



## Research Article

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# Using a Socioecological Approach to Explore the Integration of Exercise Physiologists into Primary Healthcare Teams

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## Abstract

**Objective:** This paper explores the experiences of Clinical Exercise Physiologists (CEPs) and physicians participating in a pilot exercise referral program in Atlantic Canada. Additionally, the study aims to identify the barriers and facilitators that could impact broader integration of exercise professionals into primary healthcare teams. **Design:** Semi-structured individual interviews were conducted with CEPs and physicians involved in the exercise referral program to explore their experiences with the exercise referral program. The Socio-Ecological Model was used to draft a list of interview topics for discussion. Interviews were audio-recorded, transcribed verbatim, and analyzed using Lichtman's three Cs approach to qualitative analysis. **Setting:** Two urban family medicine clinics associated with an Atlantic Canadian university. **Participants:** Four CEPs and five family medicine physicians who participated in the exercise referral program. **Results:** Four main themes emerged from data generation: (1) the importance of CEP-led advocacy for exercise referral in healthcare, (2) gaps in training and regulation of CEPs, (3) the unclear role for exercise professionals within healthcare, and (4) policy and organizational changes required to improve exercise referral. **Conclusion:** Based on our results, to improve exercise counselling services, efforts should be made to improve the ability of CEPs to advocate for their role on healthcare teams, address issues related to CEP training and regulation in Canada, create a more clearly defined role for exercise professionals within healthcare, and improve exercise referral billing and coverage. To our knowledge, this is the first study to qualitatively investigate the integration of CEPs into primary healthcare teams in Canada and could help guide efforts to expand multidisciplinary healthcare moving forward.

**Keywords:** Exercise Counselling Exercise Referral Health Promotion Preventive Medicine, Healthcare Teams, Multidisciplinary Healthcare.

## INTRODUCTION

Extensive research has demonstrated the effectiveness of physical activity (PA) in the prevention and treatment of chronic diseases <sup>[1]</sup>. Several high-level systematic reviews have identified risk reductions of 25–50% or more for most major chronic diseases when individuals meet the recommended 150-minutes per week of moderate-to-vigorous PA <sup>[2,3]</sup>. Evidence suggests that considerable health benefits can be associated with even small amounts of regular PA <sup>[2,4]</sup>. Despite such overwhelming evidence, accelerometry data demonstrates that just 39% of Canadians accumulate enough PA to meet national guidelines <sup>[5]</sup>.

It has been suggested that physicians have an important role to play in PA promotion and chronic disease prevention <sup>[2,6,7]</sup>. When trying to increase the PA levels of patients, physicians must consider a number of factors contributing to low PA rates. Patients commonly cite lack of time, lack of enjoyment, and physical limitations as obstacles to PA <sup>[6-8]</sup>. PA participation is also impacted by social and economic factors <sup>[9]</sup>. Thus, it is important to note that the factors impacting PA behaviours are not just individual or interpersonal in nature, but are also connected to socio-cultural barriers requiring novel system-level approaches.

The *Exercise is Medicine* literature highlights the potential for clinical PA counselling as a critical opportunity for eliciting lifestyle change and increasing PA <sup>[2-6]</sup>. Despite the important role physicians play as sources of health information, primary care physicians in Canada continue to provide inadequate levels of PA counselling <sup>[10]</sup>. While a lack of education on PA counselling is a primary factor <sup>[10,11]</sup>, concerns related to time constraints, complex comorbidities, and perceived lack of patient interest have also been identified <sup>[2]</sup>.

Due to the barriers associated with physician PA counselling, it has been suggested that Clinical Exercise Physiologists (CEPs) could play an important role in healthcare <sup>[2]</sup>. CEPs are exercise professionals who

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have completed formal training in exercise prescription after their undergraduate education, enabling them to provide exercise supervision, counselling and lifestyle education to healthy individuals and populations with medical conditions [2]. Family physicians themselves have hypothesized that referral to qualified exercise professionals such as CEPs could increase the likelihood of patients realizing a long-term commitment to PA [12]. Thus far, limited research has focused on the effectiveness of incorporating CEPs into healthcare, despite the success of programming such as the *Green Prescription* in New Zealand [7].

