Original research

Practice patterns, counseling and promotion of physical activity by sports medicine physicians

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A R T I C L E   I N F O

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Objectives: This study examined sports medicine physicians with an established interest in physical activity to investigate attitudes surrounding exercise, physical activity and patient-counseling behavior. The degree to which physicians' personal knowledge of physical activity and related resources, involvement with common activities, and perceived barriers were assessed.

Design: An internet survey was designed in four domains: (1) counseling behavior, (2) tools and resources, (3) appropriateness of common physical activities for patients and (4) barriers.

Methods: The survey was sent to 3570 members of two electronic mailing lists - Institute of Lifestyle Medicine, Boston, MA and The American College of Sports Medicine. Surveys were emailed during 2011–2012 and analyzed in 2013–2014. Each survey contained 39 questions.

Results: The response rate of the surveys was 16%. Of 412 physicians, 74% regularly recommended physical activity, 66% talked about exercise with patients, and 49% included as a vital sign. Only 26% of physicians provided a written exercise prescription. ACSM’s Exercise is Medicine® (37%) was the most popular resource. Walking, followed by aerobic activity, strength training and cycling were the most recommended forms of activity and were associated with physicians' personal experiences. The most potent inhibitor was time.

Conclusions: Physicians with an interest in exercise and physical activity recognize the importance of recommending and counseling patients on exercise and physical activity. Physician counseling was associated with personal familiarity with physical activity. Increasing knowledge and experience with exercise, physical activity and counseling behavior is an important component to encourage physical activity assessment and promotion by sports medicine physicians.

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1. Introduction

Adequate physical activity, in addition to a healthy diet, weight control and lack of smoking, serve as a foundation of lifelong health and wellbeing. There is strong evidence that regular physical activity can prevent as well as treat many chronic non-communicable diseases including: heart failure, coronary heart disease, insulin resistance, Type 2 diabetes, and obesity. In addition to disease prevention and treatment, physical activity has a profound impact on brain health, life expectancy and overall quality of life.

Physicians have been identified as having a critical role in addressing the prevalence of physical inactivity. Indeed, promotion of physical activity in primary care settings has been shown to significantly increase physical activity levels of patients. Several initiatives have begun advocating for the inclusion of physical activity when designing treatment plans for patients, including Exercise is Medicine® Healthy People 2020 and the U.S. National Physical Activity Plan. There is evidence to suggest that systematic collection of exercise and physical activity information by physicians is associated with small but significant changes in exercise-related clinical processes and outcomes.

Despite the calls for change and evidence of success, currently fewer than 50% of US primary care physicians regularly offer their patients advice for physical activity. In fact, in the United States, the percentage of physician office visits that included physical activity counseling averaged only 9.2%. Further, only 32% of patients report receiving specific guidance on exercise or physical activity from their physician.
Specific reasons for lack of counseling have been outlined. Inadequate medical training has been cited and it has been noted that physical activity is generally not taught in US medical schools. Indeed, a qualitative study of general practitioners determined that prescribing physical activity is seen as a challenge due to lack of knowledge, as well as missing systems, routines, and trusted referral arrangements. Inadequate time is also a common barrier to physician counseling.

Physicians’ personal exercise and physical activity practices also affect their attitude promoting exercise and physical activity with their patients. When physicians exercise, they are more likely to recommend physical activity to their patients. With regard to counseling behavior, physicians who had adequate knowledge, as well as a normal body mass index (BMI) and regular participation in vigorous physical activity, were more likely to feel confident about counseling their patients on physical activity. Perhaps more importantly, patients are more likely to reach clinical targets when their physicians are active.

It is clear that the importance of physical activity and health falls most in line with the specialties of sports and exercise medicine. However, there is limited data investigating the clinical practices of this targeted group of physicians with regard to physical activity promotion. This study examined primary care and specialist physicians with an established interest in physical activity, exercise and sports medicine. The objective of this study was to examine the patient-counseling behavior of this unique cohort of physicians. In order to determine any factors influencing these clinical practices, secondary analyses were conducted to understand physicians’ personal knowledge and attitude regarding physical activity including: resources utilized, personal involvement with common activities and perceived barriers to counseling. As such, four domains of physician behavior were surveyed including: (1) counseling behavior on physical activity, (2) tools and resources physicians used to aid in physical activity counseling, and (3) subjective assessment of appropriateness of common physical activities for patients (4) factors that may inhibit counseling behavior.

