

Pram Walking Project Report

Sydney West Area Health Service

Implementing and evaluating pram walking groups for new mothers in Western Sydney



Pram Walking Project Report

The Pram Walking Project

was a joint initiative of Sydney West Area Health Service (formerly Western Sydney Area Health Service), NSW Health, NSW Department of Tourism, Sport and Recreation, NSW Department of Women and the Australian Catholic University. In the report, Western Sydney refers to the broad geographical area west of the Sydney CBD.

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Executive Summary

There is now a substantial body of evidence on the health benefits of physical activity. Physical inactivity has been linked to cardiovascular disease, diabetes, some cancers, osteoporosis and poor mental health. Mothers of young babies and Australian women from non-English-speaking (NESB) backgrounds have been identified as seldom engaging in physical activity. New mothers and NESB mothers face special barriers to physical activity participation including lack of child-care, having no one to exercise with, little time and cost.

Based on the original Strollers Pramwalking program, the Pram Walking Project¹ was implemented in the Western Sydney area in 2001-02. It aimed to overcome these key barriers to physical activity participation for new mothers. Western Sydney was chosen as the target area for the project as (a) women from Western Sydney are less physically active compared to NSW women in general; (b) much of Western Sydney is socioeconomically disadvantaged compared with other areas in metropolitan NSW; (c) Western Sydney has a comparatively high standardised mortality rate for all causes; and (d) Western Sydney is culturally diverse with close to one third of residents born overseas.

The Pram Walking Project evaluated the feasibility and effectiveness of promoting and implementing pram walking groups for new mothers in Western Sydney. A quasi-experimental study with both an intervention and control group was conducted for English-speaking mothers. Mothers in the intervention group were recruited from Blacktown Local Government Area (LGA) and control mothers were recruited from Holroyd and Parramatta LGAs. A qualitative study of Arabic and Chinese speaking mothers was carried out in Auburn LGA. The Pram Walking Project was a joint initiative of: NSW Health; NSW Department of Sport and Recreation; NSW Department of Women; Australian Catholic University, and Sydney West Area Health Service - Health Promotion.

Sixty mothers were recruited into the intervention group and 48 mothers into the control group from early childhood clinics in the study areas. These groups

were similar at baseline on all characteristics except that a higher proportion of the control women were on maternity leave and were attending a new mothers group. The higher proportion of controls attending a new mothers group was explained by the recruitment process. More of the controls were recruited from new mothers groups by project staff whilst more of the intervention group were recruited by early childhood nurses while they were visiting an early childhood centre. The study design stipulated that early childhood nurses would recruit all English-speaking mothers. Due to a poor response in some areas the project staff became involved in recruitment.

The process results revealed that only 20% of mothers in the intervention group had attended a pram walking group at least once a fortnight and only 35% attended once a month or more. The pram walking intervention had no significant effect on the proportion of women classified as engaging in adequate physical activity to confer a health benefit. Nor was there any significant difference in physical activity participation between the intervention and control groups at baseline or follow-up. The intervention group however had increased their episodes of vigorous activity at follow-up while the controls had increased the number of minutes walked.

After six months of pram walks, 81% of study participants were successfully followed up. In addition to the questions measuring physical activity participation the impact on new mothers' social contact and mental health was evaluated. While there was no significant difference in satisfaction with social contact at baseline between women in the intervention and control groups, at follow-up women in the intervention group were significantly more satisfied than the controls. There was limited evidence that the women who attended a pram walking group on average at least once a month were the most satisfied with their social contact. From baseline to follow-up the mental health of both intervention and control women remained the same.

Qualitative feedback from the mothers who attended the pram walking groups was positive. The mothers

Executive Summary

reported that they looked forward to getting out of the house and had made new friendships with others they had met in the group. The only improvements suggested were to run the pram walking groups on more days and times per week.

Focus groups were held with Arabic and Chinese-speaking mothers of children under five to explore the acceptance of pram walking groups and the barriers specific to these women. The Arabic-speaking women shared fond memories of the physical activity they did before they had children. They felt that now their priority was looking after their children and attending to family responsibilities. These women were concerned about the safety aspect of pram walking in the street. The Chinese-speaking women reported that they already walk everywhere, walking the older children to school, walking the baby to the shops and walking to visit friends and relatives. Rather than join a pram walking group the Chinese-speaking women expressed an interest in attending social activities such as picnics where they could meet new mothers like themselves and exchange ideas about taking care of babies.

In summary, the results from the Pram Walking Project suggest that attendance at pram walking groups promotes friendships between new mothers, boosting their satisfaction with social contact and possibly their mental health. In line with other studies we found that providing an appropriate physical activity opportunity was not sufficient to increase overall participation in physical activity. The major barriers identified by English-speaking women attending a pram walking group were the baby's sleep time and the mother returning to work. Due to their low adherence levels, pram walking groups have limited application as a community-based physical activity promotion strategy, unless wider organisational and infrastructure support can be obtained from health personnel such as nurses in early childhood health centres. However, pram walking groups should not be overlooked as a means to keep new mothers involved in some form of physical activity at a time when their physical activity participation is at an all time low.

1. Introduction

1.1 Background

1.1.1

Physical activity and health

Physical inactivity is a major modifiable risk factor for coronary heart disease, stroke, type 2 diabetes, osteoporosis and colon cancer (Australian Institute of Health and Welfare [AIHW], 1999). Between six and seven percent of the total disease and injury burden in Australia can be attributed to physical inactivity (AIHW, 1999). Physical activity levels are also linked to psychosocial well-being in particular less depression, anxiety, stress and negative mood (Scully, Kremer, Meade, Graham and Dudgeon, 1998). Short 15 minute bouts of walking in a group have been found to improve affect (Ekkekakis, Hall, VanLanduyt and Petruzzello, 2000). There are also added health benefits from the social interaction that occurs during group-based physical activity. Studies have found positive associations between social relationships and physical and mental health (Brissette, Cohen and Seeman, 2000). Early research which focused on the relationship between social integration and mortality rates found that people who were socially isolated were at increased mortality risk (Berkman, 1995). Research on new mothers has found a protective relationship between social networks and postpartum depression (O'Hara, 1986).

1.1.2

Physical activity participation in women

Australian women are less physically active than men. The 1999 National Physical Activity Survey of Australian adults revealed that 54% of women compared to 60% of men are 'sufficiently' active (AIHW, 2000). Sufficient time spent in physical activity to confer a health benefit was defined as '150 minutes per week, using the sum of walking, moderate activity and vigorous activity (weighted by two)'. The National Physical Activity Guidelines for Australians (Commonwealth Department of Health and Aged Care, 1999) recommend the accumulation of 30 minutes of moderate physical activity on most (5) days of the week.

Women from Western Sydney are less active compared to NSW women in general. The 1997 NSW Health Survey found that 40% of females living in Sydney West Area Health Service (AHS) were undertaking adequate levels of physical activity for health benefit compared with 47% of females in NSW. Women from Western Sydney AHS were ranked second lowest out of all 17 Area Health Services, above South Western Sydney AHS where 39% of women were engaging in adequate physical activity (Public Health Division, 2000). Women with children under five (AIHW, 2000) and Australian women from non-English-speaking backgrounds (NESB) are also less likely to exercise than other Australians (Lee and Brown, 1998).

Physical activity participation is declining in Australia and more so for women. Between 1997 and 1999 the percentage of women sufficiently active fell from 61% to 54% compared with a drop from 63% to 60% for men (AIHW, 2000). The NSW Physical Activity Survey for 1997 revealed that less than half the females in Sydney West Area Health Service (SWAHS) undertook any moderate exercise (Commonwealth Department of Health and Aged Care, 1999). Moderate and vigorous physical activity was less common among females from SWAHS (47.0% and 29.4%) compared with all females in NSW (56.3% and 31.4%) (Commonwealth Department of Health and Aged Care, 1999).

1.1.3

Physical activity interventions with mothers of young children and babies

In Australia few physical activity intervention studies have targeted women with young children. There has also been limited research into the impact of physical activity on the physical and psychosocial well-being of postpartum women (Sampsel, Seng, Yeo, Killian and Oakley, 1999). The Proactive Mums project is one study which aimed to evaluate the efficacy of two strategies for promoting increased physical activity among mothers of preschool-aged children (Miller, Trost and Brown, 2002). Mothers attending preschools

1. Introduction

and childcare centres were invited to participate in the project. Childcare centres were randomly allocated to one of three groups. Group 1 was a control group and women in Group 2 and Group 3 were given print information about overcoming physical activity barriers. Women in Group 3 centres were also invited to attend a meeting to plan local strategies to overcome the barriers preventing them from engaging in physical activity. Some of these strategies were then implemented through collaboration among participants, researchers, and community organisations. Immediately after the intervention, women in Group 3 were significantly more likely to be engaging in adequate physical activity (at least 150 minutes of moderate physical activity per week) than controls. Increased self-efficacy and partner support facilitated this increased physical activity participation. The intervention effect however was not sustained at the long-term follow-up five months after the project staff had withdrawn their support.

A pram walking intervention has recently been implemented and evaluated for new mothers in the Manly-Warringah region of Sydney (Currie and Develin, 2000). Mothers liked both the social and the fitness benefits of group pram walking. One of the major barriers to physical activity for women with young children is childcare. Pram walking as a physical activity overcomes this barrier. A major barrier for Australian women from non-English-speaking backgrounds is having no one to exercise with (Lee and Brown, 1998). Currie and Develin recommend that pram walking be organised and administered through existing early childhood health centre infrastructure (Currie and Develin, 2000). To date exercise has not been well-integrated into evidence-based nursing interventions for postpartum women. A pram walking intervention was used in this study to overcome the special barriers to physical activity participation faced by most new mothers and NESB mothers, in terms of childcare, cost, time and social isolation (Currie and Develin, 1999).

1.1.4 About Western Sydney

Western Sydney is culturally diverse with 32.1% of residents born overseas compared to 23.1% for NSW overall (Chan and Close, 2000). The ten most common overseas countries of birth for residents of Western Sydney are England, Philippines, Lebanon, China, New Zealand, India, Malta, Hong Kong, Vietnam and Italy. Much of SWAHS is socioeconomically disadvantaged compared with other areas in metropolitan NSW with relatively high proportions of households with low incomes, low educational achievements and unskilled workers (Centre for Epidemiology, Indicators, Research and Evaluation, 2000).

Among the five Local Government Areas (LGAs) of Western Sydney, Auburn has the highest proportion of people born overseas. In 1996 more than half (52%) of the population in the Auburn LGA was born overseas (Chan and Close, 2000). Nearly two thirds (62%) of residents in Auburn spoke a language other than English at home (Chan and Close, 2000). The most common languages other than English were: Arabic (21.0%), Cantonese (16.8%), Turkish (11.8%) and Vietnamese (5.5%). Many of these people have poor English language proficiency. In Auburn 60.5% of the female residents born in China and 37.5% of females born in Lebanon speak English 'not well' or 'not at all'. Auburn residents are disadvantaged in terms of measures of socioeconomic status that are associated with poor health. Auburn LGA has relatively high proportions of households with low income and unskilled workers (Centre for Epidemiology, Indicators, Research and Evaluation, 2000). The unemployment rate for residents of Auburn (14.3) is much higher than the rate for Western Sydney as a whole (8.0) (Chan and Close, 2000) and the NSW rate (8.0) (ABS, 1996).

The standardised mortality rate for all causes in NSW in 1998 was 580.6 per 100,000 persons. This compares with 669.2 for Blacktown, 552.0 for Holroyd and 602.7 for Parramatta (Achat, Shafiq and Chan, 2001). Similarly, compared to NSW (231.8), residents of Blacktown (280.1) and Parramatta (266.2) had

1. Introduction

higher mortality related to circulatory diseases (Achat, Shafiq and Chan, 2001).

1.1.5 The Pram Walking Project

The Pram Walking Project aimed to evaluate the feasibility and effectiveness of promoting and implementing pram walking groups for new mothers in Western Sydney. Pram walking groups for English-speaking mothers were set up in Blacktown, Parramatta and Holroyd LGAs and groups for Arabic and Cantonese speaking mothers were held in Auburn LGA.

1.2 Project Objectives

- > To test the feasibility and acceptability of pram walking groups with English-speaking new mothers in Western Sydney.
- > To determine the effect of a pram walking intervention on self-reported physical activity, mental health and social indicators of English-speaking new mothers in Western Sydney.
- > To test the feasibility and acceptability of pram walking groups with Arabic and Cantonese-speaking mothers in Auburn LGA.

1.3 Project Management

The Pram Walking Project was a joint initiative of:

- > NSW Health;
- > NSW Department of Sport and Recreation;
- > NSW Department of Women;
- > Australian Catholic University; and
- > Sydney West Area Health Service – Health Promotion.

The project was funded by: NSW Health, NSW Department of Sport and Recreation, NSW Department of Women and Sydney West Area Health Service.

The project was managed by a Steering Committee with representatives from: Auburn Community Health Centre, Auburn Early Childhood Centre, Australian Catholic University, Blacktown Community Health

Centre, Blacktown Early Childhood Centre, Blacktown Health Promotion Unit, Doonside Community Health Centre, Merrylands Community Health Centre, Mt Druitt Community Health Centre, NSW Department for Women, NSW Department of Sport and Recreation, NSW Health, Transcultural Mental Health Centre and Sydney West Area Health Service.

A Research officer and a Project officer, based at Western Sydney Area Health Promotion were both employed three days per week to implement the project during 2001. For a full list of the members on the Pram Walking Project Steering Committee see Appendix 1.

2. Methods

2.1 Study Design

The Pram Walking Project contained two key components as part of its evaluation:

- > a prospective quantitative cohort study of English-speaking mothers and
- > a qualitative study of Arabic and Chinese-speaking mothers.

The prospective cohort study had both an intervention and control group. Different LGAs were chosen for the intervention and control groups to minimise the risk of control contamination. Mothers in the intervention group were recruited from Blacktown LGA. The control mothers were recruited from Holroyd and Parramatta LGAs. These LGAs were chosen because they are the three LGAs most alike in NESB composition and socio-economic status among the five LGAs of SWAHS. In 1996 around one third of the residents of Blacktown, Holroyd and Parramatta LGAs were born overseas compared to one quarter of Baulkham Hills and one half of Auburn residents (Chan and Close, 2000). Similarly the unemployment rates for residents of Blacktown (9.1), Holroyd (8.3) and Parramatta (8.8) were quite different from the rate for Baulkham Hills (3.5) and Auburn (14.3) (Chan and Close, 2000).

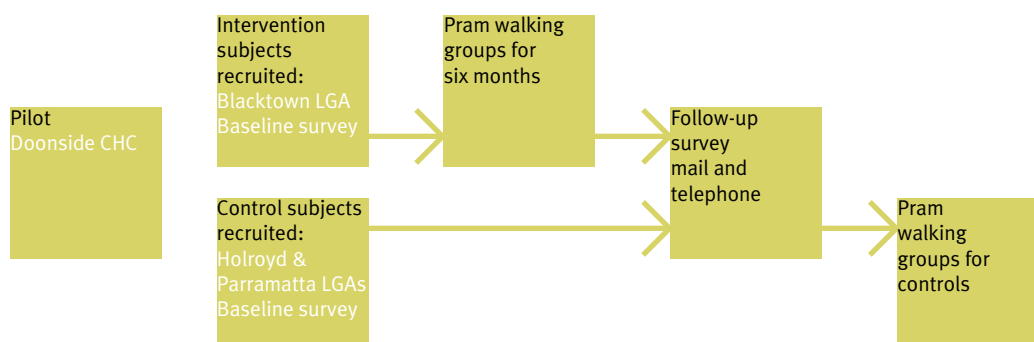
Follow-up measurement was undertaken six months after commencement of the intervention. Recruitment of Arabic and Chinese-speaking mothers for the

qualitative study began when the intervention period had ceased. These mothers were recruited from Auburn LGA as it has the highest proportion of residents with poor English language proficiency (Chan and Close, 2000). Figure 1 illustrates the Pram Walking Project study design.

2.2 Pilot Study

A pilot study was conducted at Doonside Community Health Centre in Blacktown LGA to test both the recruitment process and the pram walking questionnaire. The pram walking research and project officers met with three nurses from Doonside Community Health Centre mid-February 2001. The project rationale and contents of the recruitment kits were explained to the nurses. Early childhood nurses were instructed to recruit new mothers with babies aged zero to three months on their first home visit who were capable of filling out a questionnaire in English. Recruitment lasted two weeks commencing 14 February 2001. After one week, each of the three nurses had only recruited one mother. The research officer asked the nurses to keep recruiting for a second week. Another three mothers were recruited in the second week. The research officer attended a new mothers group at Doonside Community Health Centre to further pilot the pram walking questionnaire. Thirteen additional pilot questionnaires were filled-out.

Figure 1.
The Pram Walking Project prospective cohort study design



2. Methods

Recommendations from the pilot study included:

- > Extend the cut-off age of babies beyond three months to increase the study population;
- > Allow mothers to complete the questionnaire in the waiting room if pressured for time;
- > Remove the stipulation of recruitment being at the first visit. The nurses found that there was no time to recruit mothers at the first visit as they had extra paperwork to complete. Nurses also felt the first visit was an inappropriate time to bring up physical activity as mothers were mainly concerned with sleep and feeding, and;
- > Not include the Edinburgh Postnatal Depression Scale (EPDS) in the pram walking project. The nurses questioned the validity of using this scale before six to eight weeks post birth. During the early postnatal period mothers may have temporary baby blues thus inflating the EPDS. Nurses were also concerned with the issue of duty of care in the case of a mother with a high score on the EPDS and the lack of follow-up that could be provided in the study.

Following the pilot study the Steering Committee met to discuss the optimum recruitment period and the inclusion of the EPDS. It was decided to:

- > Include mothers with babies from birth to six months in the study. A cut-off at six months was chosen as nurses had observed a distinction in babies functioning at this time and were themselves using the period from zero to six months for their new mothers groups.
- > Not include the EPDS and instead use the SF36 mental health scale (Ware, Snow, Kosinski and Gandek, 1993). The SF36 was chosen because of its widespread use including Australian norms (Australian Bureau of Statistics, 1997) and because it overcomes the confidentiality and duty of care issues around use of the EPDS.

