

Buggy walking: An asset-based approach to health care?

› Abstract

Postnatal buggy walking is an accessible activity for new mothers, but there has been limited assessment of its impact on wellbeing in healthy postnatal populations or on community based health services. This evaluation explored women's perceptions of the effect of participating in health visitor-led postnatal buggy walk groups and of health visitor involvement. A mixed methods approach was used comprising surveys, focus groups and individual interviews. Findings indicate that health visitor-led group buggy walks are an innovative, asset-based approach to health care. Mothers perceived that participation improved their wellbeing, helped them cope with parenting and enabled them to develop important supportive social networks. The health visitor facilitated first attendance, incentivised continuation and provided women with an accessible health resource.

Key words

› Buggy walking › Physical activity › Asset-based health care › New mothers

Physical activity benefits all population groups through a number of improved health outcomes, such as reduced heart disease, stroke and diabetes, as well as helping to prevent weight gain (Bull, 2010). New mothers are one of the groups most at risk of reduced physical activity (Lewis and Ridge, 2005) and being less active after birth is related to poorer maternal wellbeing (Blum et al, 2004), increased weight retention (O'Toole et al, 2003) and possibly to postnatal depression (Daley, 2008; Lewis and Kennedy, 2011; Robertson et al, 2012).

The benefit of increasing physical activity among new mothers may also extend to the wider family through the development of healthy physical

activity habits (Lewis and Ridge 2005; Hinkley et al, 2008). However, barriers to accessing physical activity in this group have been well researched and include for example competing demands on time, limited locally available activities and lack of acceptable child care (Lewis and Ridge, 2005).

Postnatal buggy walking offers an accessible activity, however, evaluations have been heterogeneous in terms of population, contexts and outcomes (Gilinsky et al, 2015). Much of the research has been directed toward specific postnatal populations such as those with a clinical diagnosis of postnatal depression, diabetes or obesity. Few have evaluated the effects on wellbeing in healthy postnatal populations or on community based health services.

Background

In response to high rates of depression, low mood and a perception of social isolation among new mothers a postnatal buggy walking group was set up in one Community Health Partnership (CHP) in central Scotland and subsequently introduced to other areas (CHPs were subdivisions of Scottish health boards, generally aligned with council areas and have since been replaced by Health and Social Care Partnerships). The groups were designed to improve physical, social and mental wellbeing and were implemented as a partnership between primary care, a local 'walking for health' initiative (www.falkirkcommunitytrust.org/fitness/step-forth/) and Paths for All (www.pathsforall.org.uk/pfa-home).

Based on the philosophy that 'every health-care contact was a health improvement opportunity' walks were facilitated by local health visitors and made available to all postnatal women as part of routine postnatal care (Physical Activity Health Alliance (PAHA, 2012). Thus, the aim of the programme was to improve the wellbeing of new mothers through social interaction, physical activity and lifelong learning (PAHA, 2012). When this programme started in 2009 there were no other similar initiatives in Scotland. Six groups were initiated within the CHP, three of which became established and appeared popular with mothers and facilitators. These groups provide a weekly walk of approximately 1 hour and more than

Rhona J McInnes, associate professor of maternal health and consultant midwife, NHS Lothian, School of Health and Social Care, Edinburgh Napier University; **Colette Dickson**, MRes student, School of Health Sciences, University of Stirling; and **Carol Barclay**, health visitor, Bonnybridge Health Centre, Stirling
r.mcinnis@napier.ac.uk

180 mothers participate each month. However, concerns have been expressed about acceptability and sustainability as not all eligible mothers attend and three groups have ceased to function. Further, the value and cost-effectiveness of the role of the health visitor in these groups has been questioned.

Aim

This evaluation aimed to assess if the predefined aims of the buggy walks were met and explore the concerns outlined above. This was not an outcomes evaluation as such and instead focused on the processes and what worked for women. The objectives were to explore: perceptions of mental, physical and social wellbeing in relation to participating; sustainability; programme acceptability, accessibility and inequalities; what works and the role of the health visitor.

Methods

A mixed methods approach comprised a small survey of mothers and service providers, focus groups and individual interviews.

Sample

Mothers were invited to participate if they had given birth in the previous 2 years and lived within

» *Health visitors involved in the walks highlighted improved relationships with new mothers and a reduced need for home visits, resulting in better time management* «

the participating CHP. Service providers included primary care health professionals and Paths for All staff located within the participating CHP and self-defined as having regular contact with new mothers.

