact of rising physical inactivity on health and quality of life. The link between physical activity and health is well recognized, however the effectiveness of health promoting physical activity and sport programmes in First Nation populations is unclear. Study objective: to identify appropriate programmes, design elements and potential participation barriers and enablers: aim to design a sport programme for Sunshine Coast dwelling First Nation Australian men. Qualitative data were collected from two participant groups of First Nation Australian men ≥ 18 years ($n = 23$) and analysed using descriptive summary and content analysis. Multi-level community consultation identified perceived enablers and barriers to participation and sport programme elements. The significant finding was the emergence of the sport programme design through First Nation voices, over multiple levels of community consultation, that facilitated the progression of the research project from stage two to stage three (sport programme implementation).

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Introduction

Public health is faced with the challenge of rising physical inactivity levels that pose health (WHO 2020) and quality of life (QOL) (Pressick et al. 2016) implications in an ageing world population (WHO 2020). Therefore, promoting physical activity participation for all adults, as a channel to enhance health related QOL (Pressick et al. 2016) is an international priority (WHO 2020). Health promoting programmes with a physical activity (Pressick et al. 2016) emphasis have been successful in achieving this (Pressick et al. 2016). Providing a diverse range of appropriate physical activity options for adults including modified versions of

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popular sports (Oliveira et al. 2023) may create more diverse opportunities to increase physical activity. Modified sports are organized sports that provide equitable, (Pressick et al. 2016) accessible (Mendham et al. 2015) and safe sport participation (Oliveira et al. 2023) facilitated by enabling environments (Pressick et al. 2016). These forms of organized sport may decrease barriers to sport participation for all adults and increase overall physical activity.

Significance of modified sport to healthy ageing

Modified sports are played in a team environment and provide companionship and skill development (Pressick et al. 2016), all of which are important to adults particularly as they age (Oliveira et al. 2023). These sports allow adults to continue with structured physical activity that accommodates their changing needs (Oliveira et al. 2023) despite the limitations that may accompany aging. They also provide novel experiences for adults who have never played sport (Bronikowska, Bronikowski, and Schott 2011) opening avenues for participation for a diverse range of adult population groups. Importantly, participation in sport has the potential to contribute to meeting physical activity recommendations (WHO 2020) in aging populations, including First Nation populations across Australia and worldwide. This is significant in the Australian context, as physical activity rates are reported to average 30% for First Nation adults compared to over 50% for other adults (Pressick et al. 2016), in those meeting recommended guidelines (WHO 2020) for physical activity.

Significance of sport to First Nation culture

In recent history, First Nation Australian men and women have played a diverse range of modern competitive sports reaping physical, social and cultural (Browne-Yung et al. 2015) health benefits (Kiran and Knights 2010; McCoy 2012). Group-based team sport can contribute to health and wellbeing (Browne-Yung et al. 2015) beyond physical health (McCoy 2012), however the ongoing impact of colonization (COA 2023) and loss of cultural roles and lifestyles has had a major impact on the health of First Nation Australian men compared to other Australian men. Importantly, team sports can facilitate intergenerational caring, (McCoy 2012; Ricciardelli et al. 2012) promote healthy behaviours through role modelling (Browne-Yung et al. 2015) and create a sense of cultural identity and belonging (McCoy 2012) for First Nation Australian men of all ages. Plus, when played competitively also create connectedness through cooperative problem solving (McCoy 2012) and team bonding (Pressick et al. 2016). These are all significant features of First Nation cultures and contribute to retaining traditional cultural roles (McCoy 2012; Ricciardelli et al. 2012) with a flow on effect to better health outcomes (COA 2023) across the lifespan. Indeed, these features, combined with social, cultural and economic determinants, support physical, social, emotional, cultural, spiritual, and ecological wellbeing (COA 2023), and are recognized gauges of health for all First Nation Australians. However, there is a notable difference between First Nation men and women and their engagement in healthcare at the time they start playing sport. First Nation men more often become disengaged from supports that can safeguard their health (McCoy 2012). Although this disengagement starts in early adolescence (McCoy 2012), the associated health behaviours, particularly chronic disease risk

behaviours, including smoking, alcohol intake (Browne-Yung et al. 2015) and physical inactivity, can continue into adulthood having a severe impact on their health as they age (McCoy 2012). Whereas cultural identity and individuality may have protective benefits and promote positive health behaviour. Therefore, providing culturally appropriate physical activity and/or sport options to promote the long-term health of First Nation men is crucial. It is critical to engage these men in the design process (Rae et al. 2013) to encourage them to participate in a wide and appropriate range of non-mainstream structured physical activities and/or sports.

