How should family physicians provide physical activity advice?

Qualitative study to inform the design of an e-health intervention

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Abstract

Objective To explore patient attitudes toward interacting with family physicians regarding physical activity in order to inform the development of an e-health intervention aimed at helping family physicians support patients in becoming more physically active.

Design Qualitative study.

Setting Women's College Hospital in Toronto, Ont.

Participants Ten patients recruited from the academic family practice health centre.

Methods Semistructured interviews were conducted with patients using maximum variation sampling until thematic saturation was reached. Interviews explored past experiences and preferences for receiving physical activity advice from family physicians, and tools or techniques that might support increasing physical activity. Interviews were audiorecorded, transcribed, and coded independently by members of the research team before undergoing thematic analysis.

Main findings Patient interviews revealed 4 overarching themes that offered insight to physical activity discussions. Family physicians might provide more meaningful and useful physical activity advice to patients by providing individualized recommendations focused on proximal (ie, near-term) health and functional goals; recognizing and addressing unique environmental and social factors influencing physical activity levels; balancing candour and sensitivity in advice provision while incorporating a broad definition of *physical activity;* and recommending tools that incorporate planning, goal-setting, and goal-monitoring features.

Conclusion Ultimately, physical activity recommendations from family physicians cannot make a difference if patients do not act on them. This study elicits input from patients to develop preliminary strategies that might help family physicians provide physical activity advice in a more patient-centred fashion. Further research is needed to test interventions that help implement these strategies and to assess their effect.

Editor's key points

- Family physicians face a dual challenge when discussing physical activity with patients: to offer evidence-based physical activity recommendations and resources, and to communicate this advice and offer coping plans in a way that accounts for each patient's context and resonates with each individual patient.
- The authors of this study suggest linking physical activity advice to patients' personal context and near-term goals to help make recommendations more meaningful and motivating.
- As trusted advisors in a longitudinal relationship with patients, family physicians are well positioned to regularly revisit the topic of physical activity, as this demonstrates it is a health priority and can help patients stay on track with activity goals.
- Although e-health tracking tools are increasing in popularity, this study found that the effects of these interventions might be optimized if they are linked to clinical advice and might be more readily adopted by patients if they are recommended by their family physician.

Points de repère du rédacteur

- Les médecins de famille sont confrontés à un double défi lorsqu'ils discutent de l'activité physique avec leurs patients : offrir des recommandations et des ressources fondées sur des données probantes, et communiquer ces conseils et des plans d'action d'une manière qui tient compte du contexte de chaque patient et qui le rejoint personnellement.
- Les auteurs de cette étude proposent d'établir des liens entre les conseils sur l'activité physique, le contexte personnel et les objectifs à court terme du patient pour rendre les recommandations plus significatives et motivantes.
- En tant que conseillers dignes de confiance dans le contexte d'une relation longitudinale avec les patients, les médecins de famille sont bien placés pour revisiter périodiquement le sujet de l'activité physique, cela démontrant qu'il s'agit d'une priorité pour la santé et aidant les patients à persévérer dans l'atteinte de leurs objectifs en matière d'activité.
- Les outils de suivi par cybersanté gagnent en popularité, mais cette étude a fait ressortir que les effets de ces interventions pourraient être optimisés s'ils étaient accompagnés de conseils cliniques, et que les patients y adhéreraient davantage si les recommandations venaient de leur médecin de famille.

Comment les médecins de famille devraient-ils donner des conseils sur l'activité physique?

Étude qualitative visant à guider la conception d'une intervention de cybersanté

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Résumé

Objectif Explorer les attitudes des patients à l'égard des interactions avec leurs médecins de famille concernant l'activité physique en vue d'orienter l'élaboration d'une intervention en cybersanté visant à aider les médecins de famille à appuyer leurs patients afin qu'ils deviennent plus actifs physiquement.

Type d'étude Étude qualitative.

Contexte Hôpital Women's College à Toronto (Ontario).