Recruitment

Study packs (containing study information, consent forms, survey tool and a stamped addressed envelope) were distributed via the area health visitor manager to service providers and by health visitors to new mothers. Forms were returned directly to the evaluation team. Forty forms were provided for distribution to service providers and 19 were returned. Three-hundred forms were provided for distribution to mothers and 59 were returned. No reminders were provided

Table 1. Demographics of survey mothers

Variable	Attended buggy walks (n=32) (%)	Did not attend buggy walks (n=27) (%)	Total (n=59) (%)
Age			
18–30	11 (34.4)	10 (37.0)	21 (35.6)
31 and over	21 (65.6)	17 (63.0)	38 (64.4)
Current employment			
Full-time mother/maternity leave/unemployed	13 (40.6)	10 (37.0)	23 (39.0)
Part-time employment/supply/self-employed	9 (28.1)	14 (51.9)	23 (39.0)
Full-time employed	10 (31.3)	3 (11.1)	13 (22.0)
Living with			
Alone with child/ren*	2 (6.3)	2 (7.4)	4 (6.8)
With partner or parents	30 (93.7)	25 (92.6)	55 (93.2)
Educational status			
Secondary education	4 (12.5)	8 (29.6)	12 (20.3)
College course or additional training	9 (28.1)	6 (22.2)	15 (25.4)
University (under- or postgraduate)	19 (59.4)	13 (48.2)	32 (54.2)
*= <i>incl partner/husband works away from home for long periods of time</i>			
<i>Chi-squared tests indicate no statistically significant differences in demographic variables between buggy walk attenders and non-attenders</i>			

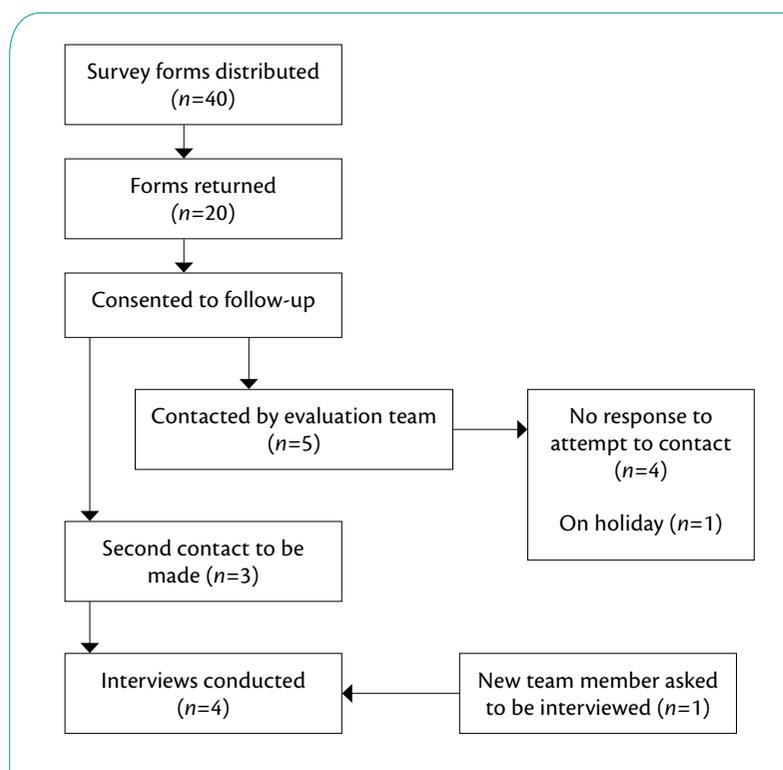


Figure 1. Health professional recruitment and follow-up

and we did not record how many forms had actually been passed to each group. This small sample provided an overview of postnatal physical activity, buggy walks experience and identified participants for follow-up interviews.

Survey respondents were asked to indicate willingness to take part in one-to-one interviews. We aimed to interview five mothers from diverse backgrounds who had not participated in buggy walks, however, although six women agreed to follow-up we were unable to contact them. Four interviews (two face-to-face and two by telephone) were conducted with service providers (Figure 1). We also conducted three focus groups with participants from active buggy walking groups who had consented to take part.

