

Prescribing Physical Activity in Parks and Nature: Health Care Provider Insights on Park Prescription Programs

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Background: Health care providers (HCPs) promoting physical activity (PA) through programs such as Park Prescriptions (ParkRx) are gaining momentum. However, it is difficult to realize provider PA practices and program interest, and differences in program success exist by provider type (eg, primary vs secondary). This study explored HCPs' (1) PA counseling practices, (2) knowledge/interest in ParkRx, (3) barriers and resources needed to implement PA counseling and ParkRx programs, and (4) differences in primary versus secondary HCPs. **Methods:** An e-survey administered in Spring/Summer 2018 to HCPs in 3 states examined study objectives. **Results:** Respondents ($n = 278$) were mostly primary (58.3%) HCPs. The majority asked about patient PA habits and offered PA counseling (mean = 5.0, SD = 1.5; mean = 4.8, SD = 1.5), but few provided written prescriptions (mean = 2.5, SD = 1.6). Providers were satisfied with their PA counseling knowledge (mean = 3.8, SD = 1.0) but not with prescribing practices (mean = 3.2, SD = 1.1). Secondary HCPs placed higher importance ($P = .012$) and provided significantly more written PA prescriptions ($P = .005$). Time was a common barrier to prescribing PA (mean = 3.4, SD = 1.2), though more so for primary HCPs ($P = .000$). Although few HCPs knew about ParkRx programs, 81.6% expressed interest. Access to park information and community partnerships was an important resource for program implementation. **Conclusions:** HCPs underutilize PA prescriptions. Despite little awareness, HCPs were interested in ParkRx programs.

Keywords: counseling, exercise, green space, physicians

Obesity and chronic diseases are the leading causes of mortality and morbidity in the United States. Over 93 million US adults (39.8%) are obese and 6 in 10 suffer from a chronic disease such as heart disease, diabetes, or cancer.^{1,2} The complex etiology and prevention of obesity and chronic diseases are aided by transdisciplinary approaches that respect the complex factors that influence chronic diseases and their underlying behaviors.³ Physical activity (PA), in particular, offers a wide variety of physical, mental, and social health benefits and is an extensively recognized modifiable behavior that can treat and/or prevent chronic disease and improve quality of life.^{4,5} Despite the substantial evidence between PA and improved health outcomes, PA rates remain staggeringly low. In 2017, only 54% of adults met the minimum aerobic PA guidelines, while almost 26% engaged in no leisure-time PA. Consequently, development and testing of innovative, evidence-based PA interventions for obesity and chronic disease are warranted.

Recent PA promotional movements seek to highlight the connection between PA and chronic disease prevention.⁶ For example, Exercise Is Medicine, a global health initiative through the American College of Sports Medicine, encourages health care providers (HCPs) to include PA when developing chronic disease treatment plans.⁷⁻⁹ One pioneering PA intervention through the health care system, Park Prescriptions (ParkRx), encourages HCPs to prescribe visits to local parks to improve physical and mental health among patients and their families.^{10,11} Recently partnered with Exercise Is Medicine and supported by the Centers for Disease Control and Prevention and the National Recreation and Park Association, ParkRx programs give HCPs a set of tools to inspire

patients to take proactive steps to improve their health by visiting and being active in parks and public greenspace.¹⁰

Parks, in particular, serve as ideal community PA settings given their ubiquity and opportunities for both structured and unstructured PA. Parks and greenspace are effective low-cost community resources for promoting PA and reducing morbidity and mortality.^{12,13} Indeed, previous research supports the notion that time spent outdoors is associated with higher levels of PA.^{14,15} Those who have greater access to parks are more likely to meet PA guidelines^{16,17} and have lower incidence of chronic disease.¹⁸

