

General practitioners' views on the role of pedometers in health promotion

Asmita Patel BA, MA, PgDipHSc, PhD;^{1,2} **Gregory S Kolt** BSc, BappSc (Phty), Grad DipEd, GradDipBehavHlthCare, PhD;³ **Grant M Schofield** BSc (Hons), PhD;¹ **Justin W Keogh** BHSc, BHMS (Hons), PhD^{1,4,5}

¹ Human Potential Centre, Faculty of Health and Environmental Sciences, Auckland University of Technology, Auckland, New Zealand

² New Zealand College of Chinese Medicine, Auckland

³ School of Science and Health, University of Western Sydney, Sydney, Australia

⁴ Faculty of Health Sciences and Medicine, Bond University, Gold Coast, Australia

⁵ Cluster for Health Improvement, Faculty of Science, Health, Education and Engineering, University of the Sunshine Coast, Australia

ABSTRACT

INTRODUCTION: Regular pedometer use can help initiate and maintain regular walking activity that can lead to a number of health-related benefits. The primary health care setting has been found to be an ideal venue in which to counsel low-active individuals for physical activity.

AIM: To examine general practitioners' (GPs) views on the role of pedometers in health promotion.

METHODS: Fifteen GPs working in urban, primary care practices in Auckland, New Zealand were individually interviewed. The interview schedule focused on physical activity counselling and the Green Prescription programme. For this sub-study, the focus was on questions relating to pedometer use. An inductive thematic approach was used to analyse the data.

FINDINGS: Four main themes were identified. Pedometers were viewed as motivational devices that could be used to encourage low-active patients to become more active, as they provided feedback on step counts. A pedometer was also viewed as a self-management tool, whereby the individual could set daily step count goals, which in turn could help increase their physical activity engagement. GPs who currently wore a pedometer discussed the practicalities of being able to show a patient how to use a pedometer. Also discussed was how cost could restrict pedometer access for some patients.

CONCLUSIONS: Pedometers were viewed by GPs as being helpful devices that could help motivate and support low-active patients in becoming more active. Information regarding step counts was seen as important because it could make people aware how little physical activity they were engaging in.

KEYWORDS: General practitioners; health promotion; sedentary lifestyle; walking

Introduction

There has been a growing focus on the role that pedometers can have in health promotion with regard to helping increase physical activity, which can lead to health-related gain.¹⁻⁴ A pedometer is a small mechanical measuring device that is worn at the hip.⁵ It provides instant, relatively reliable feedback concerning the number of steps an individual has accumulated.⁶ This information can help an individual gain awareness of how active or inactive they are. This step-count information can be used to motivate individuals to walk more, or to increase participation in other physical activities that can result in step-count increases.⁷⁻⁹

A number of studies have demonstrated that pedometer use can help increase physical activity

in low-active and sedentary individuals,^{8,10-12} including those who have chronic health conditions, such as Type 2 diabetes,^{2,13} osteoarthritis,¹⁴ and for those who are overweight or obese.^{15,16} Results of a meta-analysis¹ showed that interventions that have incorporated pedometer use have yielded both a significant increase in participants' physical activity, and a significant decrease in their body mass index and blood pressure.¹

The primary health care setting provides an ideal environment for physical activity counselling. General practitioners (GPs) are in a position to identify patients who are at risk for developing lifestyle-related chronic health conditions because they are insufficiently active and/or overweight/obese.¹⁷ GPs can positively influence the knowledge and behaviour of their patients by means

J PRIM HEALTH CARE
2014;6(2):152-156.

CORRESPONDENCE TO: Asmita Patel

Human Potential Centre,
Faculty of Health
and Environmental
Sciences, Auckland
University of Technology,
PB 92006, Auckland
1142, New Zealand
asmita.patel@aut.ac.nz

of health promotion advice, especially in the context of physical activity counselling.¹⁸ There is evidence that some patients are more likely to consider health promotion advice if it is delivered by their GP.¹⁹ Limited research exists that has examined how health professionals, such as GPs, view the role that pedometers can have in helping increase physical activity. Therefore, the aim of this study was to examine GPs' views on the role of pedometers in health promotion.