Data collection and analysis

A survey tool was developed to scope a range of views and opinions about the buggy walk programme and to identify the sample for interviews. Questions in the mothers' survey addressed the buggy walk group aims (perceived benefits) and the aims of this evaluation (reasons for attending, not attending or stopping, barriers or facilitators to attending, perceptions of role of health visitor and suggestions for improvements).

Closed questions provided a list of possible responses informed by informal discussions with

providers and opportunity for free text comment. Demographic data were also collected. The health professional survey followed a similar format, asking about buggy walk groups in their practice area, their opinion of the walks and any perceived impact on their practice. Topic guides informed by the evaluation objectives were used for interviews and focus groups. All interviews and focus groups were audio recorded and professionally transcribed. Survey data was analysed using descriptive stats and chi-squared analysis was used to identify differences between groups where possible. Qualitative data were entered into NVivo and analysed in response to the pre-specified study objectives. Thematic analysis also identified other themes arising from the data. Ethical approval was obtained from the University of Stirling Ethics Committee. Ethical principles of informed consent, anonymity and confidentiality were followed.

Sample demographics

Nineteen service providers represented health visitors (9), midwives (3) or GPs (5) and other (2). Fifteen primary care staff had been in their current area of practice for more than 5 years. Three of the four health centres represented had provided health visitor-led buggy walks but only one was currently active. Survey mothers were generally older than health board area maternities (64.4% were over 30 compared to 50.3% on the health board area (ISD Scotland 2015 data)) and most (79.6%) had attended further or higher education (Table 1). There were no statistically significant difference between the mothers who had attended buggy walking groups (n=32) and those who had not (n=27) on any of the variables collected (Table 1). Three focus groups included participants with young children who were currently participating in buggy walks. No other demographic data were collected.

Findings

The findings from the surveys, including free text data, and the interviews will be presented together.

Perceived benefits from taking part in buggy walks

The key aim of this evaluation was to determine whether mothers experienced improved physical, social and mental wellbeing. Mothers completing the survey who had attended buggy walks (n=32) identified benefits from taking part as better social life (n=22; 68.7%), feeling more healthy (n=21; 65.6%) and feeling happier (n=17; 53.1%). Service providers also suggested that mothers' social (n

=7; 89.5%), physical ($n=15$; 78.9%) and mental health ($n=12$; 63.2%) had improved through attending buggy walks.

Some service providers also highlighted a stronger relationship between mothers and staff ($n=11$; 57.9%). Interview data identified a range of benefits associated with physical, mental, emotional and social wellbeing. Findings from within this theme include: feeling healthier and fitter from being active outdoors; developing friendships and reducing social isolation; opportunistic health advice from positive access to health professional, as well as benefits for the baby from 'being out in the fresh air'.

'You always kind of felt good when you were out and about and getting some fresh air and some exercise, and that was all really good, keeping the fitness level up a wee bit.' (FG1)

Many of the identified benefits appear interlinked; for example, while women were initially attracted to the physical aspects of walking, they discussed experiencing enhanced psychosocial wellbeing in the context of the walk:

'... then just the thought of time to walk afterwards, it was quite good and also getting out and meeting other mums and having contact with the health visitor every week, but I'd say primarily it was the walking bit that attracted me to it.' (FG1)

The mothers emphasised the importance of group support and friendships, which reduced their sense of social isolation and established connections with others 'who were in the same boat'. This benefited their overall emotional wellbeing:

'I think health-wise, definitely, like, walking does help your mental wellbeing ... I make sure that every day I go out the house even for half an hour walk 'cause if you were in the house day in, day out you would just drive yourself mad ... it helped me as well, like the benefits and obviously this group ... you get to meet other people. It gives you that motivation and you know that you're not alone and there's other people that you can ... even just something silly or a gab or looking for advice or ... anything.' (FG2)

Group support was mentioned repeatedly, highlighting the value of connections with mothers 'in the same position as you' but also how isolated many new mothers were:

'It's lonely, very lonely having a baby.' (FG2)

This perspective of social isolation was reinforced by service providers who saw the impact on young mothers as indicated by one reflecting on a review of the walks with mothers:

'... they all said, "You can't stop this, please don't, we love it, we've made new friends, we need you here because we like to ask you questions, it's not at home, it's not in the clinic, we're out on the walk so I'm finding it easy to talk, it's a non-threatening environment so please don't stop it 'cause I'm starting to feel a bit better about myself, I'm starting to feel a bit more confident about being a mum and I'm starting to feel a bit fitter."' (Service provider 1)

