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Feature

Build it and they will come: outcomes from a successful cardiac rehabilitation program at an Aboriginal Medical Service

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Abstract

Objective. Cardiovascular disease (CVD) is the leading disease burden in Aboriginal Australians, but culturally appropriate cardiac rehabilitation programs are lacking. We evaluated the uptake and effects on lifestyle, and cardiovascular risk factors, of cardiac rehabilitation at an Aboriginal Medical Service (AMS).

Methods. The program involved weekly exercise and education sessions (through 'yarning') for Aboriginal people with or at risk of CVD. Participants' perceptions of the program and the impact on risk factors were evaluated following 8 weeks of attendance.

Results. In twenty-eight participants (20 females) who completed 8 weeks of sessions, body mass index (34.0 ± 5.1 *v.* 33.3 ± 5.2 kg m^{-2}; $P < 0.05$), waist girth (113 ± 14 *v.* 109 ± 13 cm; $P < 0.01$) and blood pressure ($135/78 \pm 20/12$ *v.* $120/72 \pm 16/5$ mmHg; $P < 0.05$) decreased and 6- min walk distance increased (296 ± 115 *v.* 345 ± 135 m; $P < 0.01$). 'Yarning' helped identify and address a range of chronic health issues including medication compliance, risk factor review and chest pain management.

Conclusions. AMS-based cardiac rehabilitation was well attended, and improved cardiovascular risk factors and health management. An AMS is an ideal location for managing cardiovascular health and provides a setting conducive to addressing a broad range of chronic conditions.

What is known about the topic? Cardiovascular disease is the leading cause of morbidity and mortality in Aboriginal Australians, but less than 5% of eligible Aboriginal people attend hospital-based cardiac rehabilitation.

What does this paper add? This is the first study to describe a culturally appropriate cardiac rehabilitation program conducted in a metropolitan Aboriginal Medical Service. It provides a detailed account of the program's components and its effects on physical and psychosocial determinants of cardiovascular health in participants.
What are the implications for practitioners? Health management programs similar to the one evaluated in this study could be developed to suit the specific needs of other Indigenous communities around Australia to address a range of chronic conditions.

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Introduction

Cardiovascular disease (CVD) continues to be the leading cause of death among Aboriginal Australians, with deaths occurring at a younger age than in other Australians.[1] While a multitude of factors underlie this disparity, the well-documented health service gap for Indigenous compared with non-Indigenous Australians is a significant contributing factor.[2] Cardiac rehabilitation is a clear example. Although a variety of models exist,[3] Aboriginal people are underrepresented in cardiac rehabilitation programs[4] and therefore forego the well-documented benefits, including reduced all-cause mortality,[5,6] reduced recurrent cardiac events[7] and improved quality of life.[8]

To help address this service gap, a cardiac rehabilitation program was established in a metropolitan Aboriginal Medical Service (AMS) and its uptake, impact on health management behaviour and cardiovascular risk factors were documented.

Methods

Consultation phase

Focus groups were held with Aboriginal health professionals and community members to ensure the program met their needs and expectations. The latter group were specifically questioned about their preferred setting for cardiac rehabilitation.

Implementation

A cardiac rehabilitation program was established under the auspices of Derbarl Yerrigan Health Service (DYHS) (a community controlled AMS) and conducted onsite to provide a culturally secure environment for the provision of exercise and education to address cardiovascular health. The name of the program, 'Heart Health – for our people, by our people' (Heart Health) reflected ownership by DYHS and the broader Aboriginal community.

Participants enrolling in Heart Health were invited to take part in a formal research project to evaluate the program and these participants provided written informed consent. The study was approved by the Human Research Ethics Committees of Curtin University and Royal Perth Hospital and The Western Australian Aboriginal Health Ethics and Information Committee.

Program overview

Heart Health included core components for CVD management; assessment and reassessment, provision of health information and an individualised program.[9] Referrals occurred via several sources including a DYHS physician, a physician from another medical practice, from tertiary hospitals or by self referral.

At enrolment, participants underwent a baseline health and fitness evaluation including height and weight to derive body mass index (BMI), a 6-min walk test (6MWT), resting seated blood pressure and waist girth. A subgroup of participants had a follow up assessment after 8 weeks of sessions.

