



Physical activity promotion in primary health care: Results from a German physician survey

Christina Bock, Curt Diehm & Sven Schneider

To cite this article: Christina Bock, Curt Diehm & Sven Schneider (2012) Physical activity promotion in primary health care: Results from a German physician survey, The European Journal of General Practice, 18:2, 86-91, DOI: [10.3109/13814788.2012.675504](https://doi.org/10.3109/13814788.2012.675504)

To link to this article: <https://doi.org/10.3109/13814788.2012.675504>



Published online: 01 May 2012.



Submit your article to this journal [↗](#)



Article views: 1738



View related articles [↗](#)



Citing articles: 2 View citing articles [↗](#)

Original Article

Physical activity promotion in primary health care: Results from a German physician survey

Christina Bock¹, Curt Diehm² & Sven Schneider¹

¹Mannheim Institute of Public Health, Social and Preventive Medicine, Medical Faculty Mannheim, Heidelberg University, Germany, and

²Department of Internal Medicine, Clinical Centre and Academic Hospital of the University of Heidelberg, Karlsbad-Langensteinbach, Germany

KEY MESSAGE(S):

- Physicians had positive attitudes and 55% promoted physical activities of their patients
- Physicians' personal conviction and cooperation activities were positively associated with physical activity promotion
- Better education and networking of physicians might help to increase the frequency of physical activity promotion in primary care settings

ABSTRACT

Background: Primary care physicians are positioned to play an important role in changing physical activity and other health behaviour of their patients. However, little is known about the practice of physical activity promotion in German primary care settings and the factors associated with physical activity promotion.

Methods: 260 randomly selected physicians from the State Medical Association of Baden-Wuerttemberg, Germany, took part in this survey (response rate: 13.3%) and provided data on physical activity promotion (physical activity assessment and advice), attitudes towards health promotion and cooperation activities. Factors associated with physical activity promotion were identified using logistic regression.

Results: The physicians who replied had positive attitudes towards health promotion. However, 26.9% reported they had inadequate knowledge to provide counselling and 36.7% felt they were unsuccessful in motivating their patients to increase physical activity. Physical activity assessment and advice occurred in 54.9% of the physicians. Compared to their counterparts, physicians in large cities (odds ratio (OR) 3.93; and 95% confidence interval (95%CI): 1.55–9.99), those convinced to offer their patients a great deal in the way of lifestyle counselling (OR 1.92; 95%CI: 1.09–3.40) and those cooperating with sports clubs (OR 1.75; 95%CI: 1.03–2.96) were more likely to provide physical activity promotion.

Conclusion: There is a need for interventions to increase the frequency of physical activity promotion by primary care physicians. In particular physicians in rural regions should be assisted and cooperation activities with sports clubs or other health care providers should be encouraged.

Key words: Counselling, health promotion, physical activity, prevention, primary care

INTRODUCTION

Demographic change and the continuous reduction of healthcare budgets attach high priority to health promotion and prevention. Physical activity is a key factor in the prevention of cardiovascular and other chronic diseases (1). The World Health Organization, for example, recommends that adults should do at least 150 min of

moderate-intensity or 75 min of vigorous-intensity aerobic physical activity throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity (2). Other health organizations all over the world express similar suggestions (1,3).

There is a dose-response relationship between physical activity and health outcomes. Consequently, the

Correspondence: Christina Bock, Mannheim Institute of Public Health, Social and Preventive Medicine, Medical Faculty Mannheim, Heidelberg University, Ludolf-Krehl-Str. 7–11, D-68167 Mannheim, Germany. E-mail: christina.bock@medma.uni-heidelberg.de

(Received 17 November 2011; accepted 15 February 2012)

ISSN 1381-4788 print/ISSN 1751-1402 online © 2012 Informa Healthcare
DOI: 10.3109/13814788.2012.675504

recommended levels only represent a minimal dose of physical activity (4). However, despite the well-known positive effects of physical activity, most adults worldwide do not engage in physical activity at levels with the potential to yield benefits (5,6).

