

Promoting physical activity in women: evaluation of a 2-year community-based intervention in Sydney, Australia

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SUMMARY

Women are less likely than men to reach recommended levels of physical activity and have unequal access to active leisure time. Studies in Australia have consistently found that women are only half as likely as men to be adequately active. A community-based multi-strategic health promotion intervention, 'Concord, A Great Place to be Active', was implemented from 1997 to 1999. It aimed to increase the physical activity levels of women aged 20–50 years living in the Concord Local Government Area (LGA), an inner-western region of Sydney, Australia. A key feature of this intervention was a partnership between Concord Council (the local government) and the Central Sydney Health Promotion Unit (CSHPU). The project was evaluated using qualitative and quantitative methods. Key informant

interviews and focus groups were conducted to inform the development of the intervention and to assess the impact of the project on Concord Council. Pre- and post-intervention telephone surveys of the target group were also conducted. Following the intervention, there was a statistically significant (6.4%) reduction in the proportion of sedentary women. Further, there were a number of positive enhancements in the Council's capacity to promote physical activity in the community. These findings demonstrate that a community-based intervention targeting a specific population can achieve positive changes in physical activity and that a local government has the capacity to be involved in and sustain physical activity interventions.

Key words: health promotion; physical activity; women

INTRODUCTION

There is now convincing evidence of the beneficial effects of regular participation in physical activity. Various studies have shown that the risk of developing coronary heart disease is almost double for those who are inactive compared with those who have an active lifestyle (Blair *et al.*,

1995; Pate *et al.*, 1995; Blair *et al.*, 1996). Physical activity can also significantly lower the chances of developing stroke, hypertension, non-insulin-dependent diabetes mellitus, osteoporosis, colon cancer and depression (Pate *et al.*, 1995; Glasgow *et al.*, 1997). While some of the earlier evidence

focused on work-related activity or vigorous leisure time activity, evidence for the benefits of more moderate levels of activity such as walking is growing (Manson *et al.*, 1999).

However, the prevalence of participation in regular physical activity among the general population has remained low. In Australia, population physical activity surveys have consistently found that almost half the population is insufficiently active for health benefits to be realized (Owen and Bauman, 1992; Bauman *et al.*, 1996; Armstrong *et al.*, 2000). The overall prevalence of a completely sedentary lifestyle in the more recent surveys in the state of New South Wales has been around 12% (NSW Health Department, 1999). Various population subgroups, such as women, older people and those with low levels of education, are much more likely to be physically inactive (Dishman *et al.*, 1985; Bauman *et al.*, 1996; NSW Health Department, 1999). There has been a growing interest in promoting physical activity to the general population, particularly with the aim of reducing the proportion of the population that is sedentary (Morris, 1994).

There is potential for changing the physical activity levels of populations through community-based programmes (Sallis and Owen, 1999). The earliest programmes in the USA, the Stanford five-city project (Young *et al.*, 1996) and the Minnesota Heart Health Project (Blake *et al.*, 1996) were focused on reducing cardiovascular disease with physical activity promotion as only one component of a programme with broad scope. They achieved very limited improvements in physical activity participation.

Research has shown that the barriers to physical activity are many and varied, and include personal, social, psychological, policy and environmental factors (Booth *et al.*, 1997; Sallis *et al.*, 1998; Mitchell and Olds, 1999). Multi-strategic health promotion programmes have long been proposed as necessary to achieve improvements in physical activity behaviour in a population (Owen and Lee, 1989; Sallis and Owen, 1999). More recently, the importance of intersectoral action and environmental and policy approaches to promoting physical activity have been recognized (Harris *et al.*, 1995; Sallis *et al.*, 1998; King *et al.*, 1999). It has also been identified that programmes should involve members of the target group from the outset of the programme, and be tailored to the specific needs and interests of the target group (Bauman *et al.*, 1996). In particular, since men and women vary in their reasons for

being active and their perceptions of barriers to activity, interventions generally need to be sex-specific (M. M. Thomas, R. M. Moreton, P. Hawe, H. Jones, J. J. Humphries, J. Bindon and S. Corne, manuscript submitted).