## Objectives

To the research team's knowledge, this study is the first to qualitatively investigate the integration of CEPs into primary healthcare teams. In recent years, a number of CEPs completing graduate studies in kinesiology at an Atlantic Canadian university participated in clinical placements at local family medicine clinics associated with the university. Each of these CEPs worked with family medicine physicians who referred patients for PA counselling. This physician-CEP referral system presented our team with a unique research opportunity, as CEPs generally do not have a role within healthcare locally. Thus, the objectives of this study were to explore the experiences of CEPs and physicians during the integration of CEPs into healthcare teams and to identify barriers and facilitators that could impact broader implementation of this referral program.

## METHODOLOGY

### Program Design

In recent years, graduate kinesiology students from an Atlantic Canadian university had the opportunity to participate in clinical placements as CEPs in family medicine clinics. Over the course of three years, a total of five CEPs participated in 4-month placements at one of two clinics associated with the local university. The CEPs worked closely with family medicine physicians and resident physicians who referred patients for consultations.

In general, the CEPs interviewed for this study were each present in clinic for two full days and one half-day per week, providing free exercise counselling services as part of their graduate school practicum. The workload for the CEPs in the clinics varied, but each participant was involved in patient care for a variety of clinical issues ranging from illness prevention to management of patients with complex comorbidities.

As a CEP and a recent medical school graduate with plans to become a primary care physician, the principal investigator was uniquely positioned to examine the exercise referral scheme piloted in this study.

### Theoretical Framework

For this qualitative description study, the Socio-Ecological Model (SEM) was used as the theoretical perspective to shape the generation of a semi-structured interview guide and facilitate data generation and analysis. The SEM is a systems model that allows researchers to investigate the interaction between factors within and across all levels of a health system [13]. Contrary to most health behaviour theories, which focus predominantly on intrapersonal variables, the SEM suggests that behaviour is shaped by factors at multiple levels including the intrapersonal (individual), interpersonal, organizational, community, and policy levels [14]. In recent years, the SEM has been used to guide data collection and analysis in a wide variety of health promotion studies investigating behavioural outcomes such as healthy eating, workplace safety, and physical activity [15-17].

## Participants

Ethical approval was obtained from the host institution ethics committee prior to recruitment. Four CEPs, who had completed a practicum in local family medicine clinics, were invited and agreed to participate in this research study. The CEPs (three males, one female) were between the ages of 23 and 26 years old, with between six months and three years of experience as a CEP at the time of the study. Additionally, each of the participants had completed a Master of Science in Kinesiology degree following their undergraduate kinesiology studies. Family medicine physicians and residents who worked directly with the CEPs were also invited to participate, with five of twelve individuals agreeing to participate (4 attending physicians, 1 resident physician). The physicians ranged in age from approximately 40 to 65, with a wide range of academic backgrounds prior to entering medicine (e.g., education, physiotherapy, science). The participating family physicians were all employed in salary-based positions and reported at least 5 years of experience working in an interdisciplinary healthcare clinic. Each physician had at least 3-4 months of experience working with a CEP in their respective medical practice, which was located at one of two participating academic family medicine clinics. All participants were recruited via email and given the opportunity to review the informed consent form before agreeing to participate.

## Data Collection

Semi-structured individual interviews ranged from 25 to 45 minutes and explored participant experiences with the placement of CEPs in family medicine clinics. The questions were related to the central ideas of the study and its theoretical framework, as per best practices in qualitative research [18]. Separate interview guides were designed for CEPs and physicians with questions aiming to understand their unique experiences participating in the exercise referral program. Interviews, conducted by the primary investigator in office space at the host institution, were audio-recorded, transcribed verbatim, and sent to participants for validation. Each participant was assigned an alphanumeric code for anonymity.