Significance of First Nation voices to programme design

Listening to First Nation voices, through consultation, enables health promoting physical activity programmes to be tailored to meet the preferences and needs of the community (Bessarab and Ng'andu 2010), identify recruitment and retention strategies (Rae et al. 2013), and facilitate community approval (Pressick et al. 2016). These may also enable participation and reduce potential barriers. Previous research also found consultation to be a key element of effective sport and exercise programme design (Pressick et al. 2016) for First Nation communities in Australia, Canada and New Zealand. Moreover, consultation with First Nation communities demonstrates regard for the core research values of respect, reciprocity and feedback (AIATSI 2020) and facilitates communication (AIA 2022; Cunningham and Beneforti 2005). Multi-level consultation (Rae et al. 2013) with First Nation communities through advisory groups, key organisations, Elders and community members were key aspects identified in the literature (COA 2023). The limited research that exists on the physical activity preferences of First Nation men (Pressick et al. 2016) has identified sports and group-based structured exercise, including walking and running programmes, as preferences (Pressick et al. 2016). These programmes were popular amongst First Nation men in the comparable circumpolar regions of Australia, Canada and New Zealand (Pressick et al. 2016). Engaging with First Nation communities in the design and implementation of culturally appropriate health promoting physical activity programmes to meet their local needs is crucial.

The current study is the second stage of four in the larger research project, Play sport, live better! Each linked stage progresses in the order in which it was undertaken to inform the research then design, implement and evaluate an evidence-based culturally appropriate group-based modified sport program. Specifically, in stage one a systematic literature review (Pressick et al. 2016) was conducted to identify quality research in the field of sport and exercise science to inform further research stages. In stage two, the current study, a multi-level community consultation was conducted to understand community needs and preferences to design the group-based modified sport program. In stage three, the group-based modified sport program that was designed in stage two was implemented to identify health-related QOL and physical activity benefits to participants. In stage four, the group-based modified sport program that was implemented in stage three, was evaluated to inform service providers regarding sustainability. Therefore, the objective of the current study is to identify appropriate sport programmes and their design elements and potential barriers and enablers to participation with the aim to design a sport programme for First Nation Australian men in the Sunshine Coast region.

Methods

Ethical approval

Ethical approval for the study was obtained from the University of the Sunshine Coast Research Ethics Committee via the National Health and Medical Research Council Human Research Ethics Application (S/16/878) and endorsed by the study Research Advisory Committee.

Study context

The current study was conducted from 2016–2017 in the Sunshine Coast region of the state of Queensland where the population of First Nation Australian men, in the national census group aged 15 years and older, totaled 2,116 (QG 2016). This was 3.6% of the Queensland total of 58,439 (QG 2016) which had the second highest First Nation population in Australia. The First Nation community is diverse and dispersed throughout coastal, hinterland and broader sub-tropical regional and rural areas. First Nation health services are delivered primarily by two health services and accessibility to those, as well as community services and programmes, through eligibility and public transport varies.

Study design

The current study was researcher led and community driven through multi-level consultation (Rae et al. 2013) and collaboration for practical application (Liamputtong 2019a). A pragmatic methodology employing two qualitative methods in a single-case study design (Liamputtong 2019a) was used, and data were collected using separate data sets, to gather ideas and perspectives of community stakeholders. The methodology was underpinned by a philosophy that promoted First Nation community capacity and capability building, self-determination (COA 2023) and empowerment through community ownership and leadership (Dudgeon et al. 2014). Researchers focused on working in partnership with the First Nation community using this empowering (Dudgeon et al. 2014) strengths-based approach (COA 2023; Dudgeon et al. 2014). This approach is culturally and ethically appropriate (AIATSIS 2020; Liamputtong 2019b) to attain the most trustworthy results (Canuto et al. 2013; Elo et al. 2014) from health promoting interventions implemented in First Nation communities.