Health promoters face an enormous challenge in attempting to increase physical activity levels in the population. In Australia, the promotion of walking and other physical activity through mass media campaigns has had some success (Owen *et al.*, 1995; Bauman *et al.*, 2001). However, in the past 2 years the rate of participation by the population in health-enhancing physical activity seems to be declining (Armstrong *et al.*, 2000).

'Concord, a Great Place to be Active' was a multi-strategic demonstration research project, which aimed to increase participation in moderate physical activity, particularly walking, by 4.5% among inactive or insufficiently active women aged 20–50 years in the Concord Local Government Area (LGA) in Sydney, Australia.

The project was conducted in partnership with the local government council, Concord Council and with the strong involvement of the community. Local government is a key organization in creating healthier communities (Harris and Wills, 1997).

THE COMMUNITY-BASED INTERVENTION

The intervention was designed to assist women to overcome personal, social and other barriers to physical activity, and to enhance the capacity of the local council to support and promote physical activity in the community.

Several factors made Concord Council an important partner in this project—its commitment to the local population, community orientation and local influence, and its capacity to influence the urban environment. The fact that Concord LGA has large areas of parkland, some of which borders the Parramatta River (flowing into Sydney Harbour), made the area ideal to promote walking.

To inform programme planning, focus groups were formed with the target group and community feedback sessions (involving members of the target group and key stakeholders) were conducted at the start of the project. The Project Advisory Group included representation from the health and community sectors, and from Concord Council. A Community Advisory

Group evolved from members of the target group through the feedback sessions and activities. This group included two female elected councillors, a council staff member and three project staff. These mechanisms provided ongoing opportunities to ensure the involvement of the target group and key stakeholders in guiding the implementation of the intervention.

The intervention focused on targeting women directly through a local social marketing campaign, and increasing opportunities to participate in physical activity. The social marketing strategies included the orchestration of community walking events, the initiation of walking groups and a range of community physical activity classes, and the promotion of the project through the media. The visual materials developed included newsletters, walking maps, banners, fridge magnets and project t-shirts.

The intervention also incorporated a capacity building approach to enable the local council to become more actively involved in facilitating physical activity and addressing some environmental and other barriers. Strategies used to foster the council's commitment to and involvement in the project included its representation on the Project Advisory Group and Community Advisory Group, regular consultation and joint planning, collaboration on community events, use of council resources and facilities, and the alignment of the project with the council's social and environmental plans.

COMMUNITY WALKING EVENTS

The project used the 1997 Concord Fair (a bi-annual event organized jointly by Concord Council and Concord Hospital) to promote the project in the community, to provide an opportunity for people to join a project mailing list and to register their interest in classes as indicated in the focus group analysis.

Three community walking events were organized during the project. Each was attended by >100 people. The final one provided the opportunity for Concord Council to take over the main organization of the event. All events were designed to increase the profile of the project within the area, facilitate walking and other physical activity opportunities, provide an avenue to distribute project-generated resources (t-shirts, magnets, newsletter, walking maps) and to collaborate with Concord Council in planning. The activities

provided around the walks (entertainment, food fairs and children's activities) served to extend the project from the initial target group to the entire community.

From these events, four walking groups were established according to residential location, and the structure and content of community information sessions evolved. The walking groups have been sustained beyond the life of the project.

SOCIAL MARKETING CAMPAIGN

The campaign slogan, 'Concord, a Great Place to be Active' was developed through information from the focus groups and input from the project team. The slogan was used on project resources (magnets, t-shirts, banners, newsletters) and in the local media.

The project produced a walking map of the four walks in the local area. The map included messages on the benefits of moderate physical activity. Council staff, project staff and a graphic design consultant worked together to produce the maps, which were released publicly. Subsequently, ~9000 maps were delivered locally to every household and business in the Concord local government area.

Signage was seen as a crucial strategy to increase access to walking routes. Despite a complex approval process for environmental signage, the project facilitated new signposts that direct people to the foreshore tracks.

The local paper provided coverage of the community walking events and the launch of the banners. Concord Council's newsletter, 'The Concordian' was used to provide updates on the project.

A quarterly newsletter was compiled and distributed to 850 women on the project mailing list. Extra copies were distributed through the council's community services, the 'One-Stop Shop', local businesses and general practitioners' waiting rooms. The newsletter contained information on walking events and groups, community classes, childcare facilities and articles promoting the benefits of physical activity.

