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**What might work? Exploring the perceived feasibility of strategies to promote physical activity among women living in socioeconomically disadvantaged neighbourhoods**

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**What might work? Exploring the perceived feasibility of strategies to promote physical activity among women living in socioeconomically disadvantaged neighbourhoods**

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Abstract: 198

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For Peer Review

**Abstract**

This study aimed to investigate preferences for, perceived feasibility of, and barriers to uptake of hypothetical physical activity promotion strategies amongst women from socioeconomically disadvantaged neighbourhoods. Semi-structured interviews were conducted with 20 purposively recruited women (18-45 years) living in socioeconomically disadvantaged urban and rural areas of Victoria, Australia. Participants indicated the most and least appealing of nine hypothetical strategies, strategies most likely to use, and strategies most likely to increase physical activity. Interviews were digitally recorded and transcribed verbatim. Thematic and interpretive content analyses were used to identify emergent common and contrasting themes. A community centre-based program with free childcare, the provision of a cleaner while physical activity is undertaken, and a neighbourhood-based program were the three most popular strategies. Mobile telephone-delivered text messages, an online interactive diary, and subsidised gym memberships were considered least useful. Irrespective of the strategy, components of importance commonly identified were: social support; being accountable to someone; having the option of a structured or flexible attendance design; integration of multiple strategies; and financial considerations. Issues around trust and privacy and weight loss also emerged as important. The findings provide important insights for the development of physical activity programs targeting socioeconomically disadvantaged women.

## Background

Women experiencing socioeconomic disadvantage, including those with low levels of education, low income, or living in socioeconomically disadvantaged neighbourhoods, are an important target group for physical activity promotion interventions because they are at high risk for physical inactivity and associated chronic disease [1, 2]. However, little is known about which strategies may be most effective in this population group, as relatively few studies have assessed the effectiveness of physical activity intervention strategies specifically among women of low socioeconomic position (SEP). Existing intervention studies conducted with this population group have produced mixed findings in terms of effectiveness [3].

Of the limited intervention studies with women experiencing socioeconomic disadvantage, these have been community-based [4-11], centre- or organisation-based [12-15], primary health care-based [16-19] or home-based [20]. A diversity of delivery modes have been implemented including face-to-face [8-10, 13, 16], telephone and mail [4, 20], and print and media [5]. Some programs incorporated physical activity promotion as part of broader health promotion intervention approaches [5, 9-11, 17-19, 21]; others focused solely on physical activity [4, 6-8, 12-16, 20]. Many of these studies have seen no effect of the intervention on physical activity [4, 6, 8-11, 15, 18, 19], a number have observed effects in favour of the intervention [5, 7, 12, 14, 16, 20, 21], and one found a negative effect of the intervention on physical activity [13]. Little explanation exists for these mixed findings in terms of intervention setting, delivery mode, use of theory, study duration, or strategy type [3].

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5 The mixed findings observed may be partly attributable to a lack of formative research  
6 exploring the perceived feasibility of and preferences for particular strategies and  
7 intervention delivery modes that best meet the specific needs of this target population.  
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9 Apart from one study among rural Appalachian residents [22], formative research has  
10 tended to be conducted by focusing on eliciting preferences and logistical requirements  
11 related to a pre-determined physical activity program (e.g. [23-25]) or has focused on  
12 barriers and enablers of physical activity (e.g. [26], rather than discussing a range of physical  
13 activity programs or allowing for programmatic themes to emerge from participants.  
14  
15 Women of low SEP face specific barriers to participation in physical activity, including less  
16 social support, financial constraints, and local neighbourhood environments that may be  
17 less supportive of physical activity [27, 28]. Such findings highlight a need for intervention  
18 approaches that address the unique barriers to physical activity experienced by women of  
19 low SEP.  
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38 Prior to initiating further intervention trials – which are costly and time-intensive to  
39 implement – further information on the likelihood of uptake of such strategies is warranted.  
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41 Obtaining such insights, including an understanding of how potential physical activity  
42 promotion strategies are perceived by the target population in terms of their feasibility,  
43 appeal, likely uptake, and barriers to participation, is needed in order to inform effective  
44 intervention development. This study therefore aimed to investigate the perceived  
45 preferences for, feasibility of, and barriers to uptake of a range of intervention approaches  
46 for promoting physical activity among women living in socioeconomically disadvantaged  
47 neighbourhoods.  
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## Methods

During 2008-9, data for this study were collected in the Physical Activity Study (PhActS) [29], part of a broader program of research known as the Resilience for Eating and Activity Despite Inequality (READI) study [30, 31]. The READI study aims to identify the pathways by which socioeconomic disadvantage leads to increased risk of obesity and chronic disease, and understand how this risk can be reduced. It focuses on women aged 18-45 years living in socioeconomically disadvantaged urban and rural areas of Victoria, Australia, and during 2007-8, approximately 4,500 women participated in a postal survey. The Deakin University Human Research Ethics Committee approved this study, and written informed consent was obtained from all participants.

### *Participants*

A purposive sampling approach was used, as detailed previously [29], to recruit non-pregnant women aged 18-45 years living in socioeconomically disadvantaged areas of Victoria who were currently not regularly active (regularly active was defined as doing at least 30 minutes of exercise on most days of the week). Women of childbearing age specifically were targeted, since this is a life stage characterised by substantial barriers to physical activity participation [32, 33] and high risk of weight gain [34]. In quantitative studies, probability sampling is employed in an attempt to select a truly random and statistically representative sample that will permit generalisations to the broader population from which the sample was drawn. In contrast, the logic of purposeful sampling techniques employed in qualitative studies allows for the selection of information-rich cases for in-depth study (depth rather than breadth is the focus)[35]. We sought to recruit approximately 25-30 participants, as this number was expected to provide sufficient depth

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3 and reasonable coverage of the phenomenon under study, and was considered feasible  
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5 within the time and budgetary constraints of the project. After interviews with 20  
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7 participants, no new information was being collected, so interviewing was ceased.  
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12 Three urban and three rural areas in the bottom two deciles of the socioeconomic index for  
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14 areas (SEIFA; defined by the Australian Bureau of Statistics) distribution in Victoria were  
15  
16 purposefully selected. This included one of each rural area classified as Outer Regional,  
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18 Inner Regional and Remote Victoria (classified using the Australian Standard Geographical  
19  
20 Classification [36]), and one urban area that approximated each of inner, middle and outer  
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22 metropolitan Melbourne (based on the distance from the Melbourne central business  
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24 district). Each area had a population size that was within  $\pm 20\%$  of the average usual resident  
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26 population size of that area type. Recruitment brochures were delivered to all residences in  
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28 these six areas, advertisements were placed in local newspapers, and flyers were posted in  
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30 local community health centres, neighbourhood houses, and libraries. Potential participants  
31  
32 were asked to contact the research team via telephone, email or the study website. To  
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34 supplement this recruitment strategy [29], a subsample of women living in areas in the  
35  
36 bottom two deciles of the SEIFA distribution who were enrolled in the larger READI study  
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38 (which sampled areas from the bottom three deciles of the SEIFA distribution), and who had  
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40 indicated in an earlier postal survey that they were willing to participate in further research,  
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42 were also contacted via post and invited to participate. Snowball sampling was also used.  
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### 52 *Data collection*