Participants Dix patients recrutés dans une clinique universitaire de pratique familiale.

Méthodes Des entrevues semi-structurées ont été effectuées avec les patients à partir d'une méthode d'échantillonnage à écart maximum jusqu'à l'atteinte d'une saturation thématique. Les entrevues portaient sur les expériences antérieures et les préférences relatives aux conseils sur l'activité physique donnés par les médecins de famille, de même que sur les outils ou les techniques susceptibles d'aider à augmenter l'activité physique. Les entrevues ont été enregistrées sur audio, transcrites et codées indépendamment par les membres de l'équipe de recherche avant qu'ils ne procèdent à une analyse thématique.

Principales constatations Les entrevues avec les patients ont fait ressortir 4 thèmes omniprésents qui ont donné un meilleur aperçu des discussions sur l'activité physique. Les médecins de famille pourraient donner à leurs patients des conseils plus significatifs et plus utiles sur l'activité physique en leur offrant des recommandations individualisées qui ciblent leurs objectifs proximaux (c.-à-d. à court terme) sur le plan de la santé et du fonctionnement; en reconnaissant les facteurs environnementaux et sociaux qui influent sur les degrés d'activité physique, et en les prenant en compte; en faisant un juste équilibre entre la franchise et la délicatesse dans la communication des conseils, tout en incorporant une définition large de *l'activité physique*; et en recommandant des outils qui intègrent des caractéristiques permettant la planification, l'établissement des objectifs et leur suivi.

Conclusion En définitive, les recommandations en matière d'activité physique venant des médecins de famille ne peuvent pas améliorer les choses si les patients n'y donnent pas suite. Cette étude fournit des commentaires de patients qui permettront d'élaborer des stratégies préliminaires pouvant aider les médecins de famille à donner des conseils sur l'activité physique de manière plus centrée sur le patient. D'autres travaux de recherche sont nécessaires pour mettre à l'essai des interventions susceptibles de faciliter la mise en œuvre de ces stratégies et d'en évaluer les effets.

Physical activity is an important aspect of preventive health care, and current guidelines recommend that adults aged 18 to 64 years accumulate a minimum of 150 minutes of moderate- to vigorous-intensity physical activity per week.[1] However, most Canadians do not meet these guidelines, and physical inactivity is an important public health issue both in Canada[2] and globally.[3] Guidelines also recommend routine provision of physical activity advice in primary care[4-7] to support patients in increasing their physical activity levels.[8-10] However, evidence indicates that most primary care providers do not regularly assess physical activity, prescribe exercise as a treatment, or use evidence-based techniques in their recommendations to patients regarding physical activity.[5,11-14] Reasons for this include lack of time,[15] lack of knowledge or training in physical activity counseling,[6,11,15,16] lack of past success in changing patient behaviour, and lack of protocols for prescribing physical activity.[15] While there is a large and growing body of evidence exploring primary care provider attitudes toward routine provision of physical activity advice,[6,15-17] research investigating patient perspectives on these topics is very limited. Existing patient experience studies related to physical activity discussions with primary care providers primarily use survey methods, which inherently limit the breadth and depth of participant responses.[18-24] Further, much of the existing research predates important innovations that might support patient behaviour change, including e-health interventions—technologies designed to conduct measurements, enhance communications, or deliver information to patients and health care providers.[25]

We set out to develop an e-health intervention that could be embedded into routine primary care visits that would enable providers to effectively support their patients in increasing physical activity levels as required. The general approach for the proposed intervention entailed gathering patient-reported data on current physical activity levels and barriers to and motivators for engaging in physical activity, and using those data to help providers offer tailored physical activity advice during primary care visits. We sought to explore patient receptivity to such a process, and to understand the circumstances and intervention details that would maximize engagement and effect. Recognizing that patient perspectives are critical to designing effective and engaging interventions to support behaviour change,[26-28] our first step was to conduct a qualitative study to explore patient attitudes toward interacting with their family physicians regarding physical activity.