Lifestyle interventions in primary care settings have been shown to be effective in modifying risk behaviours of patients and reducing the risk and the progression of diseases (7,8). In Germany as in other European countries, most adults regularly consult their primary care physician (90% at least once per year) (9). Thus, physicians are in a position to play an important role in changing the health behaviour of their patients. Expert panels encourage physical activity promotion in primary care settings given the undisputed positive effects of physical activity (10). A recent review showed that medium-intensity physical activity counselling interventions resulted in a 38-min increase in physical activity per week (7). Physicians should, therefore, routinely assess the patient's current level of physical activity and counsel the patient on the appropriate amount of physical activity (11).

Previous studies, which were mainly conducted in the US, reported the occurrence of physical activity counselling during about 20% of patient visits, with half of the physicians assisting their patients by additionally providing written material (12,13). Most physicians reported that they had adequate knowledge with regard to physical activity (14), but less than 25% felt they could provide effective physical activity counselling (13,14). There were several determinants of health promotion activities like age, sex and positive attitudes of the physician as well as patient characteristics (15–18). However, data are inconsistent and sparse, particularly in Germany.

To date, little is known about the practice of physical activity promotion in German primary care settings and the factors associated with physical activity promotion. Thus, it is unclear which physicians provide these services and where deficits exist. This information may, however, be helpful in identifying the need and starting points for interventions improving the delivery of preventive care.

This study was conducted within the scope of a physician's survey on cardiovascular disease prevention including primary care physicians from Baden-Wuerttemberg, a federal state in the Southwest of Germany with more than 10 million inhabitants. The overall aims of the project were examining the significance of health promotion and prevention of cardiovascular diseases in primary care settings and identifying starting points for better implementation of prevention strategies. In this article, we focussed on physical activity—one of the main risk factors for premature morbidity and mortality (19)—and investigated the frequency and determinants of physical activity promotion in primary care settings.

METHODS

Instrumentation

We developed a postal questionnaire based on previously field-tested instruments (14,16,17,20,21). An expert panel evaluated the questionnaire to ensure that it appropriately accounted for the characteristics of the German health care system. To keep potential future interventions in the practice setting as practicable as possible in terms of physicians' limited time, we focussed on the basic steps of physical activity promotion. Thus, we collected data on the assessment of patients' physical activity status and advice about physical activity. These activities can be understood as the minimum level of physical activity promotion and are the prerequisites for further steps in health behaviour intervention. Additional data were assessed on physical activity-related patient support (e.g. offering written educational material, referring patients to health/lifestyle experts, setting specific behavioural goals), attitudes towards health promotion and prevention, sources of information and cooperation activities with regard to preventive services. Most items were documented using four-point Likert scales.

The questionnaire was piloted in a regional sample of primary care physicians ($n = 15$) ensuring items were interpreted as intended. The physicians felt the questionnaire was easy to understand and only a few minor modifications were added to the questionnaire based on feedback of physicians in the pilot study (e.g. assessment of fewer details on physician and patient characteristics). The questionnaire is available from the first author upon request.

Sampling frame

For the field study, 2 000 primary care physicians were randomly selected from the database of the State Medical Association of Baden-Wuerttemberg. In cooperation with the GESIS—Leibniz-Institute for the Social Sciences in Mannheim, Germany, we used the statistical software Gauss 8.0 (Aptech Systems Inc. Black Diamond, USA) to select a proportional sample of physicians stratified by sex, region and specialty. The questionnaire was mailed in summer 2009, and physicians were contacted twice by mail. There was no financial incentive for participation.

Statistical analysis

Data was analysed with SAS 9.2 (SAS Institute Inc. Cary, USA) using a two-sided alpha level of $P < 0.05$. The dependent variable was defined as follows: always/frequently assessing physical activity in new patients and advising at least half of all patients about physical activity (coding: 1 = yes; 0 = otherwise). Factors associated with physical activity promotion (physician and practice characteristics, attitudes of physicians, sources of information and cooperation activities) were identified using

chi-square tests and logistic regression with a stepwise selection process. The final model was adjusted for physician's age and sex. Multiple imputation techniques were applied for the multivariate analysis.

