

Physiotherapists' Perceptions of Their Role in the Rehabilitation Management of Individuals with Obesity

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ABSTRACT

Purpose: To examine physiotherapists' perceptions of their role in the rehabilitation management of individuals with obesity. **Methods:** A Web-based survey was conducted in 2008. Participants were recruited through the Canadian Physiotherapy Association (CPA) via electronic communication and were eligible if they had entry level to practice qualifications and were residents of Canada. The online questionnaire consisted of 61 statements pertaining to potential PT roles, barriers, and learning needs, developed using the framework of CPA's position statement on obesity. Frequencies were computed for all Likert-scale response items on the questionnaire. **Results:** A total of 851 physiotherapists, representative of CPA membership, participated in the study. There was strong agreement that physiotherapists have a role to play in the management of clients who are obese through exercise interventions (96%), mobility training (97%), and cardiorespiratory programmes for impairments associated with obesity (95%). Respondents were less clear about their role in the assessment of body fat or patients' weight loss. Lack of client motivation was identified as a barrier to treatment. **Conclusion:** Physiotherapists were clear that they see their role as largely focused on exercise and education to treat conditions associated with obesity. These are important components but do not by themselves constitute an overall management plan.

Key Words: body weight; exercise; obesity; physical therapy; role.

RÉSUMÉ

Objectif : Examiner les perceptions qu'ont les physiothérapeutes de leur rôle dans la gestion de la réadaptation des personnes souffrant d'obésité. **Méthode :** Un sondage par Internet a été réalisé en 2008. Les participants ont été recrutés par l'intermédiaire de l'Association canadienne de physiothérapie (ACP) par communication électronique. Pour être admissibles, ils devaient posséder les compétences de base nécessaires à la pratique de la physiothérapie et être résidents du Canada. Le questionnaire en ligne qui leur a été soumis comportait 61 affirmations relatives au rôle potentiel des physiothérapeutes, aux obstacles et aux besoins de formation en pratique. Ces affirmations ont été préparées à partir des grandes lignes de l'énoncé de position de l'ACP en matière d'obésité. Les fréquences ont été calculées pour toutes les réponses du questionnaire recueillies à l'aide de l'échelle de Likert. **Résultats :** Au total, 851 physiothérapeutes représentatifs des membres de l'ACP ont participé à l'étude. Les répondants se sont dits fortement en accord avec le fait que les physiothérapeutes ont un rôle à jouer dans la gestion des clients obèses, par des interventions en matière d'exercices (96 %), par de l'entraînement à la mobilité (97 %) et par des programmes cardiorespiratoires pour faire face aux incapacités associées à l'obésité (95 %). Les répondants n'étaient pas aussi clairs quant à leur rôle dans l'évaluation du gras corporel ou de la perte de poids des patients. La motivation des clients a été citée comme un obstacle au traitement. **Conclusion :** Les physiothérapeutes perçoivent clairement leur rôle comme celui de professionnels centrés sur l'exercice et l'éducation pour le traitement de problèmes associés à l'obésité. Ces résultats semblent indiquer que leur rôle constitue une composante importante mais incomplète d'un plan de gestion global de l'obésité.

Obesity is a serious problem in Canada: 14.1 million people, representing 59% of the adult population, are considered either overweight or obese.¹⁻⁷ Obesity is defined as the accumulation of excess body fat to the extent that it may impair health;² it is classified using body mass index (BMI)⁴ (see Table 1). Obesity-related costs to the Canadian economy are both direct (e.g., cost of treatments, nursing care, and rehabilitation) and

indirect (e.g., employee absenteeism); in 2000, these were estimated at \$1.6 billion and \$3.7 billion, respectively.^{8,9} Burdens attributed to obesity are high because of the risks and associated conditions, including type 2 diabetes mellitus and cancers of the breast, uterus, prostate, and colon.¹⁰ Other health risks associated with obesity include osteoarthritis (OA); obstructive sleep apnea; impaired fertility; gallbladder disease; psychological dis-

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Table 1 Body Mass Index Categories

Category	BMI range*	Risk of developing health problems
Underweight	<18.5	Increased
Normal weight	18.5–24.9	Least
Overweight	25.0–29.9	Increased
Obese class I	30.0–34.9	High
Obese class II	35.0–39.9	Very high
Obese class III	≥40.0	Extremely high

