

Applied Research Brief: Fitness; Medical Care

General Practitioner Advice on Physical Activity—Who Gets It?

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Abstract

Purpose. To evaluate the prevalence and characteristics of patients who received physical activity counseling from a general practitioner.

Methods. Data presented are from a cross-sectional survey of approximately 2000 Queensland (Australia) adults conducted as part of a multi-strategy, community-based, physical activity intervention (10,000 Steps Rockhampton). The survey included self-reported receipt of general practitioner advice on physical activity as well as demographic, medical, and physical activity questions.

Results. Receipt of advice on physical activity was reported by 24.2% of respondents, with advice more likely to be given to males, overweight/obese people, those with chronic conditions, and those more frequently visiting their general practitioners.

Discussion. Rates of physical activity advice and characteristics of patients receiving advice are similar to those reported overseas and suggest that while there is room for improvement, general practitioners are targeting their advice to patients most in need. (*Am J Health Promot* 2007;21[4]:225–228.)

Key Words: Clinical Practice, Dissemination, Exercise, Intervention, Obesity, Overweight, Prevention research

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PURPOSE

The prevalence of inactivity among Australians is high, with indications that it may be increasing.¹ A large body of literature now exists on physical activity interventions delivered in and around the primary healthcare setting.² Overall this literature provides support for the efficacy of controlled, primary-care physical activity interventions to produce short-term in-

creases in patient levels of physical activity.

A number of U.S. studies have evaluated the prevalence of general practitioner (GP) physical activity advice and the characteristics of those receiving it,^{3–5} with the prevalence of advice across studies ranging from 22% to 56%. The characteristics of patients receiving physical activity advice also varied across studies, with some reporting higher rates of advice among those with higher incomes,⁴ and others

reporting higher rates of advice in patients with chronic conditions,³ as well as in older, nonwhite patients with more GP contacts.³

Australian data on provision of physical activity counseling in primary health care settings are limited. Data from the most comprehensive and ongoing survey of Australian general practice, the BEACH dataset, suggest that physical activity counseling occurs in 1.5 out of 100 encounters.⁶ In light of the call in several recent Australian policy documents for physical activity advice to be incorporated into routine patient care, it is important to know more about the provision of physical activity advice in the context of Australian general practice. The aim of this paper is to evaluate the prevalence and characteristics of patients who received physical activity advice from their GPs.

METHODS

Design

Data presented here are from a cross-sectional survey of approximately 2000 adults from two regional communities in Queensland, Australia. These cross-sectional data are a subset of the follow-up data collected as part of a 2-year, multi-strategy, community-based physical activity intervention (10,000 Steps Rockhampton). The methods and primary outcomes of the 10,000 Steps Rockhampton project have been described previously.^{7,8} Data were collected at baseline (August to September 2001) and follow-up (August to September 2003) from computer-assisted telephone interview surveys in Rockhampton (the intervention community) and a matched comparison

community (Mackay, Queensland). The samples were drawn at random from the regularly updated electronic database of telephone numbers in Rockhampton and Mackay. The study protocol was approved by the Human Ethics Research Review Panel at Central Queensland University.

One of the intervention strategies implemented in the intervention community (Rockhampton) involved engaging GPs and other health professionals in promoting physical activity. The GP strategy was a dissemination trial that was embedded within the larger 10,000 Steps Rockhampton project and has been described elsewhere.⁷

Measures

Respondents were asked, “Did you receive any advice from your doctor about exercise or physical activity?” Other data collected included demographics (age, sex, education level, etc), medical history questions (number of chronic diseases, number of visits to the GP, height, weight, etc), and physical activity level. Physical activity was assessed using the Active Australia survey, an eight-item questionnaire measuring activity (walking and moderate and vigorous activity) in the past week. Total physical activity is used to determine the percent of respondents meeting national physical activity guidelines (i.e., 150 minutes of moderate physical activity over five or more sessions per week).⁹

Analysis

Data were analyzed using SPSS for Windows (Version 13.0, SPSS Inc, Chicago, Illinois) statistical software package. Descriptive statistics are presented as counts and percentages. At the bivariate level, χ^2 tests were used to consider the association between receipt of GP advice on physical activity and demographic, medical, and physical activity variables. Variables shown to be significantly associated at the bivariate level were included in a logistic regression model to determine their independent influences on receipt of GP advice. Results are expressed as odds ratios with 95% confidence intervals. Significance was set at the conventional $p < .05$ (two tailed).