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54 One-off face-to-face interviews were conducted by one of four female researchers, all of  
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56 whom had at least undergraduate training in public health or a related discipline, and had  
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3 experience in conducting semi-structured interviews. All interviewers attended two half-day  
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5 training sessions conducted by the Project Manager, where protocols were discussed.  
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8 Participants had no prior relationship with interviewers, the Project Manager or the authors,  
9  
10 and the goals of the research were clearly explained to participants prior to interview.  
11

12 Interviews were conducted in public or university libraries and community centres (n=5), the  
13  
14 participant's home (n=3) or the participant's workplace (n=2). Interviews in participants'  
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16 homes and in rural areas were attended by two interviewers for safety reasons. All  
17  
18 interviews were digitally recorded with permission from the participant. Participants were  
19  
20 given the option of reviewing their transcript, but no participants utilised this opportunity.  
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### 26 *Measures*

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28 A semi-structured interview schedule was developed to address the research aims.  
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31 Semi-structured interviews were used because they are perceived by researchers,  
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33 participants and research consumers as a highly acceptable method [37], and were feasible  
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35 for the budgetary constraints of this project. They are also flexible, allow participants to  
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37 express their opinions and beliefs in their own words, and facilitate in-depth understanding  
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39 of issues, which is difficult to achieve using other methods[38]. Pilot testing of interview  
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41 schedules occurred during training, where interviewers interviewed each other; minor  
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43 modifications were made to the interview schedule accordingly.  
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50 A 'portfolio' of nine hypothetical strategies to promote physical activity was developed  
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52 (**Table 1**). Hypothetical strategies are useful because they can be produced relatively quickly  
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54 and cost-effectively, can easily be relayed to participants using simple terminology, can be  
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56 selected to represent a variety of approaches, and convey different scenarios in a  
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3 standardised manner. While responses to hypothetical strategies may not reflect actual  
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5 behaviour, responses may be reflective of participants' behavioural intentions, which are  
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7 highly predictive of physical activity behaviour [39-41]. For this study, strategies were  
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9 intended to reflect a number of domains from social-ecological models [42], and included  
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11 unsupported (e.g. independent) strategies (information kit; online diary; physical activity  
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13 calendar), supported (e.g. involving others) strategies (mobile telephone-delivered text  
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15 messages; community centre-based program with childcare; neighbourhood activities  
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17 program), and fiscal strategies (financial rewards; subsidised gym/recreational club  
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19 membership; cleaner).  
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27 Six of the strategies were identified and/or adapted from existing behaviour change or  
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29 weight loss interventions that have demonstrated effectiveness, or the promise of  
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31 effectiveness, particularly those with relevance to high-risk or hard-to-reach population  
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33 groups. For instance, information kits have been used as a supplement in studies aiming to  
34  
35 increase physical activity (e.g. [43, 44]); calendars have been used as tracking and reminder  
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37 mechanisms [12, 20]; mobile telephone-delivered text messages have been used for  
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39 targeting difficult to reach population groups [45]; internet-based interventions have  
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41 demonstrated some promise in increasing physical activity [46]; financial incentives may be  
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43 effective for promoting weight loss [47]; and subsidised or free gym/recreation club  
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45 memberships may be useful for promoting physical activity [48]. Three strategies were  
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47 developed by the research team to address mediators of socioeconomic inequalities in  
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49 women's physical activity such as lack of childcare, social support, and lack of time [33, 39,  
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51 49-51]. A structured community centre-based group program with the option of childcare  
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53 built into the cost, and an informal neighbourhood-based program with the option of a  
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3 child-minding roster were posed because accessible childcare and social support have been  
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5 identified as important influences on women's physical activity [33, 39, 49, 50]. A cleaner  
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7 (home help) program was suggested as way to address the common barrier of lack of time  
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9 [49, 51], which may be related to housework and home maintenance commitments [33, 51].  
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15 The interview schedule was purposefully structured to explore issues centred on the nine  
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17 hypothetical strategies. Where possible, examples of strategy materials (e.g. information  
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19 kits, calendars) were provided to stimulate discussion. For each strategy, participants were  
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21 asked what they liked and did not like about the strategy, whether they thought the  
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23 strategy would result in them being more active, potential problems or barriers to uptake of  
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25 the strategy, and where appropriate, how and when the strategy would best be delivered.  
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27 For example, when discussing the mobile-telephone delivered intervention participants  
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29 were asked to comment on the preferred content, frequency and source of text messages.  
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31 At the end of each interview, participants were asked to list up to three of the nine  
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33 strategies that they most and least preferred, up to three strategies they were most likely to  
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35 use, up to three strategies that would be most likely to result in increases in their physical  
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37 activity levels, and whether they had any further ideas for other strategies not discussed. All  
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39 interviews were digitally recorded and transcribed verbatim.  
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#### 48 *Analyses*

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50 Transcripts were imported into the NVivo 8 software program (QSR International). The  
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52 analysis involved a process, led by the first author, of reading, re-reading and constant  
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54 comparison of transcripts, with the aim being the identification of common themes [52].  
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57 Segments of transcripts were coded in NVivo for each strategy to identify concepts, issues,  
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3 common and contrasting themes, and answers to common questions. Broad comments and  
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5 emergent themes that were not specific to a strategy were coded separately. Because of the  
6  
7 iterative and flexible nature of qualitative research, consideration of the emerging themes  
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9 was regularly discussed between the research team (the investigators and the interviewers)  
10  
11 during data collection, as recommended by Silverman [53]. The number of times each  
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13 strategy was identified as the most preferred, the most likely to be use, and the most likely  
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15 to result in an increase in physical activity was summed. This information was used to  
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17 identify the most and least preferred strategies.  
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## 27 Results

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29 Of the 28 women who indicated an interest in the study, 19 met eligibility criteria and 17  
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31 participated; a further three women were recruited via snowballing. Of the 20 participants,  
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33 nine were participants in the larger READI study, four responded to newspaper adverts,  
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35 three were recruited via snowballing, two saw flyers in their local neighbourhood centre,  
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37 and two responded to the letterbox drop.  
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43 The characteristics of participants are detailed in **Table 2**. The median age of participants  
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45 was nearly 38 years, just over half were married or living as married, half had completed  
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47 Year 12 or had a diploma/certificate, more than two thirds were working full- or part-time,  
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49 all but one usually spoke English at home, half had no children living in the household, and  
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51 of those with children in the household the median age of children was 8 years.  
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3 Table 3 describes the number of times in total that each program was indicated by  
4 participants as being in their top three most preferred strategies, top three most likely to  
5 increase physical activity strategies, and top three they were most likely to use. Three  
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hypothetical strategies were consistently rated by participants as the most appealing, the most likely to be used, and the most likely to result in increases in physical activity: the community centre-based program with childcare, the cleaner (home help) program, and the neighbourhood program.

#### *Community centre-based program*

The community centre-based program with childcare built into the cost was popular with a diverse range of participants of varying sociodemographic characteristics. This type of program appeared to address a number of barriers, such as childcare and cost, and have multiple benefits, such as the social aspects:

*That appeals to me because [son] is looked after while I can exercise, and I can still interact with other people and gain some motivation, I think, when I'm exercising with those other people. (43 years, full-time work, married, 3-year old child)*

Some participants mentioned that activities in community centres were often more accessible in terms of cost and distance, for example: *"Yeah that's actually sometimes even better because sometimes gyms are either too far away or they're a lot higher price"* (22 years, part-time work, not married, 15-month old child). Others felt that the social aspects were of benefit:

*Maybe meeting new mothers because I've often wanted to join a mother's group, I don't know just meeting new friends in general...Yeah social thing really more than anything for me. (22 years, part-time work, not married, 15-month old child)*

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*That you're getting to meet people and you're probably all there for pretty much the same reasons and you know you could share that with them. (40 years, full-time home duties, divorced, three children)*

The childcare aspect was very appealing to women with both younger and older children.