RESULTS

In the study 260 out of 2 000 physicians participated. This corresponds to a response rate of 13.3% (after accounting for physicians who did not meet the inclusion criteria, e.g. other specialty than general or internal medicine, retired physicians). Most (78.8%) were general practitioners and 64.6% were male (Table I). Mean age was 53.8 years (SD = 7.8) and physicians saw 231 patients per week on average. The study sample did not differ significantly from the overall population of physicians in Baden-Wuerttemberg regarding the distribution of sex, region and specialty.

Physicians' attitudes

Almost all physicians felt that health promotion was part of their duties. However, 26.9% did not feel they had adequate knowledge to provide lifestyle counselling in general, 73.7% found it difficult to advise patients appropriately on lifestyle modification and 36.7% felt they were unsuccessful in motivating their patients to increase physical activity. In contrast, 67.6% felt they could offer their patients a great deal in the way of lifestyle counselling.

Physicians' reported activities

Frequencies in daily practice were 70.2% for always/frequently assessing physical activity in new patients and 67.8% for advising at least half of all patients about physical activity. A total of 54.9% of the physicians carried out physical activity promotion (defined as physical activity assessment and advice). Half of the physicians generally set goals for lifestyle modifications and 23.2% assisted their patients by providing written material or referring them to other health/lifestyle experts. Physicians who promoted physical activity of their patients were more likely to promote also non-smoking (78.0% versus 36.2%), a healthy diet (78.6% versus 9.6%) and reduced alcohol consumption (69.3% versus 18.1%; all $P < 0.001$).

Factors associated with physical activity promotion

On a bivariate basis, the frequency of physical activity promotion was higher among physicians in large cities, those who perceived high success in modifying patients' physical activity and those convinced to offer their patients a great deal in the way of lifestyle counselling (Table I). Physicians who regularly used specialised books as a source of information for health promotion and

prevention, those regularly contacting colleagues/experts and those regularly participating in continuing medical education (at least once per month) were also more likely to promote physical activity. Other factors positively associated with physical activity promotion in bivariate analyses were cooperation activities with sports clubs and cardiac rehabilitation groups. There were no significant associations with patient characteristics in the corresponding practices (not shown). The positive associations between physical activity promotion and region, offering a great deal in the way of lifestyle counselling and cooperating with sports clubs remained significant also after adjusting for other covariates in the multivariate analysis (Table I).

DISCUSSION

Main findings

Although physicians had positive attitudes towards health promotion in general, the findings indicate a discrepancy between the potential and the implementation of preventive services in primary care settings in Germany. Despite well known benefits of physical activity, only about half of the physicians assessed physical activity and advised at least half of their patients about physical activity. Less than a quarter of physicians provided written material or referred patients to other health/lifestyle experts. Region, personal conviction and cooperation activities were significant determinants of physical activity promotion.

Comparison to other studies

In general, comparing findings with other nations is difficult due to differences in health care systems that provide different opportunities for health promotion. However, some similarities between the present study and studies from other countries could be found. Findings in this study of a generally positive attitude of the physicians towards physical activity promotion, for example, are consistent with previous studies from North America and Great Britain (14,20,22). Furthermore, as other studies have also shown, we observed that a remarkable proportion of physicians felt they were unsuccessful in motivating their patients to increase physical activity (13,14,17,20,21).

Previous studies addressing the provision of physical activity counselling in primary care settings provided variable estimates, and proportions differed by patient risk and mode of data collection. For example, previous studies showed that advice on physical activity generally occurred more frequently in patients with diagnosis of cardiovascular disease or hypertension, in overweight individuals and patients with sedentary lifestyle (13,23,24). In contrast, we did not identify any

Table I. Factors associated with physical activity promotion in primary care settings in Baden-Wuerttemberg, Germany (physical activity assessment and advice).

