Knowledge, Attitudes, and Practice of In-Patient Physiotherapists in Ontario Regarding Patients Who Are Super-Morbidly Obese

Claire Rinne, BScH, MScPT;* Carina Orschel, BSc Kin, MScPT;*
 Brittany Semkowich, BA (Hons) Kin, MScPT;* Lisa Ventola, BScH, MScPT;*
 Daniel DeBruyne, BA (Hons) Kin, MScPT;* Jaimie Coleman, MScPT;†
 Patricia Fox, BScPt, MSc;*‡ Katey Knott, MScPT, MSc;*§ Susan B. Jaglal, PhD, FCAHS*

ABSTRACT

Purpose: This article describes the knowledge, attitudes, and practice of in-patient physiotherapists in Ontario regarding the treatment of patients who are super-morbidly obese (SMO; i.e., those whose BMI is >50). **Method:** A 62-item questionnaire was developed to assess demographics, sources of knowledge, current practice, and attitudes such as confidence, willingness, and the perceived effectiveness of treatment. It was distributed electronically using FluidSurveys. All physiotherapists working in a clinical role with adults in an in-patient setting in Ontario were eligible to participate. **Results:** A total of 276 physiotherapists completed the survey. Most of them had learned about the treatment from non-structured sources such as clinical experience. More than half (52%) of the participants disagreed that their place of employment was well prepared to facilitate the treatment of patients who are SMO. The majority of respondents were confident in treating these patients, were willing to treat them (82%), and believed that physiotherapy would improve at least one health outcome (96%) for them; however, 46% were reluctant to treat for fear of personal injury. Participants most commonly felt limited by lack of equipment and lack of staff to assist. **Conclusions:** Physiotherapists have positive attitudes toward treating patients who are SMO, and increased equipment and staff to assist, as well as appropriate education, may decrease the fear of injury for physiotherapists while treating these patients and improve health outcomes for them.

Key Words: attitude; knowledge; obesity; morbid.

RÉSUMÉ

Objectif: décrire les connaissances, les attitudes et les pratiques de physiothérapeutes de l'Ontario à l'égard du traitement de patients hospitalisés présentant une superobésité morbide (SOM; dont l'indice de masse corporelle est supérieur à 50). **Méthodologie:** les chercheurs ont créé un questionnaire en 62 points pour évaluer les caractéristiques démographiques, les sources de connaissances, les pratiques actuelles et les attitudes, telles que la confiance, la volonté et l'efficacité perçue du traitement. Ils l'ont distribué en ligne à l'aide de FluidSurveys. Tous les physiothérapeutes exerçant un rôle clinique auprès d'adultes hospitalisés en Ontario pouvaient y participer. **Résultats:** au total, 276 physiothérapeutes ont rempli le sondage. La plupart avaient découvert le traitement auprès de sources non structurées, telles que l'expérience clinique. Plus de la moitié des participants (52 %) ne trouvaient pas que leur milieu de travail était bien préparé pour faciliter le traitement des patients présentant une SOM. La majorité se sentait à l'aise de traiter ces patients, était prête à le faire (82 %) et croyait que la physiothérapie améliorerait au moins un résultat clinique (96 %). Cependant, 46 % hésitaient à offrir le traitement, par crainte de se blesser. Les participants se sentaient généralement limités par le manque d'équipement et de personnel pour les assister. **Conclusions:** les physiothérapeutes ont des attitudes positives à l'égard du traitement des patients qui présentent une SOM, mais une formation pertinente et la présence d'équipement et de personnel pour les assister pourraient réduire leurs craintes de blessures lorsqu'ils traitent et améliorent le pronostic des patients.

In Canada, one in four adults has been classified as obese, and although the rate of increase has begun to slow, researchers have predicted that the prevalence will continue its upward trajectory.^{1,2} The fastest growing

sub-group of the obese population is people with class III obesity, or those with a BMI of 40 or more, which increased from 0.3% to 1.6% of Canadian adults between 1985 and 2011.² A further subset of this population is

From the: *Department of Physical Therapy, University of Toronto; †Heart and Vascular Program; ‡Mobility Clinic Research Unit; §Physical Medicine Program, St. Michael's Hospital, Toronto.

Correspondence to: Claire Rinne, Department of Physical Therapy, University of Toronto, 160–500 University Ave., Toronto, ON M5G 1V7; claire.rinne@alum.utoronto.ca.