*I think it's a fabulous idea. Because there's been classes I've wanted to go to, but because I haven't had child minding, and my husband works incredibly long hours, I don't want to just leave him sort of, I mean, as soon as he gets home "Here's the baby, you know, I'm going." (43 years, full-time work, married, 3-year old child)*

*...my kids are a bit older now but I still have the, the problem when I go to the pool...one of my kids is old enough to be in the pool by herself but [son]'s not and you know so you can't go into the gym you know [husband]'s got to be there. (41 years, full-time work, married, two children)*

Support for this program was not just limited to women with children, despite its focus on including childcare; for example.

*That's good, because I always like to do classes, and I always wanted to have my sister along with me and, she has kids and it's impossible, because her husband works offshore, and you know, if you don't have someone who can look after the kids, it's... she just can't go, and...And then obviously, I'm not as motivated to go by myself, so, yeah, no I like that idea. (24 years, full-time work and full-time study, living as married, no children)*

Support for the program was not unanimous however, with some participants expressing concerns such as the class not being tailored to their ability, not wanting to leave their child in care, poor group dynamics, the skills of the instructor, timing conflicts, and cost and transport issues. Illustrative quotes of these themes are reported in Table 4.

#### *Cleaner (home help) program*

The cleaner (or home help) program, where assistance with home duties such as cleaning, ironing or gardening are provided to allow time for physical activity, was the second most popular in terms of appeal, likelihood of use and likelihood of increasing physical activity.

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3 Many of the participants attributed their like of this program to the notion that someone  
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5 else was 'relieving' them of their home duties and acting as a prompt to leave the house and  
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7 participate in some physical activity, and because of the commitment that it would entail.  
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10 *The cleaner one I think is the best....Just because it just seems to hit two birds with*  
11 *one stone. It actually benefits me in the relieving me of something and at the same*  
12 *time it releases me to do something else and it locks me in to a commitment, like if I*  
13 *know the cleaner's coming then, then that's my time to do this...it's like a double*  
14 *time saver. It gives a commitment you know, because it's a set time probably, you*  
15 *know it would be a set time each week, then there's something that is done for me*  
16 *that I don't have to do at home, plus it commits me to going out and doing*  
17 *something. I just, I think that's brilliant. (45 years, full-time work, not married, no*  
18 *children)*  
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21 *I love that idea someone to come in and clean my house. I think it would work for me*  
22 *because it would be someone at my door to say OK I am coming to clean so you need*  
23 *to go. So you have got that outside motivation to say OK off you go, instead of me*  
24 *thinking "will I or won't I go today?" (40 years, full-time home duties, divorced, three*  
25 *children)*  
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30 However, some women felt that it would not help them be more active because they were  
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32 already able to manage, had a small house, had scheduling issues, felt guilty, were  
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34 concerned about trust, or saw housework as a source of physical activity (Table 4 for  
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36 illustrative quotes).  
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#### 42 *Neighbourhood-based program*

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44 The third most popular program was the neighbourhood program, where women from the  
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46 local community are organised to meet and participate in activities that use the local  
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48 environment, with the option of including children or having a child-minding roster. As with  
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50 the community centre-based program, the social element and commitment to others were  
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52 key aspects that many women were attracted to.  
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3 *And then even when you start making friends with people and then they wonder why*  
4 *you're not coming so you think "Oh, I'd better go." So, making you get up and go.*  
5 *(40 years, full-time home duties, divorced, three children)*  
6

7  
8 *It's probably a good way to meet people in your community. I don't think these days'*  
9 *people know a lot of people in their own community. (26 years, full-time work, living*  
10 *as married, no children)*  
11

12  
13 Preferences for a flexible or more structured format were mixed, but appeared to be related  
14 to whether they had children or not. For instance, one woman with a 15-month old child  
15 said '*...you've got more freedom again because you can meet where you feel like it, because*  
16 *there are a lot of parks around here too'* (22 years, part-time work, not married, 15-month  
17 old child). In contrast, a woman with no children mentioned '*I really like the permanence of*  
18 *it. The structure, like women would meet at a set time at a set place'* (21 years, full-time  
19 study, not married, no children).  
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32 Women's preferences around whether or not to include children in the program were  
33 divided.  
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37 *That you can bring your children with you. I know that the mums group that I go to,*  
38 *we'll go for a walk and we'll take the prams and the kids with us. So, yeah, you don't*  
39 *have to think about childcare you just get up and you go... (40 years, full-time home*  
40 *duties, divorced, three children)*  
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43 *Without the kids, just you feel relaxed and no more... noise around and you can do*  
44 *your physical activity without anything more (32-years, full-time keeping*  
45 *house/raising children, married, 4 children)*  
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49 Some women commented that the lack of cost was an important part of their attraction to  
50 the program. Women who perceived the program less favourably voiced concerns such as  
51 preferences for non-group activities, already being too busy, potential problems with  
52 timing, group dynamics, and the weather (see Table 4 for illustrative quotes).  
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### *Least preferred programs*

Mobile telephone-delivered text messages were most commonly considered the least useful intervention, for some because they did not own a mobile telephone, which may be particularly important amongst this population group, while others felt the messages were easy to ignore:

*...obviously the mobile phone, text messages, I don't have a mobile phone. But even if I did have one, I know I'd just delete them. (43 years, full-time work, married, 3-year old child)*

*Because that would be so easy just to ignore. I didn't have to really answer... or feel like I had to answer to anybody and I could just read them and delete them and 'Yeah, OK, fine'. (45 years, part-time work, divorced, no children)*

The subsidised gym memberships and the online diary were also commonly considered as least preferred strategies. Some women expressed that they did not like or would not use the online diary because of a lack of time (*'So depending on how busy you were...I'd say this would be the first thing I would skip'*), lack of internet/computer access, and the potential for privacy breaches (*'I think it has to be private'*). Reasons for not liking the subsidised gym membership included previous negative experiences with gyms or gym staff, the financial and time commitment associated with purchasing a gym membership (e.g. 12 month contracts), and the lack of gyms in the local area.