As highlighted in a conceptual model by Bedimo-Rung et al,¹⁹ parks offer numerous physical, psychological, and social health benefits.¹⁹⁻²⁴ A growing amount of research has shown that visiting and being active in parks and greenspace can have a positive influence on physiological markers of health, such as blood pressure, cortisol levels, HDL cholesterol, and heart rate variability.^{22,25,26} For example, compared with nongreen urban environments, significantly lower systolic and diastolic blood pressure and greater heart rate variability were observed following viewing and walking in forest environments.²⁷⁻²⁹ Parks also provide places where people can meet and develop social ties and can promote a sense of community by increasing collective efficacy, social integration, and emotional attachment to a neighborhood.³⁰⁻³³ Likewise, although PA promotes health whether people engage in it indoors or outdoors, a number of studies connect "green exercise" outdoors in nature with greater feelings of enjoyment, satisfaction, energy, vitality, restoration, and self-esteem.^{12,34} Independent of levels of PA and social interaction, exposure to nature in and of itself has shown to be beneficial to health. For example, living close to and visiting parks can facilitate greater psychological health by reducing mental fatigue and stress, improving one's mood, and enhancing one's sense of wellness and quality of life.³⁵⁻³⁹ One recent study showed that spending at least 2 hours per week in

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nature was significantly associated with good health and well-being.⁴⁰ Despite their benefits, parks are often underutilized and efforts could be made to better capitalize on these settings to promote active use for targeted health benefits.⁴¹ Given the ubiquity of parks and recreation facilities across the nation, park-based PA represents an accessible and scalable approach for the treatment and prevention of chronic disease.^{19,42–44} Not surprisingly, ParkRx interventions are gaining national attention^{45,46} and multiple randomized control trials are currently in progress.^{47–49}

Despite the clinical and cost effectiveness of prescribing PA for chronic disease prevention, patient counseling on PA remains underutilized.^{50,51} For example, one study found that PA counseling occurred in <30% of patient visits.⁵² Another study found that even when PA counseling was offered, the mean time spent counseling was less than a minute.⁵³ While numerous studies indicate the efficacy of PA behavioral counseling interventions by HCPs,^{54–56} only one study has specifically evaluated PA counseling practices or ParkRx implementation considerations from the perspective of children's HCPs,⁵⁷ and no studies have been conducted with adults' HCPs. Significant challenges have been identified for HCP promotion of PA in clinical settings such as lack of education and training, lack of knowledge of PA guidelines, and lack of awareness of referral options.⁵⁸ Previous studies also describe barriers such as time constraints for PA counseling,^{57,59} and several past studies posit that HCPs' characteristics at individual^{6,60} (eg, practitioner type, role modeling behavior) and organizational levels^{59,61} (eg, sociopolitical culture, resources, program support) can influence PA counseling practices. For example, studies show differences in barriers based on the type of HCP. Secondary providers such as those in allied health (eg, therapists, dietitians, chiropractors) may spend more time with patients and develop a different relationship than primary HCPs, such as physicians or nurse practitioners, thus impacting the success of PA counseling programs.⁶² Indeed, one review found that allied HCPs saw greater long-term PA behavior change success as a result of PA counseling compared with physician only interventions.⁶² A meta-analysis of physiotherapist-led PA interventions found the odds of meeting PA guidelines doubled and suggested that allied (ie, secondary) HCPs have the knowledge and skill, and are well placed to deliver PA interventions.⁶³ To the authors' knowledge, no studies have explored HCP characteristics or differences such as type of HCP with respect to ParkRx programs. Therefore, the objectives of the current study are to assess HCPs' (1) PA counseling practices, (2) knowledge of and interest in ParkRx programs, (3) barriers to and resources needed to implement PA counseling and ParkRx programs, and (4) differences among HCPs (ie, primary vs allied/secondary providers) for PA counseling and ParkRx programs. Accomplishing the aims of this study will help us better understand how to leverage clinical and community resources for development, implementation, and evaluation of successful ParkRx programs at the local level.