*BMI is calculated as follows: metric: BMI = weight (kg)/height (m)²; non-metric: BMI = weight (lb)/height (")² × 703. Source: Health Canada (2003).⁴

orders such as depression, anorexia nervosa, and bulimia; and premature death.^{7,8,10,11} The aetiology of obesity is complex; obesity is thought to be a result of the interplay of genetic, environmental, metabolic, behavioural, and physiologic factors.¹⁰

In light of these statistics, health professionals can expect an increasing number of clinical encounters with people who are overweight or obese,¹² and they are beginning to define their roles with this population.^{13–20} The Canadian Physiotherapy Association (CPA) has identified the importance of physiotherapists in the management of obesity and in November 2007, after consultation with selected PT stakeholder groups, released a position statement titled “Physiotherapists and the Management of Obesity.”²¹ CPA states that physiotherapists are often the first contact for a person with pain or functional limitation resulting from obesity.²¹ The empirical research on practice in and perceptions of the management of individuals with obesity in primary care is limited, but surveys of physiotherapists' and physicians' knowledge and practice related to obesity suggest that there are obstacles that limit proper care, including inadequate funding and training for clinicians.^{12,17–19,22}

Physiotherapists are constrained by a lack of clarity about their roles and scope of practice in this area. Exercise and physical activity are both key components of physiotherapy practice and important elements in the management of individuals with obesity.^{23–30} Physiotherapists manage clients who have secondary conditions resulting from obesity. For example, an analysis based on data from the Canadian Joint Replacement Registry found that among hip-replacement patients ($n = 7,538$), 73% were classified as overweight or obese at the time of surgery, as were 87% of knee-replacement patients ($n = 9,706$).^{31–33} Treatment of people who have had a hip or knee replacement includes gait retraining,³³ posture retraining,³² pain management,³⁴ and endurance training.³⁰ However, there is no research describing physiotherapists' role in managing obesity as an underlying problem associated with joint replacement.

Physiotherapists are front-line providers of health care services. We hypothesized that in light of the preva-

lence of obesity and the placement of physiotherapy in the health care system, physiotherapists would perceive themselves as having multiple roles to play in managing the health care needs of individuals with obesity. The purpose of our study was to examine Canadian physiotherapists' perceptions of their role in, their learning needs for, and barriers facing them in the rehabilitation management of individuals with obesity.

METHODS

Study design

A cross-sectional survey of physiotherapists was conducted using a self-completed online questionnaire from April to June 2008, following approval by the University of Toronto Ethics Review Board in January 2008 (protocol reference no. 21828).

Participants

Physiotherapists were considered eligible for the study if they (1) were members of CPA, (2) resided in Canada, (3) had completed requirements for entry level to practice, and (4) had consented to receive electronic communication. Through personal contact with CPA, we determined that there were approximately 10,000 physiotherapist members as of 2008, of whom 8,000 had agreed to receive e-mail. Using a conservative response rate of 10%, based on previous CPA return data for 2004 sampling, we expected approximately 800 responses.

Questionnaire development

Questionnaire items were designed to determine physiotherapists' perceptions of their role and were based on a review of the literature, personal communication with 10 physiotherapists from diverse clinical practice areas, and CPA's position statement on management of obesity.²¹ This position statement emerged from a series of semi-structured interviews and consultations with 15 key informants, was reviewed by 100 stakeholders for consultation, and was subsequently approved by CPA's board of directors.

The questionnaire was constructed in SurveyMonkey, a Web-based survey programme, and consisted of 9 questions about respondents' demographics and practice and 61 items in 7 domains related to management of obesity (6 items), associated conditions (6), role in health promotion (3), role in research (6), team approach (3), barriers (13), and learning needs (24). Items were rated on a 5-point non-numeric Likert-type scale (from “strongly agree” to “strongly disagree”). An open comment box was provided at the end of each question to allow respondents to provide comments and explanations.

The questionnaire was initially piloted with five physiotherapists to ensure readability and to establish the length of time required for completion. Three subsequent pilot tests were conducted with a total of 45 local physiotherapists and faculty members of the Department of Physical Therapy, University of Toronto, from January through April 2008. Based on the feedback

received, changes were made to the survey (including minor amendments to the wording, sub-category titles, and order of items) to improve clarity and usability.