### *Cross-program themes*

A number of broad themes emerged from the interviews that were not specific to a single strategy, but which provide insights into the perceptions and preferences of participants relating to physical activity promotion programs generally. These themes included the

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3 notion of accountability, structured versus flexible programs, the integration of multiple  
4  
5 strategies, concerns about trust and privacy, and weight-related issues.  
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#### 10 *Accountability*

11  
12 A number of participants discussed the need to be accountable to someone or something  
13  
14 for their physical activity. Without this accountability, these women felt that being left to  
15  
16 their own devices would not provide adequate motivation to participate in any physical  
17  
18 activity.  
19  
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21

22 *And maybe that little bit that you are obliged to go because you have joined and you*  
23 *have made friends and you are part of a group - so you think 'I need to*  
24 *go'....everyone else is sort of keeping an eye on whether you are going to come or*  
25 *not, and why didn't you come last week, is there something wrong....so yeah just that*  
26 *if I don't go then I will have to explain why and it might have been just because I*  
27 *couldn't be bothered. You know you can't have an excuse. I don't have an excuse*  
28 *but I just don't want to go and then I will go. (40 years, full-time home duties,*  
29 *divorced, three children)*  
30  
31

32 *...unless I had to give somebody the form, like my goals and how much exercise I'd*  
33 *done during that time, if I didn't have to answer to anybody I'd be more like 'I'll do it*  
34 *next week.'...I'd feel like it's more of a responsibility. (45 years, part-time work,*  
35 *divorced, no children)*  
36  
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#### 41 *Flexible versus structured programs*

42  
43 There were contrasting views about whether programs should be flexible in nature, or  
44  
45 whether regular, set times and days were preferred. Preferences appeared to be related to  
46  
47 whether the women had other commitments such as child and family responsibilities or  
48  
49 irregular work hours. Women without children commonly commented that they preferred a  
50  
51 regular timeframe for activities:  
52  
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54

55 *It gives a commitment you know, because it's a set time probably, you know it would*  
56 *be a set time each week (45 years, full-time work, not married, no children)*  
57  
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3 *...it would be good if it was sort of a more permanent fixture like a set day on a set*  
4 *time at a set place... (21 years, full-time study, not married, no children)*  
5  
6

7  
8 However, women with young children and/or irregular working hours felt that a more  
9  
10 flexible program would best suit their needs:  
11

12 *As long as there's flexibility. Like in the sense that, 'oh, I might be a bit late', or 'I*  
13 *can't make it, but I'm coming back next week'. (36 years, part-time work, married, 2-*  
14 *year old child)*  
15

16  
17 *I don't see it sort of being compulsory thing, because sometimes you want that bit of*  
18 *freedom where you can come when you feel like it or maybe one week you're feeling*  
19 *sick or something... (22 years, part-time work, not married, 15-month old child)*  
20  
21

### 22 *Multi-component strategies*

23  
24 Some women mentioned that they would most benefit from a combination of strategies, for  
25  
26 example, the information from the information kit delivered through the website, or a  
27  
28 combination of all the different programs:  
29  
30

31  
32 *...if I wanted to run a program I'd be using all of them. (26 years, full-time work,*  
33 *living as married, no children)*  
34

35  
36 *All of them, just because if you had them all working together it's just constant*  
37 *reminder that you need to do exercise and you know reaching goals you can have*  
38 *things. (22 years, full-time work and full-time study, living as married, no children)*  
39  
40

### 41 *Trust and privacy*

42  
43 Some women raised concerns that could be characterised as trust-related. For instance,  
44  
45 some thought the mobile-telephone delivered text messages would be an invasion of their  
46  
47 privacy, depending on where the messages were coming from, for example:  
48  
49

50  
51 *But to me if a government or something does this, it wouldn't, me personally,*  
52 *wouldn't motivate me. It would be sort of like Big Brother telling me go and*  
53 *exercise...Kind of pointing the finger at you? (40 years, part-time work, not married,*  
54 *no children)*  
55  
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3 *This might sound more like telemarketing... (40 years, full-time work, married, no*  
4 *children)*  
5  
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7  
8 Some women had concerns about someone coming into their home as part of the cleaner  
9  
10 program, for instance:

11  
12 *I don't think so because I can clean anytime I want I guess and I mean I live with my*  
13 *parents so they're a bit touchy about people coming in to the house as it is so... (22*  
14 *years, part-time work, not married, 15-month old child)*  
15

16  
17 *I might not trust a cleaner to be in my home on their own. (40 years, full-time work,*  
18 *married, no children)*  
19

20  
21  
22 In the financial incentive program, where money is used as a reward for reaching set goals, a  
23  
24 number of women were concerned about whether other participants would be honest in  
25  
26 reporting their activities, or whether the financial incentive might result in dishonesty.  
27

28  
29 *But you would have to sort of somehow prove that you have got... write it down or*  
30 *get someone to witness it... I don't know. (40 years, part-time work, not married, no*  
31 *children)*  
32

33  
34 *... not doing it for a real reason and just, sort of, slacking off and saying they've done*  
35 *it, and you know, they haven't done it....You'd need to... yeah, you'd definitely need*  
36 *to make sure that you... somehow you'd have to definitely make sure before they got*  
37 *the money....it also makes me wonder how that would be monitored and how yeah,*  
38 *you know, just the honesty factor. I'm not saying oh I'd lie, but I can imagine people*  
39 *going 'yeah, I did that'...And if you're down in Melbourne going 'how do I know*  
40 *you've done that?'* (31 years, unemployed, living as married, four children)  
41  
42

#### 43 44 *Weight*

45  
46 Despite the focus of the hypothetical strategies being on increasing physical activity  
47  
48 participation, many women discussed issues related to weight and weight management. For  
49  
50 instance, in the program where a financial incentive was offered as a reward for achieving  
51  
52 physical activity goals, more than half of the interviewees suggested that rewards should be  
53  
54 based around weight loss. For instance:  
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3 *Every couple of kilos or one kilo would be five dollars you get in your pocket a week or*  
4 *something. It doesn't have to be a great deal but you know something like that. If*  
5 *you lose five kilos you get twenty bucks. (40 years, part-time work, not married, no*  
6 *children)*  
7

8  
9 *If you got paid for losing weight, I think that's wonderful. (44 years, keeping*  
10 *house/raising children full-time, separated, three children)*  
11

12  
13  
14 This type of response was not restricted to the financial rewards program, with a number of  
15  
16 women suggesting incorporating weight loss strategies into other programs, such as the  
17  
18 information kit, neighbourhood program, and online diary:  
19  
20

21  
22 *[the information kit could include] A little bit more about exercise physiology and*  
23 *what your body can do and how to lose weight and the right sort of exercise for you.*  
24 *(40 years, part-time work, not married, no children)*  
25

26  
27 *...you know, your neighbourhood program, like once a week, before they went on*  
28 *their walk or whatever, they all weighed and wrote it in their book or whatever. (405,*  
29 *24 years, full-time work and full-time study, living as married, no children)*  
30

31  
32 *I like the forum idea [on the online diary], being able to sort of see how other women*  
33 *are going. Maybe you could talk about whether anyone's, you know, if you're trying*  
34 *to lose weight, whether you've lost any weight or whatever. (43 years, full-time work,*  
35 *married, 3-year old child)*  
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## Discussion

This study investigated the specific preferences for, feasibility of and barriers to uptake of a range of physical activity promotion approaches amongst women recruited from socioeconomically disadvantaged neighbourhoods, a group at increased risk of physically inactive lifestyles [2]. The lack of evidence of effective approaches for promoting physical activity in this target group underscores the need for a better understanding of the particular intervention approaches that address the most pertinent barriers and are of greatest appeal to women living in socioeconomically disadvantaged areas. This work has identified a number of strategies and strategy components that may hold promise for physical activity promotion interventions in this population group.

Out of nine hypothetical strategies to promote physical activity, a community centre-based program with childcare, cleaner in exchange for physical activity, and a neighbourhood-based program were most commonly perceived as the most appealing, the most likely to be used, and the most likely to result in an increase in physical activity. Despite their different settings and formats, the community centre- and neighbourhood-based programs have common elements including the social dimensions of social support and shared experiences, accountability, and having the option of childcare for those requiring it. Two constructs underscoring these programs, social support and childcare, have consistently been identified as important correlates of physical activity among women [39, 54, 55]. The findings from the current study highlight the importance of addressing these factors in the design of physical activity promotion strategies targeting socioeconomically disadvantaged women.

