Continuing Education for Advanced Manual and Manipulative Physiotherapists in Canada: A Survey of Perceived Needs

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ABSTRACT

Purpose: Our purpose was to determine advanced manual and manipulative physiotherapists' (AMPTs') current use and awareness of continuing education (CE) opportunities; to establish their perceived CE needs by identifying facilitators and barriers to participation; and to explore the association of demographics with CE needs. **Methods:** A questionnaire was e-mailed to 456 registered members of the Canadian Academy of Manipulative Physiotherapy. Data analyses using frequencies and percentages of total responses and *t*-tests for group comparisons were performed. **Results:** One hundred thirty-three (29.2%) participants responded. Most lived in an urban region and worked predominantly in direct patient care. More respondents reported engaging in informal CE than in formal CE. Hands-on or practical workshops were the preferred CE format. Common barriers to CE included professional commitments and cost and time of travel; facilitators included interest in the topic and increasing knowledge and competency. AMPTs with less physical therapy experience found cost to be a greater barrier and were more interested in mentorship programs and CE as a means to obtain credentials. **Conclusions:** AMPTs' preferred CE formats are inconsistent with the CE opportunities in which they participate. CE initiatives for AMPTs should include hands-on training and should account for time and cost to make CE opportunities more readily available to them.

Key Words: education, continuing; musculoskeletal manipulations; physical therapy modalities.

RÉSUMÉ

Objectif : Établir l'utilisation actuelle et le degré de sensibilisation des physiothérapeutes spécialisés en thérapie manuelle et manipulation (AMPT) des possibilités de formation continue (FC); établir les besoins en formation continue perçus de cette clientèle en identifiant les éléments facilitateurs et les obstacles à leur participation à la FC; et explorer les possibles associations entre les données démographiques et les besoins en FC. **Méthode :** Un questionnaire a été envoyé aux 456 membres inscrits à l'Académie canadienne de thérapie manuelle. Des analyses des données à l'aide de fréquences et de pourcentages du nombre total de répondants et des tests *t* pour la comparaison des groupes ont été réalisés. **Résultats :** Au total, 133 participants (29,2 %) ont répondu. La plupart vivaient en milieu urbain et travaillaient principalement à des soins directs aux patients. Un plus grand nombre de répondants ont dit participer à de la FC informelle et non à de la FC plus officielle. Les ateliers pratiques sont la formule privilégiée pour la FC. Les principaux obstacles à la FC sont les engagements professionnels, de même que les coûts et le temps de déplacement; parmi les éléments facilitateurs, citons l'intérêt pour les sujets abordés et la possibilité d'accroître ses connaissances et ses compétences. Les physiothérapeutes moins expérimentés ont mentionné les coûts de la FC comme étant pour eux un plus grand obstacle, et se sont dits plus intéressés par les programmes de mentorats que par la FC comme moyen d'obtenir plus de preuves ou de titres de compétences. **Conclusions :** Les AMPT préfèrent des formules de formation qui ne sont pas nécessairement les mêmes que celles auxquelles ils ont l'occasion de participer. Les initiatives de FC à l'intention de cette catégorie de physiothérapeutes devraient comprendre une portion de formation pratique, et devraient tenir compte du temps à consacrer et des coûts associés à chacune de ces possibilités de formation, afin de les rendre plus accessibles.

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Engaging in continuing education (CE) after entry-level studies is essential for health care professionals (HCPs) to improve knowledge and maintain previously acquired skills¹ as the health care environment continues to change.² It has been argued that CE provides the HCP with greater awareness of professional issues and enhances competence and accountability.³ The importance of CE is illustrated by a study of physicians who reported that more of the competencies they used in daily practice were acquired through formal postgraduate education than from medical school.⁴ To maximize participation in CE for knowledge and skill acquisition, it is important that the CE opportunities currently available to HCPs be consistent with their expressed needs and interests.⁵ Although much research has been conducted on the CE needs of HCPs and physiotherapists, there is a dearth of literature on the perceived CE needs of advanced manual and manipulative physiotherapists (AMPTs) specifically. Over the past 50 years, manual and manipulative therapy has emerged as an advanced orthopaedic skill set within the profession of physical therapy.⁶ Furthermore, because 456 members are currently registered with the Canadian Academy of Manipulative Physiotherapists (CAMPT),⁷ information pertaining to AMPTs' needs is critical to the continuing development of CE opportunities for this growing population. The purpose of this study was to identify the CE needs of AMPTs practising in Canada by investigating their current use and awareness of CE and identifying preferences, facilitators, and barriers related to CE participation.

Within physical therapy, many clinicians pursue postgraduate education to obtain knowledge and specialized skills in specific areas of practice.⁸ In Canada, approximately 50% of orthopaedic physiotherapists have received postgraduate training in manual and manipulative therapy, which culminates in a Diploma of Advanced Orthopaedic Manual and Manipulative Physiotherapy.^{7,9} At present, postgraduate training in manual and manipulative therapy in Canada is delivered nationally through the Orthopaedic Division of the Canadian Physiotherapy Association (CPA) and typically consists of seven courses totalling 66 days of instruction. This includes lectures, small-group work, hands-on practice of skills, and a 150-hour clinical mentorship requirement, as well as written and practical examinations.⁹ Canadian AMPTs are qualified on the basis of the standards of the International Federation of Orthopaedic Manipulative Physical Therapists.¹⁰ CAMPT and the federation promote high standards in manual therapy skills and encourage research and dissemination of new knowledge within the field.¹¹

Although AMPTs are encouraged to continue to further their knowledge and training, no literature currently exists related to AMPTs' specific needs, opportunities, and challenges related to CE. To date, research conducted in the field of physical therapy has investigated perceived

CE needs of physiotherapists who do not necessarily have advanced training.⁵ AMPTs have already participated extensively in CE and may therefore have different perspectives on the importance of CE for professional development. As a result, the CE needs of AMPTs may differ from those of physiotherapists without advanced training and thus warrant further investigation.