COUNCIL CAPACITY-BUILDING STRATEGIES

A major aspect of the project was to work in collaboration with Concord Council, with the aim of building the council's capacity to support

and promote physical activity opportunities in the community. Concord Council was well placed to collaborate in the project given its existing relationship with the CSHPU. The Aged and Community Services workers from Concord Council worked closely with the CSHPU on a number of issues relating to healthy older people. The Concord Fair provided an opportunity for the project to foster the existing relationship between council and the area health service.

The project used council facilities such as meeting rooms whenever possible. Use of council facilities served to reinforce the council's involvement in the project in its formative stages. Having meetings at the council 'placed' the project within the council and facilitated its in-kind contribution to the project. The council also provided printed envelopes for the distribution of the project tools (walking maps and fridge magnets), which increased the project's profile as a partnership between the CSHPU and the council. The council's 'One-Stop Shop' was utilized as a point of distribution for project materials (visual materials and the project newsletter).

During the course of the project, the council was developing parks management plans. The parks designer was involved in the project from the beginning, and much of the planning of community events coincided with areas of parks and foreshores that were nearing completion.

In order to plan environmental aspects of the project, specifically park audits, foreshore track upgrading and walking map routes, a small planning group comprising three project team members and the council parks designer met regularly. Concord Council's Parks Management Plans were consulted throughout the process. This was important in ensuring that the project complemented council's existing and planned initiatives. The parks designer joined in several community audits held by the project and was able to feedback directly to the council the concerns community members expressed about walking tracks and parks. The major collaborative process was in planning and implementing the three community events of the project. Collaboration took the form of joint planning, promotion and running of the events.

EVALUATION METHODS

The project used formative research to inform strategy development, and quantitative and

qualitative methods to assess the effectiveness of the intervention.

QUALITATIVE RESEARCH

Twelve focus groups with local women aged between 20 and 50 years were conducted at the beginning of the project. Women were recruited from a sampling base of women interviewed for the baseline telephone survey conducted at the commencement of the project. Sampling was purposive, with women being selected to fit into a sampling frame, which created homogenous groups based on age, age of children, working status, and stage of change for physical activity. Response to the invitation to attend a focus group was overwhelming, with very few refusals. Seventy-five women participated in the groups, which explored the perceived benefits of and barriers to participation in physical activity and ways to overcome those barriers. A standardized discussion guide was used for each of the groups. Two facilitators shared the facilitation of the 12 groups. Co-facilitation was shared among the six remaining members of the project team. All focus groups were recorded, the tapes transcribed and the transcripts entered onto a computer. NUD*IST qualitative analysis software (QSR NUD*IST, 1997) was used to code the data using a coding frame and coding manual developed by three coders. Some data were double coded to check for consistency of coding. The data were also analysed using NUD*IST software, using a thematic approach and comparing responses of women who were active with those who were contemplators.

In order to inform the intervention and assess the impact of the project on Concord Council, key stakeholder interviews were conducted both at the beginning and end of the project. The interviewees comprised council staff in roles relevant to the project and elected councillors. Thirteen semi-structured interviews were conducted in May/June 1997 and 14 interviews were conducted in August/September 1999. While the interviewees in each round were equivalent in terms of their role and position, changes in the structure and staffing of the council meant that only eight people were interviewed in both 1997 and 1999. On both occasions, interviews were conducted by staff of the CSHPU who were not directly involved in the project intervention.

In the pre-intervention interviews, people were asked about their involvement in any other council projects that have been done in partnership with another organization, what they had heard about this project, and their first impressions: whether they thought the project fitted in with the work of the council, particularly in relation to physical activity and walking; how the council consults with the community generally; how residents find out about new initiatives or facilities; whether environment and recreation facilities get enough attention; whether there are any initiatives that council is planning that would link up with the project; value and benefits, or negatives, of council being involved in a project of physical activity like this; potential results and any particular advice.

The post-intervention questions were very similar, asking about impressions of the project and partnership, any changes in the way physical activity is approached or thought about by the council, whether it has fitted in with the work of the council, what should be the future of project initiatives, any new physical activity or recreation initiatives being planned by the council over the last 2 years, difficulties or disadvantages of being involved in this project, and advice for other groups planning a collaborative project.