2.3 Recruitment and Training of Nurses

2.3.1 English-speaking Pram Walking Study

Nurses were recruited from community health centres and early childhood centres in the Blacktown, Holroyd and Parramatta LGAs. The research officer contacted all Nursing Unit Managers (NUMs) to arrange for the pram walking staff to attend the community nurses' team meetings in these areas. During March 2001 the research officer and project officer attended community nurse team meetings in Blacktown, Doonside, Mt Druitt, Merrylands and Parramatta. At each meeting the pram walking staff explained the rationale for the project, trained nurses in the methods of delivering the intervention and distributed the recruitment kits. The response from the nurses ranged from enthusiastic and encouraging to not very interested.

The pram walking recruitment kits contained:

- > A laminated step-by-step instruction sheet for the nurse to follow (Appendix 2);
- > Twenty-five pram walking maps and information guides for women interested in joining a pram walking group (Appendix 3);
- > Twenty pram walking baseline questionnaires with prize draw slips attached (Appendix 4);
- > Twenty consent to participate in research forms (Appendix 5);
- > Twenty pram walking project participant information sheets (Appendix 6), and;
- > Two reply paid addressed envelopes for nurses to return the study materials.

The pram walking questionnaires, consent forms and participant information sheets were labelled with matching identification numbers. Kits were left in the mail boxes of those nurses who were absent from the team meeting.

2. Methods

2.4 Recruitment of Mothers

2.4.1

English-speaking Pram Walking Study

A six-week recruitment period for mothers commenced on 7 March 2001. The study population for both intervention and control groups was mothers with babies aged six months and under. The only inclusion criterion was that the mother be capable of filling out a questionnaire in English. The only exclusion criterion was mothers with sick infants as defined by the recruiting nurse.

Nurses were asked to invite into the study all new mothers in their care who fulfilled the criteria for recruitment. Recruitment took place on a home visit or at the clinic. Mothers in the intervention area were asked if they would like to join a pram walking group starting the first week of May 2001. If they declined they were asked to complete a 'mostly tick-a-box questionnaire now, and again in six months about physical activity, social activities and well-being', in return for a chance to win a Grace Bros Gift Voucher for \$150. Mothers in the control area were invited to join a pram walking group starting in Spring (in seven months time). Control mothers who said they did not want to join a pram walking group were also asked to fill in the two questionnaires. All mothers who completed a questionnaire were given a participant information sheet and prior written consent was obtained. Every mother who filled in a questionnaire went into the prize draw. Mothers in the intervention area who agreed to join a pram walking group were given a pamphlet with maps and details of the six walks in Blacktown LGA and were asked to indicate their preference/s for walking groups. Mothers with babies older than six months could join a pram walking group if there were places left after the study mothers were placed.

Strategies to enhance the recruitment of mothers to the study included:

- > Asking NUMs to include the pram walking project as a regular agenda item at nurses team meetings;

- > Contacting a nurse from each of the team meeting areas weekly to monitor progress and request that completed materials be returned;
- > Attending new mothers groups to recruit mothers; and
- > Visiting clinics to recruit mothers from the waiting room.

2.4.2

NESB Pram Walking Study

Ethnic health workers in Auburn (Appendix 7) were asked to invite Arabic and Chinese mothers to join pram walking groups. Flyers promoting these groups were displayed in the four early childhood centres in Auburn LGA (Auburn, Lidcombe, Regents Park and Granville) and the post-natal ward at Auburn Hospital. The flyers for the Arabic pram walking group were also displayed in Rawson Street Medical Centre which is popular with Arabic speaking women and their families. The flyers were produced in Arabic, Chinese and English.

A qualitative methodology was chosen to explore the acceptance of pram walking groups and to identify barriers specific to the NESB subgroups. The study design stipulated that mothers attending a pram walking group for six weeks could take part in a focus group held at the same time as the walk on the seventh week. Due to unforeseen circumstances this did not happen. The first Arabic pram walking group was scheduled for 12 September 2001, one day after the September 11 terrorist attack on the United States of America. The President of the Muslim Women's Association cancelled the Arabic pram walks due to concerns for the safety of Arabic mothers. The Arabic ethnic health worker from Auburn Community Health Centre and the President of the Muslim Women's Association were then asked to recruit Arabic women with children under five for a focus group on physical activity. A cut-off of five years was chosen as it was anticipated that recruitment would be difficult.

Assistance was obtained from Auburn Community Health Centre, Auburn Early Childhood Centre,

2. Methods

Auburn Hospital and the Australian Chinese Community Association to recruit mothers for the Chinese pram walking group. As the Chinese speaking mothers were not interested in walking after the first week the aforementioned organisations were asked to recruit Cantonese speaking Chinese mothers with children under five for a focus group on physical activity. All mothers were offered a Grace Bros Gift Voucher for \$10 for attending the focus group at which morning tea was provided.

2.5 The Pram Walking Intervention

2.5.1

Choosing the pram walking routes

The pram walking Project officer, a registered fitness leader, planned the pram walking routes in consultation with the physical activity Health Promotion Officer from Sydney West Area Health Service. Road maps were used as an initial guide in planning the other pram walking routes. When choosing the walking path the project officer considered:

- > the width and condition of the path, and whether it allowed two or more mothers with prams to walk beside each other;
- > keeping road crossings on the route to a minimum;
- > if the starting point was accessible for parking and strollers;
- > if there was shade or shelter, and a seat for feeding, preferably at the starting point;
- > whether the walk felt safe and how isolated it was;
- > if the route was pleasant to walk. Did it include a lake, gardens or park to walk through;
- > if it was accessible by public transport; and
- > whether there were clean, convenient toilets available for the women. (Currie and Develin, 1999).

1. Quakers Hill and Toongabbie Area

A nurse from Quakers Hill and Toongabbie Early Childhood Centres identified mothers that were interested in walking. Consequently walking routes were planned for these two locations. Both these walks

started and ended at the early childhood centre from which permission was obtained for mothers to use the toilet facilities. Woodcroft Lake and Nurragingy Reserve were chosen as they were aesthetically pleasing places to walk. Both routes formed a circuit around a lake, allowed two prams to be pushed side-by-side, had good parking and access to toilets.

2. Mt Druitt Area

A walk was planned in Mt Druitt for mothers living west of Doonside. Due to lack of interest this walk was cancelled a few weeks into the intervention.

3. Merrylands

Central Gardens in Merrylands was chosen for the control pram walk because of its aesthetically pleasing characteristics, good parking, toilets, wide walking track and plenty of shade for summer.

4. Auburn Area

Two walks were planned in Auburn. The Botanical Garden was chosen for its scenic location and a second walk starting at Auburn Community Health Centre was chosen for its proximity to public transport. This walk wound through the streets, entered a park and then circled back to the community health centre.

2.5.2

Choosing the time of day for walking

During the first week of March 2001 the project officer surveyed mothers attending Doonside Community Health Centre on their preferred time for a pram walking group. Most mothers would like to walk from 10am until 11am. As seen in Table 2 only five percent of mothers wanted to walk in the afternoon. Many mothers said that the afternoon was a rest period for themselves and their baby. Another common remark from the mothers was that it 'depends on feeding time'.

2. Methods

Table 1.
Preferred time of day for pram walks

Time of day	Number	%
9.00am	1	3
9.30am	1	3
10.00am	26	65
10.30am	9	23
11.00am	1	3
3.00pm	2	5
Total	40	102

Limitations in staff resources and the commitment to run six walking groups resulted in the project officer running two walking groups on each of her workdays. Walks were scheduled for either 9.45am or 11.15am. Time was allocated for the project officer to travel between walking areas.

2.6 Sustainability of the Pram Walking Groups

During the intervention period in the last week of June 2001 a flyer announcing the winner of the pram walking prize draw and details of the pram walking groups was posted to all mothers in the intervention area. Two mothers returned to participating in a pram walking group after receiving this flyer. Another event which boosted attendance was when the walk leader contacted mothers from the Nurragingy group in early July to tell them that the Daily Telegraph would be at the walk that week.

After three months of pram walking, the project officer invited all mothers to attend a walking group leaders training course run by the Department of Sport and Recreation. Although a couple of women said they were interested, none of the women attended this course. It was hoped that mothers would take over the leadership role during the last two months of the six-month intervention in preparation for the project officer's withdrawal from the project. One mother's response to this invitation echoed the thoughts of most mothers, 'no not really, I prefer to just turn up on the day, have it more informal.'

During the last two weeks of the intervention the project officer asked a mother from each of the groups, whom she had identified as a leader, to be a contact for that walking group. A contact mother was found for each of the walking groups except Blacktown. A step-by-step guide to setting up a pram walking group was developed by the project officer in conjunction with the Department of Sport and Recreation (Appendix 8), building on previously developed resources (Currie and Develin, 1999).

2.7 Measurement

2.7.1 English-speaking Pram Walking Study

Baseline data were collected through a mostly tick-a-box self-report questionnaire completed in the waiting rooms of early childhood centres (Appendix 4). This questionnaire collected information on demographics, involvement in physical activity, social contacts, vitality and mental health. The physical activity questions on time spent walking and in other moderate or vigorous activities were from the 1999 National Physical Activity Survey (AIHW, 2000). Two other items were devised to collect data on physical activity level before falling pregnant and future physical activity intentions. Questions on extent and frequency of social contacts were adapted from those used in a Finnish study of social connections and mortality (Kaplan et al., 1988). An additional item on satisfaction with social contact was constructed. Mothers were also questioned about any health problems preventing them from participating in physical activity. The SF-36 vitality and mental health scales were also included (Ware et al., 1993).

Six months after the start of the pram walking groups, mothers were mailed a follow-up questionnaire (Appendix 9) which was the same as the baseline questionnaire except the demographic items were replaced with items evaluating the pram walking groups. Mothers who had not returned questionnaires within three weeks were contacted by telephone by the research and project officers and invited to complete the

2. Methods

questionnaire over the phone. Up to five phone calls were made to contact each mother, both during the day and evening so as not to bias against mothers working full time. Eighty four per cent of questionnaires were completed. All mothers who completed the follow-up questionnaire went into a second draw for a \$150 Grace Bros Gift Voucher. Both baseline and follow-up questionnaires took an average of five to seven minutes to complete.

During the last month of the intervention period the project officer conducted structured interviews with mothers from the Nurragingy Reserve pram walking group. The reserve's wide paths and traffic-free environment allowed the project officer to conduct and tape record interviews while walking beside the women. Qualitative information was obtained about what kept mothers coming to the pram walks, barriers to attending regularly and the social aspects of the group. See Appendix 10 for the transcribed interviews.

2.7.2

Physical activity measures

Physical activity participation was measured through self-reported recall of frequency and duration of walking and other moderate and vigorous physical activities undertaken in the week before the survey. Physical activity was categorised at baseline and follow-up as adequate or not adequate using the definition in the 1999 National Physical Activity Survey (AIHW, 2000). Adequate activity for health benefit was achieved when 150 minutes of activity was accrued in at least five separate sessions of activity. Vigorous activity was weighted by a factor of two.

2.8 Analysis

A triangulation method using both quantitative and qualitative techniques was chosen to evaluate the pram walking project. SPSS V10.1 for Windows was used to analyse within and between group differences in physical activity participation, social activity, vitality and mental health. Only women who had completed both a pre- and a post-test questionnaire were included

in the analysis (thus allowing paired statistical tests to be used). Chi-square tests between proportions and independent-samples T tests between means were used to compare differences between the groups at pre and post. McNemar's chi-square tests between proportions and paired-samples T tests between means were used to compare within group changes in outcome variables from the pre to the post survey. MapInfo Professional V5.0 was used to map pram walking group membership by area of residence.

There were three groups of women:

- > Blacktown mothers who signed up for a pram walking group (intervention group);
- > Holroyd and Parramatta mothers who wanted to join a pram walking group later in the year (control group); and
- > Blacktown mothers who had declined to take part in a pram walking group (Blacktown decliners).

Five women living in the control area who did not want to join a pram walking group were excluded from the analysis. The main comparison was between the Blacktown mothers who joined a pram walking group and the mothers in the control area who expressed interest in joining a pram walking group later in the year. The intervention group was analysed on an intention-to-treat basis (ie. Mothers were classified as intervention if they were recruited in the intervention area, regardless of whether they participated in a walking group or not) in comparisons with the other groups. Within the intervention group comparisons on treatment received (ie. walks attended) were also made. Women were classified as having attended none, from one to five, or six or more pram walking groups.

Two focus groups, one for Arabic-speaking and the other for Cantonese-speaking women with children under five years, were conducted at Auburn Community Health Centre. The Arabic mothers' focus group was held on Wednesday 24 October 2001 at 9.30am. A multicultural health promotion officer from Sydney West Area Health Service (SWAHS) moderated the focus group. A Bilingual Community Educator (BCE) from SWAHS was contracted for the translation.

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The focus group for Chinese mothers was held on Wednesday 17 October at 10.30am. BCEs from SWAHS were contracted to moderate and transcribe the focus group. Child minding and a morning tea were provided at the focus groups. Attendees were also reimbursed ten dollars for transport costs. The focus group questions used by the moderators are in Appendix 11. The Arabic and Cantonese translators requested that the focus groups not be tape-recorded as they felt the presence of a tape recorder would inhibit the mothers. Both translators took notes during the focus groups which were later translated into English. Transcripts were analysed for main categories to emerge regarding benefits and barriers associated with participation in pram walking groups.

3. Results

3.1 Characteristics of Mothers

Sixty mothers were recruited into the intervention group from early childhood clinics in Blacktown LGA and 48 mothers recruited into the control group from clinics in Holroyd and Parramatta LGAs. Table 2 shows the characteristics of the two groups at baseline.

Table 2.
Characteristics of intervention and control mothers

	Intervention N=60	Control N=48
Age of mother in years (mean)	29.2	29.6
Age of baby in weeks (mean)	10.8	11.0
Married or defacto (%)	98.3	93.8
Number of children (mean)	1.6	1.5
Australian born (%)	80.0	79.2
Tertiary Educated (%)	36.7	41.7
Employed* (%)	30.0	39.6
On maternity leave (%)	25.0 ^a	43.8
Not working** (%)	80.0	79.2
Health problem/s (%)	11.7	6.3
No. early childhood centre visits (mean)	4.3	4.8
Attend mothers group (%)	31.7 ^b	62.5
Attend play group (%)	11.7	6.3

^a $\chi^2 = 4.2, p = .040$

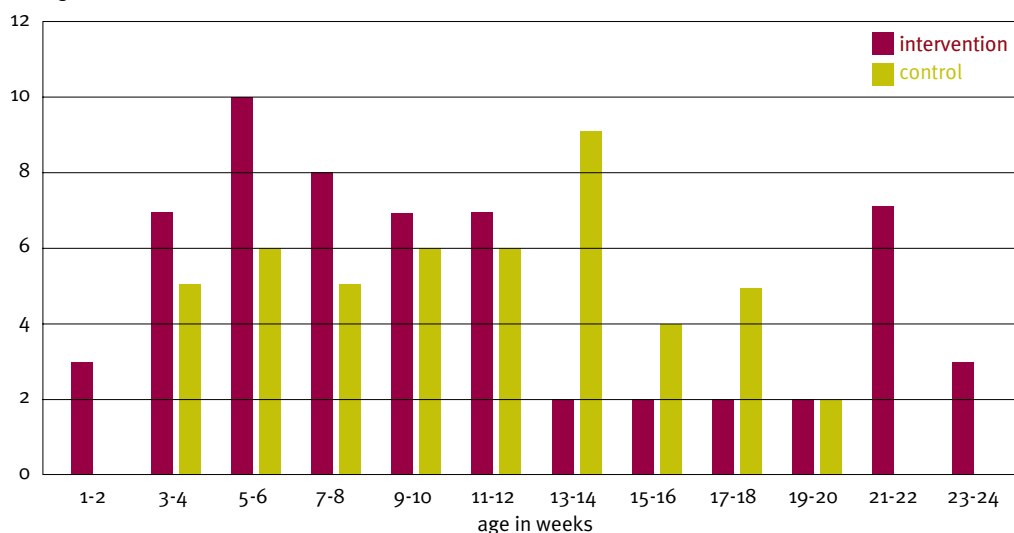
^b $\chi^2 = 10.2, p = .001$

* Currently employed at November 2001

** Currently on leave (paid or unpaid) or not in the paid workforce at November 2001

There were no significant differences between the groups in the mean age of the mothers or their babies. Babies were on average 11 weeks old at the time of recruitment into the study. As shown in Figure 2 babies of intervention mothers ranged in age from two to 24 weeks (SD 6.7) and babies of mothers in the control group ranged in age from three to 20 weeks (SD 4.6).

Figure 2.
Age of babies of intervention and control mothers at recruitment



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In both groups nearly all mothers were married or in a defacto relationship and 80% were born in Australia. The higher proportion of control mothers attending a new mothers group at the time of recruitment was an artefact of the recruitment procedure. More of the controls were recruited from new mothers groups by project staff whilst more of the intervention group were recruited by early childhood nurses while visiting an early childhood centre. The proportion of intervention and control women attending new mothers groups was no different at follow-up (40.0%, 37.5%). Significantly more of the mothers in the control group were on maternity leave, however there was no difference between the groups in the proportion of women not working.

Seven mothers in the intervention group reported having health problems preventing them from participating in physical activity at the time of recruitment. The following health problems were documented; headache, weakness in the left side of the body from a closed head injury in 1991, anaemia after birth, post caesarean section, asthma and chronic fatigue. All of these mothers in the intervention group, except for the mother reporting headaches, attended a pram walking group. Two of the control mothers were recovering from a caesarean section and another mother reported that her asthma restricted her participation in physical activity.

Table 3 shows a significant dose response relationship for women who joined a pram walking group, between pram walking attendance and employment status. Half of the mothers who never attended a pram walking group were working, compared with 36% of mothers who attended from one to five walks and 9.5% of mothers who walked six or more times. A breakdown of employment status taking into account maternity leave shows that women who went on at least one pram walk were less likely to be currently working than those who did not attend any walks. There was no significant difference in postcode of residence between mothers who went on nil, one to five, or six or more pram walks.