The value of investigating the perceived needs of the target population was described by Aherne and colleagues,¹² who reported that informed CE planners produce programmes that are more sustainable, more meaningful to the intended audience, and more responsive to changes in practice. Previous studies investigating the CE needs of physiotherapists have categorized needs as perceived facilitators of and barriers to CE participation. These factors have been shown to influence CE participation in the general physiotherapist population,^{13–15} but facilitators and barriers have yet to be identified among AMPTs.

Several authors have reported location, cost, timing, and prior commitments to be barriers to CE participation among physiotherapists^{5,8,13,15} and enhanced clinical skills, fulfillment of personal goals, professional advancement, and increased job satisfaction as facilitators.⁸ Other perceived needs that have been investigated to date relate to preferences, including particular topics of interest and modes of delivery.^{5,8,13,15}

At present, the literature is inconsistent with respect to the preferred modes of CE delivery for physiotherapists. Although some have reported lectures¹³ and face-to-face learning¹⁶ as the most preferred CE format, others have found that physiotherapists prefer interactive workshops⁵ and computer-based home study.¹⁷ It is important to note that these conflicting results arose from research studies that investigated CE preferences of different subgroups of the general physiotherapist population, which suggests that preferences may be specific to the clinical context or area of practice. Further investigation into the specific perceived needs of AMPTs is therefore important for future CE planning.

A broadening of the definition of CE in this study to include more informal workshops and in-service training may also give rise to inconsistencies in terms of preferred CE format, given that in the past most HCPs have viewed CE as confined to more formally structured formats.⁵ Specifically, our questionnaire clearly stated that the definition of CE in this study is any means of acquiring knowledge and skills beyond completion of the advanced manual and manipulative therapy diploma through formal or informal settings. Moreover, recent research findings have suggested that HCP learners' preferences may be shifting away from conventional didactic learning,^{13,18} contrary to a 1992 study¹³ that reported lectures as the most preferred CE format. In a recent study of Australian pharmacists, interactive sessions were favoured over didactic sessions, because the former were viewed as more interesting and con-

structive.¹⁸ In addition, newer technologies such as the Internet and the development of interactive online seminars and workshops, which have enhanced accessibility and convenience, may account for a change in preferences. More important, interactive medical CE programmes that focus on hands-on practical skills and participant involvement have been shown to positively influence professional practice, whereas didactic CE sessions do not appear to have an impact on either physician performance¹⁹ or patient outcomes,²⁰ although changing these parameters is ultimately the goal of CE.^{2,19}

Research has also found a lack of consistency between available CE formats and learner preferences. Charles and Mamary²¹ reported that satellite broadcasts were the most extensively offered method of CE for nurse practitioners, yet study participants identified these broadcasts as the least preferred style of CE delivery. These investigators therefore concluded that attending to the preferred style of CE delivery would improve CE participation among nurse practitioners. Similarly, investigating the formats of existing CE opportunities in relation to AMPTs' preferences would be helpful in determining the suitability of current and future CE programs. Consequently, it is necessary to identify whether the CE opportunities currently offered are indeed meeting the learners' needs or whether changes need to be implemented to address CE consumers' preferences more appropriately.

According to a national survey of Canadian physiotherapists, another critical factor in determining CE participation is the physiotherapists' awareness of available CE opportunities.¹⁶ CPA conducted a survey in 2008¹⁶ investigating the association's role in professional development of physiotherapists; respondents ranked lack of awareness of professional development opportunities as a major reason for nonparticipation. Similarly, Karp¹³ identified availability of course information as an important determining factor for CE involvement. At present, however, AMPTs' levels of awareness of existing CE programs are not known, which would appear to be an important factor for determining the extent of their CE participation.

Little comparable evidence exists within other health professions on CE needs and opportunities following post-licensure certification. Furthermore, no research has investigated whether the needs of HCPs with advanced training differ from those of HCPs without it. Therefore, the results of this study may ultimately further the understanding of CE needs of physiotherapists and other HCPs with advanced training and guide future CE initiatives.

Our primary objectives in this study were to (1) determine AMPTs' current use of CE opportunities; (2) determine AMPTs' awareness of available CE opportunities; (3) assess AMPTs' perceived CE needs by examining potential preferences, facilitators, and barriers to further

CE participation; and (4) investigate the association of demographics to AMPTs' perceived CE needs.

We anticipated that AMPTs would be highly aware of CE opportunities available to them because of their previous engagement in numerous courses associated with the AMPT qualification. We also expected that they would express a preference for interactive forms of CE, such as hands-on or practical workshops and seminars, because they may have personally experienced the benefits of such interactive formats during their AMPT training. Because barriers to and facilitators of CE participation are likely to be independent of prior CE experience, we predicted that these factors would be similar to those identified for the general physiotherapist population.