Methods

Study design and setting

This qualitative study was informed by user-centred design principles[29] and aimed to support the development of an e-health intervention that could be embedded in primary care processes. The study was conducted with the academic family health team at Women's College Hospital in Toronto, Ont, a comprehensive primary care practice affiliated with the University of Toronto that has more than 70 000 patient visits per year. Ethics approval was obtained from the Women's College Hospital Research Ethics Board.

Participant recruitment and sampling strategy

Participants were recruited from within the practice with the assistance of 11 family physicians. Physicians were briefed on the purpose, design, and inclusion and exclusion criteria of the study, and then asked to identify and communicate names of potential participants to the research team. The research team mailed recruitment letters to these potential candidates outlining pertinent study details and inviting interested patients to contact the research team. Letters emphasized that family physicians would not be informed of patients' participation status and that study participation would have no effect on any aspect of their care. Participants were offered travel reimbursement and $20 cash as acknowledgment of their participation.

A purposive maximum variation sampling approach[30] was used to promote sample diversity in terms of age, ethnicity, education level, medical complexity (assessed using number of unique prescription medications listed in the patient's electronic medical record as a proxy), and current physical activity level (assessed using the Godin-Shephard Leisure-Time Physical Activity Questionnaire[31]) to explore iteratively the generalizability of our results.

Data collection

All interviews were conducted in person by a trained research assistant (E.N.A.) who followed a semistructured interview guide. All participants were informed of the purpose of the study and their role in informing the design and implementation of a physical activity intervention. Topics in the interview guide were informed by the multidisciplinary team and included participants' physical activity habits, past experiences receiving physical activity advice from physicians, suggestions for how family physicians should provide recommendations about physical activity, and preferred features of interventions to support increasing physical activity. Finally, perceptions on the proposed process for the intervention were explored. All interviews were audiorecorded, transcribed verbatim, and de-identified using a transcription service.

Data analysis

All interview transcripts were independently coded line by line by 2 members of the research team (L.R., N.B.) using the qualitative analysis software NVivo 11.[32] A directed content analysis approach[33] was employed

using both a priori codes based on topics from the interview guide and emerging codes. After the first several interviews were coded, the 2 coders met to review, define, and consolidate a preliminary coding book, which was shared at a meeting of the full research team. At this meeting, it was identified that the health action process approach (HAPA)[34] was highly congruent with the preliminary codebook. The HAPA describes key factors in the intention to pursue health behaviour such as physical activity, and the relationships between different types of self-efficacy and the shift from intention to action. Further, the HAPA has been previously shown to be an effective theoretical model for physical activity behaviour.[35,36] The overlap between these concepts and the emerging codes suggested the usefulness of incorporating HAPA concepts into the final coding guidebook. The coded data were reviewed for agreement to assess reliability of the coding scheme and consistency in code interpretation by the research team members. There was a high level of agreement (98.4%) and interrater reliability (κ=0.62) between the 2 coders, as calculated by the NVivo software. Finally, themes were identified by constant comparison of data within and across participant responses. Important themes were validated with most interviewees, who participated in later phases of the e-health intervention design. The team's focus during this process was on identifying insights on issues that would need to be addressed for a primary care–based e-health intervention to be effective. Thematic saturation was assessed by consensus among the research team.

Findings

Participant characteristics

Ten participants were interviewed between July and November 2016. Each interview lasted 45 to 60 minutes. The average age of participants was 57 years, and most patients were female, were white, and had high levels of educational attainment. With respect to physical activity, most participants were at least moderately active (**Table 1**).