Table 1
Demographic Characteristics of Total Sample of Participants (N = 2478)

Characteristic	n	%
Age group (years)		
18–29	489	19.7
30–44	868	35.0
45–59	645	26.0
≥ 60	476	19.2
Sex		
Male	1233	49.8
Female	1245	50.2
Location		
Mackay	1236	49.9
Rockhampton	1242	50.1
Highest education level		
Primary school	210	8.5
High school to year 10	611	24.7
High school to year 12	476	19.2
TAFE* certificate/ diploma or equivalent	700	28.2
University degree	428	17.3
Missing	53	2.1
Household income (per week)		
Less than \$300	242	9.8
\$300–599	380	15.3
\$600–999	437	17.6
≥ \$1000	753	30.4
Missing	666	26.9
Living situation		
Alone	367	14.8
With others	2064	83.3
Missing	47	1.9
Smoking status		
Never smoker	1228	49.6
Ex-smoker	738	29.8
Current smoker	481	19.4
Missing	31	1.3
Body mass index (kg/m²)		
<18.5	55	2.2
18.5–24.9	978	39.5
25–29.9	807	32.6
≥ 30	478	19.3
Missing	160	6.5
Physical activity level		
Sedentary	437	17.6
Insufficiently active	934	37.7
Sufficiently active	1008	40.7
Missing	99	4.0
Chronic disease (No.)		
None	1750	70.6
1	487	19.7
≥ 2	209	8.4
Missing	32	1.3
Visits to GP* (No.)		
None	448	18.1
1–2	867	35.0
3–4	495	20.0
≥ 5	637	25.7
Missing	31	1.3

* TAFE indicates technical and further education; GP, general practitioner.

RESULTS

The survey achieved a 44% response rate with interviews completed for 2478 participants and with approximately equal representation of men and women (Table 1). As the demographic, medical, and physical activity variables did not differ significantly between the two locations, data were combined for analyses, with location included as a covariate in the model.

More than half the respondents were overweight or obese based on self-reported height and weight, and the majority were in full- or part-time paid work (Table 1). Just under half reported sufficient activity for health benefit,⁹ and fewer than one-third reported the presence of one or more chronic diseases. Only those who had seen a GP at least once in the last 12 months (1999, 81%) were included in the subsequent analyses. The analysis group included a greater proportion of women and of patients who were older, overweight, or obese, with lower levels of education, and who reported at least one chronic disease than those who had not seen a GP in the last 12 months and who were therefore excluded. There was no significant difference between the “inclusion” and “exclusion” groups with respect to household income or physical activity level.

Overall 483 (24.2%) respondents reported receiving advice about exercise or physical activity from the GP. At the bivariate level of analysis, receipt of GP advice about physical activity differed significantly by age group, sex, location, body mass index (BMI) category, number of chronic conditions, and number of visits to the GP in the last 12 months (Table 2). Although not statistically significant, education also appeared to be associated with receipt of GP advice ($p = .07$); however, household income and level of physical activity did not show significant associations.