The data were analysed and coded manually, with a coding frame developed through a thematic analysis. Double coding was completed on some of the categories to ensure rigour of analysis and dependability of interpretation. Data from the first round of interviews has been published (King *et al.*, 1999).

QUANTITATIVE RESEARCH

Study design

The study used a pre- and post-intervention representative sample telephone survey in the Concord LGA. The surveys were seasonally matched and were conducted in May to June 1997 and 1999.

The study proceeded in the following stages: (i) a pre-intervention survey; (ii) a local, multi-strategy health promotion campaign; and (iii) a post-intervention survey, which repeated the pre-intervention questionnaire with one additional prompted question about campaign messages.

Study subjects

The study included women aged between 20 and 50 years living in the Concord LGA. It was

calculated that a sample of 2000 women for each survey was needed to detect a modest increase of 4.5% in the proportion of women participating in physical activity following the intervention (with $\alpha = 0.05$ and 80% power).

The sampling frame included all households with a telephone connection in Concord LGA, as recorded in the computerized Sydney telephone directory 'Australia on disc' (Dependable Database Data Pty Ltd, 1997/1999). Respondents were eligible if they were female, aged between 20 and 50 years, able to answer the questionnaire in English and were a resident of the Concord LGA. If there was more than one eligible woman living in the household, the woman with the most recent birthday was selected.

Physical activity measures

Measures of physical activity level were based on self-reported hours and number of sessions of vigorous activity, moderate activity and walking over the past 2 weeks. Extensive research has shown that the questions have acceptable reliability and validity (Booth *et al.*, 1995).

Three types of physical activity were recorded: (i) walking (divided into walking for recreation and functional walking—to get to places for transport or work); (ii) moderate activity; and (iii) vigorous physical activities (for exercise or recreation) apart from walking.

Data collection

Data were collected in two phases by two independent survey companies using a computer-assisted telephone interview (CATI) system. Interviewers were trained in the administration of the questionnaire using a standard protocol developed by the CSHPU. The methods of data collection were identical in both surveys. A minimum of 10 call-backs, at different times and on different days was made to achieve a contact with household. Once contact was made, a minimum of five call-backs was made for appointment and interview with the selected respondent.

Data analysis

Energy expenditure (MET) values were calculated using a standard formula (Bauman *et al.*, 1996). A MET is defined as the energy expenditure for sitting quietly, which for the average adult is 1 kcal (body weight) per kilogramme.

The time in hours for each activity was multiplied by the generic MET level assigned, allowing 3.5 METs for both walking and low-moderate activity, and 9 METs for vigorous activity. MET was then categorized as high (at least 1600 kcal/fortnight plus 2 h of vigorous activity), moderate (>1600 kcal/fortnight), low (100–1600 kcal/fortnight) or sedentary (<100 kcal/fortnight).

Participants were categorized as either sedentary, low, moderately or highly active. Differences between the proportions were tested by calculating the 95% confidence interval around the proportions or by using χ^2 tests (Armitage and Berry, 1987) to compare the changes in the major outcome variables from the pre- to the post-intervention survey. The data was analysed using the computer package SPSS for Windows 8.0 (SPSS Inc., Chicago, IL, 1999).

RESULTS

Qualitative findings

Women in the focus groups perceived the benefits of being active as either psychological or physiological. Activity as 'time out' was a frequently mentioned benefit and women felt that physical activity gave them more confidence, was a social outlet, and enabled them to cope better with life. The physiological benefits included weight loss, increased energy levels, better sleeping patterns and feeling younger.

The barriers to activity for all women were many and varied, but mostly fell within the themes of: the role of motherhood (multiple demands); lack of support; environmental/safety factors; and managing and prioritizing time. Child rearing responsibilities and environmental/safety issues seemed to be a common barrier for both active women and contemplators, but contemplators seemed more hampered by barriers around lack of support and difficulty managing and prioritizing time. Generally, active women could be differentiated from contemplators in the degree of conviction they had of the benefits of activity and their ability to overcome barriers.