Many of the friendships that developed in the group continued outside the group, sometimes a 'meeting up for a coffee' or a 'playdate' and frequently in the walk context. In some cases, long-term friendships were established suggesting that 'the friendships and the support that they'd met there at the group was going to carry them through life'. Mothers experiencing postnatal depression (PND) who, at times, felt unable to leave the house spoke of the buggy walks as a 'life-saver'. Several wished they had known about it earlier or in a previous pregnancy and some service providers spoke of the importance of being able to refer mothers to the group:

'It's quite nice when you go out to see a mum for the first time ... it's something we can offer, we can say, "Well, you've got your health visitor who'll come and see you but you've also got the buggy walk, which is an important thing" ... But that gives us a little something to offer, makes a big difference.' (Service provider 2)

The whole family might be affected by the buggy walks, e.g. some mothers involved their family in weekend walks, citing new knowledge of their local area and walks they could do with family and friends. Others discussed role-modelling healthy behaviour:

'You're setting a kind of good precedent for them [children] as well, you're showing them it's good to get out and go and look at trees and walk around the nature reserve and look at the ducks, you know, and getting out even in all weathers as well.' (FG3)

Acceptability of buggy walk groups

The buggy walk groups were acceptable to service providers and participants. Mothers who had not participated or had stopped attending gave general reasons for this, such as walk group

timing, returning to work or not knowing about it. However, some had a poor experience where the group was too small, walks too short or one mother who:

'didn't feel welcome as was asked by person running it, "Who told you to come?" Also, didn't know anyone.' (Survey mother 49)

A few who indicated the walk group would be unacceptable highlighted negative experiences in other mother and baby groups where 'no one really spoke to me' or indicated a lack of good information about the walks; for example, one mother 'might have joined if it was more focus[ed] on the walking/training', another had heard the same walk was repeated and one believed it to be:

'full of already fit and health[y] people who would just storm ahead, leaving those with health issues struggling behind, being embarrassed that we were holding the group up.' (Survey mother 12)

What works?

Mothers identified what worked in relation to joining for the first time, taking part and wanting to return. At the start, the health visitor was a 'friendly face' and the group ethos made everyone feel welcome and 'never alone':

'I think, for a start [health visitor and walk leader] were so welcoming ... and they were doing the ... leading the walks and stuff, they were just so friendly and so welcoming and just made you feel instantly at ease.' (FG1)

The walk itself was a key part of what made the group work. Women were attracted to it as an accessible cost-free activity for them. Walking together helped break the ice, build friendships and improve fitness. It was fun and involved the baby, which was important for mothers who were unable to, did not want to, or 'felt guilty' about leaving their baby. Compared to experiences in other groups, as highlighted above, the walk itself supported inclusion:

'Yeah, whereas here, actually, we're going out, we're going for a walk, we're actually doing an activity together.' (FG3)

It was important to offer a variety of interesting and challenging walks, as repetitive or short walks were off-putting or boring. Walks that were 'gentle to start to ... ease you back in' until

'they were really ... going at some pace' made them accessible to less fit mothers or following a difficult pregnancy or birth. In addition, the non-threatening, non-clinical walk context and walking side-by-side enabled private time with the health visitor. Respondents described the 'unwritten rule' of dropping back when a mother needed to speak to the health visitor:

'... you're not face-to-face in the house where the issues might be happening and you're not in the clinic environment where it all feels very clinical ... so might not share. Whereas out on the walk you're surrounded by trees, water, it's an open space, it's free, I don't have to have eye contact, I don't have to look at you, I can just walk and talk.' (Service provider1)

Most of the walks included social time for refreshments and interaction, which was important for building friendships and developing peer support:

'The group was/is a terrific support, especially after the birth of my first child, when I was learning the ropes and had questions/worries/uncertainties a lot of the time!' (Survey mother 42)

We were unable to clearly identify why some groups had ceased to function. There was some evidence that mother-led groups were less sustainable, as mothers tended to move on as their child got older. The successful groups provided a variety of walks, included social time and were facilitated by the health visitor.