METHODS

Study Design

We conducted a cross-sectional, quantitative Web-based survey, using a protocol approved by the University of Toronto Clinical Research Ethics Board.

Participants and Sampling

The inclusion criteria specified that all intended participants be AMPTs who were fluent in English, had trained in Canada or abroad, were currently practising in Canada, and were registered members of CAMPT as of January 2010. The sample population was recruited with the aid of the CAMPT secretary, who agreed to distribute the link to the online questionnaire to the 456 registered members of CAMPT. In addition to the link, a cover letter was distributed explaining the rationale of the study and stating that informed consent would be implied by completion of the questionnaire. We predicted a response rate of approximately 30%, based on response rates of other studies. For example, an Internet survey of public health physicians regarding their clinical work yielded a response rate of 34%.²² In another study involving physiotherapists currently taking manual and manipulative therapy courses, the response rate using Web-based questionnaires was approximately 30%.²³

Development of the Questionnaire

A questionnaire was developed using SurveyMonkey. The questionnaire consisted of five sections, addressing (1) demographics; (2) awareness and current use of CE; (3) perceived needs of CE; (4) preference for CE formats; and (5) facilitators of and barriers to participation in CE. (The specific questions in each section are available from the authors.) The questions were developed on the basis of previous research on perceived CE needs as well as other studies conducted using the same online questionnaire format.^{13,14,16,24,25} Response options for items relating to awareness and current use of CE (section B) were "yes," "no," and "unsure." For most of the remaining items, respondents indicated their level of agreement with a statement on a five-point Likert scale (in sections

C and E, 1 = strongly disagree, 5 = strongly agree; in section D, 1 = not at all likely, 5 = very likely). Before distributing the questionnaire to CAMPT members, we piloted it with 10 physiotherapists, of whom 4 were AMPTs, who provided feedback on the questionnaire's clarity, structure, and relevance. Revisions to the questionnaire were made in response to the received feedback.

Data Collection

A link to the questionnaire was sent to participants by the CAMPT secretary on February 15, 2010, via e-mail, using a modified version of the Dillman²⁴ three-step mailing process. Two subsequent reminder/thank-you emails, also including a link to the questionnaire, were sent 3 and 4 weeks later, respectively, in an effort to recruit non-responders. Participants were given a total of 6 weeks from the initial e-mail to complete the questionnaire.

Data Analysis

The data collected from the completed questionnaires were transferred from SurveyMonkey into a Microsoft Excel spreadsheet (Microsoft Corp., Redmond, WA), in which the data were organized, and then transferred and converted into SPSS version 17.0 (SPSS Inc., Chicago, IL). The response rate was calculated by dividing the number of participants who completed the survey ($n = 133$) by the number of participants on the CAMPT e-mail list ($n = 456$).

The survey consisted of some close-ended categorical questions that addressed the descriptive objectives of the study, namely current use, awareness, and perceived needs. Numerically coded data from these categorical questions were analyzed using descriptive statistics.

We used independent-samples *t*-tests to determine differences in sample means for CE preferences, barriers, and motivators between those with 13 years or less of physical therapy experience and those with more than 13 years of experience. No current research is available to guide the selection of a cutoff point for dichotomizing respondents into more and fewer years of physical therapy experience; we therefore divided the sample into two groups using the median value of 13 years as the cutoff point, because this yielded two equally large subgroups that would optimize the reliability of the between-group comparisons. We set the significance level a priori for all *t*-tests at $p < 0.05$.

RESULTS

Of the 456 AMPTs on the CAMPT list, 133 completed and returned the questionnaire, for a response rate of 29.2%. Data analyses were conducted on this sample of 133 AMPT participants.

Demographics of CAMPT Respondents

Table 1 shows the demographic characteristics of respondents. The sample was almost equally divided between women (51.1%) and men (48.9%). Almost all

Table 1 Demographic and Practice Characteristics of Respondents

Characteristic	No. (%) respondents; $n = 133^*$
Geographic location [†]	
Rural	7 (5.5)
Urban	121 (94.5)
Years of experience in physical therapy	
≤13	71 (53.4)
≥13	62 (46.6)
Sex [‡]	
Male	64 (48.9)
Female	67 (51.1)
Predominant work area	
Direct patient care	124 (93.2)
Research	3 (2.3)
Teaching	3 (2.3)
Administration	3 (2.3)
Predominant work setting [§]	
General hospital	5 (3.8)
Private practice or clinic	118 (89.4)
University or educational institution	3 (2.3)
Consulting firm or agency	2 (1.5)
Other	4 (3.0)
Highest degree attained [‡]	
Bachelor's	76 (58.0)
Entry-level master's (Master of Physical Therapy)	11 (8.4)
Applied or research master's	27 (20.6)
Doctoral	5 (3.8)
Other	12 (9.2)

* Unless otherwise indicated.

[†] $n = 128$.

[‡] $n = 132$.

[§] $n = 131$.

respondents reported living in an urban location (94.5%), and a bachelor's degree was the most commonly cited highest degree attained (58.0%). The median number of years of practical physical therapy experience of our sample population was 13. Fewer than half of respondents had more than 13 years of practical physical therapy experience (46.6%). Most participants completed their manual training in Canada (89.5%), and almost half (48.1%) had been registered with CAMPT for more than 6 years at the time of the survey. The most frequently cited work characteristics were direct patient care (93.2%) and employment in a private practice or clinic setting (89.4%).