Sampling and participant recruitment

Purposeful and convenience sampling (Liamputtong 2019a), typically used in qualitative research, were both used to concentrate on comparatively small samples (Canuto et al. 2013), identify and recruit two participant groups of relevant informants ($n = 23$), and increase the value of information (Liamputtong 2019b). Cultural safety (Nakata 2007) measures were employed, firstly through a Research Advisory Committee established to provide governance and, secondly through the majority of recruitment and data collection occurring through First Nation networks. Finally, a First Nation mentor provided guidance on cultural protocols for engagement (AIA 2022) with the First Nation community, to

the lead researcher in contact with participants. These measures were identified as being fundamental to acknowledge the First Nation standpoint (Nakata 2007) and to reduce social inequality (Dudgeon et al. 2014; Nakata 2007) and potential power imbalances (Dudgeon et al. 2014; Nakata 2007) between researchers and participants. These imbalances can potentially occur through the cultural interface (Nakata 2007), a figurative space where First Nation cultures and wisdom interrelate with other cultures and ways of understanding.

Group one participants

Group one participants were First Nation Australian adults including Elders, and other members of Research Advisory and/or Programme Steering Committees ($n = 8$). The process involved researchers identifying and approaching key stakeholders and stakeholders selecting the most suitable First Nation individuals as representatives. These stakeholders also identified a suitably trained and respected First Nation Australian male leader to be the sport programme presenter, and a Traditional Custodian who was a respected male Elder and community leader, to name the programme. Both Committees invited other community stakeholders to meetings when the need for additional expertise was identified.

Group two participants

Group two participants self-identified as First Nation Australian men ≥ 18 years ($n = 15$) with interest and readiness to participate in the sport programme when implemented. Potential participants were invited attendees at an information session that was scheduled to raise awareness of the sport programme and recruit participants. The information session was advertised using a flyer distributed within local First Nation and government networks to reach the study community. This information session had low attendance due to 'sorry business', a cultural mourning custom, and clashed with other community groups and activities. Consequently, the attending Programme Steering Committee and organisation representatives met to discuss progress strategies, where it was decided that more extensive advertising would be undertaken. The information session was rescheduled to the proposed sport programme start day. This session was informally led by the sport programme presenter assisted by the Programme Steering Committee and included a research overview and socialising during refreshments. The sport programme presenter verbally invited all attendees to participate in the research.

Data collection and analysis

Data were collected using a multi-level community consultation approach that employed two qualitative methods (Figure 1). This multi-level approach where consultation was conducted at all levels of the community were key aspects identified in similar contemporary research (Oliveira et al. 2023). The first method was through meetings with group one participants, through project governance structures, to identify appropriate sport programmes and their design. The second method was using a questionnaire with group two participants, to identify potential barriers and enablers to participation.

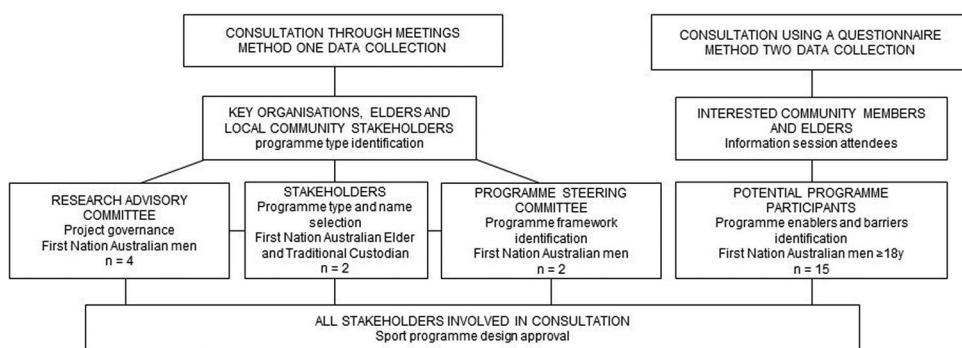


Figure 1. Flow diagram of the multi-level community consultation, qualitative data collection methods and participant recruitment to design a sport programme.