The role of the health visitor

This section explores the health visitor's role and seeks to identify any potential benefits for the group or effects on the primary care team. As highlighted above, the health visitor had a key role in facilitating the group. Health visitors and other primary care staff had a role in signposting the group as a resource for new mothers to meet other mothers, get help with low mood or as part of the management of PND. For many of the new mothers, particularly those with low mood and/or lack of confidence, knowing that there would be a 'friendly face' helped them attend. In addition, having regular and 'unpressured' access to the health visitor was a motivator for many to women return.

'The group gave me something to look forward to and decreased anxiety—I saved up all my "silly" questions for the health visitor and felt the group was extremely beneficial.' (Survey mother 53)

Mothers' concerns about 'silly' things were highlighted throughout the interviews. These could grow into bigger worries and, ultimately, affect the mother's sense of wellbeing and her confidence:

'As a new mum in those first few weeks, I mean, there was something every single day that panicked me, I was like a nervous wreck ... so to know that there was another opportunity to see somebody was great.' (FG1)

Although mothers had regular access to primary care staff at baby clinics these were too busy or too clinical:

'And you don't have the queue of people behind you waiting to speak to the health visitor as well ... you don't feel like ... "I'll make this quick" or "It's fine, I'll just leave it" because there's a room full of people all waiting to get their babies weighed and speak to the health visitor, too, and they've only got an hour to do it in.' (FG3)

The impact on the primary care team was difficult to evaluate; however, there was some indication of better team working, reduced GP visits and reduced medication:

'... within my GP practice, they've said that there were less people coming to them in relation to low mood, not postnatal depression ... and less people coming for prescriptions for things or appointments ... because they now refer people to the group if they've got low mood, they tell them to go there first and come back and see them in 6 weeks.' (Service provider 1)

Health visitors involved in the walks discussed better relationships with new mothers and a reduced need for home visits, resulting in better time management. Some staff recognised the walks as an 'innovative way of health visiting in non-threatening environment' (Service provider 2) or:

'a great, informal way for the health visitor to get to know patients better or keep an eye as anyone there might be concerns about.' (Service provider 3)

Some acknowledged that leading buggy walks was not widely recognised as a positive health visitor role.

'Why are we paying a health visitor to walk? But when you actually look inside at what we're doing, you're not just walking, you're doing your job, you're just doing it in a different way.' (Service provider 1)

The following comment encapsulates the potential of the buggy walk groups:

'The buggy group is a brilliant example of a new idea that has made a big difference to our local mums. The supportive relationships they form with other mums in the group are so important and it gives them a long-term network. They felt it is a safe place to ask advice and get support.' (Service provider 3)

Discussion

This health visitor-led postnatal buggy walk programme is an innovative asset-based approach to health improvement (Glasgow Centre for Population Health, 2011). While there are a growing number of mother-led buggy walks, which health visitors may signpost to new mothers, there is a lack of detailed information or evaluation of this walk model across the UK. Our small evaluation study indicates that mothers experienced improved mental, physical and social wellbeing through physical activity, fresh air, building social connections, peer support and positive access to health-care providers and health advice.

Participation led to the development of friendships and a peer support network, which, in turn, reduced reliance on health services. In addition, participants acquired knowledge of their area and walk resources, which then benefited their family and community as mothers shared their knowledge and experiences with their wider social network. Mothers have been shown to be important facilitators for leading behaviour change within families (Hinkley et al, 2008).

The health visitor role in facilitating the walks was recognised positively in our evaluation but has received very little attention in the published literature. One study (Rowley et al, 2007) indicated that health visitors were key in influencing, enabling and supporting people to participate in health activities. In our evaluation, the health visitor signposting and facilitating the walks and being accessible in this non-threatening non-clinical context resulted in a more accessible and efficient health service, which enabled women to address their concerns and have their needs met.

As some women stated, without this support their worries would grow and affect their overall wellbeing. For some, particularly women with low mood or self-esteem, the health visitor was crucial in encouraging and enabling attendance. There was also some evidence that primary care staff were developing better relationships with mothers. Overall, these factors may potentially lead to a

» *The mothers in this evaluation highlighted the importance of the group for creating social connections and building social capital* «

healthier postnatal population with ultimately less demand on services. A report on the delivery of public services (Christie, 2011) highlighted an urgent need to re-design services using an assets approach putting people and their communities at the heart. Our evaluation suggests that the buggy walking project has adopted this approach.