Table 1. Participant characteristics: *N = 10.*

CHARACTERISTIC	VALUE
Mean (SD) age, y	57 (14)
Sex, n	
• Male	3
• Female	7
Ethnicity, n	
• Black	0
• Asian	1
• White	6
• Indigenous	0
• Latin American	1
• Middle Eastern	0
• South Asian	0
• Other: Jewish ancestry	2
• Other: do not know	0
Education, n	
• No certificate, diploma, or degree	0
• High school diploma or equivalent	0
• Trades certificate	0
• College diploma	1
• University bachelor's degree	4
• University certificate above bachelor's degree	1
• Medical degree	0
• Master's degree	4
• Doctorate degree	0
Mean (SD) no. of daily prescription medications	2 (4)
Mean (SD) length of time participating in the following types of activity for > 15 min in a typical 7-d period (ie, 1 wk), h	
• Strenuous exercise (heart beats rapidly; eg, running, hockey, squash)	1 (3)
• Moderate exercise (not exhausting; eg, fast walking, baseball, easy cycling)	3 (7)
• Mild exercise (minimal effort; eg, golf, yoga, bowling, gardening)	6 (5)

Themes

Important themes offer insight into the concepts and content that patients are likely to find compelling in physical activity discussions, the determinants of physical activity that physicians must consider when providing advice, and patient preferences regarding how family physicians can play a role in promoting physical activity. Finally, they provide preliminary insights regarding patient preferences for tools that might help increase physical activity. The following 4 themes emerged from the participant interviews.

Proximal or personally relevant benefits and risks shape patient attitudes toward physical activity. Rather than increasing life expectancy or avoiding health problems many years in the future, participants valued physical activity directed at achieving immediate health or functional goals (eg, avoiding surgery, reducing pain symptoms, managing health conditions nonpharmacologically, improving balance to reduce fall risk, improving mental health). Correspondingly, proximal risks of inactivity (eg, increase in pain symptoms, poorer sleep quality, increased anxiety) were identified by patients as drivers to be more physically active. Participants reflected that observing the contribution of physical inactivity to the declining health and function of loved ones (eg, aging parents) was another powerful motivator to be physically active. The desire to avoid a

similar trajectory made generic information about physical activity relevant and effective (**Box 1**).

Social and physical environments as key determinants of physical activity. Common barriers to physical activity included weather, cost, and lack of time; common facilitators included living in a walkable neighbourhood and proximity to exercise facilities. Many participants found social interaction to be a meaningful tangential benefit of physical activity, and identified that they found it easier to commit to and participate in physical activity with another person, especially someone with similar physical activity interests and abilities. Notably, participants disliked the gym as a setting for physical activity, finding it to be a boring, intimidating, or discouraging environment. However, many participants also noted that a common suggestion they had received from health care providers was to join a gym (**Box 2**).

Patient-centred approaches to delivering physical activity advice. Participants encouraged primary care providers to discuss physical activity with all patients and to avoid making assumptions about physical activity levels based on appearances. Although many participants noted that weight loss played a role in their own motivation to be active, they suggested uncoupling physical activity and weight discussions, given that physical activity is beneficial for all patients, and past negative experiences regarding weight management might decrease patient willingness to discuss physical activity. Participants identified physical activity as a topic often associated with shame and fear. They believed that, akin to breaking bad news, primary care providers should balance the need to be candid about the risks of inactivity with spending enough time to take a sensitive approach to the subject.

As to the nature of the recommendations, all participants said that general advice to simply exercise more often or more vigorously was unhelpful. Similarly, most participants were unaware of existing guidelines for physical activity or averse to them, perceiving them to be overly standardized. Instead, participants reported relying on subjective measures (eg, sense of wellness, degree of exertion, sleep quality, pain severity) or weight to gauge whether they have been active enough. Most participants indicated that they would be willing to receive physical activity recommendations from various members of the health care team (eg, nurses, medical trainees, physiotherapists, kinesiologists, occupational therapists); however, some participants preferred to receive this information specifically from the family physician for a variety of reasons (eg, knowledge of patient's health context, relationship or rapport).