Method one data collection and analysis

Method one data collection was through meetings with group one participants operating under unanimously agreed terms of reference that indicated informed consent. The meetings were conducted using a nominal group technique (McMillan, King, and Tully 2016). Members could generate ideas, problem-solve and reach consensus on priorities in a face-to-face conversational style suited to First Nation members. The Research Advisory Committee met quarterly throughout 2016 and 2017 to provide guidance and governance and from which advice and approval was sought when consulting with the study community. The Programme Steering Committee met monthly then fortnightly, throughout 2016 and 2017, to drive the planning and implementation of the sport programme. This committee shaped the sport programme prior to consultation with potential participants then, following all data collection, identified elements specific to the community and context to design the sport programme for stakeholder approval. Data from meetings were manually summarized by one of the members during meetings. This descriptive summary included sport programme priorities and consensus items. The lead researcher documented the summary into meeting minutes. Members were invited, by email and in the following meeting, to review the minutes for accuracy and give their approval when satisfied. This process served to verify the data.

Method two data collection and analysis

Method two was via a questionnaire completed by group two participants, the completion of which was facilitated by yarning circles. These are the major form of communication for First Nation people for the sharing of knowledge among generations. It is a culturally appropriate tool to facilitate the collection of data and is used to build a relationship, establish rapport, and create a relaxed environment for participants (Bessarab and Ng'andu 2010). Participants were given the Research Project Information Sheet and provided written informed consent via a sign-on sheet. Small yarning circles were formed, with each circle of participants sitting at a separate round table. Yarning was conducted by the sport programme presenter who directed yarning using questions from the questionnaire. Yarning assisted each participant to consider their perspectives on

yarning topics and write their responses to associated rated closed-ended and open-ended questions. Responses to three rated closed-ended questions were prioritized according to one of three priority levels that were based on the importance of each for sport programme inclusion. The prioritisation method was uncomplicated for participants comprehension yet provided insight on the importance of each. At this stage of the data collection process participants were aware of the results of method one data collection and that the sport programme would be based on traditional games. The rated closed-ended questions were:

How important to you are these four elements of a traditional games programme:

- (1) *Playing a variety of games or sports?*
- (2) *Having some sports skills included in each session?*
- (3) *Playing in a non-competitive environment?*

Responses to four open-ended questions explored potential participation enablers and barriers by inviting more elaborate and descriptive responses. The open-ended questions were:

- (1) *What things would assist you to participate weekly?*
- (2) *What things might stop you from participating weekly?*
- (3) *If you would like to participate but not play, what would you like to do?*
- (4) *Other suggestions?*

To support inclusiveness and cultural values, participants with literacy limitations were assisted by peers. This catered for all intellectual abilities and respected the right for equal participation in the consultation process, an internationally held view (AIATSIS 2020). All questions, including importance category ratings, were developed by the Programme Steering Committee to understand and meet participant needs and to assist with sport programme design. Following consultation all stakeholders were informed of the sport programme design and invited to provide comment and final approval. Data were analysed using a three-step content analysis. This method allows exploration of concepts using uncomplicated objective and systematic reporting of recurring subjects and data quantification (Elo et al. 2014). It is appropriate in First Nation research where storytelling, through yarning, is portrayed through the First Nation voice. Step one: data were examined and prepared using previously selected priority areas. Step two: data from rated closed-ended questions were organized into one of three preference types based on importance. Data from open-ended questions were grouped into categories (participation enablers and barriers) that were selected based on the number of times a subject occurred in the text. Step three: data were reported numerically based on the analysis in the first two steps. Together these provided new insights that informed sport programme design and assisted to determine the quality and trustworthiness of findings (Elo et al. 2014) for practical application. Data were verified by the lead researcher at all steps in the analysis using a critical search to identify elements that appeared supportive or contradictory to emerging patterns. In this way the analysis was refined through every step until it represented most perspectives.