Methods

Study Design and Participants

This cross-sectional study took place in Spring and Summer 2018 in Kansas, Missouri, and North Carolina. Participants had to be a HCP currently practicing in the study area with the ability to read and write in English. As we wished to gather information from a wide variety of providers who may be interested in promoting PA, we defined HCPs as any type of HCP or administrator who may

have the opportunity to discuss health behaviors with patients/clients or could have influence over PA counseling practices. This list included but was not limited to physicians, physician assistants, nurses, nurse practitioners, physical/occupational therapists, chiropractors, psychiatrists/psychologists, health education specialists, dietitians, or exercise physiologists. Participants were recruited via flyers, e-mails, community–health care partnerships, and snowball sampling techniques. Research assistants compiled a list of local and regional HCPs. Over 150 e-mails detailing the study purpose and link to the survey were sent to publicly available contact information. Additionally, flyers were distributed in-person to local HCPs' place of practice (eg, doctors' offices, chiropractic clinics, hospitals, behavioral health facilities) whenever possible. The research team also utilized community–health partnerships by reaching out to colleagues across the 3 states in a variety of settings (eg, academia, health care systems, health departments, advisory boards, professional organizations) and asked that they e-mail survey information to colleagues and listservs. E-mails asked recipients to aid snowball sampling by forwarding the e-mail on to others. As an incentive, participants who completed the questionnaire were entered into a drawing for one of several \$100 Amazon gift cards. The Kansas State University and Appalachian State University Institutional Review Boards approved all study procedures.

Data Collection

Based on previously validated HCP survey items described further below, we developed a brief (<10 min) online questionnaire using Qualtrics (Qualtrics, Provo, UT; [Supplementary Material](#) [available online]). Survey questions sought to collect information regarding HCPs' current PA counseling practices, knowledge of and interest in ParkRx programs, and barriers to and resources needed for the successful development of a ParkRx program. A small sample of PA researchers and HCPs reviewed the questionnaire for face validity and logistical concerns (eg, confusing questions, technical difficulties with skip logics) before distributing the questionnaire. We provided participants with a short link and a quick response (QR) code via e-mail and flyers to access the survey. Participants could click the link, scan the code, or enter the link into any electronic device to be directed to a research lab homepage where the questionnaire could be accessed. Study objectives and informed consent information were presented as the first question, and all participants voluntarily agreed in order to continue with the questionnaire. After the initial survey e-mail was delivered, 2 follow-up reminder e-mails were sent 1 week apart for those who had not yet completed the survey.

Measures

We adapted survey questions from selected previous HCP questionnaires related to PA counseling practices and barriers and resources needed to prescribe PA. We also created and/or adapted survey questions specific to ParkRx programs based on previous PA counseling interventions.^{64–67}

PA Counseling Practices. To assess current PA prescribing practices, we asked “In a routine patient check-up, how often do you do the following: ask questions regarding their PA level, perform fitness assessments, refer to other health professionals for fitness assessments, provide verbal PA counseling, and provide written PA counseling.” Each response was on a 6-point Likert scale (1 is “none” and 6 is “most or all”). We also asked providers to indicate reasons they counsel patients on PA (eg, weight

maintenance, diabetes, psychological benefit) by checking all that apply. To assess importance HCPs placed on PA counseling, we asked if providers believed it was important to educate patients on the benefits of PA/risks of physical inactivity as well as if providers believed it was important to provide PA prescriptions. Responses to both questions were on 7-point Likert scale (1 is “strongly disagree” and 7 is “strongly agree”). Participants indicated their satisfaction with their PA counseling knowledge, prescribing practices, and if they believe patients follow provider PA recommendations using a 5-point Likert scale (1 is “strongly disagree” and 5 is “strongly agree”). Participants indicated importance of PA prescription elements (eg, frequency, intensity, mode, duration) on a 5-point Likert scale (1 is “very unimportant” and 5 is “very important”).

Knowledge and Interest in ParkRx Programs. Providers read a short description of ParkRx programs and then answered questions regarding their previous knowledge of ParkRx, interest in having access to a local ParkRx program, and opinion on important resources for successful program implementation. Participants indicated on 5-point Likert scale (1 is “strongly disagree” and 5 is “strongly agree”) their familiarity with ParkRx programs, desire to have a program developed in their area, desire to have their organization participate in a ParkRx program, willingness to prescribe park-based PA to patients, and interest in participating in a study about the effectiveness of ParkRx programs. Providers indicated the importance of resources for implementing a ParkRx program on a 5-point Likert scale (1 is “very unimportant” and 5 is “very important”); eg, continuing education about park-based PA counseling, patient brochures/handouts with PA information).