Table 3.
Characteristics of intervention group by number of pram walks attended

	No pram walks N=14	1-5 pram walks N=25	6 plus pram walks N=21
Age of mother in years (mean)	29.6	29.3	29.9
Age of baby in weeks (mean)	12.2	9.9	10.9
Married or defacto (%)	100	100	95.2
Number of children (mean)	1.6	1.4	1.8
Australian born (%)	71.4	76.0	90.5
Tertiary educated (%)	28.6	44.0	33.3
Employed* (%)	50.0	36.0	9.5 ^a
On maternity leave (%)	14.3	32.0	23.8
Not working** (%)	57.1	84.0	90.5 ^b
Health problem/s (%)	7.1	8.0	19.0
No. early childhood centre visits (mean)	5.3	3.5	4.5
Attend mothers group (%)	35.7	20.0	42.9
Attend play group (%)	14.3	12.0	9.5

^a $\chi^2 = 7.3, p = .026$

^b $\chi^2 = 6.2, p = .044$

* Currently employed at November 2001

** Currently on leave (paid or unpaid) or not in the paid workforce at November 2001

3. Results

3.2 Process Evaluation

3.2.1

Recruitment of early childhood nurses

The following difficulties were encountered when recruiting and following-up early childhood nurses in the study:

- > Limited access to community nurse team meetings. These meetings often had a full agenda including guest speakers. A special meeting had to be arranged at Blacktown to recruit nurses there into the study. Eight out of 14 nurses were present at this meeting;
- > Cancellation of community nurse team meetings. On a couple of occasions the research officer arrived at team meetings to collect completed questionnaires to find that the meeting had been cancelled;
- > Turnover of nursing staff. When the research officer telephoned one of the NUMs she had been liaising with to inquire about recruitment, the NUM replied that she did not know as she was no longer running the meetings;
- > Disinterest. One month after presenting the study at a community nurse team meeting the research officer returned to encourage and monitor progress. The whole team of nurses looked at her blankly. None of these nurses had recruited any mothers. In another area it was difficult to find a nurse willing to help with recruitment from within the nursing team.

On the positive side there were NUMs and nurses who were enthusiastic about the pram walking study. These nurses took an active role in encouraging their colleagues to recruit mothers into the study.

3.2.2

Recruitment of mothers for English-speaking pram walking groups

Table 4 shows the proportion of mothers recruited by community nurses versus the pram walking project staff. The study design saw community nurses as the sole vehicle for recruitment of mothers. Due to a poor response in some areas the project staff became involved in recruiting mothers. At the end of the scheduled recruitment period, only 30 mothers had been recruited for Holroyd, (the control area) compared with 106 for the intervention. The control area was extended to include Parramatta LGA. Nurses from four clinics in Parramatta (Dundas, Ermington, Old Toongabbie and Wentworthville) and project staff continued to recruit controls during the first two weeks in May. In other areas there were nurses who became very active in the project. Some of these nurses joined the pram walking project steering committee. Two of the pram walking groups, Quakers Hill and Toongabbie, were chosen because a nurse had identified and recruited a group of mothers living in these areas herself.

Recruitment of mothers by project staff was a time consuming process. The research officer spent eight mornings in the waiting rooms of clinics in Guildford, Hassall Grove, Merrylands, Minchinbury, Seven Hills and Wentworthville. Over a total of 26 hours, 21 mothers were recruited, less than one mother per hour.

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Table 4.
Mothers recruited by nurses versus project staff

	Nurses		Project Staff		Total
	Number	%	Number	%	
<i>Intervention</i>					
• Blacktown	40	78	11	22	51
• Doonside	39	89	5	11	44
• Mt Druitt	4	36	7	64	11
<i>Control</i>					
• Merrylands	6	13	39	87	45
• Parramatta	13	57	10	44	23

3.2.3

Recruitment of mothers for NESB pram walking groups

Ethnic health workers from Auburn Community Health Centre, Auburn Early Childhood Centre, Auburn Hospital and the Australian Chinese Community Association recruited seven mothers for the Chinese pram walking group. All of these mothers had been personally invited to join the group. There was also a group of Chinese women who expressed interest in pram walking but did not want to put their name down on a list. The pram walking flyers, produced in both English and Cantonese did not generate any inquiries. The Arabic ethnic health worker from Auburn Community Health Centre and the President of the Muslim Women's Association each recruited two mothers for the Arabic pram walking group. Again no mothers responded to the flyers in Arabic or English promoting the pram walking group.

3.2.4

English-speaking pram walking groups

There was a drop off in the number of mothers wishing to join a pram walking group between the face-to-face recruitment and a telephone follow-up, one to five weeks later, to confirm the group time and meeting place. Five mothers reported they could no longer join a pram walking group as they had since gone back to work, three mothers who had no cars said the walks were too far from home and three mothers offered no explanation as to why they had 'changed their mind'. Other reasons for mothers being unable to attend included moving house, pneumonia, too busy and a mother feeling that her baby was too young. Another group of mothers joined a pram walking group over the phone but never turned up.

The walk leader felt that the Nurragingy Reserve walk worked best compared with other routes for several reasons:

- > Nurragingy Reserve is a pleasant place to walk with 90 hectares of bushland and a man-made lake containing a waterfall that is home to many ducks and birds;
- > The walk forms a circuit around the lake, which takes about 10 minutes to complete. When a baby became restless or upset the mother was able to stop at one of the benches along the route. She was then able to rejoin the group at any time without feeling abandoned or isolated from the group;

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- > The path is wide enough for two or three women to walk side by side;
- > Picnic tables and a kiosk at the start and end of the walk provided an opportunity for the women to sit and chat after the walk; and
- > Barbeques enabled the mothers to have a sausage sizzle on a couple of occasions after the walk.

The walk leader observed that some of the women who attended on a regular basis came with a friend, sister or sister-in-law. A group of women from the Quakers Hill walk attended the same new mothers group on another day. The walk leader noticed that a group of women from the Blacktown walk, who each had three or four children, 'clicked'. They formed a tight social group and plenty of information-swapping occurred. Consequently, however a younger first-time mother in the Blacktown group asked if she could swap to another group with mostly younger women.

Figure 3.
Walking around the man-made lake at Nurragingy Reserve



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Figure 4.
Nurragingy Reserve just enough room for three prams and a little girl !



Problems with the pram walking routes that became evident after commencement of the groups included:

- > Narrow footpaths which required the women to walk in single file making conversation harder;
- > The road crossings in the street walks slowed the pace of the walk and also proved a nuisance getting the prams and strollers across the roads;
- > The Toongabbie walk required the women to walk through a narrow gate to enter a reserve. Access was awkward for prams and strollers, a twin stroller could not fit through. The Project officer wrote to Blacktown Council to address this problem. A letter of response was received from the council advising that they would look into the matter;
- > The walkers at Woodcroft Lake experienced two incidents of crime during the walk time. On one morning a vandal started a small scrub fire and the walk leader had to phone the fire brigade. On another occasion a woman walking in the park warned the walk leader that a teenage boy on a bike had just 'groped' her; and

Only one woman turned up for the Mt Druitt walk, held in the hospital grounds. This was the only walk with paid parking. There was a four dollar fee to park in the hospital grounds.

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3.2.5 NESB pram walking groups

The 14 women who attended the Arabic focus group on Wednesday 24 October expressed interest in participating in a pram walking group in Auburn Botanical Gardens on the following Wednesday. Only two Arabic women came along for the pram walk. Due to a misunderstanding these two women arrived at Auburn Community Health Centre for the walk. They eventually drove to Auburn Botanical Gardens but could not find the meeting point. The walk leader phoned these women to apologise for the inconvenience and inform them of the meeting point. No one showed up for the second or third Arabic pram walking group.

Seven women and one grandfather attended the first Chinese pram walking group on Wednesday 5 September. This walk started at Auburn Community Health Centre and wound around the local streets to a park and then back to the centre. The Chinese group walked for 25 minutes with a lot of stopping and talking. When asked by the walk leader if they would be participating in the walk the following week they all indicated that they would not be. The Chinese women said they would prefer to stay in the community health centre and talk. Most of these women had walked to Auburn Community Health Centre for the walk. They thought that the pram walk was a 'one off' activity.



Figure 5.
The one regular walker at the Auburn pram walking group

Another attempt was made to start a Chinese pram walking group in the week following the focus Group for Chinese mothers. A walk in Auburn Botanical Gardens was planned for Wednesday 24 October and a street walk starting at Auburn Community Health Centre was planned for Thursday 25 October. Both these walks were advertised at Auburn Early Childhood Centre for both English and non-English-speaking mothers to attend. Five Chinese-speaking and five English-speaking women attended the first walk at Auburn Botanical Gardens. Four of the Chinese-speaking women had walked for half an hour to get from their homes to the Gardens. They decided not to walk again at Auburn Botanical Gardens as it was too far from their homes. The walk at Auburn Botanical Gardens continued with five English-speaking women and no Chinese women attending.

Fifteen Chinese-speaking women attended the first street walk starting at Auburn Community Health Centre. At the

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end of the walk the women sat on the grass outside the community health centre to talk to each other. Only two Chinese women attended on the second week and one Chinese woman walked for the remaining eight weeks with the walk leader.

3.3 Participant Follow-up

After the six months of pram walks, 108 (80.6%) of study participants were successfully followed up. As seen in Table 5 there was no significant difference between the proportion of the intervention and control group followed-up. The main reasons for loss to follow-up were: invalid or disconnected telephone numbers (14); unable to make telephone contact with participant (6); and refusal to participate (5).

Table 5.
Return of follow-up questionnaires

Questionnaires Completed	Intervention		Control	
	Number	%	Number	%
First mail out	35	47.3	13	21.7
Second mail out	8	10.8	16	26.7
Phone survey	17	23.0	19	31.7
Not returned	14	18.9	12	20.0
Total returned	60	81.1	48	80.0

3.4 Physical Activity Outcomes

3.4.1

Adequate physical activity

The study did not find a significant increase in the proportion of women in the intervention group classified as performing adequate physical activity, from baseline 33.3% (95%CI: 21.7 to 46.7%) to follow-up, 43.3% (95%CI: 30.6 to 56.8%). Nor was there any significant increase in adequate physical activity for controls from baseline 22.9% (95%CI: 12.0 to 37.3%) to follow-up 35.4% (95%CI: 22.2 to 50.5%). Adequate activity for health benefit as defined in the 1999 National Physical Activity Survey is only achieved when 150 minutes of activity is accrued in at least five separate sessions of activity during a week. Vigorous activity is weighted by a factor of two (AIHW, 2000).

The 1999 Physical Activity Survey for women reported that 53.5% of women aged 18 to 29 years and 40.5% of women aged 30 to 44 years were participating in adequate physical activity to confer a health benefit (AIHW, 2000). As seen in Tables 6 and 7, about half of the intervention and control mothers were not adequately physically active at both baseline and follow-up. Only one fifth of the intervention group and one quarter of the controls had increased their physical activity enough to be classified as adequate at follow-up.

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Table 6.
Pre-Post change in adequate physical activity for intervention

Pre	Post		Total
	Not adequate	Adequate	
Not adequate (%)	28 (47%)	12 (20%)	40 (67%)
Adequate (%)	6 (10%)	14 (23%)	20 (33%)
Total	34 (57%)	26 (43%)	60 (100%)

Table 7.
Pre-Post change in adequate physical activity for controls

Pre	Post		Total
	Not adequate	Adequate	
Not adequate N (%)	25 (52%)	12 (25%)	37 (77%)
Adequate N (%)	6 (13%)	5 (10%)	11 (23%)
Total	31 (65%)	17 (35%)	48 (100%)

Table 8 compares the characteristics of mothers in the intervention group classified as engaging in adequate versus not adequate physical activity.

Table 8.
Characteristics of intervention group by adequate versus not adequate physical activity

	Adequate		Not adequate	
	Pre	Post	Pre	Post
Age of mother in years (mean)	30.6	29.6	29.1	29.6
Age of baby in weeks (mean)	13.7	11.3	9.3 ^a	10.4
Married or defacto (%)	80.0	96.2	80.0	100
Number of children (mean)	1.6	1.5	1.6	1.6
Australian born (%)	95.0	80.8	100	79.4
Tertiary Educated (%)	25.0	26.9	42.5	44.1
Employed* (%)	35.0	26.9	27.5	32.4
On maternity leave (%)	15.0	26.9	30.0	23.5
Health problem/s (%)	5.0	7.7	15.0	14.7
No. early childhood centre visits pre (mean)	5.9	4.7	3.5 ^b	3.9
Attend mothers group pre (%)	40.0	26.9	27.5	35.3
Attend play group pre (%)	25.0	15.4	5.0 ^c	8.8

^a F = 6.09, p=.017

^b F = 10.35, p=.002

^c $\chi^2 = 5.18$, p=.023

* Currently employed at November 2001

Mothers who were adequately physically active at recruitment had babies who were a month older than the babies of mothers who were not doing adequate physical activity. This may explain why the physically active mothers had more visits to an early childhood centre before recruitment. Although both groups had the same number of children, a greater proportion of

3. Results

the mothers who were adequately physically active at recruitment were attending a play group at this time. There was no significant difference in postcode of residence between those who were doing adequate versus inadequate physical activity.

3.4.2 Physical activity participation

Physical activity undertaken in the week before recruitment and follow-up for the control and intervention group is shown in Table 9. There was no significant difference in physical activity participation between the two groups at baseline or follow-up. The intervention group increased their episodes of vigorous activity while there was no change for controls. The number of minutes walked per week did increase significantly for the controls from baseline to follow-up.

Table 9.
Pre/Post physical activity for intervention versus control

(means)	Intervention N=60		Control N=48	
	Pre	Post	Pre	Post
Times walked last week	3.4	4.4	2.8	3.4
Minutes walked last week	135.5	165.0	88.6	137.0 ^a
Times moderate last week	0.6	0.5	0.3	0.3
Minutes moderate last week	26.2	17.7	13.1	8.4
Times vigorous last week	0.5	1.2 ^b	0.7	0.7
Minutes vigorous last week	23.1	49.8	30.9	28.5

^a $t=2.3$, $p=0.02$

^b $t=2.1$, $p=0.04$

An analysis of physical activity participation by number of pram walks attended over the six months is given in Table 10. Women who joined a pram walking group but who did not attend any walks, were engaging in similar levels of physical activity as those women who attended the pram walking groups (at both baseline and follow-up). All three groups were walking for more minutes and times per week at follow-up but this change was not significant.

Table 10.
Pre/Post physical activity for intervention group by number of pram walks attended

(means)	No pram walks N=14		1-5 pram walks N=25		6 plus pram walks N=21	
	Pre	Post	Pre	Post	Pre	Post
Times walked last week	3.9	4.6	3.6	4.9	3.0	3.6
Minutes walked last week	110.0	156.4	164.6	193.2	117.9	137.1
Times moderate last week	0.5	0.3	0.9	0.8	0.3	0.2
Minutes moderate last week	11.4	8.6	44.4	24.4	14.3	15.7
Times vigorous last week	0.5	1.2	0.5	1.4	0.5	1.0
Minutes vigorous last week	13.2	47.9	28.8	68.4	22.9	28.8

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A similar proportion of intervention and control women had exercised 'hardly ever' before their recent pregnancy (Table 11). While not significant, an extra 10% of mothers in the intervention group were engaging in adequate number of sessions of physical activity to confer a health benefit before their pregnancy.

Table 11.

Level of physical activity before falling pregnant for intervention versus control

I exercised or walked:	Intervention N=60	Control N=48
Hardly ever (%)	20.0	16.7
1-2 times week (%)	43.3	43.8
3-4 times week (%)	20.0	33.3
5 or more times week (%)	16.7	6.3

Table 12.

Level of physical activity before falling pregnant for intervention group by number of pram walks attended

I exercised or walked:	No pram walks N=14	1-5 pram walks N=25	6 plus pram walks N=21
Hardly ever (%)	14.3	28.0	14.3
1-2 times week (%)	50.0	44.0	38.1
3-4 times week (%)	28.6	12.0	23.8
5 or more times week (%)	7.1	16.0	23.8

Of those women who did not attend any pram walks, the majority had walked or exercised one to four times per week before becoming pregnant. It therefore seems that failing to attend any pram walking groups was not related to pre-pregnancy levels of exercise or walking.

3.4.3 Pram walks

Figure 6 shows how many pram walks each mother attended over the six months. Twelve mothers (20%) walked once a fortnight and 9 mothers (15%) walked at least once a month. Forty-two per cent of mothers walked less than once a month and twenty-three per cent of mothers did not attend any pram walks. Figure 7 shows the number of women walking each week. At the start of the pram walking groups there were close to 40 mothers walking across the five groups. After the first month there was a drop to an average of 25 women walking across the five groups. Every walk in week 13 was cancelled due to rain and in week 18 it rained on the Thursday and Friday walks. Overall we were very lucky with the weather during the winter.