2. Methods

The authors developed an international internet based survey targeted to the following domains: physician counseling behavior, use of resources, perceived barriers/inhibitors, and the influence of personal exercise experience on appropriateness for patients. The survey was sent to members of two electronic mailing lists, one from the Institute of Lifestyle Medicine, a research institute at Harvard Medical School, Boston, MA and another from the American College of Sports Medicine. Surveys were emailed during the winter of 2011–2012 to all members of each mailing list and analyzed in 2013–2014. Each survey contained 39 questions and took approximately 10–12 min to complete. The survey was emailed three times to each person on the mailing list. Participants were entered into a drawing for a tablet reading device upon completion. This study was approved by the Spaulding Rehabilitation Hospital Institutional Review Board.

The first survey domain addressed the nature of physicians’ approaches to exercise and physical activity with their patients. Physicians were asked to what percent of their patient load did they: (1) discuss, (2) recommend, (3) provide a written prescription, and (4) if prescribed, saw their patients make progress in physical activity. Lastly, they were asked if they used physical activity as a vital sign in their clinical screening (yes/no).

The second domain included a list of commonly used resources and tools available for physicians to use in their practice. Physicians were asked to indicate whether they used Exercise is Medicine®, American Heart Association, American Academy of Family Practitioners American’s in Motion-Healthy Interventions (AIM-HI) or Other (open ended) to aid the discussion of physical activity with their patients.

The third domain assessed attitudes surrounding eight different activities: walking, aerobic sports, cycling, strength training, swimming, yoga, team sports and dancing. Respondents were asked on a 10-point scale (1 = not at all; 10 = a great deal) how familiar they were with the activities, based on their own experience and asked to rank each for appropriateness for patients on a 5-point scale (1 = very inappropriate for majority; 5 = very appropriate for majority).

The fourth domain asked physicians to rank five inhibitory factors/barriers: lack of time, lack of incentive, lack of patient compliance, lack of tools/materials, and lack of knowledge/skill on a 10-point scale (1 = does not inhibit; 10 = completely inhibits).

In addition to the aforementioned domains, participants were also asked to self report their own personal physical activity levels, body weight and dietary habits.

Data that was completed via the online survey was analyzed in SPSS 11.5 (Armonk, NY). Means and standard deviations (SD) were calculated for all continuous variables. Descriptive, bivariate t-tests and correlation statistics were computed. p-values ≤0.05 were considered statistically significant.

3. Results

The first email list consisted of 1158 individuals from the Institute of Lifestyle Medicine contact list, of which 268 were completed (23%). The second email list consisted of 2412 physicians from the ACSM, of which 352 were completed (15%). Of the total 620 completed surveys, 45 were mostly blank or nearly blank and discarded. Thus, the effective total of respondents was 575 individuals, a response rate of 16%. Of these respondents, 412 identified themselves as physicians (including MD and DO) and were included in the analysis (Table 1). The physicians were divided between primary care physicians (n = 217) and specialists (n = 195). Physicians ranged in age from 20 to 80 years old. On a scale of 1–10, physicians rated their own weight status as 5.6 (SD 1.2; 1 = underweight, 5 = normal, 10 = overweight) and nutrition habits as 7.2 (SD 1.9; 1 = unhealthy, 10 = healthy).

Seventy-four percent (74%) of physicians indicated they recommended physical activity. While sixty-six percent (66%) talked to their patients about physical activity, only twenty-six percent (26%) actually provided a written exercise prescription. Specialists (33%) were more likely to prescribe exercise to their patients than primary care physicians (20%) (p < 0.001). Nearly half of all physicians, forty-nine percent (49%), included exercise as a vital sign. The report of these clinical practices was not statistically different between primary care physicians and specialists (Table 2). Further,
Table 2
Physician counseling behavior. Physicians were asked to what percent of their patient load did they: (1) discuss, (2) recommend, (3) provide a written prescription, and (4) if prescribed, saw their patients make progress in physical activity. Specialists were more likely to prescribe exercise to their patients than primary care physicians and also reported seeing more improvement in their patients’ physical activity levels. Reports between primary care and specialists physicians were considered significant at \( p < 0.05 \). *'

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<td>Make progress</td>
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physicians who provided a written exercise prescription, rather than verbal communication, reported seeing more improvement in their patients’ physical activity levels \( (r = 0.52; r = 0.38, p < 0.05 \) respectively). Lastly, there was no difference between percentage of primary care or specialists with regard to discussion of exercise with their patients \( (p = 0.111) \).