Barriers and Resources for PA Counseling and ParkRx Programs. Health care providers indicated frequency of barriers for promoting PA on 5-point Likert scales (1 is “never” and 5 is “very often”) including: lack of time, lack of counseling knowledge, lack of insurance reimbursement, lack of interest in promoting PA, lack of patients’ knowledge on how to conduct PA, lack of patients’ willingness to conduct PA, concern for patient safety during PA, feeling it would be beneficial for the patient, and lack of standard office instrument. Following these questions, we asked providers to indicate which resources would help improve PA counseling (eg, continuing education, patient brochures/handouts, dedicated personnel, or database of available resources in community) by checking all that apply. HCPs indicated the importance of a variety of resources for implementing a successful ParkRx program (eg, evidence of the benefits of park-based PA, access to park information, patient portal with PA resources) on a 5-point Likert scale (1 is “very unimportant” and 5 is “very important”).

Demographic Characteristics. Health care providers also indicated their current role, specialty, number of years practicing, and current practice type. HCP also provided average age of patients, the percentage of patients that are outpatients, and percent overweight/obese.

Analysis

Descriptive statistics (frequencies, means, and SD) were used to describe survey respondents and explore HCPs’ (1) PA counseling practices, (2) knowledge of and interest in ParkRx programs, and (3) resources needed to implement ParkRx programs. For certain percentages, the upper 2 categories of each Likert scale were combined (eg, agree/strongly agree, important/very important) to

aid understanding of frequency distribution of respondents. The *t* tests were used to explore differences among HCPs types for PA counseling and ParkRx programs. In particular, we designated primary HCPs as those who see patients initially (ie, physicians, physician assistant, nurse practitioner, and nurses) and secondary or allied HCPs as all other respondents. All analyses were conducted in IBM SPSS (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, version 25; IBM Corp, Armonk, NY).

Results

Respondents (*n* = 278) were mostly primary HCPs (58.3%), such as physicians (22.2%) or nurses (19.6%), who have practiced for more than 10 years (59.2%) and are currently working in group practice (32.3%) or Veterans Affairs or government settings (24.1%; Table 1). HCPs’ patients were mostly teenagers (32.1%) or early adults (33.0%) with almost half (49.1%) of providers indicating that a lot were overweight or obese.

Table 2 shows results for current HCPs’ PA counseling practices. The majority of providers ask about patient PA habits (75.0%) and offer verbal PA counseling (67.0%) in a lot/all of patient check-ups (mean = 5.0, SD = 1.5; mean = 4.6, SD = 1.5), but very few (10.8%) provide written PA prescriptions during visits (mean = 2.5, SD = 1.6). Providers (92.7%) indicated it is important/very important to educate patients on the benefits of PA (mean = 6.6, SD = 0.9), listing general health (55.9%) and obesity prevention/treatment (51.7%) as reasons. The majority of providers (67.0%) somewhat/strongly agreed they were satisfied with their PA counseling knowledge (mean = 3.8, SD = 1.0) but less (37.6%) were satisfied with PA prescribing practices (mean = 3.2, SD = 1.1).

Results for HCPs’ knowledge and interest in ParkRx programs are shown in Table 3. Few providers agreed/strongly agreed (13.9%) they knew about ParkRx programs (mean = 1.9, SD = 1.2), but 81.6% expressed interest in program development and 80.7% expressed willingness to prescribe park-based PA (mean = 4.1, SD = 0.9; mean = 4.1, SD = 0.8). Access to park information (mean = 4.5, SD = 0.6) and partnerships with park and recreation agencies (mean = 4.4, SD = 0.7) were important resources for ParkRx program implementation.

Tables 4 and 5 show barriers and resources for PA counseling and ParkRx programs. Lack of willingness of patients to conduct PA (mean = 3.4, SD = 1.1) and lack of HCP time to discuss PA (mean = 3.4, SD = 1.2) were primary barriers. The majority of HCPs indicated that a database of community resources (62.5%) and a structured PA program to prescribe and refer patients (56.0%) were important resources.

