

Physician variation in perceived barriers to personal health

Adam RB Kosteva¹
Brian M Salata¹
Sangeetha Mahadevan
Krishnan²
Michael Howe³
Alissa Weber³
Melvyn Rubenfire^{2,3}
Elizabeth A Jackson^{2,3}

¹Michigan Cardiovascular Research and Reporting Program, ²Division of Cardiovascular Medicine, ³Department of Internal Medicine, University of Michigan Health System, Ann Arbor, MI, USA

Objective: Physicians' personal health habits are associated with their counseling habits regarding physical activity. We sought to examine physicians' own barriers to a healthy lifestyle by level of training and gender.

Methods: Physicians at a major teaching hospital were surveyed regarding their lifestyle habits and barriers to healthy habits. The frequency of reported barriers was examined by years in practice (trainees vs staff physicians) and gender.

Results: 183 total responses were received. Over 20% of respondents were overweight. Work schedule was cited as the greatest barrier to regular exercise in 70.5% of respondents. Trainees were more likely to cite time constraints or cost as a barrier to a healthy diet compared to staff physicians. Staff physicians were more likely to report the time to prepare healthy foods as a barrier. For both trainees and staff physicians, time was a barrier to regular exercise. For trainees work schedule was a barrier, while both work schedule and family commitments were top barriers cited by staff physicians. Women were more likely to report family commitments as a barrier than men. Respondents suggested healthier options in vending machines and the hospital cafeteria, healthy recipes, and time and/or facilities for exercise at work as options to help overcome these barriers.

Conclusion: Work schedules and family commitments are frequently reported by providers as barriers to healthy lifestyle. Efforts to reduce such barriers may lead to improved health habits among providers.

Keywords: diet, exercise, counseling, prevention, gender, barriers, health

Introduction

Physician counseling positively influences patients' ability to change lifestyle behaviors including smoking, physical activity, and diet.¹⁻³ Several studies have observed that physicians who have healthy lifestyles or are attempting to improve their own personal wellness are more likely to provide advice to their patients on lifestyle modification.⁴⁻⁶ However, few physicians provide such counseling to their patients on a regular basis.⁷⁻¹¹ Lifestyle modification, with a healthy diet high in fruits and vegetables and regular physical activity is the cornerstone of cardiovascular disease prevention. Studies such as the Diabetes Prevention Program (DPP) and the DASH study have observed significant reductions in risk for cardiovascular disease (CVD) risk factors including diabetes and hypertension.^{12,13} Yet many Americans do not meet recommended goals for physical activity. Together with poor portion control and calorie-dense foods, this has created a situation in which obesity is now an epidemic in today's society. Thus a better understanding of how to

Correspondence: Elizabeth A Jackson
Division of Cardiovascular Medicine,
University of Michigan Health System,
24 Frank Lloyd Wright Drive,
Ann Arbor, MI 48106, USA
Tel +1 734 998 7411
Fax +1 734 998 9587
Email lisjacks@umich.edu

improve providers counseling frequency and effectiveness is warranted.

Understanding the barriers reported by healthcare professionals regarding their ability to maintain healthy lifestyles may have implications for their ability to advise patients regarding important lifestyle modification. We previously reported a significant association between provider exercise behaviors and counseling efforts related to physical activity.⁴ In this current study we examined barriers to healthy behaviors among resident and staff physicians at a tertiary medical center. We hypothesized that physicians' level of training, and gender would influence the type of barriers reported.

Methods

Physicians affiliated with the University of Michigan Health System were eligible to complete an online survey which was sent via email. Responses were collected between March and April, 2009. Physicians who were listed as internists, family practitioners, endocrinologists, and cardiologists were the primary recipients for the survey, as they are most likely to care for patients at risk for coronary heart disease (CHD) or with risk factors for CHD. Physicians who did not regularly provide prevention care (ie, radiologists or pathologists), surgeons, and those who were at the medical center for less than 3 months were excluded. An estimated 500 physicians were currently practicing within the Departments of Internal Medicine and Family Medicine at the time of the survey administration. Physicians considered trainees (residents and fellows) included residents from internal medicine (or the medicine–pediatrics residency), family medicine, and preliminary year interns. Fellows included were in training programs within cardiology and endocrinology. This study was approved by the institutional review board at the University of Michigan Health System.