CE Engagement and Awareness

Table 2 illustrates respondents' awareness of and participation in current CE activities and opportunities. Almost all respondents reported engaging in informal

Table 2 Awareness of and Participation in CE Opportunities

CE awareness / participation	No. of respondents; <i>n</i> = 133	Response; %		
		Yes	No	Unsure
CE participation after advanced manual therapy training				
Personal reflection (informal)	125	96.8	2.4	0.8
Peer and colleague discussions (informal)	126	94.4	5.6	0
Literature review (informal)	121	93.4	5.8	0.8
On-the-job experience (informal)	124	90.3	8.1	1.6
In-service (informal)	124	86.3	13.7	0
Non-certificate courses (formal)	122	81.1	18.0	0.8
Conferences (formal)	128	77.3	22.7	0
Seminars (formal)	122	74.6	25.4	0
Certificate courses (formal)	121	70.2	28.1	1.7
Rounds, meetings, inter-professional education sessions (formal)	121	70.2	28.9	0.8
Performance reviews (i.e., supervisor feedback) (informal)	110	61.8	38.2	0
Conducting research (formal)	108	33.3	65.7	0.9
Sources of information regarding CE opportunities				
CPA or provincial/territorial physiotherapy associations	129	99.2	0.8	0
Canadian Academy of Manipulative Therapy	130	96.9	2.3	0.8
Colleagues	125	89.6	9.6	0.8
Workplace or institutions	113	76.1	23.9	0
International Federation of Orthopaedic Manipulative Therapists	117	65.0	25.6	9.4
Media (Internet, TV, radio, advertisements)	101	32.7	66.3	1.0
Participation in CE opportunities related to orthopaedics				
Acupuncture, intramuscular stimulation, dry needling	119	80.7	19.3	NA
Butler	115	64.3	35.7	NA
Exercise therapy (medical exercise therapy, kinetic control)	116	63.8	36.2	NA
McKenzie	110	57.3	42.7	NA
Mulligan	115	56.5	43.5	NA
Advanced taping	107	47.7	52.3	NA
Myofascial release therapy	109	45.0	55.0	NA
Osteopathy	100	19.0	81.0	NA

CE = continuing education; CPA = Canadian Physiotherapy Association; NA = not applicable.

CE, including personal reflections (96.8%), literature reviews (93.4%), peer and colleague discussions (94.4%), and on-the-job experience (90.3%). With respect to formal CE formats, non-certificate courses were the most commonly cited (81.1%), followed by conferences (77.3%) and seminars (74.6%). However, only one-third reported engaging in research (33.3%). Almost all respondents reported receiving CE information from CPA or provincial physical therapy organizations (99.2%), CAMPT (96.9%), and colleagues (89.6%). More than 95% of respondents were aware of McKenzie, Mulligan, and acupuncture-related CE opportunities. Acupuncture-related CE was the most commonly cited topic in which respondents had participated (80.7%); osteopathy was the least commonly cited topic (19.0%).

Perceived CE Needs

Most respondents strongly agreed that CE is pertinent to their current practice as manual therapists (79.8%), continues to play an important role in their professional development (62.0%), and improves the quality of their patient care (78.1%). Approximately three-quarters of respondents (76.6%) disagreed or strongly disagreed with the statement that CE opportunities related to manual and manipulative therapy are lacking. Almost all respondents (93.8%) agreed or strongly agreed that CE continues to be relevant and applicable to their area of work.

Preferences for CE Delivery and Logistics

As shown in Table 3, the CE formats in which respondents most commonly said they would “very likely”

Table 3 Respondents' Preference for CE Formats

How likely are you to participate in these CE formats?	No. of respondents	Response; %				
		1 – not at all likely	2 – very unlikely	3 – somewhat likely	4 – probably	5 – very likely
Hands-on or practical workshops	126	0.8	0.8	4.8	22.2	71.4
Seminars	127	0	3.1	17.3	39.4	40.2
Lectures	123	0	2.4	19.5	39.8	38.2
Individual or group consultation (face-to-face)	127	0.8	8.7	19.7	34.6	36.2
Online courses	127	3.9	11	36.2	25.2	23.6
Peer discussion groups or case studies	126	0.8	10.3	34.1	31.7	23
Mentorship programs	126	3.2	23.0	25.4	31	17.5
Videoconference	124	4.8	20.2	39.5	23.4	12.1

CE = continuing education.

participate were hands-on or practical workshops (71.4%). Most respondents reported that they would “probably” or “very likely” participate in seminars (79.6%), lectures (78.0%), or face-to-face consultations (70.8%). About one-quarter of respondents said that CE participation in the form of mentorships (26.2%) or videoconferences (25.0%) would be “not at all likely” or “very unlikely.” The day of the week most commonly cited as most convenient to attend a structured CE activity was Saturday.

Barriers to and Facilitators of CE

Approximately two-thirds of respondents agreed or strongly agreed that professional commitments (69.0%), cost of travel (65.3%), travel time (64.6%), and social commitments (62.7%) limit CE participation (see Table 4). Fewer than 20% agreed or strongly agreed that lack of employer support limits CE participation (16.9%). Most participants strongly agreed that the following factors motivate CE participation: increasing knowledge base and competency (72.4%), being interested in the topic area (64.6%), and keeping up to date with current research (55.6%).