Our final research question explored differences between primary and secondary HCPs. Results are displayed in Tables 2–5 with significant findings indicated in bold. Secondary providers placed higher importance on and provided significantly more written PA prescriptions than primary providers, $t(222) = -2.53, P < .05$; $t(90) = -2.85, P < .01$. Secondary providers also indicated greater satisfaction with their PA counseling knowledge and prescribing practices, $t(221) = -3.53, P < .001$; $t(221) = -2.74, P < .01$. Secondary HCPs placed greater importance on certain elements of PA prescriptions including frequency, $t(212) = -2.78, P < .01$, safety, $t(219) = -2.14, P < .05$, adherence/maintenance, $t(219) = -2.67, P < .01$, and social/emotional support, $t(219) = -2.18, P < .05$. Secondary providers were more familiar with ParkRx programs than primary providers, $t(145) = -2.28, P < .05$, and while lack of time was a common barrier to prescribing PA, it was more of an issue for primary than secondary HCPs, $t(217) = 3.62, P < .001$.

Table 1 Health Care Provider Demographic Characteristics

Provider type	n (%)	Provider experience	n (%)	Patient age group	n (%)
Primary	131 (58.3)	<10 y practicing	91 (40.7)	0–11 y	40 (18.1)
Physician	50 (22.2)	<1 y	11 (4.9)	12–18 y	22 (10.0)
Nurse	44 (19.6)	1–5 y	36 (16.1)	19–39 y	71 (32.1)
Nurse practitioner	24 (10.7)	6–10 y	44 (19.7)	40–65 y	73 (33.0)
Physician assistant	13 (5.8)	>10 y practicing	132 (59.2)	66+ y	15 (6.8)
Secondary	94 (41.7)	11–15 y	36 (16.1)	Patients overweight or obese	
Dietitian	20 (8.9)	16–20 y	22 (9.9)	None	1 (0.5)
Administrator	17 (7.6)	>20 y	74 (33.2)	Very few	6 (2.8)
Other (eg, clinical researcher)	16 (7.1)	Practice type		Some	31 (14.2)
Health educator	13 (5.8)	Group practice	71 (32.3)	About half	47 (21.6)
Psychiatrist/psychologist	9 (4.0)	Veterans affairs/government	53 (24.1)	A lot	107 (49.1)
Chiropractor	7 (3.1)	Hospital employee	50 (22.7)	Most or all	26 (11.9)
Fitness professional	3 (1.3)	Solo practice	14 (6.4)	Patients receiving Medicare	
Physical therapist	4 (1.8)	Independent/consultant	9 (4.1)	None	54 (24.8)
Occupational therapist	2 (0.9)	Health Maintenance Organization (HMO) employee	2 (0.9)	Very few	44 (20.2)
Dentist	1 (0.4)			Some	50 (22.9)
Massage therapist	1 (0.4)			About half	19 (8.7)
Pharmacist	1 (0.4)			A lot	39 (17.9)
				Most or all	12 (5.5)

Discussion

The objectives of the current study were to assess the current PA counseling practices, knowledge and interest in ParkRx programs of HCPs, and the resources needed to implement a ParkRx program. The results indicate that while most HCPs ask their patients about PA and provide PA counseling, few write a prescription for PA. Other research supports the finding of the current study that most HCPs talk with their patients about the importance of PA, but do not give PA prescriptions.⁶⁸ HCPs indicated only moderate satisfaction with their PA counseling practices. Yet, most HCPs in the current study felt that it is important to educate patients about the benefits of PA and felt that they have the knowledge to talk about PA with patients. This is contrary to other studies that suggest that HCPs lack knowledge on what to say to patients or where to refer them⁶⁹ and that there is room for improvement with regard to HCP PA counseling education and training.^{70,71} While this level of acceptance of the importance of PA and related health benefits for patients among HCPs is encouraging, the lack of writing prescriptions for PA may underscore a certain degree of skepticism from providers around PA acting as medicine. The concept of HCPs writing nonmedical prescriptions or “social prescriptions” is not new as providers have been writing prescriptions for food, reading to children, and even PA for several decades.^{10,72–74} Previous research has shown that prescriptions and counseling for PA that are individualized to patients can lead to behavior change and improved fitness,^{64,75,76} so it is important to understand why more HCPs are not prescribing PA.