Providers were asked to identify their practice type (internal medicine, cardiology, endocrinology, family medicine, or other), training level (resident or fellow) or post-graduate year, and practice type (hospital based vs private practice). Basic demographic information included gender and age. Respondents were asked about several lifestyle behaviors. Questions related to exercise included number of days per week in which exercise was performed and estimated number of minutes per week of aerobic exercise, in addition to the type of exercise performed. Dietary questions included the number of fast food meals consumed per week, average number of servings of fruit and vegetables consumed per day and barriers to consuming a healthy diet.

In addition, respondents were asked to report the barriers which prevented them from exercising regularly, or consuming a healthy diet.

Summary statistics are presented as frequencies and percentages or as means and standard deviations. Student's *t*-tests and chi-square tests were used to compare differences in baseline physical and clinical characteristics between trainees and staff physicians. Analysis of variance was used to evaluate the differences between trainees and staff physicians in personal lifestyle behaviors such as number of fast food meals consumed per week and number of servings of fruit and vegetables consumed per day, and reported lifestyle barriers. Logistic regression models were used to investigate relationships between physician training, lifestyle, and barriers to healthy behaviors. All analyses were performed using SAS® (v 9.1; SAS Institute Inc, Cary, NC).

Results

A total of 183 physicians completed the survey, of whom 102 (56%) were in training (residents and fellows) and 81 (44%)

Table 1 Self-reported characteristics of trainees and staff physicians

Characteristic	Trainees n = 102	Staff physicians n = 81	P value
Male, n (%)	45 (44.1)	33 (40.7)	0.65
Body mass index, kg/m ² mean, (SD)	23.3 (4.2)	24.7 (3.9)	0.2
Overweight, n (%)	21 (20.6)	22 (27.2)	0.30
Obese, n (%)	6 (5.9)	7 (8.6)	0.47
Increased waist circumference*, n (%)	5 (4.9)	5 (6.2)	0.71
Lipid profile			
Total cholesterol, mg/dL, mean (SD)	170.6 (51.4)	177.1 (35.0)	0.47
LDL cholesterol, mg/dL, mean (SD)	98.2 (31.8)	100.4 (27.0)	0.73
HDL cholesterol, mg/dL, mean (SD)	57.9 (17.3)	58.5 (16.1)	0.85
Triglycerides, mg/dL, mean (SD)	104.3 (75.4)	103.4 (64.5)	0.96
Fasting glucose, mg/dL, mean (SD)	83.8 (16.8)	88.8 (11.6)	0.12
Blood pressure			
Systolic blood pressure, mmHg, mean, (SD)	114.9 (10.8)	115.0 (11.2)	0.93
Diastolic blood pressure, mmHg, mean (SD)	71.0 (7.8)	70.2 (8.4)	0.53
Current smoker, n (%)	2 (0.0)	2 (0.0)	0.81

Note: *Increased waist circumference defined as ≥ 40 inches for men and ≥ 35 inches for women.

Abbreviations: LDL, low density lipoprotein; HDL, high density lipoprotein.

were staff physicians (Table 1). More respondents were women for both groups (trainees and staff physicians). Staff physicians more likely than trainees to have had their blood pressure and/or lipids checked within the previous year. The mean body mass index (BMI) was 23.3 kg/m² for trainees and 24.7 kg/m² for staff physicians. 20.6% of trainees and 27.2% of staff physicians were overweight, defined as a BMI between 25 kg/m² and 29 kg/m². The prevalence of obesity was 5.9% for the trainees and 8.6% for the staff physicians (defined as a BMI \geq 30 kg/m²).

In terms of lifestyle behaviors, differences between trainees and staff physicians included factors related to both diet and physical activity (Table 2). Trainees reported an average of 1.2 fast food meals per week, while staff physicians reported less than one fast food meal per week ($P = 0.04$). The average number of fruit servings per day was 1.7 for trainees and 2.2 for staff physicians ($P = 0.005$). The average number of vegetable servings was 2.1 for trainees and 2.6 for staff physicians ($P = 0.002$).

Although neither group would be considered to have good compliance with current guidelines, staff physicians were more likely to meet current recommendations for physical activity per week as compared to trainees. Only 7.8% of trainees and 25.9% of staff physicians completed >150 minutes of aerobic exercise per week ($P < 0.001$).