These variables were considered in a multivariable logistic regression model to determine their independent associations with receiving GP advice for physical activity (Table 2). After mutual adjustment for all variables included in the model, location, sex, BMI category, number of chronic

Table 2
Adjusted Odds Ratio and 95% Confidence Interval for Receipt of GP† Advice About Physical Activity (N = 1865)

	Received GP† Advice, n (%)	Crude OR (95% CI)†	Adjusted‡ OR (95% CI)†	p*
Age group (years)				
18–29	68 (18.8)	1.00	1.00	0.131
30–44	141 (21.2)	1.16 (0.84, 1.60)	0.99 (0.69, 1.43)	
45–59	152 (28.6)	1.73 (1.25, 2.39)	1.27 (0.88, 1.84)	
≥ 60	122 (28.0)	1.68 (1.20, 2.35)	0.88 (0.58, 1.33)	
Sex				
Male	247 (26.2)	1.00	1.00	0.011
Female	236 (22.5)	0.82 (0.66, 1.00)	0.74 (0.59, 0.93)	
Location				
Mackay	211 (20.7)	1.00	1.00	<0.001
Rockhampton	272 (27.9)	1.48 (1.20, 1.81)	1.54 (1.23, 1.94)	
Highest education level				
Primary school	55 (29.4)	1.00	1.00	0.631
High school to year 10	121 (24.0)	0.76 (0.52, 1.10)	1.12 (0.73, 1.73)	
High school to year 12	75 (20.1)	0.60 (0.40, 0.90)	1.02 (0.63, 1.66)	
TAFE† certificate/diploma or equivalent	147 (26.7)	0.87 (0.61, 1.26)	1.30 (0.84, 1.99)	
University degree	79 (22.6)	0.70 (0.47, 1.05)	1.21 (0.76, 1.93)	
Body mass index (kg/m ²)				
<18.5	7 (15.2)	0.96 (0.42, 2.21)	0.97 (0.41, 2.31)	0.974
18.5–24.9	119 (15.7)	1.00	1.00	
25–29.9	165 (24.9)	1.78 (1.37, 2.32)	1.63 (1.24, 2.16)	0.001
≥ 30	155 (37.6)	3.24 (2.45, 4.28)	2.50 (1.86, 3.37)	<0.001
Chronic disease (No.)				
None	236 (17.5)	1.00	1.00	
1	154 (34.8)	2.51 (1.98, 3.20)	1.87 (1.35, 2.32)	<0.001
≥ 2	88 (47.6)	3.79 (2.77, 5.19)	2.31 (1.61, 3.31)	<0.001
Visits to GP† (No.)				
1–2	121 (14.0)	1.00	1.00	
3–4	133 (27.0)	2.27 (1.72, 2.99)	2.03 (1.50, 2.75)	<0.001
≥ 5	229 (36.0)	3.46 (2.69, 4.44)	2.86 (2.13, 3.83)	<0.001

† GP indicates general practitioner; OR, odds ratio; CI, confidence interval; TAFE, technical and further education.

‡ Odds ratios mutually adjusted for all other variables in the table.

* p for adjusted odds ratio.

conditions, and number of visits to the GP in the last 12 months remained significant predictors of receiving GP advice for physical activity. The odds of receiving GP advice on physical activity were higher in patients from Rockhampton, in men, in those with BMI greater than 25 (overweight or obese), and in those who reported having at least one chronic disease. The odds of receiving advice from a GP on physical activity increased with increasing number of visits to a GP in a 12-month period. People who visited a GP five or

more times were almost three times more likely to receive physical activity advice than people who had only one to two visits. The bivariate associations for age group and education level with receipt of GP advice for physical activity disappeared on adjustment for the other factors in the model.

Because GPs in Rockhampton received the 10,000 Steps intervention while GPs in Mackay did not, predictors of GP advice were evaluated separately by location using two multivariable logistic regression models

(data not shown). Results for Rockhampton paralleled those for the combined analysis shown in Table 2. In Mackay receipt of GP advice for physical activity was significantly higher only in obese people (not overweight) and those with three or more GP visits in the previous 12 months. Sex and number of chronic diseases were not significantly related to receipt of GP advice on physical activity.