The most commonly stated reason in the current study for not prescribing PA was lack of time, which is supported by previous research.^{57,59,77} HCPs, especially primary HCPs (eg, physicians, nurse practitioners), have limited time with patients in which to handle any immediate health issues and answer patient questions.⁷⁸ Only afterward can PA prescription and/or counseling take place.

One culprit is lack of health insurance reimbursement for PA counseling potentially contributing to lack of HCP prioritization of PA promotion within patient visits.⁷⁸ On the flip side, similar to past research, lack of patient willingness to conduct PA is another challenge to overcome.⁷⁵

In terms of both PA counseling and ParkRx programming, secondary (eg, allied) HCPs may be a valuable and largely untapped resource.^{79,80} The current study found that secondary HCPs are more familiar with ParkRx programs and may place more importance on prescribing PA and write more prescriptions for PA than physicians. Previous research indicates that secondary HCPs had greater success facilitating long-term PA behavior change in patients.⁶² This may be due to a combination of less time constraint as well as greater PA prescription education, particularly among allied professionals such as physical or occupational therapists or cardiac rehabilitation specialists.⁸¹ This potentially places them in an ideal position to prescribe PA and participate in ParkRx programs.

Few HCPs who completed our questionnaire currently prescribe parks to patients or were aware of ParkRx programs or the concept of prescribing parks for PA, although secondary HCPs were more familiar with ParkRx than primary HCPs. However, a majority of HCPs expressed interest in ParkRx programming and indicated several resources that would be important for implementation including access to park information and partnerships with park and recreation agencies. To our knowledge, this is the first study to gauge interest in ParkRx among a diverse pool of HCPs. A study of qualitative interviews with children’s HCPs found that providers were aware of the added health benefits of PA in the outdoors and the supporting empirical evidence.⁵⁷ Therefore, it would be advantageous to promote the ParkRx concept among HCPs, and especially secondary HCPs, to facilitate conversations with patients about outdoor PA for improved patient health.

Table 2 Health Care Provider Physical Activity Counseling Practices

Counseling practice	n	Mean (SD)	Primary vs secondary HCP		
			t	df	CI
Physical activity prescribing habits in routine patient visits					
Ask questions regarding their physical activity habits	189	5.0 (1.5)	-.63	171	-0.6 to 0.3
Provide written physical activity prescriptions	189	2.5 (1.6)	-2.85**	90	-1.3 to -0.2
Provide verbal physical activity counseling	188	4.6 (1.5)	.46	170	-0.4 to 0.6
Refer to other health professionals for physical activity counseling	188	2.5 (1.5)	-.76	170	-0.6 to 0.3
Perform fitness assessments	188	2.0 (1.5)	-1.28	87	-0.9 to 0.2
Refer to other health professionals for fitness assessments	188	2.1 (1.3)	-1.347	94	-0.8 to 0.1
	n	%			
Reasons for physical activity counseling					
General health maintenance	146	55.9	—	—	—
Obesity prevention/treatment	135	51.7	—	—	—
Weight maintenance	135	51.7	—	—	—
Diabetes prevention/treatment	119	45.6	—	—	—
Cardiovascular disease prevention/treatment	114	43.7	—	—	—
Mental health benefits	112	42.9	—	—	—
Psychological benefit	97	37.2	—	—	—
Injury prevention/treatment	70	26.8	—	—	—
Arthritis prevention/treatment	62	23.8	—	—	—
Social interaction	53	20.3	—	—	—
Osteoporosis prevention/treatment	52	19.9	—	—	—
Physical appearance	38	14.6	—	—	—
Asthma prevention/treatment	37	14.2	—	—	—
Cancer prevention/treatment	24	9.2	—	—	—
Other (eg, gestational benefits)	17	6.5	—	—	—
	n	Mean (SD)			
Importance of physical activity counseling					
It is important to educate patients on the benefits of physical activity and/or risks of inactivity	257	6.6 (0.9)	.45	222	-0.2 to 0.2
It is important to provide physical activity prescriptions	257	5.4 (1.4)	-2.53*	222	-0.8 to -0.1
I am satisfied with my physical activity counseling knowledge	252	3.8 (1.0)	-3.53***	221	-0.7 to -0.2
I am satisfied with my physical activity prescribing practices	252	3.2 (1.1)	-2.74**	221	-0.7 to -0.1
I believe patients follow physical activity recommendations	252	2.7 (1.0)	.17	221	-0.2 to 0.3
	n	Mean (SD)			
Important elements of physical activity prescriptions					
Frequency	244	4.6 (0.6)	-2.78**	212	-0.4 to -0.1
Duration	243	4.4 (0.6)	-.24	218	-0.2 to 0.2
Safety	244	4.4 (0.7)	-2.14*	219	-0.4 to 0.0
Adherence/maintenance	244	4.4 (0.7)	-2.67**	219	-0.4 to -0.1
Intensity	244	4.2 (0.7)	-1.05	219	-0.3 to 0.1
Social/emotional support	244	4.2 (0.8)	-2.18*	219	-0.4 to 0.0
Mode	245	4.0 (0.8)	-1.86	117	-0.4 to 0.0
Other (eg, personalization, self-efficacy)	133	3.6 (1.0)	-2.08*	122	-0.8 to 0.0
Location of activity	244	3.4 (1.1)	-1.59	219	-0.5 to 0.1