Methods

This study was a sub-study of a larger overall study that examined GPs' experiences and views of counselling for physical activity through the Green Prescription programme.^{20,21} Table 1 presents the topics covered in the overall study. The present study reports the findings for topic 5: general practitioners' views on the role of pedometers in health promotion.

Participants

Fifteen GPs who worked in urban, primary care practices in the Auckland region of New Zealand took part in the original study. The 10 female and five male participants ranged in age from 36 to 64 (mean age 50.8; standard deviation [SD] 7.1) years. Participants had been practising medicine in general practice settings for between 1 and 30 (mean 22.1; SD 10.3) years. Table 2 provides a summary of participant characteristics.

Measures

A structured interview schedule comprising open-ended questions based on the topic areas listed in Table 1 was developed for the original study. All participants were asked the same questions in the same order. The questionnaire was designed based on relevant literature relating to physical activity counselling and Green Prescription use. Table 3 lists the questions that were asked in the pedometer section of the interview schedule.

Procedure

Participants were recruited through The University of Auckland's GP database. The aim was to obtain an equal number of participants from each

WHAT GAP THIS FILLS

What we already know: Regular pedometer use can help support physical activity engagement in low-active individuals. The primary health care setting has been found to be an effective setting in which to counsel low-active patients to increase physical activity.

What this study adds: General practitioners viewed pedometers as devices that could support physical activity in low-active patients. Cost was identified as being a potential barrier to pedometer access for some patients. A pedometer lending system was seen as a potential strategy to cope with cost restraints.

Table 1. Topic areas for the overall study of physical activity advice in primary care

Topic 1.	Why general physical activity advice was imparted by general practitioners
Topic 2.	Green Prescription use
Topic 3.	General practitioners' views and experiences of Green Prescription use for the management of depression
Topic 4.	Green Prescription use with older-aged patients
Topic 5.	General practitioners' views on the role of pedometers in health promotion <i>This is the focus of the current study</i>
Topic 6.	General practitioners' own physical activity levels

Table 2. Participant characteristics

Participants	Gender	Age-group (years)	Pedometer use	Practice location
GP 1	Female	46–55	Daily	East Auckland
GP 2	Female	56–65	Past user	Central and East Auckland
GP 3	Male	46–55	Past user	Central and West Auckland
GP 4	Female	46–55	Past user	East Auckland
GP 5	Female	46–55	Past user	East Auckland
GP 6	Female	46–55	Never used	East Auckland
GP 7	Female	36–45	Daily	East Auckland
GP 8	Male	56–65	Never used	East Auckland
GP 9	Male	46–55	Past user	City and North Auckland
GP 10	Female	46–55	Never used	South Auckland
GP 11	Female	56–65	Past user	North Auckland
GP 12	Male	56–65	Never used	East Auckland
GP 13	Female	36–45	Past user	West Auckland
GP 14	Female	46–55	Daily	South Auckland
GP 15	Male	46–55	Past user	South Auckland

GP General practitioner

Table 3. Questions in pedometers section of interview schedule

1. What role do you think pedometers have in health promotion?
2. How do you think a pedometer can help a patient who has a Green Prescription?
3. Have you recommended or endorsed pedometer use with your patients?
4. Would you consider doing this? (If they answered 'no' to question 3.)
5. Have you yourself used a pedometer?

geographical location of Auckland (i.e. North, South, East and West Auckland) to correspond to some degree with the socioeconomic status of patients who attend the practices. To obtain 15 positive responders (a convenience sample), a total of 80 letters of invitation were mailed out based on geographical location (i.e. 20 names were randomly selected from each geographical location). Those who were interested in participating in the study replied by fax or phone. An equal number of participants from each location was not obtained. Each participant was individually interviewed at their place of work. Interviews were audiotaped and took between 20 and 30 minutes to conduct. The primary researcher conducted all interviews and undertook the primary analysis of the transcripts. Informed written consent was obtained from each participant. Ethical approval for the study was granted by the Auckland University of Technology Ethics Committee.