Wellbeing is thought to improve through physical activity, helping others and building resources such as relationships, social interaction and social networks (Glasgow Centre for Population Health, 2011). While our evaluation was not designed to assess outcomes some of these processes relating to improved wellbeing were visible in the buggy walk group. There is continuing debate in the literature over whether wellbeing is improved by the physical activity itself or by the group aspect. Postnatal walking research has employed a range of interventions, targeted differing populations and measured various outcomes making comparison difficult. Outcomes for postnatal walking studies are mixed; some show increased walking or physical activity (Armstrong and Edwards, 2004; Fjeldsoe et al, 2010), improved depression scores (Armstrong and Edwards, 2004) while others demonstrate no effect (Lewis et al, 2014; Lee et al, 2016). Pram (buggy) walking studies that measured social interactions or networks also had varied effects, for example one study (Watson et al, 2005) identified no effect on physical activity, frequency of social contacts or size of social networks but did show improved quality of social contact in the pram walking group compared to a control.

Armstrong and Edwards (2004) showed increased fitness, reduced depression but no change in social support in a pram walk group compared to a social support group. The mothers in this evaluation highlighted the importance of the group for creating social connections and building social capital. Several mothers said the buggy walking group enabled them to continue to be physically active, indicating that they had previously walked alone but felt isolated, cut off or bored and wanted someone to talk to. Conversely, other mothers who had never

considered walking were drawn to the group for social connections and discovered they also enjoyed walking, and would continue to walk.

Our evaluation indicates that mothers benefited from the interaction between the walk, the social contact and the presence of the health visitor. The walk itself was important as the initial attraction for mothers and as a resource for health professionals to refer. Walking then improved feelings of wellbeing and provided a positive activity for the mothers, which was generally lacking in many mother and baby groups. The walk was the context in which friendships formed as mothers found side-by-side walking to be less overwhelming compared to larger mother-baby groups, these friendships were then easier to continue in the social meet immediately after the walk. Thus, through the walk and the meet-up mothers developed their peer support networks with mothers at the same life stage, which then became an ongoing source of support. Threaded throughout this is the health visitor who signposts the walks, facilitates attendance and provides health advice, alleviating mothers' concerns. Walking side-by-side with a health visitor enabled mothers to seek support for health and social challenges affecting their wellbeing or safety, which might not be raised in the clinical context.

The growing number of mother-led buggy walking programmes across the UK indicates they are popular. Health visitor input varies and only a few go on walks with mothers. The differing levels of input from health visitors have not been evaluated in terms of outcomes or sustainability; however, our evaluation identified the health visitor walking with mothers as key to making health advice accessible in a non-threatening environment and as a motivator for women to attend. A comparison of outcomes from health visitor-led vs mother-led groups was not possible in this study, but there was some evidence from mothers and health professionals that the mother-led model was less popular and less sustainable.

Limitations

This was a very small evaluation of community based buggy walks in one CHP and, therefore, has limited generalisability beyond this study. A small group of mothers and health professionals responded to the surveys so the data must be treated with caution. We did not objectively assess the effect of these walks on any health indicators and instead explored perceptions of benefit. The nature of the recruitment meant that participants who were interviewed would be more favourably disposed towards buggy walks.

Mothers who completed the survey were also not fully representative of the childbearing population in the area. It is also not possible to determine if the perception of benefit, the group walk ethos of inclusivity and the building of assets is related to the individual health professionals involved in this programme.

Recommendations

Research using experimental methodologies to explore the effects on health outcomes is recommended. The different models of buggy walks, including the growing number of mother-led walks across the UK, and different levels of involvement of the health visitor requires proper evaluation. It would be worthwhile conducting a health cost analysis to determine the true financial costs or savings in addition to the perceived value of involving the health visitor in this context. Further research might explore the importance of the non-threatening non-clinical context or side-by-side orientation in help seeking in health and social care.

Conclusion

Health visitor-led group buggy walks are an innovative asset-based approach to health care that build community resources. Participants in our evaluation experienced improved wellbeing, built resources and developed important supportive social networks. The health visitor facilitated first attendance, incentivised continuation and provided women with an accessible health resource. Primary care practices may also benefit through better relationships with mothers, more efficient working and less reliance on health services by new mothers. The findings of this evaluation indicate that this model of buggy walks has potential as a positive community based health service. JHV

Acknowledgements

Anthoula Apostilidi was involved in the design of the survey, early data collection and survey data input as part of her Master of Health Research (MRes) degree, University of Stirling. Thanks to all the mothers, buggy walk groups, health professionals and walk facilitators who participated in this study.