Note: CI, confidence interval; HCP, health care provider.

CI values correspond to *t* values. Bolded values are significant. **P* < .05. ***P* < .01. ****P* < .001.

Implications

Though there has been a growing call to place PA as a vital sign (much like blood pressure, pulse rate, respiration rate, and temperature),^{82–84} most medical training curriculums continue to exclude

PA counseling.^{70,85} It will be important for both new medical professionals to receive PA counseling training during their medical education as well as for existing medical professionals to receive training on current PA counseling programs such as ParkRx through continuing education.

Table 3 Knowledge of and Interest in Park Prescriptions

Knowledge and interest	n	Mean (SD)	Primary vs secondary HCP		
			t	df	CI
I am familiar with park prescriptions	226	1.9 (1.2)	-2.28*	145.1	-0.7 to -0.1
I would like to have park prescriptions developed in my area	226	4.1 (0.9)	-.34	161.2	-0.3 to 0.2
I would like my organization to participate in park prescriptions	226	3.9 (0.9)	-.05	163.8	-0.3 to 0.3
I would prescribe park-based physical activity to patients	226	4.1 (0.8)	-.42	221	-0.3 to 0.2
I am interested in participating in a study about park prescriptions	226	3.7 (1.1)	-1.61	221	-0.5 to 0.1

Note: CI, confidence interval; HCP, health care provider.

CI values correspond to *t* values. Bolded values are significant. **P* < .05.

Table 4 Barriers and Resources for Physical Activity Counseling

Barrier or resource	n	Mean (SD)	Primary vs secondary HCP		
			t	df	CI
Barriers					
Lack of patients' willingness to conduct physical activity	226	3.4 (1.1)	1.97	217	0 to 0.6
Lack of time to discuss with patients	226	3.4 (1.2)	3.62***	217	0.3 to 0.9
Lack of standard office instrument	221	2.4 (0.3)	1.50	212	-0.1 to 0.6
Lack of patients' knowledge/skills on how to conduct physical activity	226	2.8 (1.0)	1.27	163.6	-0.1 to 0.5
Concern for patient safety during physical activity	226	2.7 (1.0)	-.08	217	-0.3 to 0.3
Lack of counseling knowledge	226	2.6 (1.1)	1.55	217	-0.1 to 0.5
Lack of insurance reimbursement for promoting physical activity	225	2.4 (1.4)	1.41	216	-0.1 to 0.6
Other	107	2.3 (1.3)	-.92	102	-0.8 to 0.38
Lack of interest in promoting physical activity	226	1.9 (1.1)	1.13	217	-0.1 to 0.5
Feeling it would not benefit patient	226	1.8 (1.0)	.32	217	-0.2 to 0.3
	n	%			
Resources					
Database of available resources in the community	172	62.5	—	—	—
Structured physical activity program for prescribing/referring patients	154	56.0	—	—	—
Patient brochures with physical activity info	152	55.3	—	—	—
Continuing education about physical activity counseling	140	50.9	—	—	—
Personnel dedicated to leading patients in physical activity programs	118	42.9	—	—	—
Other (eg, affordable and available resources)	19	6.9	—	—	—

Note: CI, confidence interval; HCP, health care provider.