Survey distribution

A modified Dillman approach was used to maximize the response rate.³⁵ The invitation letter briefly introduced the issue and described the study's purpose and rationale. The invitation also included a link to the online questionnaire. The invitation and survey link were first distributed in the body of a CPA e-newsletter. A reminder letter, also including the survey link, was included in the next edition of CPA's print newsletter, 2 weeks later; 4 weeks after the initial reminder, a second reminder letter and survey link were included in a CPA e-newsletter.

In an effort to maximize recruitment and participation in the survey, we contacted the executive officers of each CPA provincial branch and territory council by telephone or e-mail. The Alberta Physiotherapy Association, Atlantic Provinces' Physiotherapy Associations, Manitoba Physiotherapy Association, Ontario Physiotherapy Association, Saskatchewan Physiotherapy Association, Northwest Territories and Nunavut Councils, and Yukon Territory Council each agreed to a one-time distribution of the invitation letter and survey link to their membership via electronic communication. Consent was obtained before physiotherapists began completing the online survey.

Statistical analysis

Descriptive statistics were calculated for all variables using the Statistical Package for the Social Sciences (SPSS) version 16 (SPSS Inc., Chicago, IL). Percentages reported below were calculated based on total responses to each question and do not include respondents who skipped that question. Frequency distributions were computed for each questionnaire item and for each level of response. The positive responses "strongly agree" and "agree" were collapsed into one category, and the negative responses "strongly disagree" and "disagree" into a second category; a third category of neutral responses was calculated and reported separately.

RESULTS

Characteristics of physiotherapist respondents

There were 8,233 physiotherapists on the e-mail lists of the national and provincial physiotherapy associations in 2008–2009. Of these, 867 (11%) accessed the survey and consented to participate; 851 (10%) met the inclusion criteria.

All provinces and territories were represented. The Atlantic provinces accounted for 156 respondents (19%), Quebec 20 (2%), Ontario 374 (45%), central Canada (Saskatchewan and Manitoba) 76 (9%), western Canada (British Columbia and Alberta) 197 (24%), and northern Canada (Nunavut, Yukon, and Northwest Territories) 17

Table 2 Characteristics of Respondents

Characteristics	No. (%) of respondents
Age	
20–29	133 (16)
30–39	267 (32)
40–49	218 (26)
>50	214 (26)
Level of education	
Diploma	71 (9)
BSc(PT)	569 (68)
MSc(PT)	117 (14)
Other master's degree	69 (8)
PhD	14 (2)
Years in practice	
<10	292 (35)
10–19	216 (26)
20–29	196 (23)
>29	136 (16)
Average work hrs/wk	
≤29	175 (21)
30–39	431 (52)
≥40	225 (27)
Workplace setting*	
General hospital	286 (34)
Outpatient practice	203 (24)
Rehab hospital	120 (14)
Sole practice	129 (15)
Visiting agency	31 (4)
Community programmes	82 (10)
Educational institution	69 (8)
Not practising	8 (1)

*Respondents could select multiple settings.

(2%). Table 2 presents respondent and workplace characteristics. Respondents were predominantly female (89%) and at least 40 years of age (52%), and the majority had a BSc(PT) or equivalent degree (68%). Participants' years of experience varied: 35% had been practising for fewer than 9 years, while 65% had 10 or more years in practice. Respondents were primarily employed in direct patient care (775, or 93%) in diverse areas of practice (see Table 3).

The role of the physiotherapist

Management of clients with obesity

There was strong agreement that physiotherapists have a role to play in the management of patients with obesity by *developing exercise interventions* (96%), *functional mobility training* (97%), and *cardiorespiratory programme training for impairments due to obesity* (95%). Respondents were less clear on their role in the *assessment of body fat* or in *managing patients' weight loss*: 39% and 25%, respectively, were neutral about physiotherapists' role.