Conflict of interest

This study was funded by a small grant from the Forth Valley Primary Care Research Group. The study was conducted in the Forth Valley Primary Care setting and funding was provided by the Forth Valley Primary Care Research Group. Forth Valley Primary Care staff assisted with distributing the survey tools and

Key points

- ◆ Health visitor-led buggy walks are an innovative asset based approach to health-care provision
- ◆ Mothers participating in buggy walks perceive improved wellbeing and develop supportive social networks
- ◆ Postnatal buggy walk groups provide an accessible activity for new mothers
- ◆ Health visitors have an important role in facilitating participation in buggy walking

information to new mothers and buggy walk groups. Forth Valley Primary Care staff also participated in individual staff interviews.

This article has been subject to peer review.

- Armstrong K, Edwards H (2004) The effectiveness of a pram-walking exercise programme in reducing depressive symptomatology for postnatal women. *Int J Nurs Pract* **10**(4): 177–94
- Blum JW, Beaudoin CM, Caton-Lemos L (2004) Physical activity patterns and maternal well-being in postpartum women. *Matern Child Health J* **8**(3): 163–9
- Bull FC, Expert Working Group (2010) Physical Activity Guidelines in the U.K: Review and Recommendations. www.gov.uk/government/uploads/system/uploads/attachment_data/file/213743/dh_128255.pdf (accessed 24 April 2017)
- Christie C (2011) Commission on the Future Delivery of Public Services, Scotland: Scottish Government. www.gov.scot/resource/doc/352649/0118638.pdf (accessed 24 April 2017)
- Fjeldsoe BS, Miller YD, Marshall AL (2010) Mobilemums: A randomized controlled trial of an SMS-based physical activity intervention. *Ann Behav Med* **39**(2): 101–11
- Gilinsky AS, Dale H, Robinson C, Hughes AR, McInnes R, Lavallee D (2015) Efficacy of physical activity interventions in post-natal populations: systematic review, meta-analysis and content coding of behaviour change techniques. *Health Psychol Rev* **9**(2): 244–63
- Glasgow Centre for Population Health (2011) Asset based approaches for health improvement: redressing the balance. www.gcph.co.uk/assets/0000/2627/GCPH_Briefing_Paper_CS9web.pdf (accessed 24 April 2017)
- Hinkley T, Crawford D, Salmon J, Okely AD, Hesketh K (2008) Preschool children and physical activity: a review of correlates. *Am J Prevent Med* **34**(5): 435–41
- Lee AS, McInnes RJ, Hughes AR, Guthrie W, Jepson R (2016) The effect of the more active mums in Stirling trial on body composition and psychological well-being among postnatal women. www.stir.ac.uk/research/hub/publication/22373 (accessed 24 April 2017)
- Lewis B, Ridge D (2005) Mothers reframing physical activity: family oriented politicisation, transgression and contested expertise in Australia. *Soc Sci Med* **60**(10): 2295–306
- Lewis BA, Gjerdingen DK, Avery MD et al (2014) A randomized trial examining a physical activity intervention for the prevention of postpartum depression: The healthy mom trial. *Mental Health and Physical Activity* **7**(1): 42–9
- O'Toole ML, Sawicki MA, Artal R (2003) Structured diet and physical activity prevent postpartum weight retention. *J Women's Health* **12**(10): 991–8
- Physical Activity Health Alliance (2012) Falkirk Buggy Groups. www.paha.org.uk/CaseStudy/falkirk-buggy-groups (accessed 24 April 2017)
- Robertson R, Robertson A, Jepson R, Maxwell M (2012) Walking for depression or depressive symptoms: A systematic review and meta-analysis. *Mental Health and Physical Activity* **5**(1): 66–75
- Rowley C, Dixon L, Palk R (2007) Promoting physical activity: walking programmes for mothers and children. *Community Pract* **80**(3): 28–32
- Watson N, Milat AJ, Thomas M, Currie J (2005) The feasibility and effectiveness of pram walking groups for postpartum women in western Sydney. *Health Promot J Austr* **16**(2): 93–9