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3 Another important element of these two strategies, and a theme that emerged across the  
4 spectrum of strategies, was the notion of accountability. Accountability has previously been  
5 identified as a potentially important aspect of physical activity promotion programs among  
6 women [56]. While accountability may involve self-monitoring of physical activity, another  
7 element found to be important for behaviour change [57], participants in the current study  
8 indicated that monitoring and being accountable to someone else would increase the  
9 likelihood of their participation in the program and in physical activity. In some cases, this  
10 appeared to be related to a sense of duty or guilt – the notion that someone else was  
11 relying on them to participate and they did not want to disappoint anyone. Programs may  
12 therefore be more effective if they incorporate a sense of accountability to others, possibly  
13 through the establishment of social networks, behavioural contracts or other reporting or  
14 monitoring mechanisms.  
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33 The novel idea of a cleaner (or other form of home help) in exchange for physical activity,  
34 which has not been empirically tested as a strategy to increase physical activity, may be a  
35 promising avenue for intervention research in this population group. Lack of time, often due  
36 to domestic responsibilities, has been consistently documented as an important barrier to  
37 participation in physical activity among women [51]. This may be particularly pertinent for  
38 women, many of whom juggle work, parenting and other roles. Alleviating some of the time  
39 pressures associated with these roles may relieve some of the guilt associated with taking  
40 ‘time out’ to be active.  
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55 The finding that there was low appeal of mobile-telephone delivered text messages and an  
56 online interactive diary for this target group is of interest as the use of mobile and online  
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3 technologies to deliver physical activity promotion messages is a growing field of enquiry  
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5 with promising results, at least in the short-term [45, 46]. The present findings cast some  
6  
7 doubt on the value of such approaches for women experiencing socioeconomic  
8  
9 disadvantage, who either do not use mobile telephones or computers, do not have internet  
10  
11 access, or would reportedly find such delivery channels unappealing and ineffective.  
12  
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14 Alternately, it could be that programs that use this type of strategy ensure that negotiated  
15  
16 boundaries are well-established prior to commencement in terms of the frequency, type  
17  
18 and source of messages.  
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24 Despite the diverse health benefits of regular participation in physical activity [33], weight  
25  
26 and weight loss were commonly discussed by women in this study as the primary reasons  
27  
28 for being physically active. This may reflect the increased risk of obesity associated with  
29  
30 socioeconomic disadvantage, and hence weight-related benefits of activity may be  
31  
32 particularly pertinent motivators for this target group. Although those developing physical  
33  
34 activity programs could utilise the concept of weight management as a marketing tool (i.e.  
35  
36 an additional incentive to participate), this should be done in the context of emphasising  
37  
38 additional health, social, environmental and economic benefits of physical activity, so as to  
39  
40 avoid the implication that those of a healthy weight do not need to participate in physical  
41  
42 activity.  
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50 Strengths of this study include that it addresses the lack of formative research specifically  
51  
52 targeting the unique needs and barriers of a high risk target group; the range of potential  
53  
54 physical activity promotion initiatives examined, covering a spectrum of programs,  
55  
56 theoretically-derived domains, and physical activity determinants; the use of qualitative  
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3 research methods to gain an in-depth understanding of the context of and reasons for the  
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5 likely appeal or disinterest in various strategies; and the inclusion of a range of women with  
6  
7 various sociodemographic characteristics from both rural and urban socioeconomically  
8  
9 disadvantaged neighbourhoods.  
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15 Despite recruitment from disadvantaged neighbourhoods, a number of participants were  
16  
17 not disadvantaged according to individual-level indicators (e.g. ~~as per Table 2~~, seven  
18  
19 participants had a university qualification [Table 2]). This finding highlights the difficulties in  
20  
21 capturing a sample of extremely disadvantaged women who are at most risk of inactivity,  
22  
23 which we have described previously [29]. However, area-level disadvantage confers risk of  
24  
25 physical inactivity, independently of individual-level socioeconomic position [2, 58-60] , and  
26  
27 there was diversity in the sociodemographic characteristics of participants. Although the  
28  
29 intention of qualitative research is to generate quality, information-rich data to enhance  
30  
31 understandings of issues [38] rather than produce generalisable results, the conclusions  
32  
33 should be considered with caution. In addition, other data collection methods such as focus  
34  
35 group discussions, nominal group techniques or surveys, may have provided different  
36  
37 insights to those gathered through semi-structured interviews.  
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46 A further weakness is that reported preferences and likely use may not necessarily equate  
47  
48 to actual program uptake and physical activity participation, ~~[39-41]~~. The three strategies  
49  
50 selected by participants as most preferred were the three strategies devised by the research  
51  
52 team, and these have not been tested in empirical research. These three strategies require  
53  
54 further testing to establish their effectiveness. Further, the hypothetical strategies were  
55  
56 limited to a non-exhaustive selection of nine strategies, and there may be other strategies  
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3 not proposed that would have greater appeal or uptake. However, strategies were chosen  
4  
5 to represent a broad range of program types, settings, and delivery modes, and participants  
6  
7 were asked if there were other strategies that they would prefer. Few took this opportunity,  
8  
9 and those that did generally suggested minor modifications to the hypothetical programs  
10  
11 posed. No information on past experience of physical activity information was collected,  
12  
13 other than that offered voluntarily by participants during the course of the interviews.  
14  
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18  
19 Acknowledging the limitations, findings from this study provide useful insights to inform the  
20  
21 development and design of physical activity intervention programs specifically tailored to  
22  
23 the needs and preferences of women living in socioeconomically disadvantaged areas.  
24  
25 Irrespective of the strategy form, recommended approaches for this population group may  
26  
27 benefit from giving consideration to developing trust amongst participations and those  
28  
29 involved in program delivery. Strategies may require built-in accountability, the option of  
30  
31 being involved in a flexible or structured program, and comprise multiple components or  
32  
33 delivery channels. Careful consideration should be given in such developmental work to  
34  
35 program social support, accountability, childcare, cost and transport and access issues, and  
36  
37 in-depth feedback should be sought on acceptability prior to effectiveness testing of  
38  
39 physical activity promotion strategies.  
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## References

- 1       Gidlow C, Johnston LH, Crone D *et al.* A systematic review of the relationship between socio-economic position and physical activity *Health Educ Journal* 2006;65:338-367.
- 2       Kavanagh AM, Goller JL, King T *et al.* Urban area disadvantage and physical activity: a multilevel study in Melbourne, Australia *J Epidemiol Community Health* 2005;59:934-940.  
First published on 2005/10/20, 59/11/934 [pii]  
10.1136/jech.2005.035931.
- 3       Cleland V, Granados AO, Crawford D *et al.* Effectiveness of interventions to promote physical activity among socioeconomically disadvantaged women: A systematic review. *10th Annual Scientific Meeting, International Society of Behavioral Nutrition and Physical Activity.* Melbourne, Australia, 2011.
- 4       Jacobs AD, Ammerman AS, Ennett ST *et al.* Effects of a tailored follow-up intervention on health behaviors, beliefs, and attitudes *J Womens Health (Larchmt)* 2004;13:557-568. First published on 2004/07/20, 10.1089/1540999041281016 [doi].
- 5       Wendel-Vos GCW, Dutman AE, Verschuren WMM *et al.* Lifestyle factors of a five-year community-intervention program: the Hartslag Limburg intervention *American Journal of Preventive Medicine* 2009;37:50-56.
- 6       Chang MW, Nitzke S, Brown R. Design and outcomes of a Mothers In Motion behavioral intervention pilot study *J Nutr Educ Behav* 2010;42:S11-21. First published on 2010/04/30, S1499-4046(10)00043-6 [pii]  
10.1016/j.jneb.2010.01.010.
- 7       Fjeldsoe BS, Miller YD, Marshall AL. MobileMums: a randomized controlled trial of an SMS-based physical activity intervention *Ann Behav Med* 2010;39:101-111. First published on 2010/02/23, 10.1007/s12160-010-9170-z.