The most commonly used physical activity resource in this sample of physicians was Exercise is Medicine\* (37%). The next most often cited resources and tools were individually created by clinicians drawn from the internet, books, or elsewhere (19%). This was followed by the American Heart Association resources (12%) and AIM-HI resources (10%). Only 1% of physicians responded that they did not use any physical activity resources with their patients at all.

When asked to what extent physicians were familiar with specific activities \( (walking, aerobic sports, cycling, strength training, swimming, yoga, team sports and dancing) \), based upon their own persona engagement \( (1 = \text{not at all}; 10 = \text{a great deal}; \text{mean} \pm \text{SD}) \), the four most familiar activities were walking \( (9.2 \pm 1.4) \), aerobic activity \( (9.2 \pm 1.4) \), strength training \( (8.7 \pm 1.7) \), and cycling \( (8.5 \pm 2.0) \). Team sports and swimming were less familiar \( (8.0 \pm 2.3 \) and 7.5 \( \pm 2.4 \), respectively) and dancing and yoga were the least familiar \( (5.8 \pm 3.1 \) and 5.6 \( \pm 3.0 \), respectively). When asked how appropriate each activity was for patients \( (1 = \text{very inappropriate for majority}; 5 = \text{very appropriate for majority}) \), walking emerged as the most appropriate \( (4.5 \pm 0.9) \) with team sports as the least appropriate \( (3.0 \pm 0.9) \). All other activities were seen between “appropriate for many but inappropriate for many others” and “fairly appropriate for majority. Specialists were less likely \( (p < 0.05) \) to think that dancing, aerobic oriented activity, walking, cycling, and yoga were appropriate for their patients than primary care physicians, although all of these activities were still seen as appropriate overall \( (Table 3) \).

When asked to what percentage of patients the physicians recommended each activity, the results demonstrated a wide range between activities: walking \( (75\%) \), aerobic sports \( (60\%) \), strength training \( (51\%) \), cycling \( (44\%) \), swimming \( (36\%) \), yoga \( (27\%) \), team sports \( (19\%) \) and dancing \( (13\%) \). Correlations were determined to better understand whether physician familiarity was associated with recommendations: walking \( (r = 0.21) \), aerobic sports \( (r = 0.32) \), strength training \( (r = 0.37) \), cycling \( (r = 0.31) \), swimming \( (r = 0.19) \), yoga \( (r = 0.40) \), team sports \( (r = 0.28) \) and dancing \( (r = 0.27) \). Although modest, all correlations were positive and statistically significant \( (p < 0.05) \).

Among factors that might inhibit physicians from counseling patients about exercise \( (1 = \text{does not inhibit}; 10 = \text{completely inhibits}) \), lack of time was seen as the most potent barrier \( (6.0 \pm 2.7) \), followed by lack of incentives \( (4.3 \pm 3.0) \), lack of patient compliance \( (4.3 \pm 2.0) \), lack of tools and/or materials \( (3.4 \pm 2.3) \) and lack of knowledge and/or skill \( (2.4 \pm 1.9) \). The only statistical difference among primary care physicians and specialists was lack of time, which primary care physicians cited as more of a barrier \( (6.3 \pm 2.6) \) than specialists \( (5.6 \pm 2.6; p = 0.015) \).

4. Discussion

This study provides a perspective on the practice patterns and recommendations by sports medicine physicians to their patients regarding physical activity. This data is unique in that it specifically examines physicians already interested in physical activity and exercise. The results of this study add to the literature\^12,17–22 suggesting that, although many physicians may talk with their patients about physical activity, the majority of physicians still do not provide specific guidance or written prescription. This could be a result of several factors: limited education, lack of standardized and highly regarded informative material, as well as inhibitors such as lack of time. This study confirms prior reports that physicians tend to recommend activities that are familiar to them\^18,\^20 and adds that walking, aerobic activity, strength training and cycling are the most recommended activities to patients. Physicians counsel more when they themselves are physically active\^18,\^19 and, based on our results, recommend activities with which they have experience, as a result, counseling their patients based upon subjective rankings of “appropriateness”. As such, it is critical that physicians themselves participate in regular physical activity, potentially with increased benefit by partaking in a variety of exercise modalities.