CI values correspond to *t* values. Bolded values are significant. ****P* < .001.

Successful efforts to improve PA counseling should support both primary and secondary HCPs with resources to facilitate conversations with patients. Specifically, a majority of HCPs in the current study stated that a database of community resources and places for PA would be beneficial. This is in line with past calls to better integrate technology into PA counseling practices through electronic health records and mobile applications.^{84,86} Several examples of such include ParkRx (www.parkrx.org) and Park Rx America (www.parkrxamerica.org) websites which seek to provide HCPs with online tools for prescribing outdoor PA to use when talking to patients. Additionally, the electronic Community Park Audit Tool (eCPAT; ENQ, Columbia, SC) System supported by the National Institutes of Health, Robert Wood Johnson Foundation, and National Recreation and Park Association provides a comprehensive, yet user-friendly set of technologies for collecting, sharing, managing, and promoting community

park resource information that may prove useful for accessing park information near patients' homes when prescribing park-based PA.^{87,88} Another resource mentioned by HCPs in the current study is to have a partnership with the local parks and recreation department. Establishing partnerships between HCPs and parks and recreation is crucial to sustained ParkRx programming as this has potential to alleviate the time constraints that HCPs have with patients. Several studies have indicated that park and recreation departments are interested in building these partnerships, though smaller departments may need assistance approaching organizations in the health sector to establish communication.⁸⁹⁻⁹¹ Furthermore, such partnerships can provide patients a place to go to "fill" their prescription, which has been identified as a barrier to ParkRx programs in the past.⁹² Finally, handouts and brochures consistently prove vital patient education resources, particularly when HCPs have concerns about time.⁶⁹

Table 5 Resources Needed to Implement Park Prescriptions

Important park prescription resources	n	Mean (SD)	Primary vs secondary HCP		
			t	df	CI
Evidence of the benefits of park-based physical activity	223	5.2 (0.9)	-.25	221	-0.2 to 0.2
Survey results showing patient interest in park-based physical activity	223	4.1 (0.8)	-.24	221	-0.2 to 0.2
Continuing education about park-based physical activity counseling	223	4.0 (0.9)	.30	221	-0.2 to 0.3
Patient brochures with physical activity info	223	4.3 (0.8)	.13	221	-0.2 to 0.2
Access to park info	223	4.5 (0.6)	.46	155.2	-0.1 to 0.2
Structured physical activity referral system	223	4.1 (0.8)	.22	221	-0.2 to 0.3
Staff dedicated to the implementation of the physical activity program	223	4.2 (0.9)	.15	221	-0.2 to 0.3
Incorporation of physical activity program into patient electronic health records	222	3.9 (0.9)	1.26	220	-0.1 to 0.4
Patient portal with physical activity resources	223	4.1 (0.9)	.73	221	-0.1 to 0.3
Partnership with community parks and recreation agencies	223	4.4 (0.7)	.75	221	-0.1 to 0.3

Note: CI, confidence interval; HCP, health care provider.
CI values correspond to *t* values.

Strengths and Limitations

Strengths of this study included use of a brief online survey consisting of PA counseling measures previously utilized among HCP populations. Additionally, this study was the first of its kind to collect data regarding ParkRx programs among diverse HCPs and one of only a few studies to explore differences between primary versus secondary HCPs, especially with respect to PA counseling and ParkRx program implementation. This study was limited by its small sample of HCPs across 3 states, particularly for certain HCP types and potential bias among those who responded to the survey (ie, only those interested in PA counseling responded). Future research should seek to recruit a larger more diverse sample of HCPs. As well, future studies could explore differences across organizations (eg, public vs private entities) as well as PA counseling and programmatic barriers and resources across diverse settings (eg, urban vs rural).

Conclusions

Health care providers underutilize written PA prescriptions, and knowledge of community PA resources is limited. Despite little awareness, providers were interested in participating in ParkRx. ParkRx initiatives should seek to improve awareness in clinical settings. Secondary HCPs may be valuable, untapped facilitators. Establishing partnerships with park and recreation departments and access to community park information are important steps.

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