Self-reported barriers to healthy lifestyle behaviors also differed among trainees and staff physicians (Table 3). Trainees were more likely to report barriers to a healthy diet as time or cost related. Almost 50% of trainees reported time spent shopping as a barrier to healthy diet, and 87.3% reported the time to prepare healthy foods as a barrier to a healthy diet. Over 20% of trainees reported

Table 2 Self-reported health behaviors of trainees and staff physicians

Lifestyle factors	Trainees n = 102	Staff physicians n = 81	P value
Number of fast food meals per week, n (%)	1.2 (1.4)	0.8 (1.1)	0.04
Average number of servings per day			
Fruits, n (%)	1.7 (1.0)	2.2 (1.2)	0.005
Vegetables, n (%)	2.1 (1.0)	2.6 (1.3)	0.002
Exercise			
≤ 2 days per week, n (%)	66 (64.7%)	30 (37.0%)	<0.001
3 days per week, n (%)	26 (25.5%)	19 (23.4%)	
≥ 4 days per week, n (%)	10 (9.8%)	32 (39.5%)	
≥ 150 minutes of aerobic exercise per week, n (%)	8 (7.8%)	21 (25.9%)	<0.001

Table 3 Self-reported top barrier to healthy behaviors of trainees and staff physicians

Barriers	Trainees n = 102	Staff physicians n = 81	P value
Barriers to exercise			
Work schedule, n (%)	90 (88.2)	39 (48.1)	<0.0001
Family commitments, n (%)	3 (2.9)	18 (22.2)	<0.0001
Deconditioning, n (%)	2 (2)	1 (1.2)	1.0
Lack of access to facilities, n (%)	0	0	–
Cost, n (%)	1 (1)	1 (1.2)	1.0
Barriers to a healthy diet			
Cost of healthy food, n (%)	24 (23.5)	7 (8.6)	0.008
Cooking skills, n (%)	21 (20.6)	17 (21)	0.95
Time to prepare and cook healthy food, n (%)	89 (87.3)	48 (59.3)	<0.0001
Time shopping, n (%)	47 (46.1)	21 (25.9)	0.005
Food preferences (lack of availability), n (%)	34 (33.3)	32 (39.5)	0.39

cost of healthy foods as a barrier to a healthy diet. In contrast, staff physicians reported the time to prepare foods (59.3%) and food preferences (39.5%) as top barriers to a healthy diet.

Barriers to exercise included work schedule for both groups (Table 3). However among trainees, work schedule was the leading barrier to exercise. For staff physicians, work schedule was reported as the top barrier, though not to the same frequency as in the trainees. Family commitments were the second most frequent barrier to exercise reported by staff physicians.

In assessing what factors would help to improve their lifestyle behaviors, trainees were more likely to respond that healthy options in vending machines and the cafeteria would be helpful (Table 4). Trainees were also more likely to suggest educational information and recipes as helpful. Staff physicians also suggested healthy beverages at work, and lunchtime walking or exercise programs.

We also examined these data for differences in lifestyle behaviors and barriers to healthy behaviors by gender. Women had lower blood pressures and were less likely to be overweight or obese than men. No differences were observed in either dietary or exercise behaviors between men and women. However, women reported family commitments as a barrier to exercise more often compared to men ($P = 0.005$). In terms of diet, men reported the cost of food as a barrier more often than women (28.2% vs 8.6%, $P = 0.001$). No other gender differences in barriers related to diet were observed. Factors related to improvements in lifestyle were similar between men and women, with the

Table 4 Factors which would improve personal exercise and nutritional habits

Factors	Trainees n = 102	Staff physicians n = 81	P value
Exercise			
Extra hour in schedule for exercise, n (%)	77 (75.5)	53 (65.4)	0.14
Exercise facilities at or near work, n (%)	35 (34.3)	27 (33.3)	0.89
Group/peer to exercise with, n (%)	28 (27.5)	12 (14.8)	0.04
Materials (discussion or lectures) on tips to incorporate exercise into working life, n (%)	3 (2.9)	4 (4.9)	0.70
Showers and locker rooms at work, n (%)	22 (21.6)	25 (30.9)	0.15
Accountability for exercise, n (%)	29 (28.4)	16 (19.8)	0.18
Healthy diet			
Healthy food in vending machines and cafeteria, n (%)	87 (85.3)	52 (64.2)	0.001
Healthy beverages are work, n (%)	37 (36.3)	23 (28.4)	0.26
Lunchtime walking or exercise programs, n (%)	36 (35.3)	26 (32.1)	0.65
Motivational images at work, n (%)	4 (3.9)	7 (8.6)	0.22
Team activities, n (%)	12 (11.8)	5 (6.2)	0.20
Nutritionist-led informational sessions at work, n (%)	14 (13.7)	8 (9.9)	0.43
Handouts and recipes, n (%)	25 (24.5)	6 (7.4)	0.002
Dietitian at work available for consultation, n (%)	9 (8.8)	7 (8.6)	0.97