Participants described several ways in which primary care providers are uniquely well positioned to support patients in increasing physical activity. Owing to the longitudinal nature of the primary care relationship, participants saw a potential to monitor patient physical activity levels over the long term, and support patients in getting back on track if and when they experience lulls in physical activity. Participants also thought that

Box 1. The role of proximal and personally relevant benefits and risks in shaping patient attitudes toward physical activity

The following are patient quotations that represent the theme of proximal and personally relevant benefits and risks of physical activity:

- "I have been suffering terribly from sciatica, and one of the keys, I've found, is to exercise .... I really want to avoid surgery at all costs because I've had enough surgeries in my lifetime that I hope I don't have to have any more. So I've been really trying to focus on the exercising in order to avoid that"
- "I don't want to be on pills for the rest of my life. That was one question I asked ... 'How do I get off these things?' I don't want to be dependent on them. One of the things that was brought up was exercise, so that was kind of a motivator"
- "Swimming and always the aquafit ... and that alleviated a lot of my pain in my knee, because I have a knee with a prospect of going for an operation, but the doctor says, 'No, no, you can hold it off if you lose the weight.' Well, exercise is the key and then I did that"
- "I think the thing that motivates me is I don't want to end up in a wheelchair like my dad"
- "I've seen the results of people not doing physical activity. My mother has never done any and she's quite overweight and elderly. I think her quality of life is just dismal .... So that's certainly an impetus"
- "I've accompanied my mom who's turning 80 this year, quite overweight, and I've seen her deteriorate"

Box 2. Social and physical environments as key determinants of physical activity

The following are patient quotations that represent the theme of social and physical environments as key determinants of physical activity:

- "I think it's harder to motivate yourself to go out in the winter"
- "I haven't been doing curling as much as I used to because of circumstances that are beyond my control, like finances. That's very discouraging"
- "[Working out] was just a way of also meeting people and socializing"
- "And I know this is about physical fitness, but it's also for my mind to enjoy and to be around other people and to have a connection to people"
- "It was partly my wife's influence. She was always an active walker"
- "It worked because I had a running buddy who also wanted to do that"
- "When you're not on a team, that's hard. That motivation is ... it's all self-motivation, really"

primary care providers have an important role in helping patients anticipate and manage barriers to being physically active, given their broad and deep understanding of their patients' health context and life circumstances. Participants suggested that primary care providers could also help by promoting an expanded definition of *physical activity* that included activities such as gardening, housework, and active commuting (**Box 3**).

Patient perspectives on primary care–based interventions aimed at increasing physical activity. Most participants were enthusiastic about the possibility of embedding an automated process in primary care to support the provision of physical activity advice. Participants believed that resources automatically provided through such an intervention could be useful (eg, exercise guidance for specific conditions, referrals for fitness programs, recommendations for legitimate or evidence-based resources). Participants emphasized the importance of follow-up communication and noted that the frequency of follow-up should depend on individual patient preferences.

Most participants were not interested in using tools and electronic activity trackers to increase physical activity. Common reasons for not being interested included perceived work associated with using a tool, not wanting to purchase or carry or wear a secondary device, reluctance to confront their inactivity, and perceived imposition of excessive structure. However, most participants had used some type of electronic activity tracker or tool for some behaviour change purpose before and some of them had had positive past experiences with them. Notably, participants commented that while they would not typically use a tool to track physical activity, they would use one if requested or recommended by their physician. Smartphone apps were identified as being far more convenient and easier to adhere to than stand-alone devices (eg, wearable activity trackers such as smartwatches and pedometers), with participants noting that apps would have lower thresholds for uptake than stand-alone devices if recommended. Regarding specific intervention features, goal setting and monitoring were consistently identified as the most useful features, and activity planning support tools were also noted as helpful and important (**Box 4**).