3. Results

Figure 6.
Number of pram walks attended over the 6 months

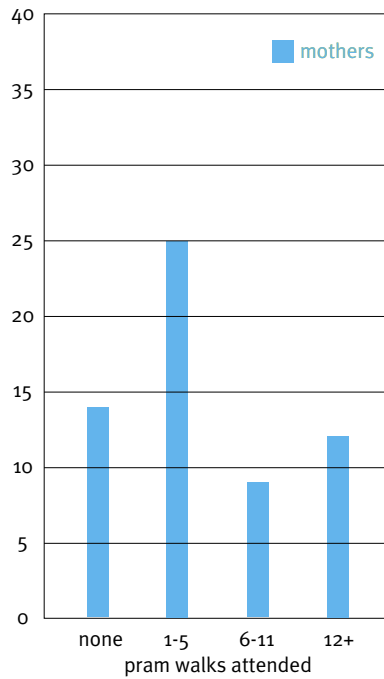
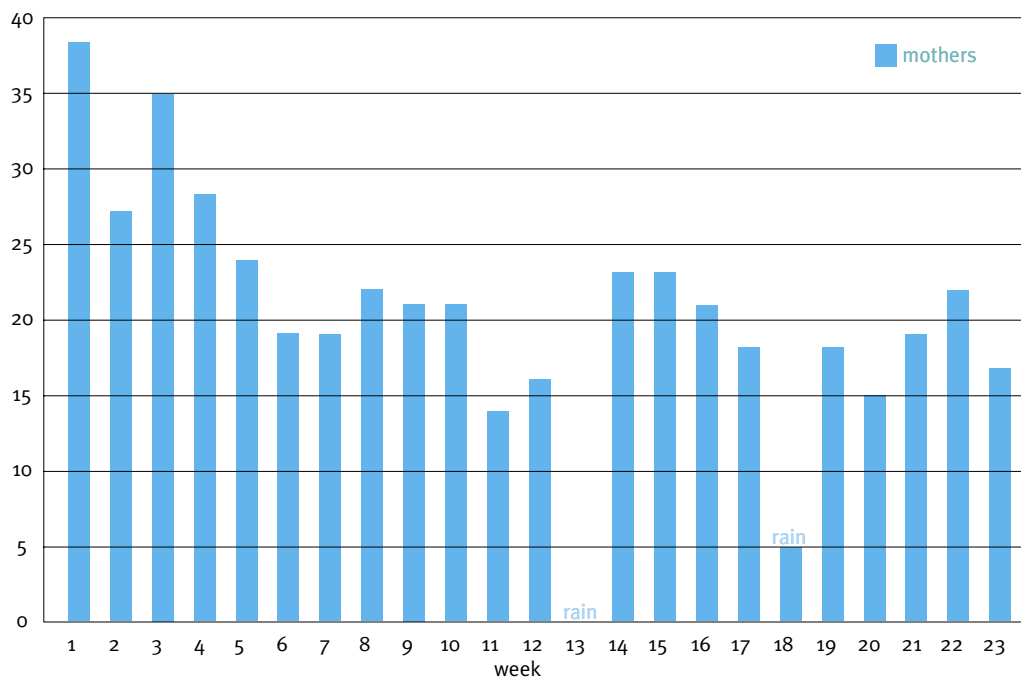
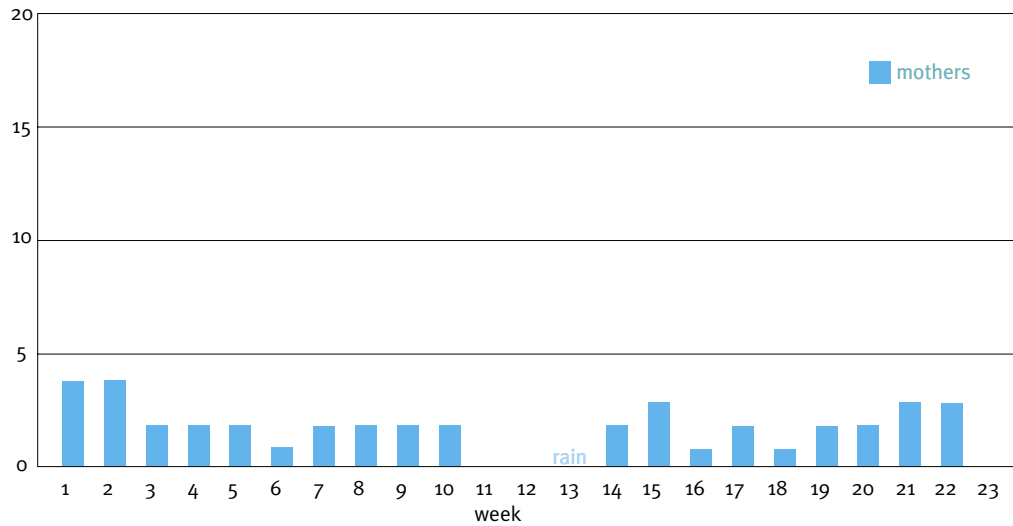


Figure 7.
Number of mothers walking each week over the 6 months



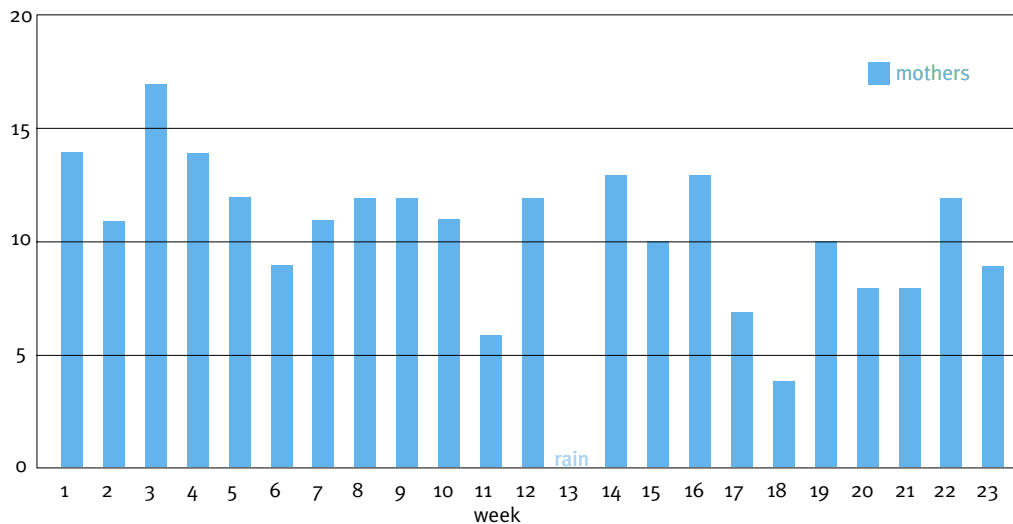
3. Results

Figure 8.
Number of mothers walking at Blacktown each week



As seen in Figure 8 the Blacktown walk was usually attended by only two mothers. This walk was cancelled in weeks 11, 12 and 23 as it was school holidays and the mothers who attended had school age children. The Nurragingy Reserve walk (Figure 9), the most popular walk was only cancelled once over the six months due to rain. This group continued to walk during the school holidays. Fifteen of the 22 pram walks (68%) at Nurragingy Reserve were attended by at least ten mothers.

Figure 9.
Number of mothers walking at Nurragingy Reserve each week



Attendance at the Quakers Hill pram walk dropped off after the first three months. Figure 10 shows that after week 14 an average of three women were walking each week.

3. Results

Figure 10.
Number of mothers walking at Quakers Hill each week

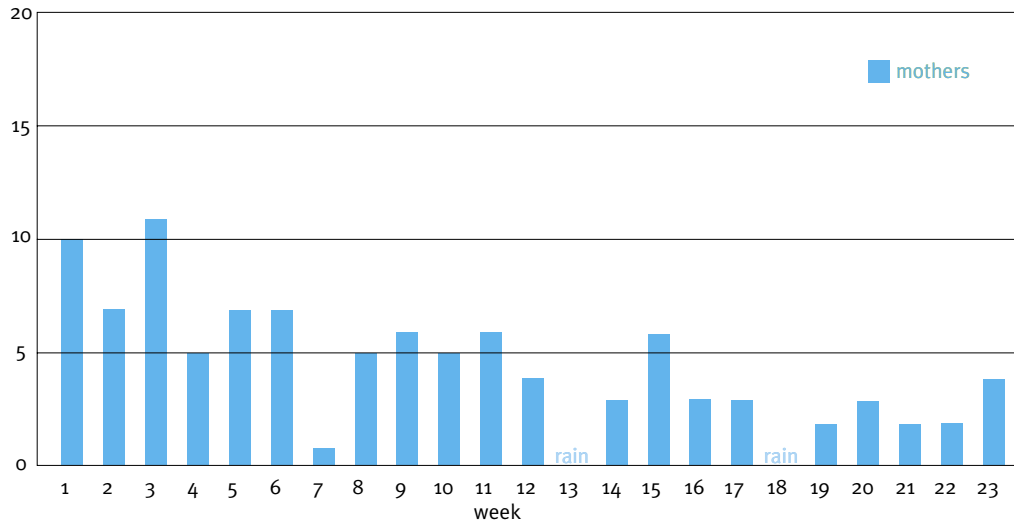
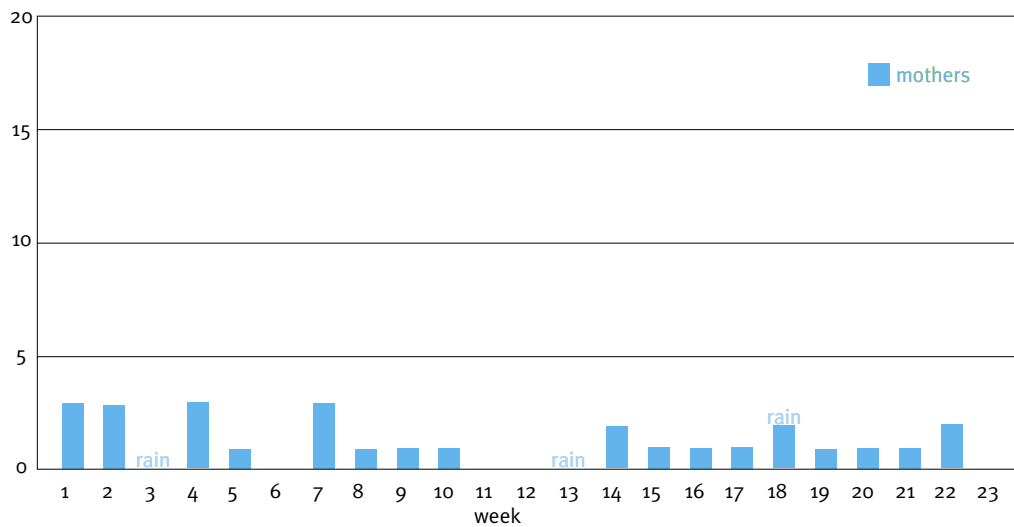


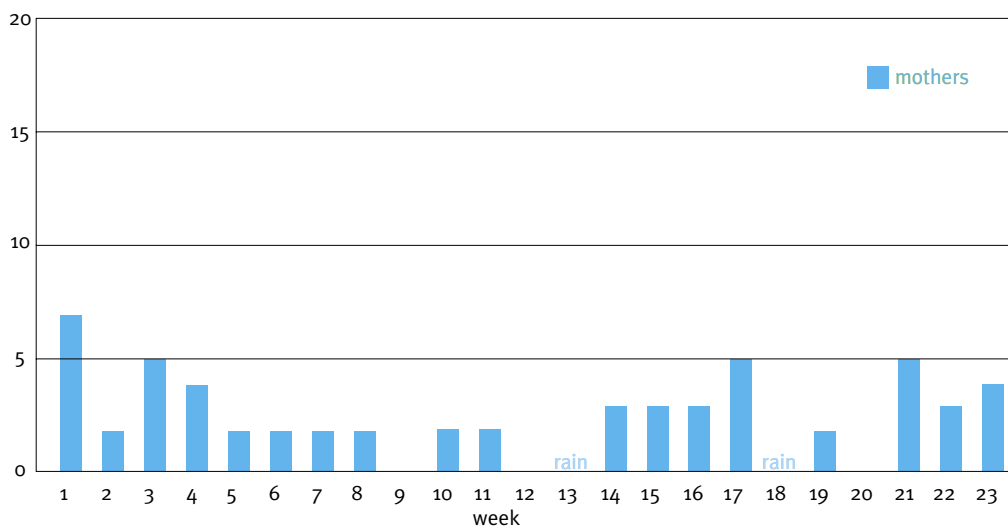
Figure 11.
Number of mothers walking at Toongabbie each week



As seen in Figure 11 the Toongabbie pram walking group was the least popular of all the groups. Indeed for 10 of the 17 walking weeks (59%) it was not a group walk as only one mother attended. Like the Blacktown walk this walk was cancelled in weeks 11, 12 and 23 during the school holidays.

3. Results

Figure 12.
Number of mothers walking at Woodcroft Lake each week



Unlike the other pram walking groups attendance at the Woodcroft Lake improved during the second three months. As seen in Figure 12 no one turned up in weeks 9, 12 or 20.

Table 13 shows that the Woodcroft Lake group had the least regular attendance. New mothers joined and exited the group over the six months.

Table 13.
Attendance for each pram walking group

Walking Group	Walkers N	Never Walked N (%)	Walked 1-5 Times N (%)	Walked 6 or More Times N (%)	Weeks Attended Mean
Blacktown	6	2 (25.0)	3 (37.5)	3 (37.5)	5.3
Nurragingy	17	6 (26.1)	7 (30.4)	10 (43.5)	6.7
Quakers Hill	10	1 (9.1)	5 (45.5)	5 (45.5)	6.2
Toongabbie	5	1 (16.7)	3 (50.0)	2 (33.3)	4.3
Woodcroft	8	4 (33.3)	7 (58.3)	1 (8.3)	2.3

Table 14 gives further evidence for the lack of an association between engaging in adequate physical activity and the number of pram walks attended.

Table 14.
Pram walks attended by adequate versus inadequate physical activity

	Pram walks attended (mean)
Baseline adequate physical activity	5.6
Baseline inadequate physical activity	5.2
Follow-up adequate physical activity	5.6
Follow-up inadequate physical activity	5.1

3. Results

3.5 Social Contact Outcomes

As seen in Table 15 there were no significant differences at baseline or follow-up between the intervention and control groups in frequency of social contact. The only significant social change from baseline to follow-up was that all women received less visits and phone calls per day after the birth of their baby.

Table 15.
Pre/Post social contact for intervention and control

	Intervention N=60		Control N=48	
	Pre (%)	Post (%)	Pre (%)	Post (%)
Number of different relatives or friends visited (last 6 months):				
→ up to 4	57	50	44	46
→ more than 4	43	50	56	54
Average number of visits/phone calls received (last 6 months):				
→ up to 4	63	87	54	81
→ more than 4	37	13 ^a	46	19 ^b

^a $\chi^2 = 8.7, p=0.003$

^b $\chi^2 = 8.1, p=0.004$

There was no significant difference in satisfaction with social contact at baseline between women in the intervention and control groups (Table 16). However, at follow-up twice as many women in the intervention group were 'very satisfied' with their social contact (36.7%, 95%CI: 23.1-50.3) compared with the controls (18.8%, 95%CI: 8.9-28.7) ($\chi^2 = 4.18, p=.041$). While there was no significant increase from baseline to follow-up in the proportion of intervention group women very satisfied, there was a marked decrease in the proportion of women in the control group who were very satisfied with their social contacts (baseline – 35.4% (95%CI: 21.9-48.9); follow up – 18.8% (95%CI: 8.9-28.7); ($\chi^2 = 13.9, p<0.001$).

In addition, control group women were more likely, compared to intervention women, to report that they were quite dissatisfied with their level of social contact.

Table 16.
Satisfaction with social contact in the last 6 months for intervention versus control

	Intervention N=60		Control N=48	
	Pre	Post	Pre	Post
Very satisfied (%)	31.7	36.7	35.4	18.8
Quite satisfied (%)	45.0	38.3	29.2	39.6
Neither (%)	15.0	21.7	25.0	20.8
Quite dissatisfied (%)	6.7	3.3	8.3	14.6
Very dissatisfied (%)	1.7	0.0	2.1	6.3

3. Results

Although not significant because of small numbers Table 17 suggests that the women who attended a pram walking group on average at least once a month were the most satisfied with their social contact.

Table 17.
Satisfaction with social contact in the last 6 months by number of pram walks attended

	No pram walks N=14		1-5 pram walks N=25		6 plus pram walks N=21	
	Pre	Post	Pre	Post	Pre	Post
Very satisfied (%)	42.9	28.6	20.0	28.0	38.1	52.4
Quite satisfied (%)	35.7	28.6	52.0	44.0	42.9	38.1
Neither (%)	7.1	35.7	20.0	24.0	14.3	9.5
Quite dissatisfied (%)	7.1	7.1	8.0	4.0	4.8	0.0
Very dissatisfied (%)	7.1	0.0	0.0	0.0	0.0	0.0

3.6 SF36 Outcomes

A low vitality score indicated that mothers felt 'tired and worn out all of the time' whereas a high score meant they were 'full of life and had energy all of the time.' A low mental health score reflected 'feelings of nervousness and depression all of the time' and a high score meant mothers 'felt peaceful, happy, and calm all of the time'. (Ware et al., 1993).

At baseline, which was on average 11 weeks after giving birth, all women had less energy and were more tired compared to Australian females aged 25 to 34 years who have an average vitality score of 62.3 (ABS, 1997). Vitality increased significantly for women in the control group at follow-up and the increase approached significance for the intervention group ($p=.086$). There was no difference between the mental health scores of study participants at baseline (Table 18) and the population norms for women aged 25 to 34 years who have a mean mental health score of 74.2. From baseline to follow-up the mental health of both intervention and control women remained the same.

A breakdown of the intervention group by number of pram walks attended is also given in Table 18. Although not significant women who attended the most pram walks had the highest vitality and mental health scores at follow-up.