exception that women were more likely to report lunchtime walking or exercise programs as helpful compared to men (41.9% vs 23.1%, $P = 0.008$). Women also tended to report having a dietitian available for consultation as helpful more than men (12.4% vs 3.8%, $P = 0.06$).

Discussion

Using survey data from a major teaching hospital, we observed few physicians met current recommendations for physical activity, and a healthy diet high in fruits and vegetables. Roughly one in five trainees and staff physicians were overweight. Self-reported barriers to healthy lifestyle behaviors differed between the trainees and staff physicians. Trainees were more likely to report time as a major barrier to exercise, while family commitments were cited as a barrier more often for staff physicians. Male physicians reported cost of food and not wanting to exercise at lunch as barriers to healthy behaviors, while women reported family commitments as a barrier.

While the annual death rate due to coronary heart disease has declined over the past two decades, heart disease remains the leading cause of death for US adults.¹⁴ With increases in the prevalence of obesity, the likelihood that the decline in CHD mortality will continue is in doubt.¹⁵ Physicians' personal habits regarding their medical care and lifestyle behaviors correlate with their attitudes towards preventive care. Previous studies have shown that providers' personal health habits correlate to their recommendations counseling to patients.^{4,6,16,17} This includes exercise and counseling on physical activity as well as other behaviors related to diet and alcohol use. The Women Physicians' Health Study (WPHS), which surveyed over 4500 women physicians, nationally, demonstrated that exercise habits were positively associated with frequency of counseling patients about the benefits of exercise.⁶ Confidence in providers' ability to effectively counsel was also related to personal exercise habits. Providers smoking habits have also been shown to impact their frequency of counseling patients to stop.¹⁸ Other factors related to personal health can be influenced by provider behaviors including compliance with screening recommendations. In one study of women physicians, those who regularly obtained mammograms themselves were more likely to order such screening tests for their patients.¹⁹

Similar associations have been observed for medical students as well.²⁰ In a study of US medical students provided with a personal health promotion intervention, students reported improved health behaviors such as healthy dietary and exercise patterns with reductions in smoking, as compared to a control group.² Health-related counseling practices were positively correlated with the intervention.

The relationship between provider behaviors and their counseling practices suggests that understanding the barriers to health among medical workers may have significant consequences for patients. To date, few studies have examined interventions to improve health of providers and how such interventions impact patient care. Previous studies have suggested a benefit to interventions such as this. In one study, medical students were given an 8-week meditation-based stress reduction intervention. The investigators found students who completed the intervention reported increased scores for empathy for their patients compared to the control group.²¹ A different study found physicians enhanced their ability to motivate patients with their own personal health habits such as exercise.⁵ Personal barriers (including methods to overcome such barriers) may also enhance patient's motivation.

Several limitations to this study exist. These data represent a sample of providers from one tertiary hospital system,

and as such may not be generalizable to a larger population of physicians or to other health care providers. Due to the voluntary nature of our survey, selection bias is likely present. The statistical power of our results was limited by the relatively small sample size, which prevented us from examining specific subgroups such as specialists. Lastly the information presented in this study was entirely through provider self-report; thus recall biases may have been present.

Conclusion

These data suggest significant barriers to healthy lifestyles are experienced by providers and that such barriers differ by level of training and gender. Given the potential for improving patient-related lifestyle counseling by improving provider health, further research and efforts in this area are warranted.

Acknowledgments

This study was supported by grants from the University of Michigan Cardiovascular Center and the Hewlett Foundation.

Disclosure

The authors report no conflicts of interest in this work.