Data analysis

Transcripts were analysed using an inductive thematic approach based on Auerbach and Silverstein's approach to thematic analysis.²² Four main steps were involved in the analysis process. The first step involved reading and re-reading text related to the pedometer section. The second step involved identifying segments of text where participants had used similar words to convey the same idea. The third step involved coding and naming of themes. The final step involved ensuring the trustworthiness of the findings. This involved all members of the research team independently reading the transcripts to verify or dispute themes, and to help reduce individual researcher bias.

Findings

Data were examined under the topic area of pedometer use. Four main themes emerged with regard to the role that GPs perceived pedometers

to have in health promotion: motivation by awareness; self-management tool; personal experience; and cost factors. The themes are discussed under these theme headings and quotes are included that illustrate participant views and experiences. (Quote numbers do not correspond to participant numbers in Table 2. Quotes by the same participant have the same number, however).

Motivation by awareness

All 15 GPs gave accounts of pedometers being motivational devices that could provide patients with objective awareness of their activity levels. GPs discussed how pedometers provide instant feedback on one's step counts, which in turn could help to increase motivation to engage in more walking activity.

It gives them a better idea of how much they are actually doing. I think they [pedometers] can certainly help motivate people. (#1)

They [pedometers] raise people's awareness of how much they are walking each day. (#2)

It can encourage them [patients] because they know what they do, because they have confirmation of their work. (#3)

Self-management tool

This theme involved GPs discussing how a pedometer could be used as a self-management tool to help an individual monitor their daily step count, by setting goals to work toward (i.e. daily step count target increases), which in turn could help increase their physical activity engagement.

Pedometers are good for giving people goals for how many steps they should do a day. So they can be part of a behaviour modification package. They can keep the patient on target, on goal. (#4)

Pedometers can be useful for some people if they are used as part of a self-management plan, where you actually help somebody set a few goals. (#5)

Personal experience

One of the GPs who currently wore a pedometer on a daily basis gave an account of how her

pedometer use could be viewed as being a source of motivation for her patients. Two of the GPs who are current pedometer users gave accounts of the practicalities of being able to show a patient how to use a pedometer if they themselves were currently wearing one.

I show patients. 'Look this is how you put it on. This is what you do.' I think patients find it quite motivational to know you use them [pedometers] too. (#6)

I wear one myself [shows her pedometer]. I can often pull my clothes up and show it to patients. (#7)

Cost factors

This theme involved GPs addressing how cost restricted pedometer access for some of their patients. Some GPs mentioned that they would endorse pedometers if they were donated to their practices.

If somebody would provide me with pedometers that were of good quality, that didn't cost the patient or me, and then yes, I definitely would [use them with patients]. (#8)

If they [pedometers] were free I would give them [to patients]. (#3)

Lending system

GPs also discussed the possibility of a system where pedometers could be loaned out to patients for a specific period of time, to help patients become more active and get into a routine of engaging in regular physical activity.

To have a practice system where you could lend them [pedometers] out for a week to a month or whatever seems appropriate for someone to get them started [would be good]. (#5)

Maybe we should give them out to people for a month and then pass them on. (#9)

Discussion

The primary health care setting has been found to be an effective venue for physical activity

counselling.^{4,23–25} Previous research indicates that patients perceive their GP to be a reliable and credible source of information regarding health promotion advice.^{26–28} There is also evidence that patients are likely to consider and adhere to physical activity advice that is imparted by their GP.^{27,29} In line with these earlier findings, our study found that some GPs perceived that their patients would find it both motivational and reinforcing that their own GP also wore a pedometer. Also conveyed by some GPs was the practicality of being able to use one's own pedometer as a model for instructional use.

GPs discussed the view that a pedometer could be used as a self-management tool. It has been reported that pedometer-based interventions that incorporate goal setting and step-count monitoring are effective in increasing physical activity.^{9,30} Step-count feedback provides an individual with information about how much activity they have engaged in, and possibly how much more activity is required to reach a daily step-count goal—an issue that was raised by the GPs in the present study.