Contributors: All authors designed the study; or collected, analyzed, or interpreted the data; and drafted or critically revised the article and approved the final draft.

Competing Interests: None declared.

This research was completed in partial fulfillment of the requirements for an MScPT degree at the University of Toronto. Susan Jaglal holds the Toronto Rehabilitation Institute Chair at the University of Toronto.

Physiotherapy Canada 2018; 70(2):102–112; doi:10.3138/ptc.2016-78

those who are super-morbidly obese (SMO; those with a BMI of >50); demographic information for this population does not yet exist. We have reasoned that individuals who are SMO may present particular challenges for health care professionals because of equipment restrictions and physical limitations, especially in an in-patient setting, where patients may require physical assistance to mobilize.

Particular attention must be paid to this population because obesity is associated with several health-related risk factors, and within the obese class, BMI is positively correlated with risk of comorbidities.^{3,4} These comorbidities create a significant economic burden and result in an increased likelihood of a person requiring medical care in a hospital setting.⁵ Because a positive correlation exists between BMI and number of hospitalizations, there is a relatively greater need for in-patient health care services for individuals who are SMO.⁶

Persons with class III obesity have an increased risk of disease, hospitalizations, and premature death,^{5,7} so it is important to identify treatments that mitigate these risks and address the underlying condition of obesity. The association between regular physical activity and the reduction in comorbid illnesses related to obesity has been well established in the literature.⁸ Because physical activity is a major component of physiotherapy (PT) practice, physiotherapists have identified that managing obesity and its secondary conditions using exercise and education is an important role of the profession; however, it is unclear how this translates into practice.⁹ Previous surveys of physiotherapists have revealed a range of barriers to the treatment of patients who are obese, including lack of clinician training in and knowledge about managing obesity, limited access to bariatric equipment, lack of time, poor patient motivation, and limited availability of relevant community resources.^{9,10} Physiotherapists have also been identified as demonstrating weight stigma, and this attitude has been shown to negatively affect experiences with PT for patients who are obese.^{11,12}

One study documented the knowledge, attitudes, and practice of physiotherapists concerning obesity, and it found that physiotherapists lack knowledge about the complex causes of obesity and have mixed attitudes toward persons who are obese.¹⁰ Other studies examining weight stigma among physiotherapists identified multiple negative beliefs about persons who are obese.¹¹ Although these studies have identified important limitations to the PT care of this population, the attitudes assessed relate to general beliefs about persons who are obese rather than those relating specifically to PT treatment of patients who are obese.^{10,11} Also, no study has looked specifically at physiotherapists in acute or rehabilitation hospitals.^{10,11} As a result, little research has been done on the knowledge, attitudes, and practice of physiotherapists specifically in an in-patient setting, where therapists' experiences

may be different when it comes to providing care to patients who are less independently mobile.

The bulk of the research exploring the knowledge, attitudes, and practice of physiotherapists in managing obesity has defined the term *obese* as having a BMI of 30 or more.^{9,10,13} No research to date has explored the knowledge, attitudes, and practice specific to PT treatment of patients who are SMO, who have a relatively greater risk of disease and hospitalization.^{5,7} The primary objective of this study was to describe the knowledge, attitudes, and practice of physiotherapists regarding treatment of patients who are SMO in an in-patient acute care hospital or in-patient rehabilitation setting in Ontario. A secondary objective was to determine whether any knowledge or practice factors were associated with physiotherapists' confidence in mobilizing patients who are SMO because this is a key component of PT assessment and treatment in in-patient settings.

METHODS

Study design

A cross-sectional survey of physiotherapists was conducted from February to April 2015 using an Internet-based questionnaire. The University of Toronto (U of T) Research Ethics Board approved the survey in October 2014.

Participants and sampling

Physiotherapists were considered eligible for the study if they were employed at the time of the survey as a full- or part-time physiotherapist in an in-patient acute care hospital or in-patient rehabilitation setting in Ontario. Physiotherapists were excluded if they did not work in direct patient care (e.g., in an administrative role) or had a caseload that was more than 50% pediatric.