References

- Cohen SJ, Stookey GK, Katz BP, Drook CA, Smith DM. Encouraging primary care physicians to help smokers quit. A randomized, controlled trial. *Ann Intern Med.* 1989;110(8):648–652.
- Frank E, Elon L, Hertzberg V. A quantitative assessment of a 4-year intervention that improved patient counseling through improving medical student health. *Med Gen Med.* 2007;9(2):58.
- Ockene IS, Hebert JR, Ockene JK, et al. Effect of physician-delivered nutrition counseling training and an office-support program on saturated fat intake, weight, and serum lipid measurements in a hyperlipidemic population: Worcester Area Trial for Counseling in Hyperlipidemia (WATCH). *Arch Intern Med.* 1999;159(7):725–731.
- Howe M, Leidel A, Krishnan SM, Weber A, Rubenfire M, Jackson EA. Patient-related diet and exercise counseling: do providers' own lifestyle habits matter? *Prev Cardiol.* 2010;13(4):180–185.
- Frank E, Breyan J, Elon L. Physician disclosure of healthy personal behaviors improves credibility and ability to motivate. *Arch Fam Med.* 2000;9(3):287–290.
- Frank E, Bhat Schelbert K, Elon L. Exercise counseling and personal exercise habits of US women physicians. *J Am Med Womens Assoc.* 2003;58(3):178–184.
- Wee CC, McCarthy EP, Davis RB, Phillips RS. Physician counseling about exercise. *JAMA.* 1999;282(16):1583–1588.
- 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(8):1080–1083, 1088–1091.
- Rogers LQ, Gutin B, Humphries MC, et al. Evaluation of internal medicine residents as exercise role models and associations with self-reported counseling behavior, confidence, and perceived success. *Teach Learn Med.* 2006;18(3):215–221.
- Mosca L, Linfante AH, Benjamin EJ, et al. National study of physician awareness and adherence to cardiovascular disease prevention guidelines. *Circulation.* 2005;111(4):499–510.
- Petrella RJ, Lattanzio CN, Overend TJ. Physical activity counseling and prescription among canadian primary care physicians. *Arch Intern Med.* 2007;167(16):1774–1781.
- Sacks FM, Svetkey LP, Vollmer WM, et al. Effects on blood pressure of reduced dietary sodium and the Dietary Approaches to Stop Hypertension (DASH) diet. DASH-Sodium Collaborative Research Group. *N Engl J Med.* 2001;344(1):3–10.
- Knowler WC, Barrett-Connor E, Fowler SE, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med.* 2002;346(6):393–403.
- Roger VL, Go AS, Lloyd-Jones DM, et al. Heart disease and stroke statistics – 2011 update: a report from the American Heart Association. *Circulation.* 2011;123(4):e18–e209.
- Mosca L, Benjamin EJ, Berra K, et al. Effectiveness-Based Guidelines for the Prevention of Cardiovascular Disease in Women – 2011 Update: A Guideline From the American Heart Association. *Circulation.* 2011;123(11):1243–1262.
- Wells KB, Lewis CE, Leake B, Ware JE Jr. Do physicians preach what they practice? A study of physicians' health habits and counseling practices. *JAMA.* 1984;252(20):2846–2848.
- Lobelo F, Duperly J, Frank E. Physical activity habits of doctors and medical students influence their counselling practices. *Br J Sports Med.* 2009;43(2):89–92.
- Kawakami M, Nakamura S, Fumimoto H, Takizawa J, Baba M. Relation between smoking status of physicians and their enthusiasm to offer smoking cessation advice. *Intern Med.* 1997;36(3):162–165.
- Frank E, Rimer BK, Brogan D, Elon L. US Women Physicians' personal and clinical breast cancer screening practices. *J Womens Health Gend Based Med.* 2000;9(7):791–801.
- Duperly J, Lobelo F, Segura C, et al. The association between Colombian medical students' healthy personal habits and a positive attitude toward preventive counseling: cross-sectional analyses. *BMC Public Health.* 2009;9:218.
- Shapiro SL, Schwartz GE, Bonner G. Effects of mindfulness-based stress reduction on medical and premedical students. *J Behav Med.* 1998;21(6):581–599.

International Journal of General Medicine

Publish your work in this journal

The International Journal of General Medicine is an international, peer-reviewed open-access journal that focuses on general and internal medicine, pathogenesis, epidemiology, diagnosis, monitoring and treatment protocols. The journal is characterized by the rapid reporting of reviews, original research and clinical studies across all disease areas.

Submit your manuscript here: <http://www.dovepress.com/international-journal-of-general-medicine-journal>

Dovepress

A key focus is the elucidation of disease processes and management protocols resulting in improved outcomes for the patient. The manuscript management system is completely online and includes a very quick and fair peer-review system. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.