Findings

Method one results

Method one results, incorporating sport programme design elements, priorities and consensus items are summarized in [Table 1](#). Group one participants determined that the sport programme would be a traditional games programme with a First Nation name, the Gibir Galangur Program. The philosophy would be inclusive with a physical activity level of low to moderate intensity and include the provision of cost-free transport and refreshments to participants. This philosophy would cater for all physical capacities, abilities and economic circumstances. The sport programme would be implemented in a familiar and accessible community facility and location plus be flexibly scheduled to suit availability of participants and leaders, and calendar events during the implementation period. Ongoing participant consultation during implementation through yarning activities would be included. This would provide further insight for minor design modifications to the games, intensity and competitiveness to be made, thus accommodating changing participant needs and preferences to enhance participation.

Method two results

Method two results are summarized in [Table 2](#). These include responses to rated closed-ended questions regarding important sport programme elements to be incorporated, plus responses to rated closed-ended questions regarding perceived enablers and barriers to participation. All of the 15 group two participants responded to rated closed-ended questions. Most revealed it was important to include a variety of games ($n = 11$) and sports skills ($n = 9$). A similarly high number ($n = 9$) reported they did not mind if they played in a non-competitive environment or selected their own team names. Twelve of the 15 group two participants responded to open-ended questions which were written predominantly in one to two words, with some participants responding in more detail. Enablers to participation were: transport provision ($n = 5$); having good health ($n = 2$); low-moderate physical activity intensity ($n = 1$); having the motivation to participate ($n = 1$); interest in the sport programme ($n = 1$); including interesting activities such as art and music ($n = 3$); individual exercises ($n = 1$); enabling interested participants to take a leadership role in coordinating activities ($n = 1$); socialising ($n = 1$); and any activity ($n = 1$). The quotes presented hereafter are illustrative examples of participant responses.

Table 1. Results: method one, consultation through meetings. Summary of modified sport programme design elements, priorities and consensus items.

Sport programme design elements	Sport programme priorities and consensus items
Type	Traditional games
Name	Gibir Galangur Programme
Philosophy	Inclusive of all abilities and economic circumstances
Physical activity level	Low – moderate intensity
Facility and location	Familiar and accessible community recreation facility
Scheduling	To suit availability of participants and leaders, and calendar events during implementation
Design modifications	On-going consultation with participants during implementation

Table 2. Results: method two, consultation using a questionnaire. Summary of rated closed-ended and open-ended question responses.

Rated closed-ended prompt questions and responses (n)	Summary of open-ended prompt question responses (n)						
	<i>How important to you are these four elements of a traditional games programme?</i>			<i>Enablers to participation</i> / <i>Barriers to participation</i>			
	<i>Not important</i>	<i>Don't mind</i>	<i>Important</i>				
1. Playing a variety of games or sports?	1	3	11	Transport provision	5	Lack of transport	3
2. Having some sports skills included in each session?	0	6	9	Good health	2	Poor health	4
				Appropriate intensity	1	Competing interests	2
				Motivation/Interest	2	Boredom	1
3. Playing in a non-competitive environment?	2	9	4	Other or any activities	5		
				Leadership/Socialising	2		

One participant considered the following three sport programme elements to be enablers to participation.

'Keep us all active and interesting'
'Happy to be involved in anything'
'Explore re process of Didgeridoo'

Other participants considered four further sport programme elements to be enablers to participation.

'Depend on my emotional state'
'No heavy lifting'
'Have a go at anything'
'Going out with friends'

Barriers to participation were: poor health ($n = 4$); lack of transport ($n = 3$); having other competing commitments ($n = 2$); and boredom in the sport programme ($n = 1$). Participants considered the following five sport programme elements to be barriers to participation.

'Depend on my emotional state'
'Bad back if playing up'
'Petrol for car'
'Mens group Thursdays'
'Become boring'

Combined results

Findings that were consistent across group one and group two were included in the programme design. These were the provision of transport, participation at a low to moderate physical activity level and socialising. Group one participants combined method one results and method two results and identified elements specific to the community and context to design the sport programme. These specific elements included facility, transport and refreshments providers, programme session design and calendar scheduling. These combined results were incorporated into the sport programme design that is depicted in diagrammatic form in [Figure 2](#).