Table 18.
SF 36 vitality and mental health pre and post scores

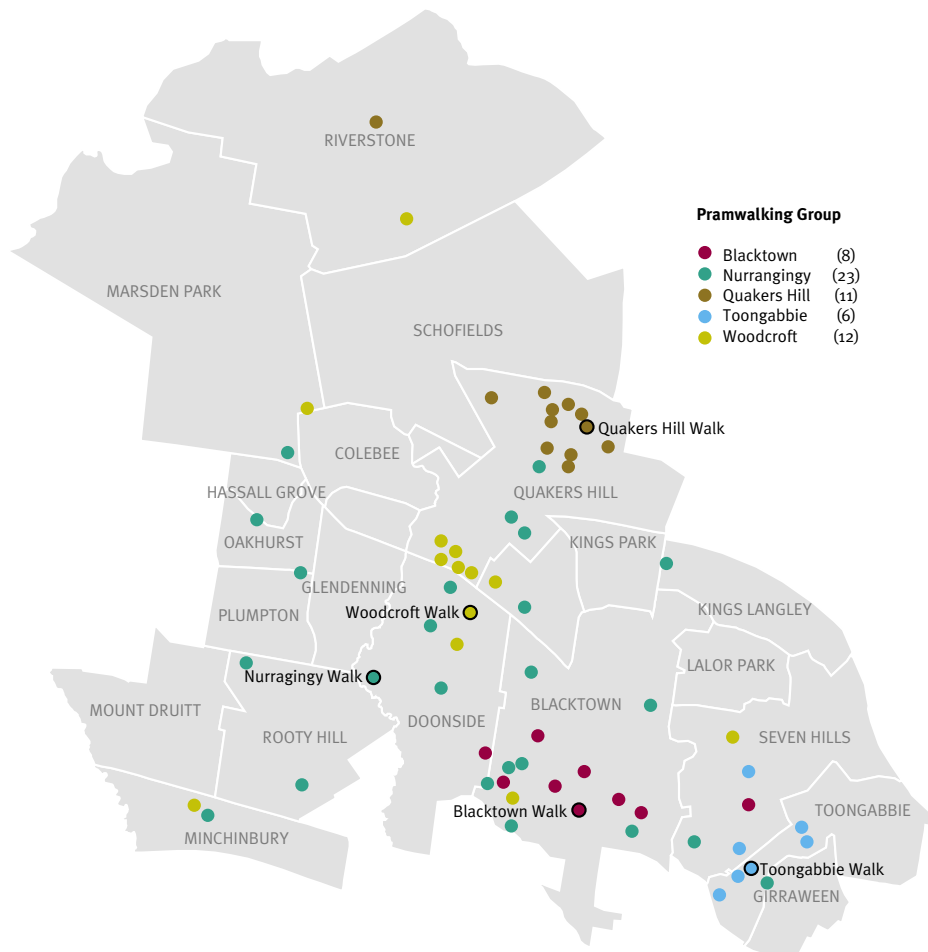
Means	Vitality		Mental Health	
	Pre	Post	Pre	Post
Intervention (N=60)	55.2	59.7	76.2	80.9
Control (N=48)	52.2	57.9	75.8	76.0
→ No pram walks (N=14)	50.7	55.7	73.1	79.1
→ 1-5 pram walks (N=25)	56.7	55.7	74.8	81.0
→ 6 plus pram walks (N=21)	56.6	64.8	80.0	82.0

3. Results

3.7 Evaluation of Pram Walking Groups

A crosstabulation of postcode of mother's residence by pram walking group revealed a significant difference ($\chi^2 = 80.62, p=.000$). The five walking groups attracted mothers from different areas. Figure 13 shows where the women who joined each of the pram walking groups lived. The Blacktown, Quakers Hill and Toongabbie street walks tended to attract mothers who lived locally. Whereas, the Nurranginy Reserve walk and to a lesser degree the Woodcroft Lake walk attracted mothers from all over Blacktown LGA. Figure 14 shows where the mothers who walked at least once, lived.

Figure 13.
Pram walking group membership by mother's residence



3. Results

Figure 14.
Pram walking group attendance by mother's residence

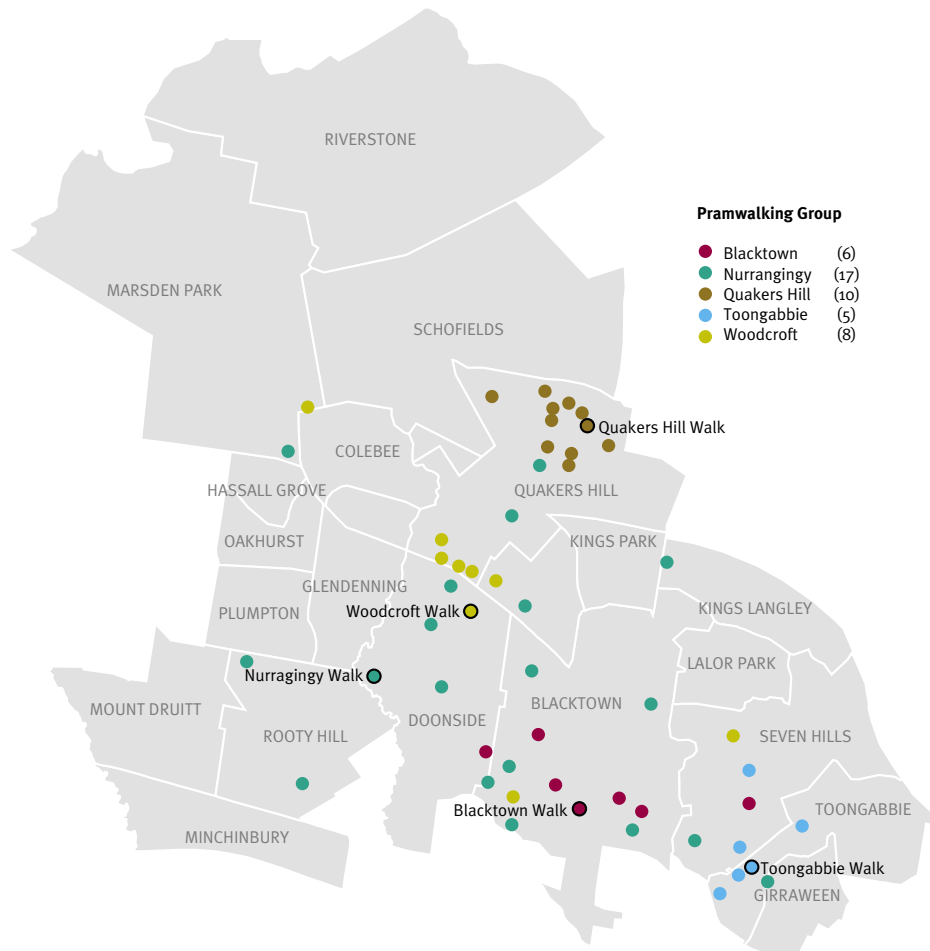


Table 19 shows the demographics of mothers in each of the five pram walking groups at baseline. The only significant difference was between the age of the babies in the Nurranginy and Toongabbie group. The age of babies in Table 19 is their age at recruitment. As the recruitment period was from two to eight weeks before the start of the walking groups, babies were from two to eight weeks older at the pram walks.

3. Results

Table 19.
Demographics of mothers in each pram walking group

	Blacktown	Nurragingy	Quakers	Toongabbie	Woodcroft
Age of baby in weeks (mean) ^a	8.6	13.1	10.1	4.2	11.7
Age of mother in years (mean)	33.3	30.0	28.1	27.8	28.7
Married or defacto (%)	100.0	95.7	100.0	100.0	100.0
Number of children (mean)	2.4	1.5	1.2	1.7	1.4
Australian born (%)	87.5	73.9	100.0	100.0	58.3
Tertiary Educated (%)	25.0	34.8	27.3	66.7	41.7
Employed* (%)	37.5	30.4	18.2	50.0	25.0
On maternity leave (%)	25.0	26.1	54.5	16.7	0
Health problem/s (%)	25.0	8.7	0	16.7	16.7
No. early childhood centre visits (mean)	3.4	4.8	4.8	1.8	4.5
Attend mothers group (%)	37.5	39.1	36.4	16.7	16.7
Attend play group (%)	25.0	8.7	0	16.7	16.7

^a F=2.70 P=.040

* Currently employed at November 2001

Thirty-eight women chose not to join a pram walking group. Their reasons for not joining a pram walking group are given in Table 20. The women could choose more than one reason. Other reasons given by these women which were not listed in the questionnaire were: started working (8 women); sick baby or child (3); no walk near home (6); feeding time (1); housework and cooking for my husband who is Italian and likes a cooked meal (1) and having a big network of four sisters in law with babies (1).

Table 20.
Reasons for not joining a pram walking group

	%
My baby would be asleep at walk times	37.5
I was too busy	31.3
Time of day not suit me or my baby	18.8
My baby was too young	12.5
I did other types of exercise	12.5
The day of week did not suit me	12.5
Weather too cold or windy	6.3
I did not have a car	6.3
I have other young children to look after	6.3
I did not like walking	0
I did not like exercising in a group	0
I did not know any other mothers going	0
I had little energy for walking	0

3. Results

Reasons for joining a pram walking group are listed in Table 21. Again mothers could choose more than one reason. Other reasons not included in the questionnaire given by mothers were: fresh air for my baby (3 mothers); social contact (1) and good for the children to get out of the house (1).

Table 21.
Reasons for joining a pram walking group

	%
I wanted the exercise from walking	16.7
I wanted to meet other new mums	13.4
I wanted to get out of the house	13.1
I wanted to lose weight	11.5
I wanted to get fit	10.5
I liked the idea of having my baby with me	9.5
I wanted a free form of exercise	8.5
I wanted to tone my body shape	7.9
I knew other mums who were going	4.9
I wanted to walk to reduce stress	3.9

Qualitative data analysed from interviews with mothers attending the Nurragingy group, showed that the two main reasons why mothers enjoyed the walks were socialising, 'Meeting other people...', 'I enjoyed the socialising', and getting out of the house, 'Gives you a chance to get outside', '...getting out in the Sunshine'. These women reported making friendships with others they had met in the group. The new friendships resulted in the women getting together outside the pram walking group, '...came over for a cup of coffee...and somebody had a Learners World party that I went to.', 'we've been to lunch together and we've been to each others' houses', 'ring up and talk to someone.'

Twenty-six women indicated on the questionnaire that they had dropped out of a pram walking group. The reasons for dropping out of a group are shown in Table 22. In addition to the reasons in Table 22, five women reported that they had dropped out of a pram walking group to go back to work. Other women gave the following reasons, 'my baby got sick from windy weather and my Husband did not want the kids outside', 'my baby was too young compared to others', 'we moved to Bathurst', 'it clashed with my parenting group', 'my children had things on at school', 'I sustained a back injury' and 'I go to play group twice a week.'

3. Results

Table 22.
Reasons for dropping out of a pram walking group

	%
Day of the week not suit me	26.8
Time of day not suit me	19.5
It was my baby's sleep time	19.5
I had other priorities	12.2
I had no car so it was hard to get there	9.8
I did not fit in with other mums	7.3
The weather became too cold or windy	4.9
It just wasn't what I wanted	0
It was boring	0

The content analysis of qualitative data from mothers attending the Nurragingy group did not reveal any major themes reflecting a general dislike for pram walking groups. One mother mentioned that hill walking can prove unattractive. Another pointed to the fact that she found joining a new group quite a difficult and uncomfortable experience:

Ah, there wasn't anything I didn't like, the only thing I found hard was the fact that starting new groups is always hard, you go in cold with a bunch of people you don't know, but as far as actual Pram Walking goes I didn't have anything I dislike.

The main themes to arise which reflected the factors that maintained group attendance included social, exercise, getting outdoors, body image and combined exercise and friendship reasons. As one mother explained:

The exercise and the socialisation, socialising with the other mothers I found did help in that first time of being a new mother, because that time is really hard. It's really important to do things [like] that, where you find support and help.

When asked if any things had stopped them from attending a group, the main themes to emerge included rain, holidays or other commitments, ill health of self or baby. When describing the factors that may have ever stopped her attending a pram walk, one mother said:

If Hayden is asleep or is not well or something like that, or if it's raining or something.

However, a sense of commitment and priority was evident, such as explained by these two mothers' responses:

Holidays [may stop me coming], generally not even running late because I still make it even if I'm late, ah just if other things come up that I have to do sort of thing, but other things that are more important that I can't get out of, but nothing else, otherwise this comes first, it's booked in every Thursday.

Usually um, bad weather, I've been sick a few times, um, or I've been away, that's the only reasons, every Thursday I put aside that time.

The majority of women (72%) drove themselves to the pram walking group and the remainder walked. None of the women reported taking public transport or travelling as a

3. Results

passenger in a car. One mother who did not join a pram walking group echoed the sentiments of others that public transport was not an option, 'I have no car and it is too far to walk.' Table 23 also shows that no one chose a pram walking group because it was accessible by public transport.

Table 23.
Reasons for choosing a particular pram walking group

	%
I chose the walk closest to my house	33.7
I wanted to walk in a park	25.0
I liked the walking route chosen	17.4
The day and time that suited me best	14.1
I knew other mums in that walking group	7.6
I could meet up with a mum who attended that walk	2.2
I chose the walk I could get to by public transport	0

Mothers who attended a pram walking group were asked in the follow-up questionnaire how we can improve the pram walking groups. Fifteen out of 27 women who answered this question indicated they are 'great the way they are run now'. Seven women would have liked more times and days to chose from, especially for the Nurragingy walk and two women suggested sometimes having morning tea or a sausage sizzle after the walk.

Figure 15.
Lunch after the Nurragingy Reserve walk



3. Results

Figure 16.
Morning tea after the Quakers Hill walk



3.8 Blacktown Decliners

The demographics of 24 women in the intervention area who declined joining a pram walking group but who completed both a pre and post questionnaire are given in Table 24. The only significant difference between the 'Blacktown decliners' and the intervention group was that fewer of the decliners attended a new mothers group at follow-up than the intervention group (12.5%, 40%; $\chi^2 = 5.94$, $p = .015$). Although not significant 20% more of the intervention group than the Blacktown decliners were tertiary educated and double the proportion of the intervention group were on maternity leave. Significantly less of the Blacktown decliners compared with the control group were tertiary educated ($\chi^2 = 5.18$, $p = .023$); on maternity leave ($\chi^2 = 7.03$, $p = .008$); had attended a new mothers group at baseline ($\chi^2 = 7.12$, $p = .008$) or follow-up ($\chi^2 = 4.84$, $p = .028$).

Table 24.
Characteristics of Blacktown decliners at baseline

	Decliners
Age of mother in years (mean)	28.0
Age of baby in weeks (mean)	9.0
Married or defacto (%)	95.8
Number of children (mean)	1.8
Australian born (%)	75.0
Tertiary Educated (%)	16.7
Employed* (%)	50.0
On maternity leave (%)	12.5
Health problem/s (%)	4.2
No. early childhood centre visits (mean)	3.8
Attend mothers group (%)	29.2
Attend play group (%)	12.5

*Currently employed at November 2001

3. Results

As seen in Table 25 just over half of the Blacktown decliners were not participating in adequate physical activity to confer a health benefit at both baseline and follow-up. One quarter was adequately active at both times. The proportion of these women engaging in adequate physical activity at follow-up was between the proportion for the intervention and control groups.

Table 25.
Pre-Post change in adequate physical activity for Blacktown decliners

Pre	Post		Total
	Not adequate	Adequate	
Not adequate (%)	13 (54%)	3 (13%)	16 (67%)
Adequate (%)	2 (8%)	6 (25%)	8 (33%)
Total	15 (62%)	9 (38%)	24 (100%)

Physical activity undertaken in the week before recruitment and follow-up for the Blacktown decliners is shown in Table 26. These women were walking one extra time per week at follow-up. There were no significant differences in physical activity participation at baseline or follow-up between the Blacktown decliners and the intervention or the Holroyd control groups.

Table 26.
Pre/Post physical activity for Blacktown decliners

(means)	Decliners N=24	
	Pre	Post
Times walked last week	2.6	3.6 ^a
Minutes walked last week	84.6	145.8
Times moderate last week	0.3	0.5
Minutes moderate last week	23.8	40.0
Times vigorous last week	0.6	0.7
Minutes vigorous last week	19.6	21.7

^a p=.04

As seen in Table 27 one third of the women who chose not to join a pram walking group exercised hardly ever before their recent pregnancy. Only four percent of this group had engaged in the recommended number of sessions of activity per week for a health benefit. There was no significant difference in physical activity levels before falling pregnant between the Blacktown decliners and the women in the other two groups.

Table 27.
Level of physical activity before falling pregnant for Blacktown decliners

I exercised or walked:	Decliners
Hardly ever (%)	33.3
1-2 times week (%)	33.3
3-4 times week (%)	29.2
5 or more times week (%)	4.2

3. Results

The Blacktown decliners like the intervention and control groups had no significant change in frequency of social contact, size of social networks or attendance at clubs and associations (Table 28) from baseline to follow-up. Similarly to the other two groups these women received fewer visits and phone calls per day after the birth of their recent baby.

Table 28.
Pre/Post social contact for Blacktown decliners

(means)	Decliners N=24	
	Pre	Post
Visits to friends and relatives	once a week	once a week
Average number of different homes of friends/relatives visited per month	5 to 6	5 to 6
Average number of visits/phone calls received per day	5 to 6	3 to 4a
Visits to meetings of clubs/associations	Couple of times in 6 months	Couple of times in 6 months

^a p=.016

A higher proportion of the Blacktown decliners than the intervention group had visited more than 10 different homes of friends or relatives per month in the six months before recruitment (33%, 12%;

$\chi^2 = 5.49$, p=.019). Blacktown decliners were attending clubs and associations more regularly in the six months before recruitment than women in the Holroyd control group. Less of the Blacktown decliners attended clubs from one to five times in six months (38%, 54%; $\chi^2 = 4.27$, p=.039) and more of them attended once a week or more (29%, 6%; $\chi^2 = 7.03$, p=.008) than the controls. Table 29 shows no significant change in satisfaction with social contact from baseline to follow-up for the Blacktown decliners. At follow-up the Blacktown decliners were significantly more satisfied than the controls ($\chi^2 = 5.39$, p=.020). More than twice as many of these women were 'very satisfied' with their social contact compared with the controls ($\chi^2 = 7.56$, p=.006).

Table 29.
Satisfaction with social contact in the last 6 months for decliners

	Decliners	
	Pre	Post
Very satisfied (%)	45.8	50.0
Quite satisfied (%)	29.2	25.0
Neither (%)	16.7	20.8
Quite dissatisfied (%)	8.3	4.2
Very dissatisfied (%)	0	0

Table 30 shows no change in vitality and mental health scores for the Blacktown decliners from recruitment to follow-up. The Blacktown decliners had a higher vitality score at recruitment than the other two groups and this difference was significant between the decliners and the control women ($t_{70} = -1.99$, p.05).

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Table 30.
SF 36 vitality and mental health pre and post scores for Decliners

Means	Vitality		Mental Health	
	Pre	Post	Pre	Post
Decliners	61.46	61.25	76.17	77.33

3.9 Arabic Focus Group

Fourteen Arabic-speaking women with children under five years participated in the focus group. They ranged in age from 25 to 35 years and lived locally within the Auburn LGA. These women understood ‘physical activity’ to mean being active whether it was exercising to keep fit or doing the housework and looking after their children. One woman saw a connection with the mind, ‘being active stimulates the brain and thinking power – you make better decisions’.

The women in the focus group reported currently being active and busy all the time looking after their children and families. Walking around the block to visit friends or to go to the local shops was a common activity. Some women said they regularly walked around their block twice a week for 15 minutes with their neighbours and friends. One woman said she sometimes did aerobics at home in private with a work-out video. The other woman in the focus group agreed that this was a good idea as ‘nobody is pushy or looking at you’. Gardening and swimming were mentioned by a small number of women.