## Data Analysis

After transcript validation, 91 single-spaced pages of data were uploaded to ATLAS.ti. Lichtman's three Cs approach (i.e., coding, categorizing, concepts) to thematic analysis was utilized, which is a six-step content-driven approach and considered suitable for descriptive studies. Initial coding was used to identify central ideas expressed in the data. These codes were revisited and modified to ensure they accurately represented thoughts communicated by participants, resulting in a list of 121 codes. The next step focused on reviewing the codes and grouping them into 16 categories based on relationships informed by the SEM. This process was repeated twice and enhanced through peer debriefing between members of the research team to ensure data saturation had been achieved. The final stage of analysis involved refining the categories to highlight 4 major concepts that reflected the ideas expressed by participants. Frequent peer debriefing and member checking during data analysis contributed to credibility and trustworthiness of the results [19].

## RESULTS

Four main themes emerged from the data: (1) the need for CEP-led advocacy for exercise referral in healthcare, (2) gaps in training and regulation of CEPs, (3) unclear roles for exercise professionals within healthcare, and (4) policy and organizational changes to improve exercise referral. These themes describe the experiences of CEPs and physicians during their participation in the exercise referral program, as well as barriers and facilitators encountered that could impact the development of future exercise referral schemes.

### **CEP-led advocacy for exercise referral**

The first theme highlighted the important role CEPs can play in advocacy. Both the physicians and CEPs in the exercise referral program reported that the ability of the CEP to effectively communicate and advocate for their role on the healthcare team served as a catalyst for greater opportunities. The physicians highlighted that if a CEP was outgoing and looked for opportunities to get involved in patient care, they were more likely to avail of the service. CEPs also emphasized the importance of working to demonstrate their value and integrate themselves into the healthcare team. In some cases, they felt a need to frequently educate physicians on their broad scope of practice. CEP004 stated, "I think that's the only way it's going to happen, if we're like, 'We'll do it ourselves.'" For the CEPs, educating physicians was essential to creating opportunities for exercise referral. CEP001 described their approach to establishing the CEP role at the clinic by stating:

You make yourself valuable. The doctors are informed, they inform the patients and now that patient is aware of what they can get out of the interaction. They come to you, it comes full circle because you show your professional, valuable role in this healthcare community.

When CEPs were able to effectively demonstrate their skillset to physicians and patients, it reinforced the value of the referral service and contributed to a positive experience for all those involved.

It was also important for the CEPs to advocate for the benefits of exercise to patients so that they would be receptive to lifestyle modification as part of their treatment plans. Patients were generally open to working with CEPs when the service was introduced by physicians. The CEPs reported that although there was some initial hesitancy because the service was new, the response from individuals who participated was positive. This was reiterated by the physicians, who emphasized that for those who were willing to talk to the CEP, "the experience was always positive." In fact, they described a number of patients who were able to change the course of their illness "by their own lifestyle effort."

### **Gaps in training and regulation of CEPs**

Although the exercise referral program was well received, physicians highlighted two primary concerns regarding patient confidentiality and CEP regulation. In expressing concerns regarding CEP training on confidentiality and health ethics, HCP003 ("Healthcare professional 003") stated:

The kinesiologists went through privacy training ... I had no concerns about them personally. The problem was they were in our team rooms. The resident has to report back to the physician about the patients they saw, the issues that are going on with every patient. So there would be patients that the kinesiologist wasn't seeing, and I just felt ... they should only be seeing and hearing about the patients that they were seeing.

This physician went on to explain that although nurses and pharmacists are also in the team room, those professionals go through a more intensive ethics curriculum than the privacy and confidentiality modules completed by the CEPs through the Regional Health Authority. To deal with these perceived inadequacies in CEP training, HCP003 highlighted the need for an "ethics curriculum" within the kinesiology program at the host institution that could be adapted from the medicine, nursing, or pharmacy program.