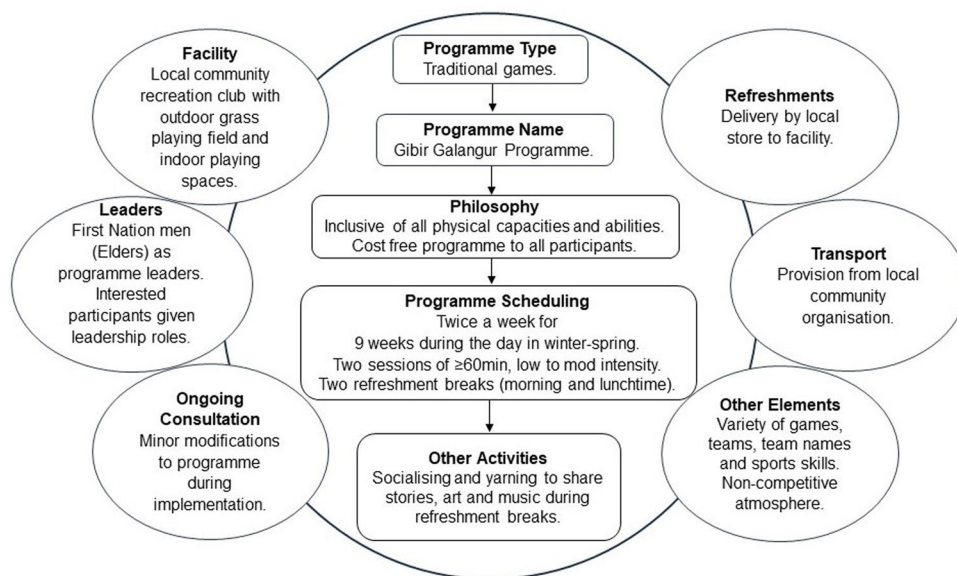


Figure 2. Combined results: diagrammatic representation of the sport programme design.

Discussion

The objective of the current study was to identify appropriate sport programmes and their design elements and potential barriers and enablers to participation with the aim to design a sport programme for First Nation Australian men in the Sunshine Coast region of Australia. Traditional games would form the basis of the sport programme and were chosen as they may be favoured by First Nation Australian men, particularly Elders, as a means to nurture cultural connectedness. This choice took priority over the plethora of modern competitive team sports played in the study region, nationally (AG 2023) and globally by First Nation men, and population groups worldwide. Indeed, traditional games were the first games played by First Nation Australians, and a significant part of the First Nation Australian culture, from which it is considered many modern competitive sports originated (Kiran and Knights 2010). A variety of traditional games were typically played at social gatherings (Kiran and Knights 2010) by First Nation Australian men and women of all ages as a means of teaching life skills, including self-reliance and self-discipline, that are essential to be successful hunter-gatherers (McCoy 2012). Furthermore, in some parts of the Americas, Europe and Asia, traditional games have experienced a revival in the form of festivals, championships and competitions. In comparison, Australia has not experienced the same revival, nor have traditional games been incorporated into mainstream sports events (Edwards 2009). Hence, the choice of traditional games as the sport programme type may be the most culturally appropriate and may also assist to re-energize this cultural practice in modern Australia. Also culturally appropriate, is that the sport programme was given a First Nation local language name that represented health and wellness in men undergoing initiation, a First Nation custom granting rite of passage into manhood. Crucially, sport, including sport programmes, and First Nation customs can work concurrently to promote healthy pathways for young men into adulthood (McCoy

2012) and older age. In contrast, traditional games participation in First Nation and other Australian school children did not improve their sense of belonging through cultural connectedness, likely due to a methodological limitation (Kiran and Knights 2010) that future research could overcome. Specifically, because passive consent was sought from participants and data could not be matched on follow-up to provide detail on cultural connectedness. Whereas, other research demonstrated the benefits of traditional recreational games, including traditional games, on overall performance and QOL in older European adults (Bronikowska, Bronikowski, and Schott 2011). Traditional games can develop the functional motor skills (Dubnewick et al. 2018) necessary for sport participation and be played at any intensity level to match participants' function, aspects that appealed to younger and older population groups in Australia (Kiran and Knights 2010), Canada (Dubnewick et al. 2018) and Europe (Bronikowska, Bronikowski, and Schott 2011). Regardless of mixed findings it has been recommended that including traditional games in organized programmes may add appeal to healthcare programmes implemented in local communities nationally (Kiran and Knights 2010) and internationally (Bronikowska, Bronikowski, and Schott 2011; Dubnewick et al. 2018).