Heart Health was conducted between 9 a.m. and 1 p.m. on Thursdays to meet community preference for a midweek program, which was less likely to conflict with travel to attend funerals and cultural or family events. Attendance during program hours was flexible. Participants had blood pressure, pulse and bodyweight assessed at each session. Point-of-care testing was employed to monitor blood sugar levels (BSL) by participants with type 2 diabetes, with staff guiding technique when necessary. Feedback on measures was provided to participants and used as teachable moments to address lifestyle management, the importance of medication adherence and regular surveillance of glycaemic control and lipid profiles.

The program was easily accessible by public transport and DYHS provided transport for people who would not otherwise have been able to attend.

Exercise prescription

Stationary cycling and dumbbell exercises were prescribed and supervised by an exercise physiologist, and an outdoor walking group was implemented. Participants were also given guidance to increase home-based physical activity to accumulate at least 150 min of moderate physical activity per week. Motivational strategies were employed to encourage participants to increase their activity. For example, participants recorded kilometres cycled and tracked their journey on a large wall-mounted map of Western Australia, with the goal of riding from Perth to Broome (~2500 km). Staff produced a monthly newsletter describing fictitious accounts of participants' adventures consistent with the country they were 'travelling' through, based on their kilometres ridden, to incorporate Aboriginal culture into the program.

Education

Education topics included: diet and nutrition; risk factor modification (smoking cessation, blood pressure and cholesterol control); managing stress and emotion (with referral for counselling when indicated); benefits of physical activity; diabetes management and medication usage. Warning signs and actions for ischaemic chest pain were also addressed. Education sessions employed the process of 'yarning', which is important in Aboriginal culture for transferring knowledge, building trust and establishing relationships.[10] Importantly, yarning encourages meaningful conversations in a relaxed and open manner, an environment conducive to conveying health information and creating social support.[11] Shared story telling between staff and participants, involving imagery and analogies to convey information about medical concepts and participants' experiences

were important in this process. Visual models were employed to illustrate educational messages and reinforced with experiential learning opportunities, such as the provision of healthy food at each session (fresh fruit platters, cooked meals, sugar and salt substitutes) and demonstrating the acute effect of exercise on blood pressure and BSL (in diabetics). Culturally appropriate merchandise (shirts), educational and health promotion resources (including fridge magnets, wallet cards) were produced to support the program.

Data collection and analysis

Mixed methods were employed to evaluate the outcomes of the program. These included interviews, questionnaires and yarning sessions as well as objective assessment of cardiovascular risk factors. Changes in risk factors were evaluated pre- and post-program using paired *t*-tests. $P < 0.05$ was accepted for statistical significance. Data are presented as mean ± s.d., unless otherwise stated.

Results

Consultation outcomes

Of the 48 participants surveyed, 46 indicated they would prefer to attend a cardiac rehabilitation program at an AMS, one preferred another community setting and one preferred home visits. No interviewees indicated a preference for a hospital-based program. Community consultation revealed strong support for the provision of supervised exercise and health education for both primary and secondary prevention.

Program observations

Between March 2009 and December 2010, 98 people attended the program. Of these, 42 (43%) had a history of CVD and 55 (56%) had type 2 diabetes. Baseline characteristics of all participants are presented in Table 1. The majority of program participants was female (64%). Attendance at the program increased from an average of 3.5 ± 1.7 participants per session in the first month of the program to 33.3 ± 5.7 per session in the final month of the study.

Twenty-eight participants who attended at least 8 weeks of sessions achieved a significant decrease in BMI (34.0 ± 5.1 *v.* 33.3 ± 5.2 kg m^{-2}; $P < 0.05$), waist girth (112.9 ± 13.6 *v.* 108.6 ± 13.2 cm; $P < 0.01$), systolic (135 ± 20 *v.* 120 ± 16 mmHg; $P < 0.01$) and diastolic blood pressure (78 ± 12 *v.* 72 ± 5 mmHg; $P < 0.05$), and an increase in 6MWT distance (296 ± 115 *v.* 345 ± 135 m; $P < 0.01$). Bodyweight tended to decrease, but not significantly (92.1 ± 17.4 *v.* 90.6 ± 17.5; $P = 0.09$).