- 1  
2  
3 8 Olvera N, Bush JA, Sharma SV *et al.* BOUNCE: a community-based mother-daughter healthy  
4 lifestyle intervention for low-income Latino families *Obesity (Silver Spring)* 2010;18 Suppl  
5 1:S102-104. First published on 2010/01/29, oby2009439 [pii]  
6  
7  
8  
9 10.1038/oby.2009.439.  
10  
11 9 Lupton BS, Fonnebo V, Sogaard AJ *et al.* The Finnmark Intervention Study. Better health for  
12 the fishery population in an Arctic village in North Norway *Scand J Prim Health Care*  
13 2002;20:213-218. First published on 2003/02/05.  
14  
15  
16  
17 10 Lucumi DI, Sarmiento OL, Forero R *et al.* Community intervention to promote consumption  
18 of fruits and vegetables, smoke-free homes, and physical activity among home caregivers in  
19 Bogota, Colombia *Prev Chronic Dis* 2006;3:A120. First published on 2006/09/19, A120 [pii].  
20  
21  
22  
23  
24 11 Lupton BS, Fonnebo V, Sogaard AJ. The Finnmark Intervention Study: is it possible to change  
25 CVD risk factors by community-based intervention in an Arctic village in crisis? *Scand J Public*  
26 *Health* 2003;31:178-186. First published on 2003/07/10, 10.1080/14034940210134077  
27  
28  
29  
30  
31 NN4G48ACM1C0GTGK [pii].  
32  
33 12 Opdenacker J, Boen F, Vanden Auweele Y *et al.* Effectiveness of a lifestyle physical activity  
34 intervention in a women's organization *J Womens Health (Larchmt)* 2008;17:413-421. First  
35 published on 2008/03/15, 10.1089/jwh.2007.0464 [doi].  
36  
37  
38  
39 13 Baranowski T, Simons-Morton B, Hooks P *et al.* A center-based program for exercise change  
40 among black-American families *Health Educ Q* 1990;17:179-196. First published on  
41  
42  
43  
44 1990/01/01.  
45  
46 14 Fahrenwald NL, Atwood JR, Walker SN *et al.* A randomized pilot test of 'Moms on the Move':  
47 A physical activity intervention for WIC mothers *Annals of Behavioral Medicine* 2004;27:82-  
48  
49  
50  
51 90.  
52  
53 15 Speck BJ, Hines-Martin V, Stetson BA *et al.* An environmental intervention aimed at  
54 increasing physical activity levels in low-income women *J Cardiovasc Nurs* 2007;22:263-271.  
55  
56  
57 First published on 2007/06/26, 10.1097/01.JCN.0000278957.98124.8a  
58  
59  
60

1  
2  
3 00005082-200707000-00004 [pii].  
4

5 16 Shirazi KK, Wallace LM, Niknami S *et al.* A home-based, transtheoretical change model  
6 designed strength training intervention to increase exercise to prevent osteoporosis in  
7 Iranian women aged 40-65 years: a randomized controlled trial *Health Educ Res*  
8  
9 2007;22:305-317. First published on 2006/08/25, cyl067 [pii]  
10  
11

12 10.1093/her/cyl067 [doi].  
13

14  
15  
16 17 Keyserling TC, Samuel Hodge CD, Jilcott SB *et al.* Randomized trial of a clinic-based,  
17 community-supported, lifestyle intervention to improve physical activity and diet: the North  
18 Carolina enhanced WISEWOMAN project *Prev Med* 2008;46:499-510. First published on  
19  
20 2008/04/09, S0091-7435(08)00097-2 [pii]  
21  
22

23 10.1016/j.ypped.2008.02.011.  
24  
25

26  
27 18 Keyserling TC, Samuel-Hodge CD, Ammerman AS *et al.* A randomized trial of an intervention  
28 to improve self-care behaviors of African-American women with type 2 diabetes: impact on  
29 physical activity *Diabetes Care* 2002;25:1576-1583. First published on 2002/08/28.  
30  
31

32  
33 19 Staten LK, Gregory-Mercado KY, Ranger-Moore J *et al.* Provider counseling, health  
34 education, and community health workers: the Arizona WISEWOMAN project *J Womens*  
35  
36 *Health (Larchmt)* 2004;13:547-556. First published on 2004/07/20,  
37  
38 10.1089/1540999041281133.  
39  
40

41  
42 20 Albright CL, Pruitt L, Castro C *et al.* Modifying physical activity in a multiethnic sample of low-  
43 income women: One-year results from the IMPACT (Increasing Motivation for Physical  
44 ACTivity) project *Annals of Behavioral Medicine* 2005;30:191-200.  
45  
46

47  
48 21 Brown WJ, Lee C, Oyomopito R. Effectiveness of a bilingual heart health program for Greek-  
49 Australian women *Health Promotion International* 1996;11:117-125.  
50  
51

52  
53 22 Kruger TM, Swanson M, Davis RE *et al.* Formative research conducted in rural Appalachia to  
54 inform a community physical activity intervention *Am J Health Promot* 2012;26:143-151.  
55  
56 First published on 2012/01/03, 10.4278/ajhp.091223-QUAL-399.  
57  
58  
59  
60