	% Assess and advise	Bivariate <i>P</i> -value	Multivariate OR (95%CI)
Total (<i>n</i> = 260)	54.9		
Physician characteristics			
Age		0.064	n.s.
Less than 50 years (<i>n</i> = 82)	46.3		
50 years and older (<i>n</i> = 174)	58.7		
Sex		0.420	n.s.
Male (<i>n</i> = 168)	53.0		
Female (<i>n</i> = 92)	58.2		
Specialty		0.088	–
General medicine ^b (<i>n</i> = 208)	52.2		
Internal medicine (<i>n</i> = 52)	65.4		
Years in practice		0.069 ^a	–
Less than 10 years (<i>n</i> = 74)	47.3		
10 to less than 20 years (<i>n</i> = 78)	53.9		
20 years and more (<i>n</i> = 108)	61.0		
Practice characteristics			
Type of practice		0.240	–
Solo practice (<i>n</i> = 144)	51.4		
Group practice (<i>n</i> = 115)	58.8		
Region		0.004 ^a	
Rural (<i>n</i> = 43)	41.9		1.00 (Reference)
Small town (<i>n</i> = 96)	51.1		1.53 (0.71–3.33)
Moderately-sized town (<i>n</i> = 72)	56.3		1.93 (0.87–4.32)
Large city (<i>n</i> = 48)	70.8		3.93 (1.55–9.99)
Attitudes of physicians			
Perceived success in modifying patients' physical activity		0.034	–
Low (<i>n</i> = 94)	46.2		
High (<i>n</i> = 162)	60.0		
I can offer my patients a great deal in the way of lifestyle counselling		0.009	
Disagree (<i>n</i> = 83)	42.7		1.00 (Reference)
Agree (<i>n</i> = 173)	60.2		1.92 (1.09–3.40)
Lifestyle counselling is difficult in general		0.934	–
Disagree (<i>n</i> = 67)	55.4		
Agree (<i>n</i> = 188)	54.8		
Sources of information			
Specialized books		0.031	–
Less than once per month (<i>n</i> = 150)	50.0		
At least once per month (<i>n</i> = 109)	62.6		
Medical journals		0.092	–
Less than once per week (<i>n</i> = 106)	48.6		
At least once per week (<i>n</i> = 154)	59.2		
Colleagues/experts		0.036	–
Less than once per month (<i>n</i> = 127)	48.0		
At least once per month (<i>n</i> = 132)	61.1		
Prevention guidelines		0.074	–
Less than once per month (<i>n</i> = 172)	51.5		
At least once per month (<i>n</i> = 82)	63.4		
Continuing medical education		0.042	–
Less than once per month (<i>n</i> = 125)	48.4		
At least once per month (<i>n</i> = 133)	61.1		
Cooperation activities			
Sports clubs		0.021	
No (<i>n</i> = 140)	48.2		1.00 (Reference)
Yes (<i>n</i> = 120)	62.5		1.75 (1.03–2.96)
Cardiac rehabilitation groups		0.049	–
No (<i>n</i> = 76)	45.3		
Yes (<i>n</i> = 184)	58.8		

OR, odds ratio; CI, confidence interval; n.s., not significant.

– means that variable is not included in the model because of stepwise selection process.

Dependent variable: always/frequently assessing physical activity in new patients and advising at least half of all patients about physical activity (coding: 1 = yes; 0 = otherwise).

Percentages correspond to valid cases.

^a*P* for trend.^bIncluding general and medical practitioners.

patient-related factors that were associated with the provision of physical activity promotion. Compared to studies using direct observation, the proportion of physicians providing physical activity promotion was higher in the present study (55% versus 20%) (12,18) as well as in other previous studies using self-reported data.

A limited number of previous studies examined the extent to which assistance to increase physical activity was offered by the physicians. Compared to these studies, physicians in the present study were less likely to offer written exercise education material (23% versus 44–58%) (12,22). In contrast, proportions of physicians in previous studies who explicitly prescribed exercise to patients, gave specific exercise instructions or set specific exercise goals were lower (13–17%) (13,21).

Strengths and limitations

To our knowledge, this is the first study providing detailed data on physical activity promotion in German primary care settings. However, findings are liable to some limitations inherent in self-reported data. Since the nature of surveys, results reflect the reported consulting behaviour of physicians rather than the actual behaviour, which may differ. Other methods of data assessment, such as direct observation, might affect physician behaviour in terms of social desirability and are impracticable in larger studies. However, it cannot be excluded that social desirability has also biased self-reported data (25), which might result in an overestimation of physical activity promotion in the present study emphasizing the need for interventions.