It was also suggested that changes to the way exercise professionals are regulated could facilitate more effective integration. Although CEPs operate under a national regulatory body (i.e., the Canadian Society for Exercise Physiology, or CSEP), and are required to pass a national licensing exam, multiple physicians suggested that a provincial

licensing body and certification exam would increase their confidence in exercise referrals. In fact, HCP005 proposed that strengthening regulation of kinesiology at the provincial level, using a separate designation from the CEP certification, could be beneficial in advancing the profession. Although this physician recognized that CSEP functions as a regulatory body for CEPs, they suggested that not all kinesiologists pursue the CEP certification, which limits their ability to practice within healthcare as there is a lack of physician understanding regarding the various certifications.

### **Unclear role for exercise professionals**

The role for exercise professionals in healthcare was not clearly defined in the Atlantic Canadian province where this study took place. Furthermore, the potential clinical applications of exercise referral/prescription were not clearly understood by the physicians with whom the CEPs worked. One of the first CEPs to participate in the referral program, CEP003, described this lack of understanding, stating: "I would say there was... a broad gap in knowledge of what we were despite repeated attempts to educate".

HCP005, who was more familiar with the kinesiology profession, suggested that there are a number of barriers to creating a more clearly defined role for exercise professionals. When dealing with patients with multiple comorbidities, some of the doctors may have concerns that the scope of practice for CEPs doesn't allow them to manage complex medical issues. Kinesiology is still seen as a relatively new profession, thus physicians may be hesitant to refer to CEPs for chronic conditions without a clearer understanding of their role and capabilities.

The scope of practice to which the CEPs were able to practice generally depended on the physicians from whom they received most of their referrals. For example, HCP005 reported that they encouraged CEPs to work with a wide variety of medical conditions. In describing their range of referrals to CEPs, this physician said:

I was comfortable with what they could do. So, I would refer for education on walking, stretching, strengthening, balance training, and for motivating. A person says, "I'm walking." Ok, good, talk to the kinesiologist [CEP] about how fast you should walk, how often, how to check your heart rate and those sorts of things.

In reflecting on their clinical experiences, multiple CEPs reported feeling under-utilized. It was suggested that such underutilization seemed to be due to the fact that most physicians were not sure how to utilize their skillset. Another recurrent issue for CEPs related to physicians' lack of understanding regarding the distinction between their scope of practice and that of physiotherapists. In reflecting on the unclear role for exercise professionals within healthcare, participants suggested that—moving forward—CEP's should be involved in interprofessional education initiatives aiming to educate current and future physicians on their scope of practice.

### **Policy and organizational changes to improve exercise referral**

The participants in this study highlighted a number of systemic barriers within healthcare impacting the effectiveness of exercise referral. Specifically, it was suggested that changes focusing on billing and insurance coverage for exercise referrals could improve the ability to deliver this service. In reflecting on these barriers to exercise prescription, HCP004 stated:

In our province, you actually can't bill unless there is a complaint ... if somebody came in for primary prevention, that's not what we're about. I mean, as physicians, we are about treating illness. You have to have an illness code. So if all my codes were "no illness diagnosed", I'd be getting questions.

Although physicians stated that there have been recent changes to coding for chronic disease management, reflecting the fact it takes more time to deal with complex illnesses, they also highlighted the need for a code specific to lifestyle interventions to facilitate greater opportunities for CEP involvement in patient care.

Another important consideration highlighted was the need for insurance coverage for exercise referrals. Physicians suggested that many patients would have been unable to afford the service offered in this program had it not been free. In commenting on billing and the cost associated with exercise referrals for patients, HCP005 stated:

It's that physio model right now where physicians are happy to refer people but, you know, if the patient doesn't have insurance ... they know it's a financial barrier for some people. I think they would feel the same with kinesiology once they knew what they could do, and who the person was and their value. They would send that referral. If there was no financial barrier, they'd be in.

Participants stated that addressing the lack of exercise referral specific coding and insurance coverage will be important to expanding the role of CEPs within healthcare.