- 1  
2  
3 23 Gittelsohn J, Steckler A, Johnson CC *et al.* Formative research in school and community-  
4 based health programs and studies: "state of the art" and the TAAG approach *Health Educ*  
5 *Behav* 2006;33:25-39. First published on 2006/01/07, 33/1/25 [pii]  
6  
7  
8  
9 10.1177/1090198105282412.  
10  
11 24 Maddock JE, Silbanuz A, Reger-Nash B. Formative research to develop a mass media  
12 campaign to increase physical activity and nutrition in a multiethnic state *J Health Commun*  
13 2008;13:208-215. First published on 2008/06/24, 793254868 [pii]  
14  
15  
16 10.1080/10810730701807225.  
17  
18 25 Thompson D, Cullen KW, Boushey C *et al.* Design of a website on nutrition and physical  
19 activity for adolescents: results from formative research *J Med Internet Res* 2012;14:e59.  
20  
21 First published on 2012/04/28, v14i2e59 [pii]  
22  
23  
24 10.2196/jmir.1889.  
25  
26  
27 26 Mackintosh KA, Knowles ZR, Ridgers ND *et al.* Using formative research to develop CHANGE!:  
28 a curriculum-based physical activity promoting intervention *BMC Public Health* 2011;11:831.  
29  
30 First published on 2011/10/29, 10.1186/1471-2458-11-831  
31  
32 1471-2458-11-831 [pii].  
33  
34  
35 27 Ball K, Salmon J, Giles-Corti B *et al.* How can socio-economic differences in physical activity  
36 among women be explained? A qualitative study *Women Health* 2006;43:93-113.  
37  
38 28 Ball K, Timperio A, Salmon J *et al.* Personal, social and environmental determinants of  
39 educational inequalities in walking: a multilevel study *J Epidemiol Community Health*  
40 2007;61:108-114.  
41  
42  
43 29 Cleland V, Ball K. Recruiting hard-to-reach populations: lessons from a study of women living  
44 in socioeconomically disadvantaged areas of Victoria, Australia *Health Promot J Austr*  
45 2010;21:243-244. First published on 2010/12/02.  
46  
47  
48 30 MacFarlane AM, Abbott GR, Crawford DA *et al.* Sociodemographic and behavioural  
49 correlates of weight status among women with children living in socioeconomically  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 disadvantaged neighbourhoods *Int J Obes (Lond)* 2009;33:1289-1298. First published on  
4  
5 2009/09/02, ijo2009167 [pii]  
6  
7 10.1038/ijo.2009.167.  
8  
9  
10 31 Cleland V, Hume C, Crawford D *et al.* Urban-rural comparison of weight status among  
11  
12 women and children living in socioeconomically disadvantaged neighbourhoods *Med J Aust*  
13  
14 2010;192:137-140. First published on 2010/02/04, cle10612\_fm [pii].  
15  
16 32 Andajani-Sutjahjo S, Ball K, Warren N *et al.* Perceived personal, social and environmental  
17  
18 barriers to weight maintenance among young women: A community survey *Int J Behav Nutr*  
19  
20 *Phys Act* 2004;1:15.  
21  
22 33 Welch N, Hunter W, Butera K *et al.* Women's work. Maintaining a healthy body weight  
23  
24 *Appetite* 2009;53:9-15. First published on 2009/05/19, S0195-6663(09)00499-1 [pii]  
25  
26 10.1016/j.appet.2009.04.221.  
27  
28  
29 34 Ball K, Crawford D, Ireland P *et al.* Patterns and demographic predictors of 5-year weight  
30  
31 change in a multi-ethnic cohort of men and women in Australia *Public Health Nutr*  
32  
33 2003;6:269-281.  
34  
35 35 Patton MQ. Sampling and triangulation. In: Patton MQ (ed). *Qualitative evaluation and*  
36  
37 *research methods*. Newbury Park: Sage Publications, 1990, 165-198.  
38  
39  
40 36 Australian Bureau of Statistics. Statistical Geography Volume 1 - Australian Standard  
41  
42 Geographical Classification (ASGC). In: Trewin D (ed). Canberra: Australian Bureau of  
43  
44 Statistics, 2006, 38-40.  
45  
46 37 Borreani C, Miccinesi G, Brunelli C *et al.* An increasing number of qualitative research papers  
47  
48 in oncology and palliative care: does it mean a thorough development of the methodology  
49  
50 of research? *Health Qual Life Outcomes* 2004;2:7. First published on 2004/01/27,  
51  
52 10.1186/1477-7525-2-7  
53  
54 1477-7525-2-7 [pii].  
55  
56  
57  
58  
59  
60



- 1  
2  
3 38 Hansen EC. Research Design and Rigour. In: Hansen EC (ed). *Successful Qualitative Health*  
4 *Research: A practical introduction*. Crows Nest, NSW: Allen & Unwin, 2006, pp. 49-53.  
5  
6  
7 39 Cleland V, Ball K, Hume C *et al*. Individual, social and environmental correlates of physical  
8 activity among women living in socioeconomically disadvantaged neighbourhoods *Soc Sci*  
9 *Med* 2010;70:2011-2018. First published on 2010/04/07, S0277-9536(10)00191-7 [pii]  
10  
11  
12  
13  
14 10.1016/j.socscimed.2010.02.028.  
15  
16 40 Cleland VJ, Ball K, Salmon J *et al*. Personal, social and environmental correlates of resilience  
17 to physical inactivity among women from socio-economically disadvantaged backgrounds  
18 *Health Educ Res* 2010;25:268-281. First published on Epub 2008 Oct 29, cyn054 [pii]  
19  
20  
21  
22 10.1093/her/cyn054.  
23  
24  
25 41 Trost SG, Owen N, Bauman AE *et al*. Correlates of adults' participation in physical activity:  
26 review and update *Med Sci Sports Exerc* 2002;34:1996-2001.  
27  
28  
29 42 Sallis J, Owen N. Ecological models of health behavior. In: Glanz K, Rimer BK, Lewis FM (eds).  
30 *Health Behavior and Health Education: Theory, Research & Practice*. San Francisco, USA:  
31 Jossey-Bass, 2002, 462-484.  
32  
33  
34  
35 43 Eakin EG, Reeves MM, Lawler SP *et al*. The Logan Healthy Living Program: a cluster  
36 randomized trial of a telephone-delivered physical activity and dietary behavior intervention  
37 for primary care patients with type 2 diabetes or hypertension from a socially disadvantaged  
38 community--rationale, design and recruitment *Contemp Clin Trials* 2008;29:439-454. First  
39 published on 2007/12/07, S1551-7144(07)00159-0 [pii]  
40  
41  
42  
43  
44 10.1016/j.cct.2007.10.005.  
45  
46  
47  
48 44 Koffman DM, Bazzarre T, Mosca L *et al*. An evaluation of Choose to Move 1999: an American  
49 Heart Association physical activity program for women *Arch Intern Med* 2001;161:2193-  
50 2199. First published on 2001/11/14, ioi00788 [pii].  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 45 Fjeldsoe BS, Marshall AL, Miller YD. Behavior change interventions delivered by mobile  
4 telephone short-message service *Am J Prev Med* 2009;36:165-173.  
5  
6 10.1016/j.amepre.2008.09.040.  
7  
8  
9 46 Vandelanotte C, Spathonis KM, Eakin EG *et al.* Website-delivered physical activity  
10 interventions a review of the literature *Am J Prev Med* 2007;33:54-64. First published on  
11 2007/06/19, S0749-3797(07)00164-X [pii]  
12  
13 10.1016/j.amepre.2007.02.041.  
14  
15  
16 47 Volpp KG, John LK, Troxel AB *et al.* Financial incentive-based approaches for weight loss: a  
17 randomized trial *JAMA* 2008;300:2631-2637. First published on 2008/12/11, 300/22/2631  
18 [pii]  
19  
20 10.1001/jama.2008.804.  
21  
22  
23 48 Yancey AK, McCarthy WJ, Harrison GG *et al.* Challenges in improving fitness: results of a  
24 community-based, randomized, controlled lifestyle change intervention *J Womens Health*  
25 (*Larchmt*) 2006;15:412-429. First published on 2006/05/27, 10.1089/jwh.2006.15.412.  
26  
27  
28 49 Eylar AA. Personal, social, and environmental correlates of physical activity in rural  
29 Midwestern white women *Am J Prev Med* 2003;25:86-92.  
30  
31  
32 50 Giles-Corti B, Donovan RJ. The relative influence of individual, social and physical  
33 environment determinants of physical activity *Soc Sci Med* 2002;54:1793-1812.  
34  
35  
36 51 Welch N, McNaughton SA, Hunter W *et al.* Is the perception of time pressure a barrier to  
37 healthy eating and physical activity among women? *Public Health Nutr* 2009;12:888-895.  
38 First published on 2008/07/24, S1368980008003066 [pii]  
39  
40 10.1017/S1368980008003066.  
41  
42  
43 52 Hansen EC. Analysing Qualitative Data. In: Hansen EC (ed). *Successful Qualitative Health*  
44 *Research: A practical introduction*. Crows Nest, NSW: Allen & Unwin, 2006, pp. 147-152.  
45  
46  
47 53 Silverman D. *Doing qualitative research* London: Sage,2005.  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 54 Eyler AA, Brownson RC, Donatelle RJ *et al.* Physical activity social support and middle- and  
4 older-aged minority women: results from a US survey *Soc Sci Med* 1999;49:781-789. First  
5 published on 1999/08/25, S0277953699001379 [pii].  
6  
7  
8  
9  
10 55 Wilcox S, Castro C, King AC *et al.* Determinants of leisure time physical activity in rural  
11 compared with urban older and ethnically diverse women in the United States *J Epidemiol*  
12 *Community Health* 2000;54:667-672.  
13  
14  
15  
16 56 Heesch KC, Dinger MK, McClary KR *et al.* Experiences of women in a minimal contact  
17 pedometer-based intervention: a qualitative study *Women Health* 2005;41:97-116. First  
18 published on 2005/10/13.  
19  
20  
21  
22 57 Lombard C, Deeks A, Jolley D *et al.* A low intensity, community based lifestyle programme to  
23 prevent weight gain in women with young children: cluster randomised controlled trial *BMJ*  
24 2010;341:c3215. First published on 2010/07/16, 10.1136/bmj.c3215  
25  
26  
27  
28  
29 bmj.c3215 [pii].  
30  
31 58 King T, Kavanagh AM, Jolley D *et al.* Weight and place: a multilevel cross-sectional survey of  
32 area-level social disadvantage and overweight/obesity in Australia *Int J Obes (Lond)*  
33 2006;30:281-287.  
34  
35  
36  
37 59 van Lenthe FJ, Brug J, Mackenbach JP. Neighbourhood inequalities in physical inactivity: the  
38 role of neighbourhood attractiveness, proximity to local facilities and safety in the  
39 Netherlands *Soc Sci Med* 2005;60:763-775. First published on 2004/12/02,  
40  
41  
42  
43  
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**Table 1: Description of the nine hypothetical physical activity promotion strategies**