Although the questionnaire was sent out twice, the response rate was low (13.3%). While a recently published literature review on postal surveys of general practitioners showed a mean response rate of 61% (26), the response rate in this study is comparable to that of other studies in Germany (27). Reasons might be the lack of financial incentives (28) and the secular trend of a general decreasing participation rate in such studies (29). The resulting sample size might have led to a loss in statistical power and prevented us from detecting further significant associations. The low response rate limits the generalizability of found results. However, physicians are generally a homogenous group regarding knowledge, attitudes and behaviour (30), which might alleviate effects of selection bias. Furthermore, comparison with the underlying physician population showed no significant differences. However, it cannot be excluded that physicians with more affinity for health promotion were more likely to participate. This further intensifies that data in this study might be a best-case scenario of the physical activity promotion in real practice.

Implications

This study enhances knowledge about the current state of physical activity promotion in primary care settings in

Baden-Wuerttemberg and factors associated with this kind of preventive service. Results can be used to evaluate the implementation of prevention strategies. Obviously, there is a need for interventions to increase the frequency of physical activity promotion by physicians. In particular physicians in rural regions should be assisted and cooperation activities with sports clubs or other health care providers should be encouraged. Furthermore, interventions promoting physicians' education may prove useful in improving lifestyle-related preventive services. The results have also implications for improving the formation of medical students in the practice of physical activity counselling. Increasing the proportion of physicians who provide physical activity promotion would also enable evaluating the effectiveness of such interventions at the population level in the future. This might finally contribute to shed some more light on the evidence to recommend for physical activity counselling in primary care settings (31).

Conclusion

There is a need for interventions to increase the frequency of physical activity promotion by primary care physicians. In particular physicians in rural regions should be assisted and cooperation activities with sports clubs or other health care providers should be encouraged.

ACKNOWLEDGEMENTS

Part of this work was supported by the Gotthard-Schettler-Gesellschaft for cardiovascular research Heidelberg, Germany.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

REFERENCES

1. Haskell WL, Lee IM, Pate RR, Powell KE, Blair SN, Franklin BA, et al. Physical activity and public health: Updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Circulation* 2007;116:1081–93.
2. WHO. Global recommendations on physical activity for health. Geneva: World Health Organization; 2010.
3. EU Physical Activity Guidelines. Recommended policy actions in support of health-enhancing physical activity. Brussels: EU Working Group 'Sport & Health'; 2008.
4. Blair SN, LaMonte MJ, Nichaman MZ. The evolution of physical activity recommendations: How much is enough? *Am J Clin Nutr*. 2004;79:913S–20S.
5. Centers for Disease Control and Prevention. Prevalence of regular physical activity among adults. United States, 2001 and 2005. *MMWR*. 2007;56:1209–12.
6. Sjöström M, Oja P, Hagströmer M, Smith BJ, Bauman A. Health-enhancing physical activity across European Union countries: The Eurobarometer study. *J Public Health* 2006;14:291–300.