All women had fond memories of the physical activities they did before they had children. Many of these women reported being more active in the past when they were ‘back home’. Enjoyable memories from back home were of dancing traditional belly dances for fun within women’s groups and with female family members and friends; being carefree, jumping rope and having fun; and of playing tennis and bike riding. The lifestyle back home was also different in that the women had to do more things by hand.

A strong theme to emerge was the change in women’s priorities once they had a family. The women agreed that ‘now we don’t think to look after ourselves’. Looking after children and attending to family responsibilities and health matters seemed to be the strongest barrier to physical activity for these women. Other barriers fell within the themes of:

- Not having other people to exercise with and provide encouragement
- Concern for personal safety on the streets
- Lack of childcare, and
- Being too tired after a busy day.

The concept of a ‘pram walking group’ was new to the Arabic women. They needed some clarification of what was meant by this activity and how it worked. Concerns were raised about how safe it was to walk around the local streets. The women thought it sounded like a good idea as if they relied on themselves to exercise they felt they would have many excuses not to do it. The focus group was undecided whether the pram walking group should be just for Arabic-speaking women. Some women felt that going with English-speaking women would improve their English.

3. Results

Common themes to emerge about physical activity opportunities were that they be:

- Held in the local area
- Suitable for Muslim women who wear veils
- Relatively cost free, and
- Provide childcare.

3.10 Chinese Focus Group

Nineteen Cantonese-speaking women with children under five years participated in the focus group. They all lived locally within the Auburn LGA. The woman understood 'physical activity' to be both planned exercise such as aerobics, swimming and walking and incidental activities such as housework and walking up and down the stairs where they lived.

Currently walking is the most common physical activity undertaken by these women. Women talked about walking their children to school every day, walking with their baby in the pram to go shopping, walking to visit friends and walking with their husband after dinner. Before their children were born these woman reported playing tennis with friends and engaging in individual exercise routines such as jumping rope, hoola-hoop or waist-turning exercises.

The barriers to planned physical activity for these women are:

- Having no spare time
- Having no one to care for the baby, and
- Being tired from being awake with the baby at night.

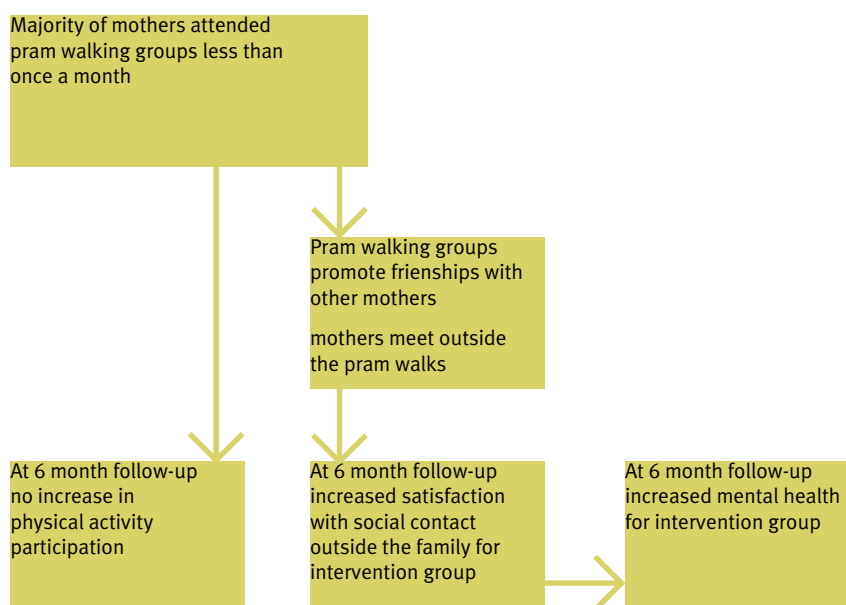
Most of these Chinese-speaking women expressed interest in joining a pram walking group. The perceived benefits centred around meeting new mothers like themselves and exchanging ideas about taking care of babies. The perceived barriers to regular attendance centred on the themes of health problems and bad weather. Woman said they would stay at home if their baby, a family member or they felt unwell. There was much discussion about the weather. One woman summed up the attitude of the group, 'When it's too cold I don't want to go out and when it's too hot it is better to stay at home.'

Physical activity opportunities that the women would like set up for Chinese-speaking new mothers are Tai Chi, badminton and swimming and dance lessons. The women would also like to go out together on social activities such as picnics.

4. Discussion

The results of the Pram Walking Project summarised in Figure 17 suggest that attendance at a pram walking group promotes friendships between women which boost their satisfaction with social contact and in turn their mental health. It seems unlikely that the low attendance was able to produce the increased satisfaction with social contact outside the family. The qualitative data suggests that contact between the women, both during and outside of the pram walking groups is a related factor. Indeed the women who attended the most pram walking groups reported the most satisfaction with their social contact. It is plausible that women walking in a group at least once a month were more likely to make new friendships than those who hardly attended. The correlation between satisfaction with social contact and mental health for the whole sample indicates that there may have been some mental health benefits of the increased social contact even though the mental health increases did not reach significance when measured using the SF36 scale.

Figure 17.
Summary of results of the Pram Walking Project



There was no available evidence to suggest that this intervention led to an increase in physical activity participation to levels adequate for health benefit. This result is not surprising as a physical activity intervention for mothers with young children also found no increase in physical activity participation at a long-term follow-up (Miller, Trost and Brown, 2002). Providing an appropriate physical activity opportunity ie, pram walking, is not sufficient to increase overall physical activity levels among new mothers. Qualitative research has documented the crucial role of a supportive environment in sustaining physical activity participation. Lack of partner support, both the practical child minding and the emotional encouragement for the woman to be active and strong social expectations of the role of the mother are major barriers to physical activity (Lo Cascio, Thomas, Connolly, Finney Lamb and Sainsbury, 1999). The major barriers to English-speaking women attending a pram walking group identified in this study were the baby's sleep time and the mother returning to

4. Discussion

work. The qualitative data revealed the major barrier for Arabic-speaking women was their behaviour of tending to their children's and husband's needs before their own.

The benefit of the physical walking component of the pram walking groups should not be overlooked. Although women did not significantly increase their overall physical activity participation, it may be the case that women who maintain some degree of physical activity during the early child rearing years will find it easier to become more physically active in the future. The stages of change model lends support to this hypothesis that greater compliance can be achieved by a step-wise movement along the continuum of change rather than pushing individuals directly into the Action phase (Marcus, Banspach, Lefebvre et al., 1992). The Action phase in this model is the recommended level of physical activity to confer a health benefit.

Another benefit of attending a pram walking group may be the confidence women with new babies gain by getting out of the house. It seems that the women in this study joined a pram walking group more for the emotional and social than the exercise benefit. The women living in the intervention area who declined joining a pram walking group were more active socially in the six months before recruitment than either the intervention or control women. They were also more satisfied than the other two groups with their social contact at this time. All women were participating in similar levels of physical activity.

Efforts to implement pram walking groups in Auburn for Arabic and Chinese-speaking mothers were unsuccessful. No Arabic-speaking women walked in a pram walking group. The Chinese-speaking women attended one pram walk. They wanted to sit and talk as many of them had already walked from their homes to the meeting point. The Chinese focus group supported the Chinese women's desire to meet up with other women with new babies to swap information. Weekly coffee meetings may have been better attended by these women giving them the chance to sit and chat and for many the exercise involved in walking with their baby to the meeting.

The pram walking project was the first pram walking intervention study to use a control group. Intervention and control women were self-selected from adjacent geographical areas. We were unable to randomise either individual mothers or early childhood clinics into the intervention and control groups. The early childhood nurses felt randomising within clinics would be tedious for them to carry out and they were concerned about mothers missing out on the pram walking opportunity. There was also concern about contamination of controls as women living in close proximity would have friends or relatives who were offered the pram walking intervention. Information on possible confounding factors was collected and analysed to strengthen the design.

The pram walking project addressed a major limitation of a previous study which sought to evaluate adherence rates to a community pram walking program (Currie, Boxer and Develin, 2001). This study which used a voluntary postal reply evaluation questionnaire had a response rate of 26%. The pram walking project made two attempts by mail and five by telephone to maximise return of the follow-up questionnaires. The response rate to the follow-up survey was 81%.

4. Discussion

The findings from this study are only generalisable to women who want to increase their physical activity. Only women who wanted to join a pram walking group at either recruitment or in six months time when a group was available were included in the study. A weakness in the design of the project was the need to streamline and simplify the nurses' involvement in the recruiting process. This meant that valuable information was not collected. The Steering Committee, which included NUMs and nurses, decided it would be too burdensome for nurses to collect information on the women who declined to be in the project. Recruitment solely from early childhood centres was not perceived to be a weakness of the design. Anecdotal evidence from nurses suggested that women who do not go to early childhood centres are unlikely to participate in groups.

5. Conclusion

The Pram Walking Project demonstrated that pram walking groups have limited application as a community wide physical activity promotion strategy. There was a low adherence rate by mothers to the weekly pram walking groups. The evidence also suggests that without a formal structure, the groups are not sustainable. None of the women in this study wanted to enrol in a walking group leader's training course. After the withdrawal of the project officer who acted as the walk leader, all groups petered out within six months.

Pram walking is also a time-limited activity. Babies and toddlers can only fit in prams and strollers for a discrete period. This study found that women dropped out of pram walking groups when they went back to work. For pram walking groups to be sustainable, new women must be continually recruited. Women in the community are reluctant to act as formal contacts for these groups. Currie, Boxer and Develin (2001) found that mothers stopped going to a pram walking group because they lost interest, their baby was too old or because the leader had left the group. Pram walking does at least suit mothers with young babies at a time when other forms of physical activity may be inaccessible (Currie and Develin, 1999).

Having early childhood nurses as walk leaders and as a contact for new members would increase the lifespan of pram walking groups. The process evaluation results of this study suggest that for early childhood nurses to be effective in setting up pram walking groups, appropriate organisational structures must be in place. Similar to the findings of Currie and Develin, 2000 this project showed the involvement of nurses to be inconsistent across areas and within early childhood centres. A handful of self-motivated nurses recruited the majority of women for the study. Access to new mothers groups posed many problems in this study. The content of these groups was planned by nurses in advance, and guest speakers were often invited for each topic area. Pram walking groups need to be more actively and solidly promoted throughout all new mothers groups. Policy direction, pre-service training and managerial support for pram walking groups from the top down are areas that may need to be addressed to achieve this aim.

The process results emphasised the importance of having walking routes that meet the needs of women with babies and young children. Access to maintained toilets and seats at the beginning and end of the walk are a must. Wide paths that allow the women to walk side by side facilitate conversation. Walks around a circuit proved most popular as women were not left behind when they had to stop to tend to their baby.

Further research into the effect of pram walking groups on the social interaction and mental health of women with new babies is warranted. Further studies could illuminate the variables that predict pram walking group membership. Is group membership more a factor of mothers wanting to meet new friends than wanting to do physical activity? Did the friendships formed outlast participation in the pram walking groups?

Pram walking groups are recommended as an activity to promote social and mental well-being and to keep mothers involved in at least some physical activity during the early child rearing years.

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Appendices

Appendix 1: Pram Walking Project Steering Committee

Principal Investigators

Dr Janet Currie	Senior Lecturer, School of Exercise Science, Australian Catholic University Limited
Cathy Gorman-Brown	Development Consultant, Community Participation Unit, NSW Department of Sport and Recreation
Andrew Milat	Acting Director of Health Promotion, Area Health Promotion, Sydney West Area Health Service
Caroll Phillips	Policy Officer, Strategic Partnerships Branch, Department for Women
Margaret Thomas	Manager, Strategic Research and Development Branch, Centre for Chronic Disease Prevention and Health Advancement, NSW Health Department
Jeanette Webb	Senior Development Consultant, Community Participation Unit, NSW Department of Sport and Recreation

Members

Vicki Blight	Generalist Community Nurse, Auburn Community Health Centre
Sue Bullen	A/ Nursing Unit Manager, Doonside Community Health Centre
Barbara Halligan	A/ Nursing Unit Manager, Mt Druitt Community Health Centre
Alison Fettel	Manager, Blacktown Health Promotions Unit
Maggie Holmes	Coordinator, Merrylands Community Health Centre
Sharon Jackson	Manager, Blacktown Health Promotions Unit

Project Staff

Paula Jarman	Project Officer, Pram Walking Project
Chris Kronenberg	Generalist Community Nurse, Mt Druitt Community Health Centre
John Kurko	Physical Activity Program Manager, Sydney West Area Health Service
Angie Loh	Generalist Community Nurse, Blacktown Early Childhood Centre
Lily Mack	Generalist Community Nurse, Auburn Early Childhood Centre
Echo Morgan	Senior Migrant Health Promotion Officer, Area Multicultural Health Unit
Ursula Lowe	A/ Physical Activity Program Manager, Physical Activity Program, Sydney West Area Health Service
Kay Souter	A/ Nursing Unit Manager, Mt Druitt Community Health Centre
Angela Stewart	Project Officer, Health Promotion, NSW Health Department
Janelle Stiles	Generalist Community Nurse, Mt. Druitt Community Health Centre
Natalie Watson	Research Officer, Pram Walking Project

IT Support

Leendert Moerkerken	Computer Network Coordinator, Division of Service Development and Population Health, Sydney West Area Health Service
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Appendix 2: Step-by-step recruitment instructions for nurses



INSTRUCTION SHEET FOR NURSES

1. Invite all mothers with babies aged 0 to 6 months capable of filling out a questionnaire in English to participate in the study.

“participation involves filling in a mostly tick box questionnaire now and in 6 months about physical activity, social activities and well-being. Everyone who fills in a questionnaire goes into a draw for a Grace Bros. gift voucher for \$150”.

2. If the mother does not want to be in the study tick the box on the top right corner of the consent form and place all materials for that ID number in the brown return envelope.

Enrolling Mothers in the Study

3. Show the mother the Participant Information Sheet.
4. Show the mother the Consent To Participate In Research Form.
 - The Mother must sign the form and give an address and phone contact.
 - Nurses must also sign the consent form and list the clinic where they work.
5. Invite mothers to take part in a pram walking group. Give them the yellow pram walking pamphlet with information on pram walking.
6. Mothers tick the pram walking box on the consent form and the preferred location/s
7. Mothers now fill in the questionnaire. Put the tear-off prize draw form in the return envelope.
8. Place all materials for that mother in the brown return envelope.
 - Please use the attached consent forms and questionnaire on the same mother. Keep ALL blank and completed consent and information forms and questionnaires.
 - The Research Officer, Natalie Watson will phone you to check on progress and will advise when to send back all materials in the reply paid envelope provided.
 - If you have any questions or queries about the pram walking study please phone Natalie Watson or Paula Jarman on (02) 9840 3708.

Thank you for your help in conducting this project.

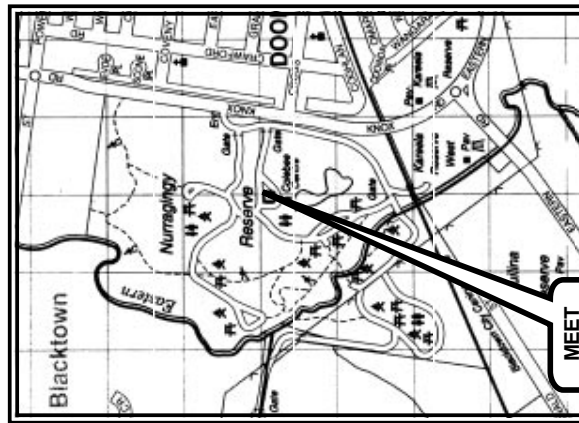
Doonside

Nurranginy Reserve
A beautiful walk around the lake.

Time:- 11.15am

Where:- meet at the Colebee Centre outside the Kiosk

Date:- Starts Thursday 3rd May 2001.



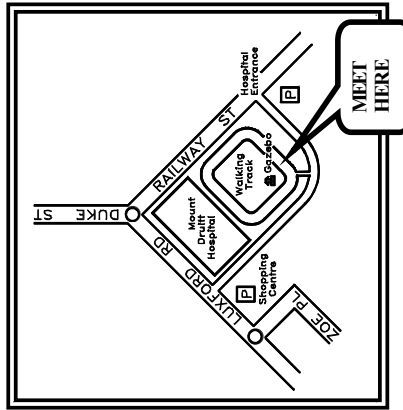
Mt DRUITT

Mt Druitt Hospital Grounds

Time:- 9.45am

Where:- meet at the Gazebo (see map)

Date:- Starts Thursday 3rd May 2001.
Please wear soft soled walking shoes. There is a fee (\$4) to park on the hospital grounds. Free parking can be found at the shopping centre off Luxford Rd - a gate in the fence gives you access to the hospital grounds.



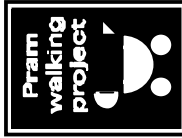
The project is a joint initiative supported and funded by:-

NSW Health
NSW Department of Sport and Recreation
Department for Women
Australian Catholic University
Sydney Eastern Sydney Area Health Service

Your Way To Well-Being © 1999 Janet

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Western Sydney HEALTH HEALTH PROMOTION Area Health Service

PRAM WALKING GROUP. IT'S FUN AND GREAT FOR YOUR HEALTH

- ❖ Walking is baby friendly and it's free
- ❖ Increases self esteem, energy and improves your sleep
- ❖ Improves cardiovascular fitness
- ❖ Walking assists weight loss and toning
- ❖ Exercise has been proven to decrease depression and anxiety
- ❖ You'll get out of the house and meet other mums, you will feel less isolated
- ❖ Reduces your risk of osteoporosis, high blood pressure, diabetes & lowers cholesterol.

When can I start to walk after birth?

After the birth of your baby you'll usually spend the first weeks resting and getting used to the role of mothering your new baby. Depending on your delivery, whether you had a caesarean, a tear or episiotomy, time must be allowed for the natural healing to take place. Usually around 4-6 weeks after



birth you may feel like starting some exercise.