For the purpose of calculating an estimated sample size, the exact number of physiotherapists working in an in-patient role in Ontario could not be determined. Therefore, a range was calculated on the basis of the minimum number of Ontario Physiotherapy Association (OPA) members who indicated that their primary workplace was in a general hospital or rehabilitation setting ($n = 1,027$)¹⁴ and the maximum number of College of Physiotherapists of Ontario (CPO) members who reported that their primary place of employment was in a hospital or rehabilitation facility ($n = 2,106$).¹⁵ Membership in OPA is voluntary, whereas all active physiotherapists in Ontario must be registered with CPO. Using a conservative response rate of 10% (based on previous OPA survey response data obtained through personal communication with OPA¹⁴), we expected the minimum number of responses to our survey would be 103; based on a conservative 35% response rate for Internet-based surveys (as reported in the literature¹⁶), we expected a maximum of 737.

Questionnaire development

Questionnaire items were developed to identify in-patient physiotherapists' knowledge, attitudes, and practice experience with respect to treating patients who are SMO. The questionnaire was informed by existing research, including previous obesity-related surveys, and in consultation with clinicians who were experienced in this field.^{10,17–19} (See the Appendix for the questionnaire.)

The questionnaire was administered using FluidSurveys (Fluidware, Ottawa, ON), a Web-based survey programme; it included 24 items relating to participants' demographics and practice experience, 23 items relating to participants' knowledge of treatment of patients who are SMO, and 15 items relating to participants' attitudes toward working with patients who are SMO. Because accurately testing knowledge of assessment and treatment strategies using an online questionnaire format was deemed not possible, knowledge questions consisted of a series of nominal yes–no questions to determine participants' sources of knowledge and previous training with respect to four items: assessment, mobilization, exercise prescription, and equipment. Attitude questions were rated on a 5-point Likert-type scale ranging from *disagree* to *agree*, and they addressed the participants' confidence in treating, willingness to treat, and perceived effectiveness of PT treatment of this population. Clinical practice questions included the frequency and types of treatments used as well as facility factors that may influence practice.

Before we collected the data, the questionnaire was pretested by two physiotherapists who were not eligible to participate to ensure that the questions were clear and to determine how long it would take to complete the survey. Subsequent pilot testing was conducted by five U of T PT students in FluidSurveys to ensure that there were no errors with the delivery of the survey and that the survey was user-friendly.

Survey distribution

To maximize the number of eligible participants we reached, physiotherapists were recruited using three main strategies:

1. The OPA distributed the survey in its biweekly email newsletters to all members who had opted to receive them.
2. The U of T Department of Physical Therapy's Academic Practice Leaders (APL) Committee distributed the survey to physiotherapists at their place of work. The APLs on this voluntary committee represented approximately 25 sites, located primarily in the Greater Toronto Area (GTA), who were working with the U of T Department of Physical Therapy to provide learning opportunities to students.
3. In an effort to reach physiotherapists who were working in hospitals beyond the GTA but who might not be OPA members, the study's clinical advisors (PF and KK) identified nine additional professional prac-

tice contacts from sites across the province who were not members of the APL committee. These contacts distributed the survey to physiotherapists at their places of work.

A modified Dillman method was used to maximize the survey response rate.²⁰ The APLs and professional practice contacts were sent an initial email that outlined the purpose of the study and included a link to the questionnaire, a reminder email at 2 weeks, and a "last-chance" email at 4 weeks; these were to be forwarded to the physiotherapists working at their respective sites. OPA guidelines disallowed this strategy, so only two email newsletters containing a link to the questionnaire were distributed, 2 weeks apart. In addition, a link to the questionnaire was posted on the members' page of the OPA Web site, and the link remained active during the data collection period.

Statistical methods

Data were analyzed using IBM SPSS Statistics, version 22.0 (IBM Corp., Armonk, NY). Descriptive statistics were used to describe the participants' characteristics and address the primary objective of this study. Frequencies and percentages were calculated for nominal and ordinal variables, and all non-normally distributed continuous variables were grouped into categories on the basis of the distribution. For the purpose of analysis, confidence questions (items 23a–d) were collapsed into "confident" (those who somewhat agreed or agreed) and "lacking confidence" (those who disagreed, somewhat disagreed, or were neutral). A "neutral" response was considered to be lacking the level of confidence that would be expected of a competent physiotherapist working with the SMO population. All other attitude questions were collapsed into "agree" (*somewhat agree* and *agree*), "neutral" (*neutral*), and "disagree" (*disagree* and *somewhat disagree*). The knowledge-about-mobilizing variable (item 20) was collapsed into two categories: participants who had acquired knowledge from any of the sources listed and participants who had not.