Educating physicians on how to better utilize CEPs was also identified by participants as essential to improving the effectiveness of exercise referral. The idea that broader exercise education should be offered in medical training was reiterated by physicians and CEPs alike. Several physicians recommended adding content related to the role of exercise professionals to existing interprofessional education in medical school. With regard to the importance of educating medical learners about exercise and the role of CEPs, HCP001 stated:

You could look at integrating into the undergraduate curriculum. You could find a way for the clerks to gain exposure to kinesiology clinics. But when you as a clinician or as a resident have a patient and you need to help them and there is a kinesiologist sitting next to you who can help you do that and it's not going to cost anything, well that's a no brainer, right?

Evidently, this statement highlights the importance of not only integrating exercise education into the formal undergraduate and postgraduate curricula, but also of creating opportunities for interaction with CEPs so that medical learners can better understand their scope of practice.

## DISCUSSION

The current study explored the experiences of CEPs and physicians during the integration of CEPs into primary healthcare teams in an Atlantic Canadian province. Our findings reflected multiple levels of the SEM and highlighted a number of factors that had an important impact on the experiences of those participating in the referral program. Specifically, the results highlighted the important impact of individual factors related to the CEPs, organizational influences on training and regulation, and policy factors influencing billing codes and insurance coverage. While participants largely highlighted a positive experience, they also underlined areas for improvement to enable broader integration of CEPs into healthcare.

### Principal Findings

At the intrapersonal level of the SEM, issues were identified regarding the role exercise professionals play in advocating for greater use of exercise referral services. It was recognized that CEPs felt a need to advocate for more opportunities to work with patients, as their role within healthcare was not clearly defined or understood. It became apparent that the response of medical professionals to the referral service was impacted by the ability of the CEPs to advocate for their value. Confusion and uncertainty about the role of CEPs was identified

as an important barrier to their integration into the healthcare team. This is consistent with prior literature suggesting that the role of exercise professionals is not well understood within Canadian healthcare [20]. Additionally, a lack of public knowledge and professional awareness about the education and skills of exercise professionals has been shown to contribute to reduced utilization of exercise referral services [20]. The need for CEPs to advocate for their own usage and the lack of understanding other professionals hold regarding their scope of practice pose practical implications for future programming.

At the organizational level of the SEM, the need for improved regulation of exercise professionals was identified as a primary issue. Participants suggested that improving regulation of exercise professionals (particularly at the provincial level) could lead to growth of the kinesiology field. Currently, the CSEP is the regulatory body for CEPs in Canada who have completed an exercise science degree and additional training for working with clinical populations [21,22]. Unfortunately, many of the physicians interviewed did not demonstrate an understanding of the CEP designation or its scope. This lack of familiarity with the CEP profession serves as a barrier to widescale implementation into primary healthcare teams in Atlantic Canada. Several participants suggested there could be value in a regional regulatory body for clinical kinesiologists—separate from CSEP—similar to what exists in Ontario under the *Regulated Health Professions Act*. Although the *Registered Kinesiologist* differs from the CEP in terms of scope of practice, it has been suggested that provincial regulation of kinesiology in Ontario has increased career opportunities for exercise professionals within healthcare while also contributing to improved patient outcomes [20]. In recent years, research has also highlighted the potential benefits of expanding primary healthcare teams in Canada to include pharmacists, nurses, and mental health professionals. In Ontario, the literature has demonstrated benefits in terms of both patient outcomes and healthcare resource utilization [24,25]. Moving forward, further research should explore optimal financial and organizational arrangements for interdisciplinary healthcare collaboratives to help facilitate the integration of professionals such as pharmacists, nurses, and exercise professionals into healthcare teams [26].