- ❖ Be careful not to over-stretch as the hormone Relaxin (which causes joints and ligaments to soften and stretch for birth) is still circulating for several weeks after the baby is born
- ❖ If you are breastfeeding you will require more fluid.

The birth of your baby represents great changes not only physically but mentally as well. Listen to your body and exercise when you feel ready.

What Will I need?

- ❖ Pram or stroller - baby sling if you prefer
- ❖ Hat and sun block - make sure your baby is also protected from the sun, try draping calico/bunny rug across the stroller (babies sunburn much quicker than adults)
- ❖ Bring plenty of water
- ❖ Light clothing - if it's cold dress in layers so you can remove. Wear comfortable and supportive walking shoes. Wear a supportive bra
- ❖ The walk will be cancelled if it's raining.

HOW HARD WILL IT BE?

The walk will last approximately 45 minutes once a week. You need to find the level that suits you best. You should still be able to talk comfortably as you walk. A qualified leader will walk with the group.

HOW DO I JOIN THE WALKS?

The Pram Walking Groups are held in 6 different locations (see maps for details). If you are interested in joining one of these groups please ring **Paula, Natalie or Ursula on 9840 3708**.

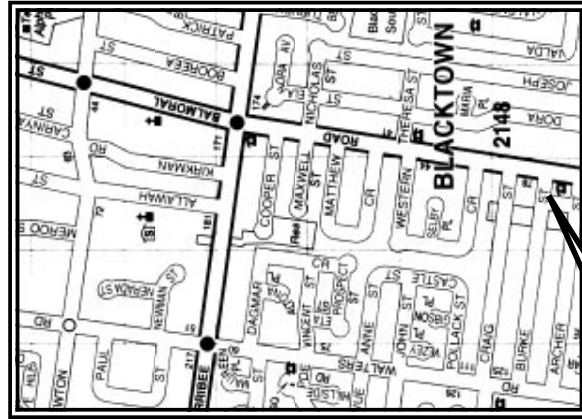
BLACKTOWN

Brewongle Walkway Circuit

Time:- 9.45am

Where:- meet at the Park, Archer Street.

Date:- Starts Friday 4th May 2001.



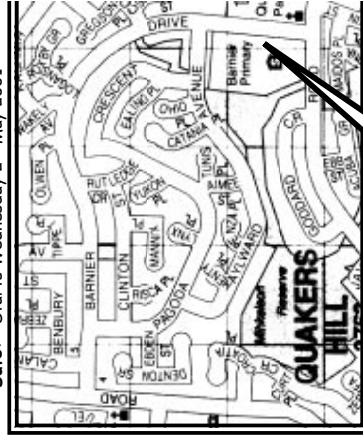
QUAKERS HILL

Community Nurse Clinic - Barnier Primary School, Barnier Drive

Time:- 9.45am

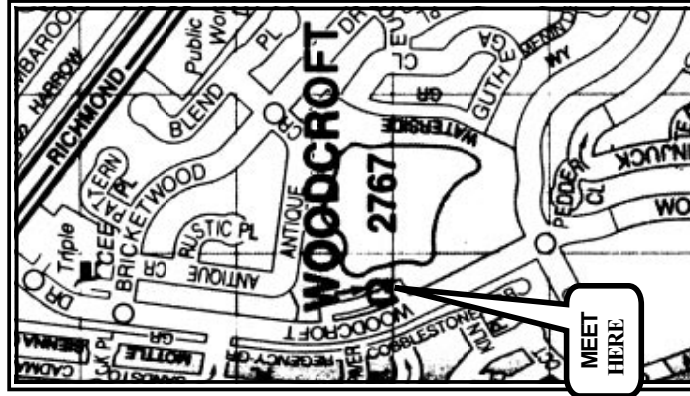
Where:- meet outside the clinic

Date:- Starts Wednesday 2nd May 2001



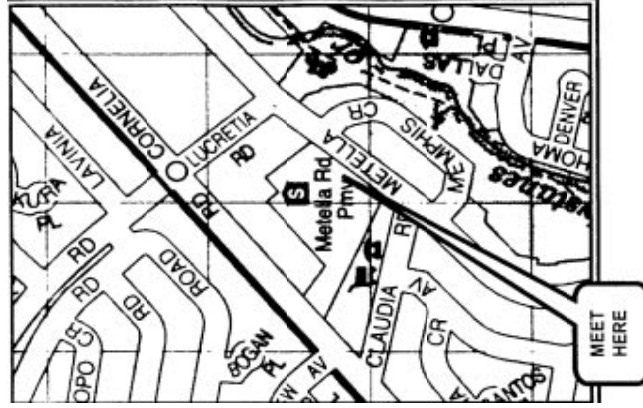
WOODCROFT

An enjoyable walk around Woodcroft Lake
Time:- 11:15am
Where:- meet outside Woodcroft Neighbourhood Centre, 65 Woodcroft Drive, Woodcroft
Date:- Starts Wednesday 2nd May 2001.



TOONGABBIE

Metella Road Primary School, Toongabbie
Time:- 11:15am each Friday (except school holidays)
Where:- meet outside School Gates



Appendix 4: Pram walking baseline questionnaire



The project is a joint initiative supported and funded by: NSW Health, NSW Department of Sport and Recreation, Department for Women, Australian Catholic University and Sydney West Area Health Service.

Thankyou for completing this questionnaire. Every mother who answers this questionnaire goes in a draw for a \$150 Grace Bros. gift voucher. Please fill in the information required or place a tick in the box of your response. All information is strictly confidential.

1. What is the date of birth of your new baby (youngest child)? (dd/mm/yy)
2. How many visits have you had with an Early Childhood Centre nurse for this baby? visits
3. Do you currently attend a playgroup?
 Yes No
4. Do you currently attend a mothers group?
 Yes No
5. How many children do you have living with you? children
6. What is the age of each child you have living with you? (years)
 Child one Child two Child three
 Child four Child five Child six
7. Are you an Aboriginal or Torres Strait Islander?
 Yes No
8. What country were you born in?
Australia Yes No → Where Overseas
9. What is the Postcode where you live?

The next group of questions ask about your involvement in physical activity

10. Which of the following best describes your level of physical activity **before** falling pregnant with this baby?
Please tick one box only
 I exercised or walked hardly ever
 I exercised or walked 1 or 2 times a week
 I exercised or walked 3 or 4 times a week
 I exercised or walked 5 or more times a week

The next few questions ask about the physical activity you did IN THE LAST WEEK:

11. IN THE LAST WEEK how many times have you walked continuously, for at least 10 minutes, for recreation/ exercise or to get to or from places?
 times
12. What do you estimate was the total time that you spent walking in this way IN THE LAST WEEK?
 minutes and/or hours

The next 4 questions exclude household chores, gardening and yardwork

13. IN THE LAST WEEK, how many times did you do any vigorous physical activity which made you breathe harder or puff and pant? (e.g. jogging, cycling, aerobics, competitive tennis, etc.)
 times
14. What do you estimate was the total time that you spent doing this vigorous physical activity IN THE LAST WEEK?
 minutes and/or hours

15. IN THE LAST WEEK how many times did you do any other more moderate physical activity that you haven't already counted? (e.g. gentle swimming, social tennis, golf, etc.)
 times
16. What do you estimate was the total time that you spent doing these activities IN THE LAST WEEK?
 minutes and/or hours
17. Thinking about all physical activity and exercise, do you intend to be more active in the **future** than you have in the last two weeks?
(Please tick one box only)
 Yes No Don't know
18. In the **last 6 months** how often did you visit friends and relatives?
(Please tick one box only)
 Never
 Once in 6 months
 A couple of times in 6 months
 Once a month
 2 to 3 times a month
 Once a week
 Several times a week
19. On the average, in the **last 6 months** how many different homes of friends or relatives did you visit per month?
(Please tick one box only)
 None
 1 to 2
 3 to 4
 5 to 6
 7 to 10
 More than 10
20. In the **last 6 months** how many people approximately came to see you or called you on the phone per day? (Please tick one box only)
 None
 1 to 2
 3 to 4
 5 to 6
 7 to 10
 More than 10
21. In the **last 6 months** how often did you go to meetings of clubs, associations, or societies?
(Please tick one box only)
 Never
 Once in 6 months
 A couple of times in 6 months
 Once a month
 2 to 3 times a month
 Once a week or more

22. In the **last 6 months** how satisfied were you with the amount of social contact you have had with people other than your immediate family?

(Please tick one box only)

- Very satisfied
 Quite satisfied
 Neither satisfied nor dissatisfied
 Quite dissatisfied
 Very dissatisfied

23. Do you currently have health problems preventing you participating in physical activity?

Yes No

If yes please describe? _____

24. These questions are about how you feel and how things have been with you during the **past 4 weeks**.

For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the **past 4 weeks** –

(Circle one number on each line)

	All of the time	Most of the time	A good bit the time	Some of the time	A little the time	None of the time
Did you feel full of life?	1	2	3	4	5	6
Have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5	6
Did you have a lot of energy?	1	2	3	4	5	6
Did you feel worn out?	1	2	3	4	5	6
Did you feel tired?	1	2	3	4	5	6
Have you been a happy person?	1	2	3	4	5	6
Have you been a very nervous person?	1	2	3	4	5	6
Have you felt calm and peaceful?	1	2	3	4	5	6
Have you felt down?	1	2	3	4	5	6

25. What is your age? years

26. What is your marital status?

(Please tick one box)

- Single (not married or defacto)
 Married or defacto
 Separated, divorced or widowed

27. What is the highest level of education you have completed?

(Please tick one box only)

- Never attended/some primary school
 Completed primary school
 Some high school
 Completed school certificate
 Completed HSC/Year 12
 TAFE Certificate or Diploma
 TAFE Trade or apprenticeship
 University/CAE/Other tertiary degree
 Other, please specify _____

Thankyou for completing this questionnaire. Can you please tear off the section below and fill in your name and contact details so we can enter you in the prize draw.

Appendix 5:
Consent to participate in research form



Does not wish to take part in study

Sydney West Area Health Service
WESTMEAD, NSW 2145

CONSENT TO PARTICIPATE IN RESEARCH

Title of Research Project: "Pram Walking Project"

Investigators: Mr Andrew Milat (Sydney West Area Health Service), Dr Janet Currie (Australian Catholic University), Ms Margaret Thomas (NSW Health)

1. I understand that the investigator will conduct this study in a manner conforming with ethical and scientific principles set out by the National Health and Medical Research Council of Australia and the Good Clinical Research Practice Guidelines of the Therapeutic Goods Administration.
2. The general purposes, methods and demands and the possible risks, inconveniences which may occur to me during the study have been read and explained to me by _____ and I, being over the age of 16 years acknowledge that I understand the methods and demands relating to the treatment and the possible risks, inconveniences and discomforts which may occur.
3. I acknowledge that I have been given time to consider the information and to seek other advice.
4. Refusal to take part in this study will not affect the usual treatment of my condition.
5. I am volunteering to take part in this study and I may withdraw at any time.
6. This research has been approved by the Sydney West Area Health Service Human Research Ethics Committee.
7. I acknowledge that I have received a copy of this form and the participant information sheet.
8. NSW Health may have access to questionnaire results to monitor the research in which I am agreeing to participate. However, my identity will not be disclosed to them or anyone else.

Name of participant _____ Phone _____

Address _____

Signature of participant (refer below for definition) _____

Name of NURSE _____ Clinic of Nurse _____

Signature of NURSE _____

Definition of Participant

This may only be signed by:

1. Participants over 16 years of age; or
2. Participants between the age of 14 and 16 years together with the signature of their parent or guardian.
3. Parent or guardian of participants under 14 years.
4. Where patient or participant has a medical or legal disability then signature must be that of :
 - a) The legal guardian; or
 - b) Spouse or de facto spouse; or
 - c) Caregiver [refer(e)]; or
 - d) The Guardianship Board (Telephone 02 9555 8500)
- e) Family member or friend but not a professional caregiver (e.g. medical superintendent, director of nursing, nursing home director).

Mother would like to join a Pram Walking group: YES NO

Preferred Walking Area/s:

- | | | |
|--------------------------------------|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Blacktown | <input type="checkbox"/> Doonside | <input type="checkbox"/> Mt Druitt |
| <input type="checkbox"/> Glendenning | <input type="checkbox"/> Quakers Hill | <input type="checkbox"/> Woodcroft |

Appendix 6: Participant information sheet



Sydney West Area Health Service
WESTMEAD, NSW 2145

Pram Walking Project - Participant Information

What is the purpose of the study?:

1. To encourage physical activity among women with children under 5 years.
2. To measure the uptake of the pram walking intervention among mothers in the study.
3. To measure changes among new mothers in:
 - Energy levels
 - Social/community connectedness
 - Feeling of mental well-being
 - Intention to be physically active
 - Participation in physical activity

Who will be asked to enter the study?:

New mothers in the Blacktown and Holroyd local government areas capable of completing a self-report questionnaire in English.

What will happen during the study?:

An Early Childhood Centre nurse will invite you to participate in this study. If you agree to take part you will be asked to complete a tick box and short answer questionnaire on social connectedness, feelings of well-being, physical activity and basic demographic information such as age, education and marital status. All mothers who complete the questionnaire will go into a draw for a \$150 Grace Bros. gift voucher.

New mothers in the Blacktown area will then be invited to attend neighbourhood pram walking groups (intervention) in which they can exercise in a safe, enjoyable and social atmosphere. Mothers in the Holroyd area will be invited to participate in the pram walking groups later in the year.

All mothers who agree to participate in the study will be asked to complete a follow-up survey six months after the commencement of the study, regardless of whether they have participated in the pram walking groups. You will have another chance to win a \$150 Grace Bros. gift voucher.

What are the Pram Walks?:

The walks will start at an Early Childhood Centre (or a park with toilet facilities) and mapped out routes will be provided. The walks will be held once a week and last approximately 45 minutes and will be lead by a Walking Group Leader. Walks will be around the local streets and parks. The Walking Group Leader and the Investigators will take every precaution to ensure that all chosen walks are safe.

What do I need to provide?:

You will need to wear comfortable walking shoes, light clothing (T-shirt and tights/light slacks/shorts), sun hat and sunblock, sun protection for your baby (eg. material such as calico draped over the stroller for shade), and hat, sun protective clothing and sunscreen for older children. Remember to carry plenty of water.

Are there any risks?:

The risks of participating in regular moderate physical activity are very low. The benefits of physical activity participation far outweigh the associated risks. A 5-10 minute warm up of slow walking followed by static stretching will help prevent injury.

Do I have a choice?:

Your participation in this study is completely voluntary and your privacy will be protected. All the information received by you will be kept in a secure file. You can discontinue your involvement in the study at any time. If you have any problems while involved in the study, please contact the Project Officer Paula Jarman or Natalie Watson on 9840 3708.

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Names of Investigators:

Chief Investigator: Andrew Milat – Planning and Implementation Manager,
Sydney West Area Health Service

Margaret Thomas – Health Promotion Unit, NSW Health

Dr Janet Currie – Lecturer, Australian Catholic University

If you wish to make a complaint:

Please contact the patient representative at Westmead Hospital on 9845 7014

Appendix 7: Ethnic Health Workers involved in recruitment

Help was obtained from the following people to recruit mothers for the Arabic pram walking group:

- Wafa Zaim, President of the Muslim Women's Association,
- Dawalt Ghattas, Arabic Ethnic Health Worker from Auburn Community Health Centre.

Help was obtained from the following people to recruit mothers for the Chinese pram walking group:

- Bridgette Tam, Ethnic Health Worker from Australian Chinese Community Association,
- Lily Mack, Generalist Community Nurse from Auburn Early Childhood Centre,
- Lyn Chaudhuri, Nurse in Charge of a Nursing Mothers' Chinese Breastfeeding Group at Auburn Early Childhood Centre,
- May Chung, Bilingual Health Worker from Auburn Hospital, and
- Theresa Chow, Chinese Ethnic Health Worker from Auburn Community Health Centre.

Pram Walking Project



NSW Department of Sport and Recreation

Stroll with a stroller

Info Sheet

A guide to setting up pram walking groups

Are you a new mum who wants to start exercising but has no-one to go with? Do you have a new baby but sometimes feel isolated at home? If this could be you, then here's a solution – a pram walking group!

Groups of new mums are getting together for exercise and to talk and have fun – while they walk their babies. This is what a pram walking group could do for you:

- increase your self-esteem and energy
- improve your sleep
- improve your cardiovascular fitness
- help you to lose weight and tone muscles
- decrease depression and anxiety
- reduce your risk of osteoporosis, high blood pressure and diabetes and lower your cholesterol levels
- get you out of the house and meeting other people so that you feel less isolated
- save you money because it is free and baby-friendly too!

"Meeting other people, getting out of the house, I didn't know anybody in this area when I had the baby, it's nice to meet people in the same area with babies the same age" **Nurranginy Reserve pram walking participant.**

When can I start to walk after the birth of my baby?

After the birth of your baby, you'll usually spend the first weeks resting and getting used to the new role of mothering. The birth of your baby represents great changes for you, both physically and mentally, so you need to give yourself time to adapt. Depending on your delivery – whether you had a caesarean, a tear or an episiotomy – allow yourself time for healing. Most new mums feel like beginning or returning to exercise between four and six weeks after the birth. Each person is different, though, so listen to your body and exercise when you feel ready.

What should I take?

- A pram or a stroller, or a baby sling if you prefer.
- A hat and sunscreen.
- Ways of protecting your baby from the sun. Babies sunburn much more easily than adults, so try draping a piece of calico or a bunny rug across the stroller to provide shade.
- If you are breastfeeding you will require more fluid, especially on humid summer days, so carry plenty of water and drink regularly. If you aren't breastfeeding, carry supplies for yourself and your baby.
- Light clothing (if it's cold, wear several light layers so you can remove them as you warm up), comfortable and supportive walking shoes, and a supportive bra.

For more information contact:

NSW Department of Sport and Recreation
6 Fivewo Drive, Homebush Bay NSW 2127
phone (02) 9006 3700 fax (02) 9006 3800
email info@dsr.nsw.gov.au

phone **13 13 02**



Pram Walking Project

Step-by-step guide to setting up a pram walking group

Step 1

Decide who is going to conduct the pram walking group.