Management of clients with conditions associated with obesity

Physiotherapists agreed or strongly agreed (see Table 4) that they have a role to play in the assessment and management of conditions such as *heart disease*, *diabetes*,

Table 3 Main Area of Practice of Respondents ($n = 768$)

Practice area	No. (%) of respondents
General practice	104 (14)
Sports medicine	62 (8)
Orthopaedics	173 (23)
Cardiology	21 (3)
Respirology	32 (4)
Burns and wound management	5 (1)
Neurology	60 (8)
Amputee	18 (2)
Paediatrics	35 (5)
Geriatrics	81 (11)
Palliative	18 (2)
Critical care	14 (2)
Equipment prescriptions	29 (4)
Health promotion	56 (7)
Oncology	14 (2)
Rheumatology	21 (3)
Vestibular rehabilitation	12 (2)
Vocational rehabilitation	8 (1)
Not applicable	6 (1)

and *osteoarthritis* that are associated with obesity, with the exception of one item: 18% were neutral and 8% disagreed that physiotherapists have a role to play in *pre-surgical weight loss*.

Research and health promotion (data not shown in tables)

Several research and health-promotion items elicited over 90% agreement in support of a role for physiotherapists in these areas. Research items were *programme development to address obesity; providing recommendations for best practice principles; developing outcome measures specific to the population who are obese; implementing innovative programmes to address obesity; participating in clinical trials related to obesity; and developing and carrying out research projects in the area of obesity*. Health-promotion items were *counselling individuals regarding healthy lifestyle and educating individuals on obesity and its health implications*.

Barriers to treatment

Barriers to the management of clients with obesity were identified as specific to the system, the client, or the therapist. System barriers such as *lack of access to bariatric equipment* (87%), *time constraints* (78%), and *limited availability of community resources* for clients with obesity (76%) were identified. There was less agreement about barriers due to *lack of teamwork* or *lack of follow-up opportunities* (see Table 4). The most common barriers specific to the client were clients' agreeing to treatment but not being *motivated* to follow through with the programme (94%) and clients' not feeling that

managing their obesity is a *necessary goal* (83%). Respondents also acknowledged that physiotherapists have limited professional training and knowledge in managing obesity (81%) and *lack experience* in this area (76%).

Learning needs

Many respondents agreed that there is a need for *information about the medical implications* related to obesity (80%) and the *pathology and physiology* of obesity (88%). There was more moderate agreement on the need to learn skills to *assess BMI* (62%), *measure waist-to-hip ratio* (69%), and *determine waist circumference* (69%). A total of 73% of respondents agreed that they would be willing to invest in a half-day or full-day course to learn more about obesity. The preferred learning methods were *in-service sessions* (79%), *conference workshops* (77%), and *formal courses* (74%).

DISCUSSION

Our survey findings highlight the role that physiotherapists might play in the rehabilitation management of patients with obesity. As might be expected, Canadian physiotherapists who responded to the survey indicated the strongest agreement with roles traditionally associated with physiotherapy practice, such as exercise, equipment prescription, functional mobility, and cardiorespiratory training programmes for impairments resulting from obesity. These findings are consistent with evidence in the literature of the contributions that physiotherapists make in these fields.^{24,30} Respondents also appeared to have no difficulty in perceiving the role that physiotherapists might play in managing conditions associated with obesity. As primary care providers, they regularly treat clients with osteoarthritis and post-arthroplasty to enhance muscle strength, flexibility, gait, and posture, and therefore see first-hand the relevance of playing a role in managing obesity with this population.^{30,32–34,36,37}

However, there was a lack of agreement on the physiotherapist's role in managing adiposity, including performing assessments such as measures of waist circumference. This finding appears to support those of other studies suggesting that while physiotherapists effectively assess conditions such as osteoarthritis and make exercise recommendations, they seldom discuss the connection between weight and arthritis with their clients.²² It is unclear why physiotherapists in this survey did not agree on their role in the management of adiposity. It is possible that, as in other studies, respondents did not have sufficient knowledge of effective interventions or of BMI or waist-circumference measures. It may also be that physiotherapists are uncomfortable discussing weight with their clients.^{38–40}

Some respondents in our study indicated that clients themselves have limited motivation and goals related to their weight loss. There is a growing body of literature suggesting that society at large and even health care professionals have a strong weight bias and may blame indi-