Years of Physical Therapy Experience

Respondents with 13 or fewer years of physical therapy experience were significantly more likely to participate in mentorship programs than those who had more than 13 years of physical therapy experience ($p = 0.016$). Cost of the CE activity was also considered a greater barrier to participation by respondents with fewer years of physical therapy experience ($p = 0.029$). Attaining additional credentials was more commonly cited as a facilitator of CE participation by respondents with 13 or fewer years of physical therapy experience ($p = 0.045$). All other dependent variables were cross-tabulated with physical therapy years of experience, but none were found to be significant.

DISCUSSION

This study's findings shed light on the current landscape of CE as perceived by Canadian AMPTs, presenting information on awareness, current use, preferences, barriers, and facilitators with respect to CE participation.

According to the Canadian Institute of Health Information,²⁶ most physiotherapists in 2008 were female (78.4%), which is not consistent with the demographics of our study. However, it is interesting to note that the proportion of male physiotherapists working in private practice or clinics in 2008 was almost twice that of female physiotherapists, which may mean that a greater percentage of male physiotherapists than of physiotherapists overall work in the private practice setting. Because the gender demographics of the specific AMPT population are unknown, the characteristics of the CAMPT respondents in our study may be more representative of the general AMPT demographics than at first appears.

Our results show that AMPTs consider CE relevant to the practice of physical therapy, and specifically to manual therapy; that they regard it as a key part of professional development; and that they feel that it has a positive impact on the quality of patient care. These values were demonstrated by the high rates of participation reported in all the CE opportunities with the exception of conducting research. Most of the respondents worked predominantly in direct patient care (93.2%), which is not surprising, because the skills gained during AMPT training are focused on improving patient outcomes through manual therapy. By contrast, only 2.3% reported their primary area of work as research and education. The reason may be because, until recently, opportunities within the fields of research and education have been limited, as reflected in the small number of master's degrees held by respondents (8.4% entry-level master's degrees and 20.6% applied or research master's

Table 4 Barriers to and Facilitators of Respondents' CE Participation

Question	No. of respondents	Response; %				
		1 – strongly disagree	2 – disagree	3 – neutral	4 – agree	5 – strongly agree
To what extent do respondents agree or disagree that the following factors limit CE participation?						
Professional commitments (busy patient caseloads, administrative duties)	126	3.2	15.1	12.7	47.6	21.4
Time of travel	127	0.8	13.4	21.3	44.9	19.7
Cost of travel	127	1.6	14.2	18.9	43.3	22
Social commitments (family, friends, recreational)	126	4.8	10.3	22.2	40.5	22.2
Large time commitment to CE activity	124	4.8	16.9	28.2	39.5	10.5
Cost of CE activity	126	4	20.6	27.8	35.7	11.9
Subject area not relevant to practice	125	6.4	16	23.2	27.2	27.2
Lack of employer support	124	29.8	21.8	31.5	12.9	4.0
To what extent do respondents agree or disagree that the following factors motivate CE participation?						
Increasing knowledge base and competency	127	0	0	8	26.8	72.4
Interest in a certain topic area	127	0	0	1.6	33.9	64.6
Keeping up to date with current research	126	0	0.8	2.4	41.3	55.6
Attaining additional credentials	126	2.4	6.3	19	50.8	21.4
Meeting educational or workplace requirements	124	13.7	21.8	38.7	23.4	2.4
Advancement in a present job	125	10.4	16.8	41.6	23.2	8

CE = continuing education.

Table 5 Respondents' Years of Physical Therapy Experience versus Perceived Needs

Categories and physical therapy experience	Mean rating* (SD)	p-value (95% CI)
Mentorship as a preferred CE format		0.016 (0.008–0.860)
<13 y	3.59 (1.067)	
>13 y	3.12 (1.121)	
Cost of CE activity as barrier to participation		0.029 (0.043–0.776)
<13 y	3.51 (1.002)	
>13 y	3.1 (1.076)	
Attaining additional credentials motivates CE participation		0.045 (0.008–0.650)
<13 y	3.98 (0.944)	
>13 y	3.66 (0.873)	

*1 = strongly disagree; 5 = strongly agree.

CE = continuing education.

degrees). Despite having little involvement in research as a primary area of work, a third of the respondents (33.3%) reported participating in research activities, which could indicate growing interest and opportunities to engage in research.

Karp¹³ reported that availability of course information was an important factor influencing CE involvement for physiotherapists in Georgia. Our respondents appeared to be well informed about opportunities and did not feel

that CE options related to manual and manipulative therapy were lacking. Although most respondents received information about CE from CPA (99.2%), CAMPT (96.9%), or their colleagues (89.6%), fewer reported receiving this information from the workplace (76.1%), International Federation of Orthopaedic Manipulative Physical Therapists (65%), or the media (32.7%). This is important for CE planners to note when making efforts to encourage participation by a specific population,

because AMPTs are more likely to be made aware of CE opportunities through professional organizations and word of mouth than by media advertising.