To address the secondary objectives of our study, χ^2 and Fisher's exact tests were conducted to examine the relationships among knowledge, attitude, and practice factors. A Fisher's exact test was conducted to examine the relationship between knowledge about mobilizing and confidence in mobilizing, and a χ^2 test was conducted to examine the relationship between frequency of treating and confidence in mobilizing. Confidence in mobilizing was chosen as the key variable to examine because mobilization is a main component of PT assessment and treatment in in-patient settings, and it was hypothesized that physiotherapists would be least confident about performing this task because it required the greatest amount of physical assistance. Statistical significance for all tests was set at $p < 0.05$.

RESULTS

Participants

A total of 385 individuals responded to the survey; of those, 276 returned questionnaires, 81 did not meet one or more of the eligibility criteria and therefore were not able to complete the rest of the questionnaire, and 28 were excluded because their questionnaires were missing answers to more than three items, and they were thus deemed to be incomplete. No significant difference in demographics was found between complete and incomplete responses, and no trends in unanswered questions were found.

Physiotherapists from across Ontario participated, and 13 of 14 Local Health Integration Networks (LHINs) were represented. The largest group of participants was from the Toronto Central LHIN (35%), which encompasses a small geographical area centred around the city's downtown. The majority of participants were female (87%) and most commonly aged 30–39 years (36%). They primarily worked in acute care settings (70%) and in metropolitan areas (67%) and had a master's degree (56%). These demographic characteristics are summarized in Table 1.

Practice

The majority of participants (91%) indicated that they had worked with at least one patient who was SMO, and 84% reported that they had worked with at least one such patient in the past year. They most commonly included bed mobility, transfers, ambulation, and exercise prescription in treating patients who are SMO (90%, 91%, 73%, and 75%, respectively, answered “often” or “always”). Only about one-third of the participants (35%) agreed that their place of work was well prepared to facilitate the PT treatment of patients who are SMO. Only 18% agreed that practice guidelines were available to them concerning the treatment of patients who are SMO. The participants' perceptions of facility factors affecting PT treatment of patients who are SMO are described in Table 2.

Sources of knowledge

The participants most commonly reported acquiring knowledge from clinical experience in the areas of assessment, mobilization, exercise prescription, and use of bariatric equipment (88%, 90%, 75%, and 87%, respectively). Entry-level PT degrees and continuing education courses were the least commonly indicated sources of knowledge. When given a chance to identify other sources of knowledge, participants most commonly cited self-directed learning and communication with colleagues. The sources of knowledge acquired are outlined in Table 3.

Attitudes

The majority of participants reported being confident in assessing (81%) and mobilizing (67%) patients who are SMO as well as prescribing exercise (74%) and using

Table 1 Characteristics of Participants

Characteristic	No. (%) of participants
Sex*	
Male	34 (12)
Female	241 (87)
Other	1 (1)
Age, y†	
20–29	60 (22)
30–39	100 (36)
40–49	70 (26)
≥50	45 (16)
Workplace setting*‡	
Acute care centre	193 (70)
Rehabilitation centre	129 (47)
Unknown	2 (1)
Geographical area*‡	
Metropolitan (>500,000 people)	184 (67)
Urban (100,000–500,000 people)	83 (30)
Rural (<100,000 people)	20 (7)
Local health integration network*	
Erie St. Clair	0 (0)
South West	6 (2)
Waterloo Wellington	1 (1)
Hamilton Niagara Haldimand Brant	61 (22)
Central West	13 (5)
Mississauga Halton	9 (3)
Toronto Central	97 (35)
Central	23 (8)
Central East	15 (5)
South East	12 (4)
Champlain	5 (2)
North Simcoe Muskoka	6 (2)
North East	14 (5)
North West	1 (1)
Unsure	13 (5)
Highest degree attained†	
Bachelor's	115 (42)
Master's	154 (56)
PhD	6 (2)
Years of physiotherapy experience*	
≤5	82 (30)
6–10	61 (22)
11–20	70 (25)
>20	63 (23)

* $n = 276$.

† $n = 275$.