Table 4 Roles, Barriers, and Learning Needs Related to Obesity Management

	No. (%) of respondents			Total
	Strongly disagree / Disagree	Neutral	Agree / Strongly agree	
1. Role in management of obesity and associated conditions				
Management of obesity				
Assessment of adiposity	144 (18)	318 (39)	347 (43)	809
Weight loss	67 (8)	198 (25)	544 (67)	809
Prescription of equipment	55 (7)	136 (17)	618 (76)	809
Exercise programmes	7 (1)	21 (3)	780 (96)	809
Functional mobility	5 (1)	23 (3)	781 (97)	809
Cardiorespiratory training	8 (1)	35 (4)	766 (95)	809
Role in associated conditions				
Assessment and treatment	15 (2)	27 (3)	771 (95)	813
Exercise programmes	12 (1)	15 (2)	786 (97)	813
Education	12 (1)	17 (2)	784 (96)	813
Acute pain management	15 (2)	35 (4)	762 (94)	813
Chronic pain management	15 (2)	39 (5)	759 (93)	813
Pre-surgical weight loss	64 (8)	150 (18)	599 (74)	813
2. Barriers to treatment				
System barriers				
Limited equipment	27 (3)	78 (10)	695 (87)	800
Limited educational materials	81 (10)	105 (13)	614 (77)	800
Limited teamwork	131 (16)	162 (20)	507 (63)	800
Limited follow-up	107 (13)	191 (24)	502 (63)	800
Limited community resources	54 (7)	138 (17)	608 (76)	800
Time constraints of PT	67 (8)	111 (14)	622 (78)	800
Funding limitations	52 (7)	152 (19)	596 (75)	800
Client / therapist barriers				
Not a client goal	65 (8)	73 (9)	657 (83)	795
Motivational issues	13 (2)	38 (5)	744 (94)	795
Sensitivity of the subject	117 (15)	117 (15)	561 (71)	795
Limited physiotherapist training	69 (9)	83 (10)	643 (81)	795
Physiotherapist experience	77 (10)	110 (14)	608 (76)	795
Safety concerns for physiotherapist	113 (14)	143 (18)	539 (68)	795
3. Learning needs				
Medical implications	76 (10)	76 (10)	627 (80)	779
Pathology and physiology	32 (4)	59 (8)	688 (88)	779
Use of BMI	144 (18)	152 (20)	483 (62)	779
Use of waist-to-hip ratio	98 (13)	143 (18)	538 (69)	779
Waist circumference	98 (13)	147 (19)	534 (69)	779
Body compensation analysis	39 (5)	121 (16)	619 (79)	779
Sensitivity training	77 (10)	160 (21)	542 (70)	779
Bariatric walker prescription	69 (9)	106 (14)	604 (78)	779
Bariatric WC prescription	67 (9)	130 (17)	582 (75)	779
Other bariatric equipment	74 (9)	123 (16)	582 (75)	779

PT = physiotherapy; BMI = body mass index; WC = wheelchair.

viduals who are obese for their condition.^{41,42} Ultimately, this bias may affect treatment, such that individuals do not receive the comprehensive care they require. Bias may be related to clinicians' discomfort with raising issues related to weight, or it may reflect a lack of understanding of complex factors that contribute to obesity, such as economic status, community environment, and genetics, all of which have been shown to influence population obesity rates.^{41,42} Schwartz and colleagues⁴¹ found that even health care professionals who work with patients who are obese, and therefore have a greater understanding of the aetiology, were biased against this group. Young female health care professionals demonstrated the strongest weight bias, which may be related

to their lack of life experience and to increased societal pressures in the past few decades to be thin.⁴¹ Our study confirms the need for individual reflection on one's personal beliefs and the need to raise awareness about the factors that contribute to obesity and the negative consequences that biases have on clients' health outcomes. Both entry-level and continuing-education physiotherapy programmes should address attitudes and biases to ensure that clinicians will treat clients who are obese in a non-biased manner that supports comprehensive care.^{22,41}

Our findings are consistent with those of other studies examining health professionals' roles in managing obesity. In these studies, nurses, physicians, dieticians, and

physiotherapists all perceived themselves as having important functions in the management of patients who are overweight and obese.^{12,14,23,38} While our study did not measure the actual practices or behaviours of physiotherapists, other studies that did so have determined that these beliefs about roles do not translate fully into practice.^{22,24}