Box 3. Patient-centred approach to delivering physical activity advice

Balance sensitivity and candour in discussions about physical activity
- "When you tell someone they've got to do more exercise … it's a shock. The doctor has to be gentle and spend time"
- "There are some people that are sensitive to their weight, so one has to be very careful about how you present it to them"
- "[My physician] talked about various possibilities … she was patient and helpful and gave suggestions, but she also was firm that there were dangers if I didn't do it, so, I mean, that was good"

Consider the nature of physical activity recommendations
- "Generalized criticism, 'You have to lose weight. You have to exercise more. You've got to get off the damn pills.' It's no good. It's not motivating. It's parental, and it goes nowhere. It goes in this ear and out that ear. So, the more general the critique, the more negative the critique, the less benefit it's going to have, the less impact it's going to have. So, you've got to avoid negativity and generalization"
- "I would want it to have a context. I wouldn't just want somebody to make a speech at me about the importance of physical activity because I already know that"
- "In anticipation, you say to the patient, 'You are probably going to have some pain when you exercise; you have to expect to experience pain, because your joints aren't used to this. Here are some alternative ways of controlling that pain'"

Expand the definition of *physical activity*
- "People need to know that physical activity can be anything … don't need to lift weights, just move"
- "It's trying to change the perception of what physical activity is and how easy it can really be"

Discussion

Participants in our study describe a desire for their primary care providers to offer personalized recommendations based on their individual health needs and context, framed as a way to achieve their health and functional goals. Patients also expect their primary care provider to address physical activity regularly. Given the wealth of evidence demonstrating that this is not routine practice,[5,11-14] there is a need for novel approaches to facilitate the delivery of evidence-based and patient-centred physical activity advice in primary care.[37]

Overall, the findings of our study generally align with the established literature with respect to how to enable patient behaviour change—namely, that health behaviour change advice that is personally relevant is more acceptable to patients and more effective at motivating patients to bridge the intention-behaviour gap. For example, our findings suggest that when primary care providers do discuss physical activity with patients, they should avoid general advice and avoid commenting on long-term benefits, focusing instead on personalized options to achieve immediate health or functional goals. This is consistent with earlier evidence demonstrating that health behaviour change programs and materials that offer tailored or individualized recommendations are more effective than those offering generalized advice.[38-40] Descriptions of guideline recommendations along with suggestions to simply exercise more or join a gym are not well received. The use of e-health

interventions to enable the provision of more customized recommendations for increasing physical activity presents exciting possibilities for providers and patients. However, the limitations of such tools must be acknowledged. Current evidence-based e-health interventions offer so-called tailored recommendations that are fundamentally general in nature in that they offer standard recommendations that are broadly applicable to subsets of the population who share certain features. Our findings also suggest that patients who are adequately motivated might need support to turn their intentions into action through support in developing personalized action plans to build self-efficacy.[34]

Our study, while limited, offers insight into immediate and tangible steps primary care providers might take to facilitate more effective interactions with patients regarding physical activity. Our findings indicate providers should link physical activity advice to patients' personal context and near-term goals to offer more meaningful and motivating recommendations. Additionally, our study suggests that primary care providers should leverage their role as trusted advisors in a longitudinal relationship and regularly revisit the topic of physical activity, as this demonstrates it is a health priority and can help patients stay on track. Providers can also support patients in the anticipation and proactive consideration of barriers, also known as coping planning.[34] This has been demonstrated to help patients achieve positive health behaviour change in a variety of areas, including increasing physical activity levels—especially in formerly active patients who have lapsed into inactivity.[19,20,41] Although self-monitoring devices are increasing in popularity, our study suggests a need for providers to link these interventions to clinical advice to optimize their effect. Finally, our findings reinforce previous research demonstrating that physician notions about patient values and preferences for clinical interactions are often incorrect,[42-45] and suggest that providers should not make assumptions about patient preferences in physical activity discussions. Primary care providers, then, face a dual challenge when discussing physical activity with patients: to offer customized physical activity recommendations and coping planning support based on individual patient context, and to communicate this advice in a way that resonates with each individual patient. We acknowledge the substantial complexity and burden of effort and time primary care providers face in meeting these challenges.