Strategy	SEM Domain Targeted	Detail
Unsupported programs		
Information kit	Intrapersonal	A folder containing a range of information about the benefits of exercise, activity recommendations, suggested activities, overcoming barriers, an exercise planner, and an action plan
Calendar	Intrapersonal, social	A calendar with gender and seasonally-tailored messages to promote activities that focus on involving the family in physical activity; there is space for setting monthly goals and reminders and prompts regarding being active
Online diary and email	Intrapersonal, social	A website where participants can sign in and can keep track of their physical activity, obtain ideas about how to be active, chat with other women and receive emails tailored in response to their current motivation level
Supported programs		
Mobile telephone-delivered messages	Intrapersonal, social	Text messages are sent to the participant's mobile telephone to provide incentive, motivation, and ideas to help them be more active
Community centre-based	Intrapersonal, social, environmental,	Physical activity classes held at a local community centre or similar facility

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	<p>program with childcare</p> <p>Neighbourhood program</p> <p>Economic programs</p> <p>Financial incentives</p> <p>Subsidised gym membership</p> <p>Cleaner</p>	<p>economic</p> <p>Social, environmental</p> <p>Economic</p> <p>Economic, environmental</p> <p>Environmental , economic</p>	<p>that can provide childcare for the duration of the lesson (if applicable), with the cost of childcare built into the class fees</p> <p>Women from the local community are organised to meet and participate in activities that use the local environment (e.g. parks, walking tracks, recreational areas); activities either include children, or a child- minding roster is organised within the group.</p> <p>Participants receive a set amount of money when they reach set physical activity goals (either from an external source or via payment of a deposit at commencement which is returned when they meet goals)</p> <p>Local gyms/fitness centres offer a discounted membership fee</p> <p>A cleaner (or similar home help) is provided for 1 hour per week over one or more sessions (1 hr; 2 x ½ hr); during this time the participant must engage in a physical activity she would otherwise not be able to do (attend a class, go for a vigorous walk, jog, play a team sport)</p>
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SEM: social-ecological model

**Table 2: Characteristics of PhActs study participants (n=20)**

Characteristic	n or median	% or range
	median	min, max
Age (years)	37.5	21, 45
Age of children (years)	8	0.4, 21
	<b>n</b>	<b>%</b>
Marital status (n, %)		
Never married	6	30
Married/living as married	11	55
Separated/divorced	3	15
Highest qualification		
<Year 12	3	15
Year 12, certificate/diploma	10	50
University degree	7	35
Highest qualification of spouse		
No spouse/no response	8	40
<Year 12	3	15
Year 12, certificate/diploma	7	35
University degree	2	10
Employment status		
Keeping house/raising children full-time	4	20
Studying full-time	1	5
Working full-time	8	40
Working part-time	5	25
Unemployed/laid off	2	10
Employment status of spouse		
No spouse/no response	9	45

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Keeping house/raising children full-time	1	5
Working full-time	8	40
Working part-time	1	5
Unemployed/laid off	1	5
English usually spoken at home		
Yes	19	95
No	1	5
No. of children in the household		
None	10	50
One	4	20
Two	1	5
Three or more	5	25

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For Peer Review

**Table 3: Total number of times each strategy selected as most preferred, most likely to use, and most likely to increase activity\*, and least preferred strategies**

Strategy	Most Popular	Least Popular
Community centre-based program with childcare	19	0
Cleaner	17	2
Neighbourhood program	15	0
Online diary and email	13	5
Calendar	12	3
Financial incentives	10	3
Information kit	9	3
Subsidised gym membership	8	5
Mobile telephone-delivered messages	1	7

\*Participants were able to indicate up to three strategies for each question



**Table 4: Examples of text to illustrate participant concerns about the three most popular physical activity promotion strategies**

Program and Concern	Illustrative quote
Community centre-based program	
Lack of tailoring to ability	<i>'If they are too fast or involve too many steps'</i>
Scheduling	<i>'They're never ever out of work hours'</i>
Concerns about childcare	<i>'She's never been in childcare, I'd be a bit apprehensive about leaving her for the first time'</i>
Group dynamics	<i>'I couldn't stand being with people that I don't like'</i>
Instructor skills	<i>'I'm wary because of wanting to make sure the instructor's you know, going to be able to manage it and those kind of things'</i>
Cost	<i>'The costs of those places are quite prohibitive'</i>
Transport	<i>'I've got no money to pay for anything like that... and no transport'</i>
Cleaner (home help) program	
Lack of need	<i>'I have got a pretty small place, I would probably clean my own'</i>
Scheduling	<i>'That's a bit difficult though if you're working full time'</i>
Domestic chores an activity opportunity	<i>'That's a really good idea, but like, doing chores around the house, that's exercise. And if you're vacuum cleaning, that works up a sweat as if you're going for a walk or something'</i>
Guilt	<i>'They'd make me feel that bad I'd have to send them home and start myself'</i>
Trust	<i>'I guess you've got to trust the person but just knowing people they could touch my things and stuff'</i>
Neighbourhood-based program	

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Lack of time	<i>'You have your own social group and then it's hard to keep in touch with it all'</i>
Preference for non-group activities	<i>'I'm not a real neighbourhood type person'</i>
Scheduling	<i>'It could be the time of day' 'It's always been in the day or the weekends'</i>
Group dynamics	<i>'There might be someone in the group that you don't like or they might not like you'</i>
Weather	<i>'It might be too hot or it might be raining'</i>

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For Peer Review