Interestingly, the short-term benefits of physical activity such as decreased feelings of stress, having more energy, feeling better able to cope with their busy lives and feeling younger, were the most salient benefits for women in the focus groups. The long-term health benefits of an active lifestyle often promoted by physical activity campaigns were not the reasons that women wanted

to be active. Detailed results of this aspect of the project form the basis of a separate publication (Thomas *et al.*, 2001).

The results of the key informant interviews indicate the success of the project in building the council's commitment and skills to implement a community physical activity project.

In the initial interviews, councillors and council staff did make a link between the proposed project and the council's commitment to community well-being and environmental development; however, this work on physical activity was not seen as core business. They were open to the partnership with health, but were unsure of where it might lead. Two years later the caution had shifted to enthusiasm, and they were able to describe in quite practical ways the benefits of the partnership. They were particularly aware of how a project that went beyond environmental improvements and fostered community participation was able to raise the council's profile. The promotion of the project through the local media, school newsletters and printed materials (magnets, project newsletter, banners and t-shirts) was seen as crucial to the project's success. The project was seen as contributing to more positive communication channels between council and the community, and a strengthened sense of community.

'In terms of the project I see it applying to the whole of the community at the end of the project now. We can take what we learnt and try to foster it across the whole community.'

A further shift that occurred was the council's recognition of the barriers and issues faced by women in becoming more active. Despite initial resistance to the project's focus on women, the council came to appreciate the benefits of addressing the needs of women.

'I think the women who have been exposed to aspects of it really appreciated it ... was great that opportunity was available.'

At a policy level a number of changes were made by the council in the course of the project. The council already had plans for environmental improvements at the beginning of the project and many of these were completed in the course of the project, but not as a result of the project. However, there were some enhancements in the planned changes that were attributable to the project. Some of the environmental changes

were 'fast tracked' to take advantage of the promotion of corresponding community events. A direct result of one of the key project initiatives was the placement of signage for all foreshore walks. Another key change was the council's creation of a new position of Manager of Recreational Services. A Council Events Committee was established and funded as a direct result of the success of the project's community events.

'[the]... creation of manager of recreation service ... it's OK to have the open space, but we also need to have people to start to facilitate projects.'

The project demonstrated the value of community events and other strategies for promoting recreational spaces.

'I'm trying to push an overall, more overall integrated approach to our recreation, our parks and our foreshore walks ... what I push on Council ... boosted by this programme is ... more places for people to walk, ... in surroundings that support that activity ... boost their desire to do so.'

As a result of the project, the council has given commitment in principle to sustain the project and to maintain walks programmes and events. They have expressed commitment to continuing to enhance and develop foreshore and cycling paths, identifying and signposting further walking routes developed in the project, upgrading smaller parks and a local swimming pool, and providing further recreational and exercise facilities.

'It's been hugely successful ... it has achieved what we set out to do, and that was ... we targeted women especially ... in their 40s to get them more active.'

'I think there have been good outcomes from it, and would like us to build on it, not to lose what we've gained.'

Quantitative findings

For the baseline survey, a total of 6809 householders were contacted. After excluding household level refusals and non-contacts, the number of complete interviews with eligible responders was 1762. The post-intervention survey obtained 1801 complete interviews from 6660 contacted households. The response rates were 62.1% for the pre-survey and 61.9% for the post-survey.

Demographic factors including age, educational level, employment status and marital status were

Table 1: Demographics of the study population (1)

Variables	Pre-survey (%)	Post-survey (%)
Age (years)		
20–29	26.6	23.5
30–39	37.8	37.1
40–50	36.6	38.4
Mean	35.7	36.6
<i>n</i>	1663 ^a	1588 ^a
Marital status		
Single/never married	26.4	22.2
Married/de facto	66.2	71.9
Separated/divorced	5.8	5.3
Widowed	0.7	0.6
Refused	0.9	0
<i>n</i>	1762	1801
Children under 18 living with		
No others	42.1	40.3
1 other	16.7	20.4
2 others	25.6	26.5
>2 others	15.6	12.8
<i>n</i>	1762	1798 ^a
Language spoken at home		
Others	8.1	10.2
English	91.9	89.8
<i>n</i>	1762	1801

^aDue to missing data.