Box 4. Patient perspectives on interventions to support physical activity

Embedding an automated process to support the provision of exercise advice

- "If they're really serious about saying how important exercising is, then I would say that the doctor would probably need to be on board with that, and following up somehow"
- "What works for one person at one time may not work for someone else"
- "The doctor should say, 'This is the information; this is the information that particularly pertains to you' and I want [the doctor] to underline the parts that you should be predictably aware of … I think it needs to have that stamp of approval. And conveying the sense that what was a generic document has become a specific document, specific for the patient"

Using tools and electronic activity-tracking devices to self-monitor

- "I ended up creating an Excel spreadsheet for myself, which helped me track, and I really did lose a fair bit of weight"
- "It [pedometer] pushes me to do a little bit more and make sure I hit a minimum amount of distance"
- "I did try a Fitbit for a while and there is an app on my phone that tells me how far I have gone, which I find easier than the Fitbit because the phone is usually in my pocket and the other thing I have got to put on"
- "I really thrive on routine. So, if I can get some sort of routine where I can depend on going, then other things start to fall into place"

Using a tool on the instruction of a physician

- "Depends what the circumstance is … high blood pressure and I wasn't working out and I was getting fat, and [if] he said, 'Take this [electronic activity tracker] and I want you to show me that you're working out to make yourself better,' then I would be like, 'Yeah, cool'"
- "If a doctor said, 'We want you to put this thing on [electronic activity tracker] and measure your activity for 6 months,' yeah, I'll do it. But voluntarily do it—nah, I wouldn't do it"

Limitations

We acknowledge limitations in generalizability of our findings based on a small sample size from a single clinic. As the primary aim of the study was to gather potential user input to inform the design and implementation of an intervention, we completed recruitment once thematic saturation was reached in important areas of interest. Our sample was not exceptionally diverse with respect to age, ethnicity, or education level, despite an extended recruitment period. Furthermore, most participants were at least moderately physically active. This selection bias was anticipated, as patients with an interest in physical activity and its connection to health maintenance and disease prevention were more likely to respond to recruitment requests. However, we acknowledge that these participants do not represent the primary target of the e-health intervention in development (ie, patients who are not physically active).

Conclusion

Physical activity is a critical element of preventive medicine, and family physicians have an important role in helping patients achieve and maintain adequate physical

activity levels. Providers should consider patient-centred approaches to physical activity discussions, as well as the need for recommendations to hold personal relevance for patients and to take into account patients' unique circumstances. Providers should also recognize that while patients might not be predisposed to using certain interventions to support increasing physical activity levels—for example, e-health tracking tools—patients might be more likely to adopt these interventions at the recommendation of their provider. Future studies should recruit participants from a variety of ethnic backgrounds, socioeconomic backgrounds, primary care practice types, age groups, and physical activity levels to better reflect diverse population perspectives and needs. Additionally, studies investigating the role of shame, fear, and locus of control in patient-provider interactions regarding physical activity might offer further insight into how providers might facilitate more effective discussions regarding physical activity and health behaviour change more broadly. Finally, studies incorporating interventions that aim to help family physicians provide physical activity advice in the manner described here should be tested in clinical settings.

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Contributors

Drs Ivers, Hillier, and **Reddeman** conceived the study. All authors participated in the design of the study. **Ms Finn** and **Ms Bosiak** managed and coordinated the study data. **Dr Reddeman** and **Ms Bourgeois** coded the source data and resolved discrepancies with input from all authors. All authors participated in interpretation of the study data. **Dr Reddeman, Dr Ivers,** and **Ms Bourgeois** led the writing of the paper, with **Ms Nicholas Angl, Mr Heinrich, Dr Hillier, Ms Finn, Ms Bosiak, Dr Agarwal, Dr Mawson,** and **Ms Propp** commenting on drafts. All authors approved the final manuscript.

Competing interests

None declared

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