Table 1. Baseline characteristics of participants attending the Heart Health program

S, smoker; NS, non-smoker; ES, ex-smoker

Characteristic	Variable
Females/males	63/35
Age (years)	55 ± 13 (19–82)
Body mass index (BMI) (kg m^{-2})	33.9 ± 8.7
Waist girth (cm)	109.7 ± 20.7
Systolic blood pressure (mmHg)	132 ± 21
Diastolic blood pressure (mmHg)	78 ± 11
Risk factor prevalence	
Smoking	S = 15%, NS = 49%, ES = 35%
BMI >30	65%
Systolic blood pressure >140 mmHg	24%
Moderate physical activity <150 min wk^{-1}	70%

Discussion

This study identified that an AMS-based cardiac rehabilitation program was well attended and improved risk factors in Aboriginal participants with or at risk of CVD. This contrasts with the historically low attendance rates at hospital-based cardiac rehabilitation programs and highlights the value of offering healthy lifestyle programs at culturally secure locations.

The initial objective of the project was to conduct an exclusively secondary prevention program. However, the high level of community interest in cardiovascular health information for primary prevention made a compelling case for broadening the program's inclusion criteria and is consistent with engaging the family and broader community to address the burden of chronic disease in Aboriginal populations.[12]

Attendance was driven largely by self referral resulting from word of mouth, with community elders being a strong referral source. This highlights the importance of having health management programs accepted by influential community members in order to engage the broader community. Another facilitator for attendance was the cultural security of being based at an AMS, which reflected community preference. This location was highly visible to DYHS clients with several participants self referring after observing the program while attending other appointments. Strong relationships established between staff and participants and the trust this engendered was also central to the program's success. Finally, the flexible structure, which allowed participants to attend at their convenience within the 4-h session or miss several sessions due to family or cultural commitments and then recommence, is more consistent with Aboriginal ways of working than a tightly regimented, appointment-based system.[13,14]

Attendance was higher amongst females. Males do not engage preventive health services as readily as females and the disenchantment commonly experienced by Aboriginal males may compound this.[15] Despite a general preference for a mixed-gender program, feedback indicated that the higher proportion of females attending the program in the first 6 months was a deterrent to some males attending. However male participation progressively increased beyond this point, in part due to female participants introducing male spouses and relatives, and the introduction of separate male and female yarning areas.

The changes in risk factors and functional capacity noted in the current study were comparable with those observed in similar duration hospital-based programs. An increase in functional capacity of 17% is consistent with that documented in traditional outpatient programs,[16] as was the small but significant improvement in BMI.[17] The reduction in blood pressure in the current study was more dramatic than has been observed in previous studies[18] and may reflect a combination of lifestyle modification, improved medication compliance and the relatively high blood pressure amongst participants at baseline in the current study. Importantly, Heart Health provided these benefits to Aboriginal people who otherwise would not have received them.

'Western medical practices' may not be the most effective method for gleaning accurate medical histories in Aboriginal people. Yarning proved to be a respectful way of discussing personal health issues and provided opportunities to address a wide range of health management behaviours. Some participants described sharing medication, others were taking medication inconsistently or that was out of date. The implications were often not appreciated by participants, but involvement in the program enabled such issues to be identified and addressed through counselling and education. Also apparent was the reluctance of many Aboriginal people to call an ambulance in the case of a medical emergency (i.e. chest pain) due to the costs incurred. Participants were informed about payment schemes for ambulance cover, including through Centrelink, with several families joining as a result. Information from yarning sessions was used to refine program content to meet the requirements of participants. For example, education on topics such as incontinence, dental health, podiatry, renal disease and optometry were all added to the program at the request of participants.

To fully appreciate the impact of the program, it is necessary to consider social benefits. The program became a community meeting place, creating an environment of support. Program participants living in the same suburb formed a neighbourhood watch scheme and several participants formed a band, 'The Heart Aches', which performed monthly for other participants.

There are limitations to this study. This was not a randomised control trial (RCT). However RCTs are potentially divisive in an Aboriginal community[19] and would have compromised the inclusive philosophy of the program. Furthermore, only select risk factors were assessed with a short period of follow up. Research is required to assess the long-term impact of AMS-based lifestyle modification programs across a wider range of clinical outcomes.

Conclusion

Aboriginal Medical Services provide a culturally secure environment for cardiovascular health management. Importantly, trust and relationships between staff and participants provide a conduit for health information and support that can help in the primary and secondary prevention of CVD. Such programs should take a holistic approach to health management, addressing physical and social determinants. The methods employed in this program could be adapted to the specific needs of other Aboriginal communities to address a range of chronic conditions.

Competing interests

The authors declare there are no competing interests.

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