In addition to client motivation, both time constraints and limited professional training or knowledge were also seen as barriers, consistent with findings reported for physician and nursing practices.^{18,19,38–40} Professional training needs identified by physiotherapists in our study centred on enhancing skills related to knowledge of community resources; awareness of psychological factors, pathology, and physiology; effectiveness of exercise; and medical implications of obesity. Fewer physiotherapists agreed on the need for training around assessment techniques such as BMI, waist-to-hip ratio, and the waist circumference measure. This is not surprising, given that a smaller number of physiotherapists agreed that they have a role to play in weight-loss management and the assessment of body fat. The use of assessment tools would help physiotherapists to identify individuals whose body weight places them at increased health risk and provide opportunities to discuss physical activity and healthy lifestyles.³⁷

Almost all of those who responded (97%) agreed that physiotherapists have a role to play in health promotion with clients who are overweight or obese. While physiotherapists can begin to discuss the need for healthy lifestyles with their clients, more work will need to be done to determine effective models of health promotion, given the barriers identified in this study relating to time constraints and community resources. The reversal of obesity is difficult, and success rates are low,^{12,37} so the most viable option for obesity management will be early management and prevention.¹² Addressing weight issues through education, referral, and activity prescription could be a component of PT treatment plans in the early stages of diseases associated with obesity.³⁷

LIMITATIONS

The results of this study must be considered in light of the limitations related to sampling. Physiotherapists interested in the management of obesity may have been more likely to respond to this survey than those indifferent to the issue. The survey was also limited to physiotherapists who were members of CPA (a voluntary paid membership) and had agreed to receive electronic communication. Physiotherapists who do not belong to CPA, do not have e-mail, or are not interested in obesity may have different views that our survey did not capture.

Our low response rate of 10% ($n = 851$) was typical of electronic surveys sent out by CPA, which estimates that only 30% of e-mails sent out nationally are opened by the recipient. Response was likely enhanced when seven of the provincial associations agreed to distribute the

survey link to their members. Researchers in future studies should consider using provincial communication strategies, as therapists appear more likely to open e-mails from their local groups. Despite the low response rate, however, an analysis of our respondent characteristics confirmed that respondents were representative of the national membership on key variables such as gender representation and geographic distribution.⁴³ An exception was the limited participation from Quebec, which may be attributable to the lack of a French-language questionnaire option.

Some survey items, such as *cardiovascular training programmes for impairments due to obesity*, may have been unclear and therefore interpreted differently by different respondents. The use of specific examples would help to clarify roles as they relate to these interventions.

Respondents reported working in a variety of environments, which may suggest that roles related to obesity cross settings and areas of practice. We did not seek out or analyze these sub-groups separately, however, and future studies may need to consider the different perspectives of physiotherapists who work in hospital and outpatient settings and with unique patient populations.

Since 2008, when this survey was carried out, there has been extensive media coverage of the health concerns and costs associated with obesity; our findings, therefore, may not reflect changes in the level of interest or the opinions of the profession on this topic.

CONCLUSIONS

Our study revealed that physiotherapists believe they have a variety of roles to play in the rehabilitation management of clients with obesity, particularly in the area of exercise and mobility prescription for conditions associated with obesity. These are important components but do not by themselves constitute an overall management plan. Because overweight and obesity are modifiable disease risk factors that have reached epidemic proportions, it would seem prudent for physiotherapists also to begin to measure these factors and discuss the implications of obesity with their clients.

What is already known on this topic

Obesity is a growing and very costly epidemic with far-reaching medical implications. There is growing evidence of the value of exercise in combination with dietary intervention for the purposes of reducing both weight and disease risk. Health professionals are beginning to develop their roles in the management of individuals with obesity. The Canadian Physiotherapy Association has released a position statement, "Physiotherapists and the Management of Obesity," that identifies areas in which physiotherapists may play a role.

What this study adds

This is the first pan-Canadian exploratory cross-sectional survey to describe Canadian physiotherapists' perceptions of their role in the rehabilitation manage-

ment of clients with obesity. Physiotherapists agree that they have a role to play in exercise and mobility for conditions associated with obesity; they perceive barriers to managing this condition that include lack of client motivation, time constraints of the physiotherapist, and limited professional training or knowledge specific to the condition.

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