A pedometer can be a cost-effective device for supporting physical activity in inactive individuals^{6,11} compared to other physical activity monitoring devices (i.e. accelerometers), and is also less complicated and less intrusive to use.^{5,8,31} A pedometer costs between NZD\$15.00 and \$150.00. Cost variation may be associated with step-count accuracy, with less expensive pedometers being less accurate.^{32,33} The Healthy Steps study³⁴ found the use of a pedometer-based Green Prescription to be more cost-effective than the usual time-based Green Prescription (i.e. physical activity prescription and telephone-based counselling, without the addition of a pedometer).

Several GPs in the present study discussed how cost could restrict pedometer access for some patients if the patients themselves had to purchase a pedometer. This point raises the issue of the preventive role that pedometers can have in health promotion with regard to assisting low-active individuals who are currently disease free, but who are at risk for future chronic health conditions because of their physical inactivity, to engage in regular physical activity.¹⁶ A pedometer

lending system was seen as one possible strategy to deal with cost constraints, whereby inactive patients could adopt a physical activity routine over a set period of time, before the pedometer was passed on to another patient.

While this sub-study focused on GPs' views regarding the role of pedometers in health promotion specifically, the GPs interviewed provided diverse information for the overall study, including information on their own physical activity engagement and the administration of Green Prescriptions.²⁰