Table 2: Demographics of the study population (2)

Variables	Pre-survey (%)	Post-survey (%)
Education level		
<12 years	22.4	20.4
HSC/TAFE	37.7	39.9
Tertiary	38.7	39.9
Others/don't know	1.2	0.8
<i>n</i>	1762	1801
Employment status		
Full time	47.36	46.4
Part time	25.7	26.7
Unemployed	3.2	1.5
Home duties	16.3	17.6
Student	4.7	5.0
Others	2.8	2.6
<i>n</i>	1762	1801
Own or have access to a car		
Yes	90.7	93.0
No	8.7	6.6
Sometimes	0.6	0.4
<i>n</i>	1762	1801

collected for both surveys (see Tables 1 and 2). No statistically significant differences between two study samples were found.

There was a significant increase in the number of respondents who recalled the campaign and

the key campaign messages in the post-survey. In the pre-survey, only 9.3% of respondents stated that they recalled a Concord physical activity campaign compared with 50.6% in the post-survey. The key campaign slogan 'Concord, a Great Place to be Active' was recalled by 58.7% of post-survey respondents compared with 20% recalling other campaign messages.

The study found a significant reduction in the proportion of women classified as sedentary from 21.6% (95% CI = 19.2–23.1%) at the pre-survey to 15.2% (95% CI = 13.8–17.6%) at the post-survey. There was a corresponding increase in the proportion of women in the low activity category from 41.6% (95% CI = 39.8–43.8%) at the pre-survey to 47.9% (95% CI = 46.0–49.2%) at the post-survey (see Figure 1). There were no significant changes in moderate and high physical activities between the pre- and post-surveys.

Table 3 shows reported hours walked in the preceding 2 weeks. There was a significant 9.2% reduction in self-reported nil hours walked from 30.8% at the pre-intervention survey to 20% at the post-survey ($\chi^2 = 61.05$, $p < 0.001$). Noticeable increases were found in the number of hours spent walking 'up to 2 h' from 20.1% in the pre-survey to 25.4% at the post-survey, and for those who reported walking '2 to 5 h' from 21.0% at the pre-survey to 25.9% in the post-survey. However, these changes were not statistically significant.

Little change was found in beliefs relating to physical activity between the pre- and post-survey. This was attributed to the high level of knowledge of the benefits of physical activity at the benchmark survey.

There was no significant change in environmental perceptions of physical activity with similar results in the pre- and post-intervention survey. Around 90% of respondents (pre- and

post-survey) said they felt safe walking during the day and would feel safer walking with others, and around 70% (pre- and post-survey) were more likely to exercise with company. Less than one-fifth (pre- and post-survey) of respondents felt safe walking at night and >50% nominated poor street lighting as a factor.

The intention to be more active showed positive (not significant) change, with a reduction in the proportion of respondents in the pre-contemplation stage (not even thinking about physical activity) from 27.1% at the pre-intervention survey to 24.7% at the post-survey, and an increase in those in contemplation from 68.6% in the pre-survey to 72.3% in the post-survey. More substantial, however, was the 6% increase in the number of respondents indicating an intention to walk more from the pre- (65.8%) to post- (71.8%) survey ($\chi^2 = 21.5$, $p < 0.05$).

DISCUSSION

'Concord, a Great Place to be Active' demonstrated successful intersectoral collaboration and was an effective community intervention. Both the quantitative study and the qualitative data showed positive signs that the project achieved its objectives. The intervention reached the target group and produced changes in women's attitudes to physical activity and changes in behaviour for many previously sedentary women.

Some caution is necessary in interpreting the results of the quantitative study. The study used pre- and post-intervention surveys in the target community without a control group. This was not ideal, but does reflect the resource limitations of much health promotion research. Because the study population was exposed not only to the campaign itself but also to many other factors, including general community promotion of

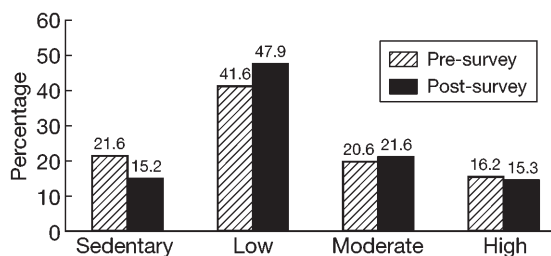


Fig. 1: Pre- versus post-intervention physical activity levels.