Only 19% of our respondents reported participating in any osteopathy-related CE. These findings accord with those of Poitras and colleagues,²⁷ who reported that physiotherapists in Quebec treating work-related back pain fit into specific CE profiles with respect to topic preference and that those who pursued CE in osteopathy did not tend to take mobilization courses (and vice versa). The consistency between our results and Poitras and colleagues' findings suggests the importance of being familiar with the specific CE profiles that the target population may belong to, to address their interests and needs in designing future CE programmes. Because AMPTs do not appear to be interested in osteopathy-related topics, initiatives for program development should instead focus more on acupuncture- and orthopaedic-related content.

AMPTs expressed a preference for active, hands-on learning: Almost three-quarters said they were very likely to participate in hands-on or practical workshops. This finding, however, is inconsistent with the higher level of participation in personal reflection, literature review, and peer discussion reported by AMPTs. This inconsistency may be the result of the AMPTs having an unclear understanding of the definition of CE when completing the questionnaire. A survey of nurse practitioners in Nevada found a similar discrepancy between preferred and actual CE formats used; investigators concluded that this inconsistency was likely the result of a lack of options in CE delivery.²¹ Similarly, AMPTs in Canada may lack opportunities for active, hands-on learning, or such courses may not be readily available. Therefore, it is important to align the formats of current and future CE activities with the preferences of the consumer, because it will ultimately affect participation.

Facilitators of CE participation identified by AMPTs are interest in the topic area, increasing knowledge base and competency, and keeping up to date with current research. Similarly, Austin and Graber,⁵ who interviewed physiotherapists in Illinois, found that high importance was placed on availability and relevance of CE topics. In another investigation of Illinois physiotherapists' perspectives on CE, Austin and Graber¹ reported that physiotherapists considered CE a vehicle for keeping up to date and a strategy for continually expanding their knowledge. In both of these studies, the physiotherapist respondents likely possessed varying levels of experience with CE; they identified facilitators similar to those noted by the general physiotherapist population, which may indicate that such factors are not related to previous exposure to CE.

In contrast, one area in which our findings differed from previous findings related to the general physiotherapist population was in the preference for timing of CE activities. Previously, physiotherapists have expressed

a desire for CE options that better fit their schedules during the work week,⁵ and few favoured Friday or Saturday courses.¹⁵ In this study of Canadian AMPTs, however, most respondents indicated a preference for CE courses to occur on Saturdays. Several possible explanations for this discrepancy exist. First, most of our respondents work predominantly in private practice clinics and may therefore find that weekend courses are better suited and less disruptive to their working hours. Second, most reported that they would be very likely to engage in hands-on or practical workshops; because these interactive formats typically require larger blocks of time, it may be more feasible to schedule them on weekends. Finally, because our study population had already participated in manual and manipulative therapy courses, which take place mostly on weekends,²⁸ they may have been more familiar with this course schedule and thus chose it as their preference.

In addition to determining facilitators of CE participation for Canadian AMPTs, we also identified barriers to participation. Most respondents agreed that cost and travel time, in addition to social and professional commitments (busy patient caseload, administrative duties), are barriers to participation in CE. Their preferred format – hands-on or practical workshops – typically requires in-person attendance, which is associated with a greater commitment of time and travel. Social and professional commitments were highly ranked as barriers to CE participation, indicating a need for further investigation into optimal timing and efficiency of CE events to minimize interference with these other obligations. As with facilitators of CE participation, we hypothesized that AMPTs would report barriers similar to those of the general physiotherapist population and that these barriers might be unrelated to prior CE experiences. Although some of the reported barriers correspond with those found in other studies, such as travel distance^{5,13} and social and family commitments,^{5,8} program cost^{5,8,13,15} was not identified as a barrier to CE participation among AMPTs. This population has already demonstrated a significant financial commitment to furthering their professional development through completion of costly manual therapy courses,²⁸ which may explain why they do not identify program cost as a barrier.

When the survey findings were analyzed in conjunction with demographic information, job experience appeared to influence the perception of both facilitators of and barriers to CE participation. For example, those with 13 or fewer years of physical therapy experience considered the cost of CE activity a greater barrier to CE participation than their more experienced counterparts, perhaps because less experienced clinicians have existing student debt, less accumulated savings, or a lower professional income. This finding is similar to the results of an Australian study²⁹ on nurses' access to and support for CE, in which lack of financial support for CE was

identified as a major barrier, particularly for those nurses who may have a higher cost of living, such as those with young families. Furthermore, those in our study with fewer years of experience expressed a greater preference for mentorship programs as a form of CE. Similarly, Namara and colleagues¹⁸ reported that community pharmacists who were younger, and therefore likely had fewer years of professional experience, were more interested in CE as a means of identifying role models and engaging in peer discussions about clinical practice.

Those respondents with fewer years of physical therapy experience were also more likely to identify attaining additional credentials as a facilitator of CE participation than those with more experience in practice, who were less likely. More experienced respondents may have had more time and opportunity to seek additional credentials than their less experienced colleagues. The differences in facilitators of and barriers to CE participation between more and less experienced physiotherapists suggest that program developers should consider different CE formats, content, timing, and marketing strategies to target clinicians with varying levels of experience. For example, less experienced physiotherapists may be more likely to participate in less costly programs with a mentorship component that result in additional credentials. The variance in reports of barriers to and facilitators of participation in CE across and even within different populations of physiotherapists indicates that these factors are very population specific, which indicates that careful consideration of the target audience is required when planning any CE activity.