In an effort to understand the attitudes and recommendation practices of physicians with an established interest in sports medicine and physical activity, this study demonstrates a greater frequency of counseling than prior reports of primary care physicians not specifically connected to the field of sports medicine.\^12 In addition, this targeted group of physicians reports almost a
doubling of practitioners that provide a written exercise prescription from 14% in 1999 to 26%. This difference could be attributed to the interest in physical activity by the physicians sampled, as these physicians are most likely already advocates of physical activity promotion. Yet still, only a small percentage provided written guidance to their patients about physical activity and only half included physical activity assessment as a vital sign, a major target defined by the U.S. Physical Activity Plan.10

With regard to resources and tools utilized by physicians, there was very little consistency with regard to information source or guidelines. This is notable in that although our physicians subjectively indicated a high level of knowledge about physical activity, and many were also members of ACSM, the spectrum of responses suggests a lack of awareness about available resources and tools. It is possible that many physicians are not adequately prepared during their early training with sufficient knowledge regarding physical activity promotion. Indeed, the lack of formal instruction and limited training in medical school and residency surrounding physical activity has been noted with alarm recently.14,15

In order to understand barriers to discussing physical activity with patients, five factors purported to impact physicians’ likelihood of counseling patients were assessed. Lack of time was the most cited barrier, followed by lack of incentives and patient compliance. Both lack of time and no reimbursement have been implicated as barriers to physician counseling on exercise by primary care physicians for more than a decade.18,22 Interestingly, the only inhibitor that was significantly different between primary care physicians and specialists was time. It is possible that specialists may have more dedicated time with patients to include exercise in their counseling. Based upon these results, it may actually be prudent to include exercise counseling in specialist practice, as they appear to have fewer barriers (i.e. more time) to counseling than primary care physicians. Indeed, recent calls for sports medicine physicians to lead the effort in promoting physical activity among patients23 have been made.

A limitation of this survey was that it was unable to determine the effectiveness of physicians exercise counseling. This is primarily because questions were targeted to understand physician behavior, not patient outcomes. While literature suggests physician interventions can be impactful,7,24,25 existing evidence indicates that the health benefit of initiating behavioral counseling in the primary care setting to promote physical activity is limited. The US Preventive Services Task Force has noted that consistent measurement and reporting of behavioral and risk factor outcomes would improve the evidence base for behavioral counseling recommendations.26

As such, an important next step would be to further track patient behavior change and clinical outcomes to understand the effectiveness of physician counseling behavior on physical activity. Early reports of inclusion of an exercise vital sign in clinical practice appear to be promising1 and further investigation should be pursued. Moreover, as physicians were classified as primary care or specialty care, further investigation is required to elucidate the specific practices of each specialty. Other limitations included a small response rate to our survey and use of non-validated survey tools, which may constrain the strength of the conclusions given that those physicians most concerned about the topics of exercise and physical activity may have been more likely to respond.

5. Conclusion

The results of this study lend evidence to the attitudes and practices of physicians interested in physical activity and sports medicine with regard to physical activity counseling. We found that physicians with an expressed interest in physical activity discussed these topics more often than their colleagues with no ties to sports medicine, but are still inhibited by barriers such as lack of time. Moreover, they may be limited by a lack of education and well known clinical tools. Further research is needed to examine the effectiveness of physician recommendations and prescriptions of exercise and physical activity on patient behavior and clinical outcomes. Based upon current practices highlighted in the results of this study, it is recommended that sports medicine providers, and the discipline of sports medicine as a whole, take a lead in developing best practices around physical activity assessment and promotion.

Practical implications

• Physicians with an expressed interest in physical activity and sports medicine discuss physical activity with their patients more often than prior reports of general practitioners.
• A small percentage of physicians interested in physical activity actually prescribe exercise to their patients.
• The main barriers to implementing physical activity counseling were time, and possibly lack of education and well known clinical tools.

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