It could be:

- staff from local community centres, for example, an Early Childhood Nurse/Generalist Community Nurse
- interested people from mothers' groups
- interested people from ethnic community groups, or
- other community groups.

Step 2

Promote the pram walking group.

Select a starting date that allows you two or three weeks to recruit participants. Plan to walk at a time that suits most walkers, remembering that some mothers may also have children at school or preschool. Consider the time of year as summer is very hot and humid – morning walks seem to be preferred for pram walking.

You can promote the group by:

- placing a flyer on the noticeboard at your Early Childhood Centre, library, or shopping centre
- recruiting women who attend new mothers' groups or playgroups
- placing a free ad in the local newspaper (community noticeboard section)
- engaging the help of specialist health workers (i.e. Ethnic Health Worker) in your Community Health Centre.

Step 3

Map out the walking path the group will take.

When choosing the walk consider:

- the width and condition of the path, and whether it allows two or more mothers with prams to walk beside each other
- any road crossings on the route (keep these to a minimum if possible)
- a starting point that is accessible for parking and strollers
- shade or shelter, and a seat for feeding, preferably at the starting point
- whether the walk feels safe and how isolated it is
- whether the route is pleasant to walk – waterside walks are particularly appealing as are streets with gardens or a park to walk through
- accessibility by public transport
- whether clean, convenient toilets are available.

Test the walk with a friend before the group begins to make sure the path is in good condition and pram-friendly. Walks that form a circuit in a park or around a lake, allow you to stop if you need to – while others continue without fear of being left behind.

Step 4

Lets walk!

Walks should go for at least 30 minutes to ensure you get enough exercise. You should still be able to talk comfortably as you walk. When you start, do five to seven minutes of slower walking as a warm-up, before you reach your usual pace. At the end of the walk, stretch calves, thighs, and arms for a hold of 20 seconds. Be careful not to over-stretch. Hormones which helped your joints and ligaments soften and stretch for the birth may still be circulating for up to six months after your baby is born, and your joints may be looser than they usually are.

Step 5

Keep it going.

Keep people interested in your pram walking group by:

- encouraging new mothers to join
- taking a friendly, fun approach that will encourage everyone to take part
- welcoming all new mothers to the group and introducing everyone
- ensuring that everyone walks with a partner at a walking speed that suits both of them
- organising varied social activities (e.g. finish at a café, picnics etc.)
- remaining flexible and inviting friends, and other family members along.

A joint initiative of NSW Health, Western Sydney Area Health Service, NSW Department of Sport and Recreation, NSW Department of Women and Australian Catholic University.

Appendix 9: Pram walking follow-up questionnaire



The project is a joint initiative supported and funded by: NSW Health, NSW Department of Sport and Recreation, Department for Women, Australian Catholic University and Sydney West Area Health Service.

Thank you for completing this questionnaire. Every mother who answers this questionnaire goes in a draw for a \$150 Grace Bros. gift voucher. Please fill in the information required or place a tick in the box of your response. All information is strictly confidential.

1. How many visits have you had with an Early Childhood Centre nurse for this baby? visits

2. Do you currently attend a mothers group?
 Yes No

3. Do you currently attend a playgroup?
 Yes No

4. What is your **current** employment status? Are you:

(Please tick one box only)

- Employed full-time (include self-employed)
- Employed part-time (include self-employed)
- Unemployed
- A student and working
- A student and not working
- Unable to work due to health problems
- Not in paid labour force (ie. full-time mum/home duties)
- Other, please specify _____

5. Are you on maternity or other paid (eg long service) leave?

(Please tick one box only)

- Not on maternity leave
- On paid maternity or other paid leave
- On unpaid maternity or other unpaid leave

The next group of questions ask about your involvement in physical activity

The next few questions ask about the physical activity you did **IN THE LAST WEEK**:

6. IN THE LAST WEEK how many times have you walked continuously, for at least 10 minutes, for recreation/ exercise or to get to or from places? times

7. What do you estimate was the total time that you spent walking in this way IN THE LAST WEEK?
 minutes and/or hours

The next 4 questions exclude household chores, gardening and yardwork

8. IN THE LAST WEEK, how many times did you do any vigorous physical activity which made you breathe harder or puff and pant? (e.g. jogging, cycling, aerobics, competitive tennis, etc.) times

9. What do you estimate was the total time that you spent doing this vigorous physical activity IN THE LAST WEEK?
 minutes and/or hours

10. IN THE LAST WEEK how many times did you do any other more moderate physical activity that you haven't already counted? (e.g. gentle swimming, social tennis, golf, etc.) times

11. What do you estimate was the total time that you spent doing these activities IN THE LAST WEEK?

minutes and/or hours

12. In the last 6 months how often did you visit friends and relatives?

(Please tick one box only)

- Never
 Once in 6 months
 A couple of times in 6 months
 Once a month
 2 to 3 times a month
 Once a week
 Several times a week

13. On the average, in the **last 6 months** how many different homes of friends or relatives did you visit per month?

(Please tick one box only)

- None
 1 to 2
 3 to 4
 5 to 6
 7 to 10
 More than 10

14. In the last 6 months how many people approximately came to see you or called you on the phone per day?

(Please tick one box only)

- None
 1 to 2
 3 to 4
 5 to 6
 7 to 10
 More than 10

15. In the **last 6 months** how often did you go to meetings of clubs, associations, or societies?

(Please tick one box only)

- Never
 Once in 6 months
 A couple of times in 6 months
 Once a month
 2 to 3 times a month
 Once a week or more

16. In the **last 6 months** how satisfied were you with the amount of social contact you have had with people other than your immediate family?

(Please tick one box only)

- Very satisfied
 Quite satisfied
 Neither satisfied nor dissatisfied
 Quite dissatisfied
 Very dissatisfied

17. These questions are about how you feel and how things have been with you during the **past 4 weeks**. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the **past 4 weeks** –

(Circle one number on each line)

	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
Did you feel full of life?	1	2	3	4	5	6
Have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5	6
Did you have a lot of energy?	1	2	3	4	5	6
Did you feel worn out?	1	2	3	4	5	6
Did you feel tired?	1	2	3	4	5	6
Have you been a happy person?	1	2	3	4	5	6
Have you been a very nervous person?	1	2	3	4	5	6
Have you felt calm and peaceful?	1	2	3	4	5	6
Have you felt down?	1	2	3	4	5	6

18. Did you go on any of the pram walks organised by us?

Yes No

- 18a. If “No”, why did you choose not to join a pram walking group?

(You can tick more than one box)

- I did not like walking
- I did not like exercising in a group
- My baby was too young
- The weather was too cold or windy
- I was too busy
- I did not have a car
- My baby would be asleep at walk times
- I did other types of exercise
- I have other young children to look after
- I did not know any other mothers going
- The time of day did not suit me or my baby
- The day of the week did not suit me
- I had little energy for walking
- Other reason, please specify _____

- 18b. If “YES”, why did you START a pram walking group?

(You can tick more than one box)

- I wanted the exercise from walking
- I wanted to get out of the house
- I wanted to lose weight
- I wanted to walk to reduce stress
- I liked the idea of having my baby with me
- I wanted to meet other new mothers
- I knew other mums who were going
- I wanted to tone my body shape
- I wanted a free form of exercise
- I wanted to get fit
- Other reason, please specify _____

If you started a pram walking group and dropped out

18c. What were your reasons for dropping out of a pram walking group?

(You can tick more than one box)

- The day of the week did not suit me
- I did not fit in with the other mums
- I had no car so it was hard to get there
- It just wasn't what I wanted
- The weather became too cold or windy
- The time of day did not suit me or my baby
- It was boring
- I had other priorities
- It was my baby's sleep time and I did not want to wake him/her
- Other reason, please specify _____

The next few questions are for mothers who were in a pram walking group

19. How did you get to the pram walks?

- car as driver
- car as passenger
- public transport
- walked

20. Of the 6 pram walking groups why did you choose the one you did?

(You can tick more than one box)

- I chose the walk closest to my house
- The day and time that suited me best
- I wanted to walk in a park
- I chose the walk I could get to by public transport
- I knew other mums in that walking group
- I liked the walking route chosen
- I could meet up with a mum who attended that walk
- Other reason, please specify _____

21. How did you hear about the pram walking groups?

22. How can we improve the pram walking groups?

Thankyou for completing this questionnaire.**Can you please tear off the section below and fill in your name and contact details so we can enter you in the prize draw.**

Appendix 10: Interviews with mothers at Nurragingy Reserve

Interview 1

> *What did you like about the pram walking group?*

Meeting other people, getting out of the house, I didn't know anybody in this area when I had Stirling. I had friends with babies but they all lived half an hour or so away. It's nice to meet people in the same area, you can meet up with outside the pram walking group with babies about the same age.

> *Was there anything you didn't like about the pram walking group?*

Ah no not really I enjoyed most of it all.

> *Can you tell me what kept you coming to the pram walks?*

Just getting out of the house, being part of the routine, ah meeting other people. I'd love to say it's the exercise but it's not the exercise, I think it is just the social part of it that keeps me coming.

> *When I stop coming to the pram walking group are you going to keep coming?*

Yee Yee most probably. Unless I start going back to work, that's the only thing that is going to stop me coming.

> *What things have stopped you from coming to a pram walk?*

I missed 1 day and it rained. The only reason I didn't come is I thought it was going to rain... and it didn't end up raining and I was pretty annoyed with myself.

> *Have you made any new friendships in the pram walking group?*

Yep - lots

> *Have you met outside the pram walking group?*

Yep Yes we have. Jenny came over for a cup of coffee after pram walking one day and somebody had a Learners World party that I went too, so a couple of times yeh.

> *While participating in the pram walking group did you feel included in the group? Why/ Why not?*

I have found there has been lots of little groups of people that have met up, so you come and there are probably like 4 or 5 different little segregated groups, and I've been a part of 1 of those groups, so I'm happy within that group that I've been included in.

Interview 2

> *What did you like about the pram walking group?*

I enjoyed the socialising, the exercise, the beautiful days that we share, that's it.

> *Was there anything you didn't like about the pram walking group?*

No - nothing.

> *Can you tell me what kept you coming to the pram walks?*

The people, the exercise, and the socialising, it's excellent.

> *When I stop coming to the pram walking group are you going to keep coming?*

Yee, I will if everyone else does.

> *What things have stopped you from coming to a pram walk?*

Holidays, generally not even running late because I still make it even if I'm late, ah just if other things come up that I have to do sort of thing, but other things that are more important that I can't get out of, but nothing else, otherwise this comes first, it's booked in every Thursday.

> *Have you made any new friendships in the pram walking group?*

Ah yeh. Sure have a few of those.

> *Have you met outside the pram walking group?*

Yee, still keep in contact with people from the parenting group and some antenatal class people.

Prompt – Did you meet them through Pram Walking?

There is 2 people here from my antenatal group, but the other people I've met I've just met from here.

> *While participating in the pram walking group did you feel included in the group? Why/ Why not.*

Yes definitely, It's a lot of fun.

Interview 3

> *What did you like about the pram walking group?*

Gives you a chance to get outside, gives you a chance to exercise, gives you a chance to socialise with other mothers. Having an appointed time every week makes sure I went walking at least once a week, it encouraged me to go walking at other times during the week, not that I did that that often, it helps - the socialising and the exercise were the most important things.

> *Was there anything you didn't like about the pram walking group?*

Ah – there wasn't anything I didn't like, the only things I found hard was the fact that starting new groups is always hard, you go in cold with a bunch of people you don't know, but as far as actual Pram Walking goes I didn't have anything I didn't dislike.

> *Can you tell me what kept you coming to the pram walks?*

The exercise and the socialisation, socialising with other mothers I found did help in that first time of being a new mother, because that time is really hard it's really important to do things that, where you find support and help.

> *When I stop coming to the pram walking group are you going to keep coming?*

Absolutely.

> *What things have stopped you from coming to a pram walk?*

Only having other things on, or having a bad day with the baby, or feeling unwell.

> *Have you made any new friendships in the pram walking group?*

Yes I have.

> *Have you met outside the pram walking group?*

Yes I have.

Prompt – What sort of things have you done?

I made a new friendship with Sheena I met her at the Pram Walk, and we've been to lunch together and we've been to each others' houses.

> While participating in the pram walking group did you feel included in the group? Why/ Why not.
You got together with other mothers who like to walk and get out and do things together, some mothers don't do that a lot, uh I guess it was you met other mothers who liked doing similar things to you. I've forgotten what the question was again?

> Did you feel included?

Yes I did Yes because you met other mothers who were doing things you liked that you like to do.

Interview 4

> What did you like about the pram walking group?

The exercise.

> Was there anything you didn't like about the pram walking group?

Nope.

> Can you tell me what kept you coming to the pram walks?

Um - good company for Jessica with other babies, and good company for mum so she can talk to other mums.

> When I stop coming to the pram walking group are you going to keep coming?

Definitely.

> What things have stopped you from coming to a pram walk?

I haven't missed one yet because I've only been coming a little while, I haven't missed any yet so far.

> Have you made any new friendships in the pram walking group?

Ah yeh a few. It's been good.

> Have you met outside the pram walking group?

Not yet – but maybe soon.

> While participating in the pram walking group did you feel included in the group? Why/ Why not.

Um – yes because were all sort of push prams and walk and talk and discuss our little babies and it's good.

Interview 5

> What did you like about the pram walking group?

The exercise and being able to talk to an adults.

> Was there anything you didn't like about the pram walking group?

No.

> *Can you tell me what kept you coming to the pram walks?*

Ah - Looking at myself in the mirror, seeing how fat I was, the extra weight I have compared to what I was, and just to keep fit and you know we met a couple of nice people so we kept coming.

> *When I stop coming to the pram walking group are you going to keep coming?*

Oh yeah.

> *What things have stopped you from coming to a pram walk?*

Only just going away, and some family members coming down, and 1 time I was sick – had a headache.

> *Have you made any new friendships in the pram walking group?*

Oh yeah, Vanessa and Lauren and Jenny.

> *Have you met outside the pram walking group?*

Oh yeah, we met for coffee, the kiosk wasn't open here, so we went for lunch, I think we will probably keep in contact, keep coming.

> *While participating in the pram walking group did you feel included in the group? Why/ Why not.*

Yeah - Well I feel included - but it's not about feeling included, it's about enjoying walking... and in general I enjoy meeting new people so, its not hard for me to meet new people. Even though there has been 2 different groups I've noticed, but that's because there is some people that you click with and there are just some people that you don't, some people are quieter, and I think the reason why Jenny, Lauren, Vanessa and ourselves and even Alison have talked and stuff is because we're different personalities probably and probably because we all met the first time and we kept on coming. It's not like we've known each other for ages but it's a start of a friendship and you never know what can happen from there.

Interview 6

> *What did you like about the pram walking group?*

Being outdoors with all the mums, having some good exercise.

> *Was there anything you didn't like about the pram walking group?*

The hill, (*prompt - is that all*), yes just the hill.

> *Can you tell me what kept you coming to the pram walks?*

The exercise, the regularity of having exercise, meeting and talking with mums on a regular basis, meeting new people, having interaction with other babies.

> *When I stop coming to the pram walking group are you going to keep coming?*

Yes definitely.

> *What things have stopped you from coming to a pram walk?*

Usually um bad weather, I've been sick a few times, um or I've been away, that's the only reasons, every Thursday I put aside that time.

> *Have you made any new friendships in the pram walking group?*

Yep.

> *Have you met outside the pram walking group?*

What do you mean.

Prompt - gone out with them.

Um Jenny's come over to Vanessa's house I think once, ah I haven't gone to anyone else's place but I have met other mums at someone else place.

> *While participating in the pram walking group did you feel included in the group? Why/ Why not.*

Yeah I did because you spoke to everybody at different times, not everyone was there on a regular basis and if you didn't see a mum you'd say hi how are you how's your baby been going that sort of thing it's good to catch up. Yeah definitely feel included.

Interview 7

> *What did you like about the pram walking group?*

I like coming and meeting other mother's and getting out in the sunshine.

> *Was there anything you didn't like about the pram walking group?*

Not really anything. It's pretty good, I like to socialise with other people, I enjoy it

> *Can you tell me what kept you coming to the pram walks?*

Friendships I made, I have to get out - so something to go to.

> *When I stop coming to the pram walking group are you going to keep coming?*

Yeah - I'll come.

> *What things have stopped you from coming to a pram walk?*

If Hayden is asleep or is not well or something like that, or if it's raining or something.

> *Have you made any new friendships in the pram walking group?*

Yeah a few - ring up and talk to someone

> *Have you met outside the pram walking group?*

Yeah, in our mothers group we have met other mothers through that.

Prompt - Was that through the pram walks?

No I went to mothers group before pram walking.

> *While participating in the pram walking group did you feel included in the group? Why/ Why not.*

Yeah I felt included when I first came, some of the girls asked me to walk and that made me feel happy.

Prompt - What about when you swapped groups?

We talked about different stuff so you get to know different people. Yeah I like to get on with people sort of the same sort of younger and that, first child and that.

Appendix 11: Questions for the Arabic and Chinese Focus Groups

Arabic Focus Group

Moderator: Therese Tadros, Multicultural Health Promotion Officer from SWAHS.

Translator: Lila Ibrahim, Bilingual Community Educator from SWAHS.

Chinese Focus Group

Moderator: Eva Cheng, Bilingual Community Educator from SWAHS.

Translator: Quoc Tran Tran, Bilingual Community Educator from SWAHS.

Questions

1. What is your understanding of the words PHYSICAL ACTIVITY?
2. What are the types of physical activity you do now?
Prompt – What about walking such as walking to shops or walking to visit friends or relatives?
Prompt – How much time do you spend doing XXXXXXXX each week?
3. What types of physical activity did you do BEFORE this baby was born?
Prompt – What about walking such as walking to shops or walking to visit friends or relatives?
Prompt – How much time did you spend doing XXXXXXXX each week?
4. What are the things that stop you from doing physical activity NOW?
5. Would you like to join a pram walking group which meets once a week in Auburn - the group is for new mothers like yourself to walk together with their babies for 30 to 45 minutes a week?
Prompt – Why / Why not?
6. If you were to join a pram walking group what things may make it difficult for you to come regularly?
7. Are there other PHYSICAL ACTIVITIES that you would like us to set up for new Arabic / Chinese mothers?