Table 3: Reported hours walked in the preceding 2 weeks

Hours walked	Pre-survey <i>n</i> = 1762 (%)	Post-survey <i>n</i> = 1801 (%)
Nil hours ^a	30.8	20.0
Up to 2 h	20.1	25.4
2–5 h	21.0	25.9
>5 h	28.1	28.7

^a $\chi^2 = 61.05$; $p < 0.001$.

physical activity, factors other than the intervention might have contributed to the project results. In addition, selection bias is a concern. Only women with their household telephone numbers listed in the White Pages who were willing to be interviewed had a chance of being included in this study, although this was similar for both surveys.

Comparisons between the two independent samples were made in the study. No significant differences in demographic factors were found across the samples. Therefore, any changes occurring between the pre- and post- surveys were not due to sample differences. Furthermore, given an Australian trend towards an increase in the prevalence of sedentary people in recent years (Armstrong *et al.*, 2000) and taking into account results of the qualitative study undertaken at the same time, it is our conclusion that the intervention has played a substantial role in these changes.

The finding of a shift from sedentary to low activity in the present study population was encouraging for community-wide health promotion interventions generally. It has been argued that the greatest benefits of public health will accrue if, rather than persuading those who are already active to be more active, campaigns are developed to encourage those who are very inactive to participate in some modest amount of activity (Blair *et al.*, 1989).

This study provided an opportunity to assess the impact of a health promotion initiative encouraging women to participate in physical activity, particularly in walking. It was a collaboration with a local council supporting the community 'events' for walking and developing a walking group. Intersectoral action for health improvement has been the focus of much recent research and this project was a successful practical application of intersectoral action at a local level (Harris *et al.*, 1995). Community events were seen as the most visible and successful aspects of the project, from the point of view of both the collaboration with the council, and the participation of the community. The community events demonstrated that there are existing community networks which can be readily mobilized. Concord Council and the Health Promotion Unit worked well together, as was evidenced by the collaborative efforts in implementing and sustaining the project activities and the publicity generated by the community activities. The involvement of the community in the project and the use of the

council facilities for project meetings and events were seen as a reinforcement of the council's work with its social plan for Concord. The key informant research assisted in harnessing the involvement and commitment of Concord Council for the implementation of the project and provided important information on the impact of the project on the council (Eyler *et al.*, 1999).

It was agreed with the council that sustainability would be improved if a committee of council staff was established for health and physical activity. It was also raised that the Health sector needs to gain the support of council staff and elected Councillors to ensure the adequate allocation of resources to the project. The council's vision for sustaining the outcomes of the project include broadening the target group and activities. There was a strong view from council staff that continued involvement of the Health Promotion Unit would assist sustainability.

Limitations in the intervention were thought by council staff to be the amount of time, money and human resources required for such a project, the length of the project and the target group being too narrow. Also, the abundant and aesthetically pleasing environmental resources in Concord facilitated the project and there might not be the same outcomes in a lower socioeconomic area of Sydney.

While the overall impressions of the project were positive, a number of issues were raised that could improve future projects. Clarifying the roles of the partners, funding arrangements, sponsorship and the allocation of human resources at the outset of the project were seen as vital. Establishing appropriate committees (steering) and reporting to council committees were seen as essential strategies to ensure the council's ownership of the project.

In conclusion, the results of the study are encouraging for future projects promoting physical activity in a community. It provided an opportunity to explore a range of issues on promoting physical activity, and to use the insights we have gained through the project to build an effective community intervention. These will add significantly to knowledge and understanding about promoting physical activity in the future.

ACKNOWLEDGEMENTS

We would like to thank the women who participated in all aspects of this study and so generously

gave their time to the research. We thank the staff and elected Councillors of Concord Council for their enthusiastic interest in and support for the project. This project was funded by the NSW Health Department, as part of the Physical Activity Demonstration Grant Scheme. The authors thank Dr Chris Rissel, Ms Anne-Marie Elias and Ms Jo Alley for their contributions to writing this manuscript, and also Ms Anne Connolly and Ms Eva Gerencer for their contributions to the project.

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