‡ Participants could select multiple settings.

bariatric equipment (75%; see Table 4). Participants' willingness to treat patients who are SMO and the perceived effectiveness of treatment are summarized in Table 5. Most participants indicated that they would be willing to treat these patients (82%), that PT could improve at least one health outcome for these patients (96%), and that they would be willing to attend educational sessions regarding the treatment of this population (94%). Most participants disagreed that patients who are SMO have less rehabilitation potential (63%) and disagreed that patients who are SMO benefit less from PT because they

Table 2 Practice and Facility Characteristics Related to Patients Who Are Super-Morbidly Obese

Characteristic	No. (%) of participants			Total
	Never/rarely or disagree/somewhat disagree	Sometimes or neutral	Often/always or somewhat agree/agree	
Practice				
Frequency of incorporating				
Range of motion	46 (18)	79 (32)	124 (50)	249
Bed mobility	9 (4)	17 (7)	225 (90)	251
Transfers	2 (1)	20 (8)	229 (91)	251
Ambulation	13 (5)	54 (22)	184 (73)	251
Exercise prescription	18 (7)	45 (18)	187 (75)	250
Chest physiotherapy	135 (54)	82 (33)	33 (13)	250
Facility				
Practice guidelines available regarding treatment and mobilization	164 (59)	63 (23)	49 (18)	276
Policies that restrict admittance or participation	136 (49)	46 (17)	93 (34)	275
Appropriate equipment available	120 (43)	15 (5)	141 (51)	276
Facility well prepared for physiotherapy treatment	144 (52)	36 (13)	95 (35)	275

Note: Percentages may not total 100 because of rounding.

Table 3 Types of Knowledge Acquired, by Educational Source ($n = 276$)

Source	No. (%) of participants			
	Assessment	Mobilization	Exercise prescription	Using bariatric equipment
Entry-level physiotherapy degree	53 (19)	49 (18)	57 (21)	49 (18)
Continuing education course	40 (15)	45 (16)	34 (12)	38 (14)
Work training/in-service	100 (36)	119 (43)	61 (22)	177 (64)
Clinical experience	242 (88)	247 (90)	207 (75)	241 (87)
Other	15 (5)	17 (6)	13 (5)	15 (6)

Table 4 Confidence in Performing Physiotherapy Tasks

Task	No. (%) of participants	
	Lacking confidence (disagree/somewhat disagree/neutral)	Having confidence (somewhat agree/agree)
Assessing*	53 (19)	223 (81)
Mobilizing†	90 (33)	185 (67)
Prescribing exercise†	71 (26)	204 (74)
Using bariatric equipment†	67 (24)	208 (75)

* $n = 276$.

† $n = 275$.

are less motivated (77%). Nearly half (46%) of the participants agreed that they were reluctant to work with patients who are SMO for fear of personal injury.

Although 28% of the participants preferred that patients who are SMO not be assigned to their caseload, there was no significant difference in this finding on the basis of age ($p = 0.64$) or clinical experience ($p = 0.58$). With respect to barriers to treatment, participants most commonly reported feeling limited in their ability to treat

patients who are SMO due to a lack of appropriate equipment (67%) and lack of staff to assist (72%). When participants were reluctant to treat patients who are SMO for fear of personal injury, there was a significant difference between those who felt limited by lack of equipment (56%) and those who did not (32%; $p < 0.001$) and a significant difference between those who felt limited by lack of staff to assist (52%) and those who did not (32%; $p = 0.01$).

The data were examined to determine whether any knowledge or practice factors were associated with physiotherapists' confidence in mobilizing patients who are SMO, and a significant difference was found between those who reported acquiring knowledge about mobilizing such patients from at least one source (71%) and those who did not report acquiring this knowledge from any source (24%; $p < 0.001$). Another significant difference in confidence in mobilizing was found with respect to the frequency of treating patients who are SMO ($p = 0.04$): Only 41% of those who had not treated any such patients in the past year felt confident compared with 73% of those who had treated five or more such patients in the past year. There was a significant difference in confidence