Although our study is limited by the low response rate of 29.2%, this rate is in line with those of two previous research studies (one of manual and manipulative therapists and one of public health physicians) using the same online format, which achieved response rates of 30%²³ and 34%,²² respectively. Given the low response rates reported in previous studies, considering different means of conducting our survey or implementing strategies to enhance our study's response rate would have been ideal. However, lack of funding made it impossible to incorporate incentives to participate in our study. Given our low response rate, extrapolating the responses from survey participants to the general population should be done with caution. The nature of our study design is subject to voluntary response bias, and our low response rate may have further contributed to sampling error. We should note, however, that the number of inactive e-mail addresses could not be directly accounted for because the secretary of CAMPT did not record the number of bounce-back e-mails. If the CAMPT member list included inactive e-mail addresses, our response rate may be artificially low. Moreover, although the survey was sent to AMPTs across the country, it was available only in English, and thus physiotherapists who are not fluent in English would

not have been able to participate. For ease of sampling, we used CAMPT members as our sample population; because membership is not required for practitioners, however, our results may not be representative of all AMPTs in Canada. Moreover, because demographics of the CAMPT population are unknown, we cannot be certain whether our study population is representative of the general AMPT population. This study may in turn further the understanding of demographics of the AMPT population.

The positive slant of the Likert scale used in one question in section D should be noted: The midpoint was "somewhat likely" rather than a neutral point. The question itself was also framed in a positive manner, to clearly portray the degree of respondents' positive preference for the different course formats. A similar Likert scale was used in the survey conducted by Sran and Murphy,⁸ investigating how likely their respondents would be to enrol in a clinical master's degree program.

Another area of limitation was the geographic location of our respondents. Respondents' province or territory of residence was not investigated, so whether this was an important factor is unknown. We had originally planned to compare the CE preferences of AMPTs in rural and urban settings, but because only 5.5% of participants reported living in a rural area, the sample size of the rural population was too small to yield valid results.

In our investigation of AMPTs' current participation in different CE courses, we did not specifically ask about when these courses were taken. Therefore, we do not know whether these courses were taken before, during, or after completing the manual and manipulative therapy courses and whether this would affect their perceptions of CE.

This study highlights the need for future research in several areas. First, preferences in terms of CE topics of interest to AMPTs must be examined, because we determined this to be too broad a variable to include in the current survey. Second, our results suggest what may be a growing interest in research involvement; however, whether clinicians are participating in research to keep up to date with best practices or to advance the field of knowledge in manual and manipulative therapy remains to be determined. Third, comparing perceived needs and value of CE between AMPTs and other groups of physiotherapists, such as those with and without advanced training, would be interesting. Finally, to determine whether the CE formats preferred by AMPTs are effective in clinical practice, investigation of patient outcomes and quality of care after such CE activities would be necessary.³⁰

CONCLUSION

To meet physiotherapists' needs for CE, identifying key factors such as their awareness of and participation

in what is currently available, as well as their preferences for and perceived barriers to attending such courses, is important. AMPTs continue to value and participate in CE and demonstrate a high level of awareness of current CE opportunities. This study suggests that AMPTs' preferred CE formats are inconsistent with the CE opportunities in which they participate. With a deeper understanding of AMPTs' needs as a result of this study, program developers may then modify existing opportunities or tailor new programs to meet the specific needs of this target audience.

When modifying or creating new CE opportunities for Canadian AMPTs, program planners should consider several points. First, formats that include opportunities to practise hands-on skills are the preferred mode of delivery and should be considered the primary vehicle for the delivery of CE for this population. Second, planning courses for Saturdays would meet AMPTs' needs with respect to program timing. Finally, years of experience must be taken into account when considering the cost of a CE activity and the type of CE programming, such as a mentorship program, because preferences with respect to these factors are affected by clinicians' level of experience.

KEY MESSAGES

What Is Already Known on This Topic

CE is essential to maintain and advance skills and knowledge, with the ultimate goal of improving quality of patient care. For CE to be effective, the learners' needs must be considered during program development. Although physiotherapists' perceived CE needs have been identified, there is no information on the needs of AMPTs.

What This Study Adds

This study furthers our understanding of AMPTs' perceived CE needs by determining specific gaps that exist between current patterns of CE use and AMPTs' preferences for CE. To enhance AMPTs' participation in CE, CE developers should consider tailoring future initiatives to meet the specific needs and preferences identified in this study and work to minimize the barriers of timing and cost.