The design elements identified as important in framing the sport programme that were also identified or recommended in other research as enablers to participation were firstly, transport provision (Pressick et al. 2016; Rae et al. 2013) which is of significance in a regional-rural location where public transport may be limited. Secondly, refreshment provision (Pressick et al. 2016) where socialising during yarning in refreshment time was a means to form connections within the participation group for social support. Other elements identified in the current study also found in previous research, were the facility choice (Canuto et al. 2013) and facility accessibility (AG 2023). In the current study, the importance of matching the design elements to participant needs and context was identified as a critical factor in reducing barriers to participation. This was also identified in similar research of sport and recreation programmes in First Nation communities that were most likely to succeed (Cunningham and Beneforti 2005). These critical factors included the scheduling of activities at an appropriate time in a location and facility within the local community (Canuto et al. 2013) familiar to most participants. Furthermore, to reduce barriers to participation and support inclusivity the facility must be accessible and safe to cater for all participant mobility needs and adverse weather conditions. Reducing such barriers is supported by researchers, reporting that providing inclusive (Dubnewick et al. 2018; Young and Block 2023), accessible (Dubnewick et al. 2018) and culturally appropriate (Dubnewick et al. 2018; Young and Block 2023) sport opportunities may enhance the sport experiences of youth from First Nation communities (Dubnewick et al. 2018), and migrant backgrounds (Young and Block 2023). Also, it is widely reported that the availability and cost of transport (AG 2023; Rae et al. 2013) and limited access to facilities are barriers to participation. These could possibly be reduced by organising programmes across different locations particularly in regional-rural or remote areas (Rae et al. 2013) thus potentially improving recruitment and retention.

Other design elements that were identified as important for sport programme inclusion were the incorporation of other interesting activities such as art, music and socialising. This is consistent with other research that found that hunting, fishing and ceremonial practices including walking culturally significant trails, dance, art (Ahmed, Zuk, and Tsuji 2021) and singing (Sun and Buys 2013) were important to First Nation peoples.

These cultural activities, when incorporated into physical activity programmes (Sun and Buys 2013), or when considered physical activities alone (Ahmed, Zuk, and Tsuji 2021), were shown to improve physical activity, health behaviour (Sun and Buys 2013) and health and wellbeing (Ahmed, Zuk, and Tsuji 2021) consistent with more traditional physical activity programmes. Additionally, enabling interested participants to take leadership roles is supported in previous Canadian research. This research reported participants' involvement had the potential to build personal characteristics and leadership skills that gave these participants strength to navigate as cultural leaders within their own community and in non-First Nation communities. (Dubnewick et al. 2018). Moreover, the low to moderate physical intensity level and inclusive philosophy of the sport programme might appeal to participants, particularly older participants, and increase motivation (Pressick et al. 2016) to participate.

Perceived barriers to participation were similarly reported in previous research on a physical activity programme for First Nation women. These were illness and health, motivation, participant circumstances, programme experience, competing work, family obligations and logistical issues (Canuto et al. 2013). Other barriers previously reported for all First Nation Australian adults not found in the current study were memberships, uniforms, discrimination based on ethnicity, appropriately trained coaches and lack of consultation and engagement (AG 2023). It may still be that these barriers are important, however they were not identified by participants on the day or may not have been the highest priority for these participants. Reviewing participant barriers after the commencement of the sport programme may reveal different barriers after sport programme exposure. Both participant groups in the current study identified that transport, socialising and a manageable physical intensity level were either perceived enablers or barriers to participation. When the sport programme is implemented, the inclusion of ongoing consultation with participants will allow minor modifications to be made as participants experience the sport programme. This inclusion, as well as having known and respected community leaders in attendance, may boost retention and participation rates, reported as high as 88% in a similar study (Pressick et al. 2016) where consultation was a contributing factor.