Table 5 Attitudes toward Patients Who Are Super-Morbidly Obese

Attitude	No. (%) of participants			Total
	Disagree/ somewhat disagree	Neutral	Somewhat agree/agree	
Reluctant to treat for fear of personal injury	112 (41)	35 (13)	127 (46)	274
Prefer not assigned to caseload	146 (53)	51 (19)	78 (28)	275
Willing to treat	14 (5)	35 (13)	226 (82)	275
Willing to attend educational sessions	6 (2)	11 (4)	259 (94)	276
Physiotherapy treatment likely to improve at least one health outcome	4 (2)	8 (3)	262 (96)	274
Less rehabilitation potential	173 (63)	33 (12)	69 (25)	275
Less benefit from physiotherapy treatment due to less motivation	213 (77)	39 (14)	24 (9)	276
Feel limited in ability to treat due to lack of				
Knowledge	132 (48)	56 (20)	88 (32)	276
Clinical experience	150 (55)	36 (13)	87 (32)	273
Equipment	66 (24)	24 (9)	186 (67)	276
Staff to assist	59 (22)	17 (6)	199 (72)	275

Note: Percentages may not total 100 because of rounding.

in mobilizing based on years of clinical experience ($p = 0.01$), with only 60% of those with 5 years or less of experience reporting confidence compared with 84% of those with more than 20 years' experience, but no differences by type of hospital setting (acute or rehabilitation) were seen.

DISCUSSION

The findings of this study demonstrate the current knowledge, attitudes, and practice of in-patient physiotherapists in Ontario regarding treatment of patients who are SMO. These findings are considered at the patient, therapist, and facility levels to suggest what types of interventions may most effectively improve PT care for this population.

Patient level

At the patient level, participants had positive attitudes about the effectiveness of PT treatment of individuals who are SMO, and a large majority disagreed that individuals who are SMO were less motivated to participate. These findings contradict those of previous studies investigating the attitudes of health care professionals with regard to patients who are obese or overweight, which found that participants believed that patients who are obese are less motivated than patients who are of normal weight.^{21,22} In the current study, we also found that most participants believed that PT treatment would provide health benefits for this population and that this group did not have less rehabilitation potential than other patient groups. This appears to be a more positive perception of patients who are obese than was found in another survey of physiotherapists, which reported that approximately half of the participants viewed these patients as non-compliant and weak willed.¹⁰

Therapist level

With respect to therapist-level factors, previous surveys of physiotherapists and other health care professionals have suggested that a lack of clinician knowledge and training in managing obesity was a main barrier to the treatment of patients who were obese.^{10,17,18} The current results support this assertion because those participants with knowledge from at least one educational source were more confident in mobilizing individuals who are SMO than those with no cited sources of knowledge. The participants reported that they had obtained the greatest knowledge regarding the treatment of patients who are SMO from non-structured sources, including clinical experience, self-directed learning, and consultation with peers. A need for more structured learning opportunities on this topic may be suggested by the fact that an overwhelming majority of the participants indicated that they were willing to attend educational sessions on this topic. Despite lacking knowledge from structured sources (such as an entry-level PT degree, work training, or continuing education), most in-patient physiotherapists reported that they felt confident in their ability to assess and treat patients who are SMO. This result may reflect the fact that physiotherapists are able to adapt the knowledge and skills they have acquired from structured, entry-level courses through hands-on clinical experience to work with this specific patient population.

Although the physiotherapists reported relatively high rates of confidence, the area of treatment with the lowest level of reported confidence was their ability to mobilize patients who are SMO; only two-thirds reported feeling confident. Mobilization is a standard component of PT treatment, so one in three physiotherapists lacking confidence in this skill is concerning. This lack of confidence may result from a lack of clinical experience or exposure

to this specific patient population because physiotherapists with more years of clinical experience and those who had more frequently treated patients who are SMO in the past year were more likely to report confidence in their ability to mobilize such patients. This finding is supported by previous research that cited lack of physiotherapist experience as a barrier to treating patients who were obese.⁹

The findings of this study seem to imply that the participants had positive intentions in treating patients who are SMO. A large majority indicated that, if given a choice, they would be willing to treat a patient who is SMO, and nearly all would be willing to attend educational sessions to learn more about this topic. These findings reveal a more positive picture of physiotherapists' attitudes than previous research, although this may be due to this survey's focus on attitudes about treatment rather than global attitudes about people who are obese.^{10,11} However, prior findings of negative attitudes and weight stigma among physiotherapists may be reflected in this study's finding that approximately half of the participants were reluctant to work with patients who are SMO for fear of personal injury.^{10,11}

Facility level

Examining facility-level factors affecting PT treatment of individuals who are SMO revealed several barriers to treatment. The existing literature has frequently identified a lack of bariatric equipment as a barrier to treatment, previously reported for both physiotherapists and physicians.^{9,10,18} This result is supported by our finding that most participants felt limited by a lack of equipment. More generally, more than half of those surveyed did not think that their place of employment was well prepared to facilitate PT treatment of individuals who are SMO, and the majority lacked appropriate practice guidelines and felt limited by a lack of staff to assist them. A lack of facility resources may affect therapists' attitudes toward treatment because we found that those who reported limitations because of lack of equipment or staff assistance were more likely to be reluctant to treat patients who are SMO for fear of personal injury.