References

- Bravata DM, Smith-Spangler C, Sundaram V, Gienger AL, Lin N, Lewis R, et al. Using pedometers to increase physical activity and improve health. *JAMA*. 2007;298:2296–2304.
- De Greef K, Deforche B, Tudor-Locke C, De Bourdeaudhuij I. Increasing physical activity in Belgian Type 2 diabetes patients: a three-arm randomized controlled trial. *Int J Behav Med*. 2011;18:188–198.
- Harding J, Feak-Poli RL, Backholer K, Peeters A. Change in health-related quality of life amongst participants in a 4-month pedometer-based workplace health program. *J Phys Act Health*. 2013;10:533–543.
- Kolt GS, Schofield GM, Kerse N, Garrett N, Ashton T, Patel A. Healthy Steps Trial: pedometer-based advice and physical activity for low-active older adults. *Ann Fam Med*. 2012;10(3):206–212.
- Van Wormer J. Pedometers and brief e-counseling: increasing physical activity for overweight adults. *J Appl Behav Anal*. 2004;37:421–425.
- Bennett GG, Wolin KY, Puleo E, Emmons KM. Pedometer-determined physical activity among multiethnic low-income housing residents. *Med Sci Sports Ex*. 2006;38:768–773.
- Croteau K. Strategies used to increase lifestyle physical activity in a pedometer-based intervention. *J Allied Health*. 2004;33:278–281.
- Stovitz S, Van Wormer J, Center B, Bremer L. Pedometers as a means to increase ambulatory activity for patients seen at a family medicine clinic. *J Am Board Fam Pract*. 2005;18:335–343.
- Lauzon N, Chan CB, Myers AM, Tudor-Locke C. Participant experiences in a workplace pedometer-based physical activity program. *J Phys Act Health*. 2008;5:675–687.
- Chan CB, Ryan DA, Tudor-Locke C. Health benefits of a pedometer-based physical activity intervention in sedentary workers. *Prev Med*. 2004;39(6):1215–1222.
- Pekmezci D, Dunsiger S, Gaskins R, Barbera B, Marquez B, Neighbors C, et al. Feasibility and acceptability of using pedometers as an intervention tool for Latinas. *J Phys Act Health*. 2013;10:451–7.
- Pickering K, Eakin E. Using pedometers to increase physical activity in a family planning clinic: a feasibility study. *Health Promot J Austr*. 2003;14:165–170.
- Engel L, Lindner H. Impact of using a pedometer on time spent walking in older adults with type 2 diabetes. *Diabetes Educ*. 2006;32:98–108.
- Talbot L, Gaines J, Huynh T, Metter J. A home-based pedometer-driven walking program to increase physical activity in older adults with osteoarthritis of the knee. A preliminary study. *J Am Geriatric Soc*. 2003;51:393–8.
- Clarke KK, Freeland-Graves J, Klohe-Lehman DM, Milani TJ, Nuss HJ, Laffrey S. Promotion of physical activity in low-income mothers using pedometers. *J Am Diet Assoc*. 2007;107(6):962–7.
- Panton LB, Kushnick MR, Kingsley JD, Moffatt RJ, Haymes EM, Toole T. Pedometer measurement of physical activity and chronic disease risk factors of obese lower socioeconomic status African American women. *J Phys Act Health*. 2007;4:447–58.
- Croteau K, Schofield G, McLean G. Physical activity advice in the primary care setting: results of a population study in New Zealand. *Aust N Z J Public Health*. 2006;30(3):262–7.
- Elley CR, Kerse N, Arroll B, Swinburn B, Ashton T, Robinson E. Cost-effectiveness of physical activity counselling in general practice. *N Z Med J*. 2004;117(1207):U1216.
- Elley CR, Kerse N, Arroll B, Robinson E. Effectiveness of counselling patients on physical activity in general practice: cluster randomised controlled trial. *BMJ*. 2003;326:793–9.
- Patel A, Schofield GM, Kolt GS, Keogh JW. General practitioners' views and experiences of counselling for physical activity through the New Zealand Green Prescription program. *BMC Fam Pract*. 2011;12:119.
- Patel A, Kolt GS, Keogh JW, Schofield GM. The Green Prescription and older adults: What do general practitioners see as barriers? *J Prim Health Care*. 2012;4(4):320–7.
- Auerbach C, Silverstein L. Qualitative data. An introduction to coding and analysis. New York: New York University Press; 2003.
- Armit CM, Brown WJ, Marshall AL, Ritchie CB, Trost SG, Green A, et al. Randomized trial of three strategies to promote physical activity in general practice. *Prev Med*. 2009;48:156–63.
- Calfas KJ, Long BJ, Sallis JF, Wooten WJ, Pratt M, Patrick K. A controlled trial of physician counseling to promote the adoption of physical activity. *Prev Med*. 1996;25(3):225–33.
- Kerse N, Flicker L, Jolley D, Arroll B, Young D. Improving the health behaviours of elderly people: randomised controlled trial of a general practice education programme. *BMJ*. 1999;319:683–7.
- Tulloch H, Fortier M, Hogg W. Physical activity counseling in primary care: who has and who should be counseling? *Patient Educ Couns*. 2006;64:6–20.
- Booth M, Bauman A, Owen N, Gore C. Physical activity preferences, preferred sources of assistance, and perceived barriers to increased activity among inactive Australians. *Prev Med*. 1997;26:131–7.
- Lawlor D, Keen S, Neal R. Increasing population levels of physical activity through primary care: GPs' knowledge, attitudes and self-reported practice. *Fam Pract*. 1999;16(3):250–4.
- Dean S, Elley CR, Kerse N. Physical activity promotion in general practice. *Aust Fam Physician*. 2007;36:1061–64.
- Jones DB, Richeson BE, Croteau KA, Farmer BC. Focus groups to explore the perceptions of older adults on a pedometer-based intervention. *Res Q Exerc Sport*. 2009;80:710–17.
- Rosenberg D, Kerr J, Sallis JF, Patrick K, Moore DJ, King A. Feasibility and outcomes of a multilevel place-based walking intervention for seniors: a pilot study. *Health Place*. 2009;15:173–9.
- Tudor-Locke C, Lutes L. Why do pedometers work? A reflection upon the factors related to successfully increasing physical activity. *Sports Med*. 2009;981–93.
- Schneider PL, Crouter SE, Lukajic O, Bassett DR Jr. Accuracy and reliability of 10 pedometers for measuring steps over a 400-m walk. *Med Sci Sports Ex*. 2003;35(10):1779–84.
- Leung W, Ashton T, Kolt G, Schofield G, Garrett N, Kerse N, et al. Cost effectiveness of pedometer-based versus time-based Green Prescriptions: the Healthy Steps study. *Aust J Prim Health*. 2012;18(3):204–11.

Acknowledgements

The authors would like to thank the general practitioners who took part in this study and also Professor Ngaire Kerse, The University of Auckland, for her assistance with questionnaire design and participant recruitment.

Funding

This study was funded by the Health Research Council of New Zealand (05/279R) and Sport and Recreation New Zealand.

Competing Interests

None declared.