DISCUSSION

Summary

In Mackay, the comparison community, which did not receive the multi-component, community-based physical activity intervention, GPs counseled approximately one-fifth of their patients about physical activity. However, in the intervention community, in which the majority of GPs were engaged in an embedded GP physical activity dissemination trial, the odds of receiving GP advice about physical activity were almost 50% higher. GPs in both communities tended to give physical activity advice to patients who were overweight or obese and those with one or two chronic health problems, arguably those most in need of physical activity advice.

Overall the results reported here are similar to those from U.S. studies which have found similar rates of GP physical activity advice³ and similar emphasis on older and at risk patients³ and on patients with higher incomes.⁴ In Australia previous studies have also found that physical activity advice is more likely to be given to patients with conditions that would benefit from this advice.¹⁰

Similar to this study, other studies have also shown that men are more likely to receive physical activity counseling than women.¹⁰ This may reflect gender differences in the reasons for visiting a GP, with women more likely to present with more complex conditions of a psychologic, female-specific, or general nature⁶ which are unlikely to leave time for physical activity advice. Interestingly, although men were more likely than women to report receiving physical activity advice from their GPs in this project, it was the women in Rockhampton who were more likely to report having worn

a pedometer and changed their physical activity behavior.⁸

Limitations

Limitations of this study include the fact that data are based on patient self-report only. As the survey was conducted in central Queensland and in the context of the 10,000 Steps Rockhampton project, the results may not be generalizable to other geographic regions in Australia.

Significance

The results of this study suggest that while GPs are offering physical activity advice to a substantial proportion of patients, especially to those who are most in need of this advice, there is ample room for improvement. Results also suggest that with the provision of the additional resources that accompanied the 10,000 Steps Rockhampton project, meaningful increases in the

provision of GP counseling on physical activity can be achieved.

References

1. Bauman A, Ford I, Armstrong T. *Trends in Population Levels of Reported Physical Activity in Australia 1997, 1999 and 2000*. Canberra: Australian Sports Commission; 2001.
2. Jacobson DM, Strohecker L, Compton MT, Katz DL. Physical activity counseling in the adult primary care setting: position statement of the American College of Preventive Medicine. *Am J Prev Med*. 2005;29:158–162.
3. Glasgow RE, Eakin EG, Fisher EB, et al. Physician advice and support for physical activity: results from a national survey. *Am J Prev Med*. 2001;21:189–196.
4. Wee CC, McCarthy EP, Davis RB, Phillips RS. Physician counseling about exercise. *JAMA*. 1999;282:1583–1588.
5. Stange KC, Flocke SA, Goodwin MA, et al. Direct observation of rates of preventive service delivery in community family practice. *Prev Med*. 2000;31:167–176.
6. Britt H, Miller GC, Knox S, et al. *General Practice Activity in Australia 2003–04*. AIHW Cat. No. GEP 16. Canberra: Australian Institute of Health and Welfare; 2004.
7. Eakin EG, Brown WJ, Marshall AL, et al. Physical activity promotion in primary care: bridging the gap between research and practice. *Am J Prev Med*. 2004;27:297–303.
8. Brown WJ, Mummery WK, Eakin EG, Schofield G. 10,000 Steps Rockhampton: evaluation of a whole community approach to improving population levels of physical activity. *J Phys Act Health*. 2006;1:1–14.
9. Australian Institute of Health and Welfare (AIHW). *The Active Australia Survey: A Guide and Manual for Implementation, Analysis and Reporting*. Canberra: AIHW; 2003.
10. Bull FC, Schipper EC, Jamrozik K, Blanksby BA. Beliefs and behaviour of general practitioners regarding promotion of physical activity. *Aust J Public Health*. 1995;19:300–304.
11. US Centers for Disease Control and Prevention. Missed opportunities in preventive counseling for cardiovascular disease—United States 1995. *MMWR Morb Mortal Wkly Rep*. 1998;47:91–95.