The significant finding from the current study was the emergence of the sport programme design through First Nation voices, over multiple levels of community consultation, that facilitated the progression of the research project from stage two to stage three (sport programme implementation). In the current study consultation provided a mechanism to achieve the study objective and aim, that ultimately assisted to identify community needs and the best ways to address them. Consultation was vital in fostering collaboration (Mendham et al. 2015) and may also have positively influenced these First Nation peoples' social and emotional wellbeing (Dudgeon et al. 2014) through the potential healing of social injustices since colonisation (Dudgeon et al. 2014; Mendham et al. 2015). Consultation can also have a positive influence on First Nation people's self-efficacy (Pressick et al. 2016) and empower First Nation communities with ownership which could potentially increase the success (Pressick et al. 2016) of the sport programme, designed in the current study, when implemented. This active consultative approach was supported by previous research reporting sports programme design (Kiran and Knights 2010) that was also determined through consultation to meet local community needs.

Strengths and limitations

The strengths of the current study were firstly, that multi-level consultation was conducted in collaboration with the First Nation community where the sport programme would be implemented (Rae et al. 2013) according to a culturally appropriate method acceptable to that community. Consultation was conducted from a First Nation standpoint and by the researchers listening to First Nation voices with consideration to the possible dynamics within the cultural interface (Nakata 2007). This method respected the core values (AIATSIS 2020) of First Nation research, enabled the preservation of local knowledge and allowed the sport programme to be developed through a First Nation lens to serve First Nation objectives (Nakata 2007). This is supported in previous research with First Nation Australian communities, and their counterparts worldwide. Specifically, where consultation with the community in which group-based sport and exercise programmes (Pressick et al. 2016) would be implemented, was more likely to facilitate recognition, retention (Rae et al. 2013), success and sustainability of those programmes (Pressick et al. 2016). Multi-level consultation was also important in identifying programme staff and determining the preferences of potential participants as the programme continued to develop (Rae et al. 2013). Secondly, all attempts were made to improve the quality of findings and trustworthiness of results via a researchers' checklist that facilitated an objective content analysis (Elo et al. 2014). Finally, data collection method two was chosen by the Programme Steering Committee as it was culturally appropriate and assisted participants to feel at ease. It was chosen over audiotaping which may have provided more insight.

The current study is limited by the context and participant specific findings. However, these participants were representatives of the study community and could provide context for designing a sport programme, to ensure the most reliable results. Caution though would be recommended in generalising these findings. In addition, findings may have been influenced by the yarning circle configuration and yarning techniques of the sport programme presenter. Despite these possible influences, yarning was conducted in a culturally appropriate manner. Some participants had literacy limitations which offers one possible explanation for their brief open-ended question responses although they were assisted by peers. Finally, the research was undertaken in a First Nation Australian community by non-First Nation researchers, led by a female researcher. While, due care was taken to respect cultural sensitivities and undertake the research according to ethical approval, and cultural safety, unintentional cultural and gender biases may have influenced the research.

Future research in the study region might be directed specifically towards effectively engaging First Nation men, particularly Elders and older First Nation men, who have been found to be physically inactive. These are a population group that can be underserved and neglected (Ricciardelli et al. 2012). Previous research supports this direction as it was effective at engaging this population group in a physical activity programme and improving health outcomes (Mendham et al. 2015). Finally, of note is that future local and global research and public health initiatives that aim to increase physical activity in First Nation populations toward improving health and QOL, derive benefit from an appropriate consultation process.

Conclusion

Multi-level community consultation is instrumental in identifying and refining elements that frame and define context specific sport programmes. Some design elements are universal, while others are context specific. The significant finding from the current study was the emergence of the sport programme design through First Nation voices, over multiple levels of community consultation, that facilitated the progression of the research project from stage two to stage three (sport programme implementation). These findings can be used to inform the design of culturally appropriate modified sport programmes that promote healthy ageing and cater to the needs of a diversity of First Nation men.

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