7. Lin JS, O'Connor E, Whitlock EP, Beil TL, Zuber SP, Perdue LA, et al. Behavioral counseling to promote physical activity and a healthful diet to prevent cardiovascular disease in adults: Update of the evidence for the U.S. Preventive Services Task Force. Evidence synthesis No. 79. AHRQ Publication No. 11-05149-EF-1. Rockville, MD: Agency for Healthcare Research and Quality; 2010.
8. Haskell WL. Cardiovascular disease prevention and lifestyle interventions: effectiveness and efficacy. *J Cardiovasc Nurs*. 2003;18:245–55.
9. GEDA Study Group. Data and facts: Results from the study 'Health in Germany up to date 2009' (in German). Berlin: Robert Koch-Institute; 2011.
10. Jacobson DM, Stroecker 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;29:158–62.
11. Estabrooks PA, Glasgow RE, Dziewaltowski DA. Physical activity promotion through primary care. *J Am Med Assoc*. 2003;289:2913–6.
12. Anis NA, Lee RE, Ellerbeck EF, Nazir N, Greiner KA, Ahluwalia JS. Direct observation of physician counseling on dietary habits and exercise: Patient, physician, and office correlates. *Prev Med*. 2004;38:198–202.
13. Tsui JI, Dodson K, Jacobson TA. Cardiovascular disease prevention counseling in residency: Resident and attending physician attitudes and practices. *J Natl Med Assoc*. 2004;96:1080–3.
14. Castaldo J, Nester J, Wasser T, Masiado T, Rossi M, Young M, et al. Physician attitudes regarding cardiovascular risk reduction: The gaps between clinical importance, knowledge, and effectiveness. *Dis Manag*. 2005;8:93–105.
15. Frijling BD, Lobo CM, Hulscher ME, van Drenth BB, Braspenning JC, Prins A, et al. Provision of information and advice in cardiovascular care: Clinical performance of general practitioners. *Patient Educ Couns*. 2002;48:131–7.
16. Lobo CM, Frijling BD, Hulscher MEJL, Bernsen RMD, Braspenning JC, Grol RPTM, et al. Organizational determinants of cardiovascular prevention in general practice. *Scand J Prim Health Care* 2003; 21:99–105.
17. Steptoe A, Doherty S, Kendrick T, Rink E, Hilton S. Attitudes to cardiovascular health promotion among GPs and practice nurses. *Fam Pract*. 1999;16:158–63.
18. Podl TR, Goodwin MA, Kikano GE, Stange KC. Direct observation of exercise counseling in community family practice. *Am J Prev Med*. 1999;17:207–10.
19. WHO. Global health risks: Mortality and burden of disease attributable to selected major risks. Geneva: World Health Organization; 2009.
20. McAvoy BR, Kaner EF, Lock CA, Heather N, Gilvarry E. Our healthier nation: are general practitioners willing and able to deliver? A survey of attitudes to and involvement in health promotion and lifestyle counselling. *Br J Gen Pract*. 1999;49:187–90.
21. Walsh JM, Swangard DM, Davis T, McPhee SJ. Exercise counseling by primary care physicians in the era of managed care. *Am J Prev Med*. 1999;16:307–13.
22. Grant AM, Niyonsenga T, Dion I, Delisle E, Xhignesse M, Bernier R. Cardiovascular disease. Physician attitudes toward prevention and treatment. *Can Fam Physician* 1998;44:780–7.
23. Dickerson JE, Garratt CJ, Brown MJ. Management of hypertension in general practice: Agreements with and variations from the British Hypertension Society guidelines. *J Hum Hypertens*. 1995;9:835–9.
24. Lawlor DA, Keen S, Neal RD. Increasing population levels of physical activity through primary care: GPs' knowledge, attitudes and self-reported practice. *Fam Pract*. 1999;16:250–4.
25. Adams SA, Matthews CE, Ebbeling CB, Moore CG, Cunningham JE, Fulton J, et al. The effect of social desirability and social approval on self-reports of physical activity. *Am J Epidemiol*. 2005;161:389–98.
26. Creavin ST, Creavin AL, Mallen CD. Do GPs respond to postal questionnaire surveys? A comprehensive review of primary care literature. *Fam Pract*. 2011;28:461–7.
27. Oriol-Zerbe C, Abholz HH. Primary prevention of cardiovascular diseases by lipid-lowering treatment in German general practice: Results from GPs ignoring guidelines and risk calculators. *Eur J Gen Pract*. 2007;13:27–34.
28. Tambor ES, Chase GA, Faden RR, Geller G, Hofman KJ, Holtzman NA. Improving response rates through incentive and follow-up: The effect on a survey of physicians' knowledge of genetics. *Am J Public Health* 1993;83:1599–603.
29. Galea S, Tracy M. Participation rates in epidemiologic studies. *Ann Epidemiol* 2007;17:643–53.
30. Kellerman SE, Herold J. Physician response to surveys. A review of the literature. *Am J Prev Med*. 2001;20:61–7.
31. US Preventive Services Task Force. Behavioral counseling in primary care to promote physical activity: Recommendations and rationale. Rockville: Agency for Healthcare Research and Quality; 2002.