REFERENCES

1. Austin TM, Graber KC. Physical therapists' perspectives on the role and effectiveness of continuing education. *J Allied Health*. 2007;36(4):216–23. Medline:18293803
2. French HP, Dowds J. An overview of continuing professional development in physiotherapy. *Physiotherapy*. 2008;94(3):190–7.
3. Nolan M, Owens RG, Nolan J. Continuing professional education: identifying the characteristics of an effective system. *J Adv Nurs*. 1995;21(3):551–60. Medline:7745211
4. Renschler HE, Fuchs U. Lifelong learning of physicians: contributions of different educational phases to practice performance. *Acad Med*. 1993;68(2 Suppl):S57–9. Medline:8431255
5. Austin TM, Graber KC. Variables influencing physical therapists' perceptions of continuing education. *Phys Ther*. 2007;87(8):1023–36. Medline:17553921
6. Lamb DW, Kaltenborn FM, Paris SV. History of IFOMT [Internet]. Canadian Academy of Manipulative Physiotherapy; c2002–09 [cited 2010 July 18]. Available from: <http://www.manipulativetherapy.org/camt.php?page=about-ifomt-history>.
7. Michels, Shannon (Canadian Academy of Manipulative Physiotherapy). E-mail to: Bradley Robles (University of Toronto). 2009 Oct 5.
8. Sran MM, Murphy S. Postgraduate physiotherapy training: Interest and perceived barriers to participation in a clinical master's degree programme. *Physiother Can*. 2009;61(4):234–43. Medline:20808485
9. Diploma of advanced orthopaedic manual and manipulative physiotherapy courses syllabus continuum summary [Internet]. Orthopaedic Division of the Canadian Physiotherapy Association; c2009 [cited 2009 September 28]. Available from: http://orthodiv.org/documents/OPD_Curriculum_summary_2009.pdf.
10. About IFOMPT [Internet]. Auckland, New Zealand: International Federation of Orthopaedic Manipulative Physical Therapists; c2008 [cited 2011 April 28]. Available from: <http://www.ifompt.com/About+IFOMPT.html>.
11. Canadian Academy of Manipulative Physiotherapy [Internet]. Canadian Academy of Manipulative Therapy; c2002–11 [cited 2011 May 1]. Patients. Available from: <http://manippt.org/patients.php#who>.
12. Aherne M, Lamble W, Davis P. Continuing medical education, needs assessment, and program development: theoretical constructs. *J Contin Educ Health Prof*. 2001;21(1):6–14. Medline:11291588
13. Karp NV. Physical therapy continuing education. part I: Perceived barriers and preferences. *J Contin Educ Health Prof*. 1992;12(2):111–20.
14. Karp NV. Physical therapy continuing education part II: Motivating factors. *J Contin Educ Health Prof*. 1992;12(3):171–9.
15. Tassone MR, Speechley M. Geographical challenges for physical therapy continuing education: preferences and influences. *Phys Ther*. 1997;77(3):285–95. Medline:9062570
16. Canadian Physiotherapy Association [Internet]. Ottawa (ON): Canadian Physiotherapy Association. c2008 Sep [cited 2010 May 20]. Professional Development Department. Professional development survey results summary. Available from: <http://www.physiotherapy.ca/public.asp?WCE=C=47%7CK=229503%7CRefreshT=229495%7CRefreshS=LeftNav%7CRefreshD=2294958>.
17. Mathur S, Stanton S, Reid WD. Canadian physical therapists' interest in web-based and computer-assisted continuing education. *Phys Ther*. 2005;85(3):226–37. Medline:15733047
18. Namara KP, Duncan GJ, McDowell J, et al. Community pharmacists' preferences for continuing education delivery in Australia. *J Contin Educ Health Prof*. 2009;29(1):52–7. Medline:19288567
19. Davis D, O'Brien MAT, Freemantle N, et al. Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *JAMA*. 1999;282(9):867–74. Medline:10478694
20. Brennan GP, Fritz JM, Hunter SJ. Impact of continuing education interventions on clinical outcomes of patients with neck pain who received physical therapy. *Phys Ther*. 2006;86(9):1251–62. Medline:16959673
21. Charles PA, Mamary EM. New choices for continuing education: a statewide survey of the practices and preferences of nurse practitioners. *J Contin Educ Nurs*. 2002;33(2):88–91. Medline:11916344
22. Fischbacher C, Chappel D, Edwards R, et al. Health surveys via the Internet: quick and dirty or rapid and robust? *J R Soc Med*. 2000;93(7):356–9. Medline:10928022
23. Zettel M, Karam J, Green K, et al. Do the manual and manipulative therapy continuing education courses meet the learning needs of physiotherapists across Canada? Unpublished manuscript, 2009.
24. Dillman DA. Mail and Internet surveys: The tailored design method. 2nd ed. New York: Wiley; 2000.
25. Salbach NM, Jaglal SB, Korner-Bitsensky N, et al. Practitioner and organizational barriers to evidence-based practice of physical therapists for people with stroke. *Phys Ther*. 2007;87(10):1284–303. Medline:17684088

26. Physiotherapists in Canada [Internet]. Toronto (ON): Canadian Institute for Health Information. c2009 [cited 2011 May 12]. Available from: http://secure.cihi.ca/cihiweb/products/PT_report_2008_en.pdf
27. Poitras S, Blais R, Swaine B, et al. Continuing education of physiotherapists involved in treating persons with work-related back pain. *Physiother Can.* 2005;57(3):225–33.
28. Canadian Physiotherapy Association, Orthopaedic Division Education Committee [Internet]. Canadian Physiotherapy Association, Orthopaedic Division; c2009 [cited 2009 Oct 5]. Available from: <http://orthodiv.org/education/courses.php>.
29. Hegney D, Tuckett A, Parker D, et al. Access to and support for continuing professional education amongst Queensland nurses: 2004 and 2007. *Nurse Educ Today.* 2010;30(2):142–9. Medline:19646799
30. Brennan GP. Invited commentary. *Phys Ther.* 2007;87(8):1036–7, author response 1038. Medline:17670750