Another issue raised by CEPs and physicians in relation to the organizational level of the SEM was the need for greater exercise education for medical learners within academic medical institutions. Although a majority of medical students perceive competence to prescribe PA to patients as either moderately important or important to their future practice, just 16% feel capable of doing so upon graduation [11]. Similarly, a majority of family residents demonstrate low knowledge of Canadian PA Guidelines and low self-reported competence prescribing exercise [27]. Evidently, this gap in physician training and knowledge underscores the important role exercise professionals can play within primary healthcare. Over time, improving exercise education for physicians will improve their confidence to engage in conversations with patients about exercise and PA, provide PA advice, and identify which patients would benefit from referral to exercise professionals [28].

At the policy level of the SEM, billing codes and insurance coverage were highlighted as barriers to expanding exercise referral services. A number of physicians suggested that our current payment model is about 'treating illness', and that there are considerable difficulties associated with billing for primary prevention. Furthermore, they stated that insurance companies do not provide coverage for the cost of exercise counselling sessions. In reflecting on the sustainability of exercise referral initiatives, several physicians suggested that governments are less likely to invest in prevention-based programs because they pay off in the long-term rather than the short-term. Despite a commitment from local governments to increase PA levels and reduce obesity, there remains a lack of long-term planning to

achieve these goals. Evidently, policy level changes to promote exercise referral within primary care are important as they can have a positive effect on both healthcare spending and population health outcomes [7-30].

### Strengths and Limitations

Several limitations exist for the present study. First, only 4 CEPs had participated in the program being studied and therefore there was a limited pool of potential CEP participants. Additionally, the referral program studied operated at just two sites (i.e., clinics), which were both located in a small city in Atlantic Canada with a poorly developed network of exercise professionals. Thus, the results of this study may not be generalizable to larger urban centres, particularly those with existing relationships between the exercise professional and healthcare communities.

Despite these limitations, this study utilized a well-recognized theoretical framework in the socioecological model that allowed the research team to explore healthcare-related issues through the analysis of a multidimensional cause. Additionally, the research team made use of triangulation (of sources and analysts) and member checking while also engaging in rigorous review of the research design to ensure trustworthiness of study results. The research team believes that the findings highlighted in this paper offer value for future exercise referral schemes—particularly those in small cities and rural areas—due to the unique experiences and difficulties highlighted relating to efforts to integrate CEPs into primary healthcare teams.

### Future Directions

Moving forward, research focusing on the effectiveness of CEP referral programs in improving patient PA behavior, physician confidence in exercise referral, and frequency of physician referral to CEPs would be useful in assessing the value of exercise referral programming in healthcare. Additionally, future research should investigate changes in patient health and healthcare spending outcomes associated with the trial integration of CEPs into primary healthcare clinics. The results of such research would allow for a better understanding of the potential implications of broader integration of CEPs into primary healthcare.

### Key Points

- Limited research has focused on the effectiveness of integrating exercise professionals into healthcare settings in Canada. Given the barriers associated with physician physical activity counselling, this research aimed to explore the experiences of physicians and Clinical Exercise Physiologists (CEPs) participating in a pilot exercise referral program taking place in family medicine clinics in Atlantic Canada.
- This pilot exercise referral program received positive reviews from the physicians and CEPs involved. Barriers to program success included gaps in the training and regulation of CEPs, the unclear role of exercise professionals within healthcare, and policy and organizational barriers to exercise prescription. CEP-led advocacy for exercise referral was identified as a major determinant of program success.
- To our knowledge, this is the first study to qualitatively investigate the integration of CEPs into primary healthcare teams in Canada. The key findings have value in helping to guide efforts to expand multidisciplinary healthcare delivery.

### Authors' Contributions and Statement

All four members of the research team contributed to the project design process. JR was responsible for data collection and data analysis, and led the drafting and revision of the paper. EM and EC

supervised the data collection and analysis processes, and provided feedback as JR drafted this paper as part of his larger master's thesis project. DB was the primary supervisor for the clinical exercise referral program and helped with recruiting participants for the study, while also providing feedback during the writing/revision of this paper. All four members of the res

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### Conflicts of interest

None declared.

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