The findings of this study suggest that improving access to bariatric equipment and assistance from support staff may improve physiotherapists' attitudes toward treating patients who are SMO. The introduction of educational opportunities for physiotherapists is also recommended so that they can learn how to reduce weight stigma, use equipment appropriately, and apply techniques to safely conduct PT assessments and treat patients who are SMO. These recommendations may help to reduce barriers to treatment and improve physiotherapists' attitudes toward patients who are SMO. This may facilitate improved PT treatment of patients who are SMO, an outcome that could improve the health of this population.

This study has several limitations that must be kept in mind. First, the generalizability of these findings may be limited by an over-representation of physiotherapists working in metropolitan areas, likely the result of the recruitment strategies we used; however, 13 of 14 LHINs across the province were represented, including urban and rural practice settings. Second, the recruiting methods we used may have resulted in an over-representation of OPA members, who may have attitudes that differ from those of their peers who are not involved in OPA. Finally, a selection bias may exist, with those physiotherapists with more experience or more positive attitudes toward treating patients who are SMO being more motivated to complete this questionnaire. As a result, our findings may somewhat overestimate the confidence and attitudes among all in-patient physiotherapists in Ontario.

CONCLUSIONS

The results of this survey suggest that in-patient physiotherapists in Ontario are both confident and willing to treat patients who are SMO, and they believe that PT treatment will be effective. Unfortunately, they are somewhat reluctant to work with these patients, often because they fear being injured, and this fear may be exacerbated by limited facility resources, including proper equipment and assistance from support staff. Considering that PT is an essential component of reducing complications and facilitating discharge in the in-patient setting,²³ these facilities should support and invest in those resources that facilitate improvements in PT care for patients who are SMO.

KEY MESSAGES

What is already known on this topic

Physiotherapists have identified their profession as having a key role in the treatment of obesity. However, physiotherapists may be limited in their ability to treat patients who are obese by multiple factors including lack of training, knowledge, and bariatric equipment, as well as negative attitudes toward patients who are obese related to weight stigma.

What this study adds

This study identifies facilitators and barriers to in-patient physiotherapy (PT) care of patients who are super-morbidly obese (SMO). In-patient physiotherapists have positive attitudes toward treatment of patients who are SMO, including confidence in treating and willingness to treat, as well as believing in the effectiveness of PT treatment of this population. However, barriers may include a lack of structured education on this topic, access to equipment, and availability of staff assistance. Those who had greater access to educational and facility resources specific to this population were more likely to be confident in treating this population.

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APPENDIX: QUESTIONNAIRE

Knowledge, Attitudes, and Practice of In-Patient Physiotherapists Treating Patients Who Are Super-Morbidly Obese in Ontario

We are conducting an electronic survey to evaluate the knowledge, attitudes, and practice of in-patient physiotherapists (PTs) treating patients who are super-morbidly obese (SMO) in Ontario.

What is super-morbid obesity?

Super-morbid obesity refers to a Body Mass Index (BMI, defined as weight in kilograms divided by height in metres squared) of 50 or greater. For example, a person who is 5'5" and 300+ lb. or 5'10" and 350+ lb. is SMO. The number of people who are SMO is increasing in Canada, leading to greater demands on the health care system as they have more hospitalizations and a greater need for physiotherapy services.

Why is this important?

Current literature on PT treatment of patients who are obese (BMI of 30 or greater) does not specifically focus on patients who are SMO. These patients present many treatment challenges for PTs. Findings from this study will provide important information to inform practice and education on this topic. Your participation in this study is incredibly important.

Who is eligible to participate?

- PTs currently working in Ontario
- PTs working full- or part-time in an in-patient hospital setting (rehab or acute)
- PTs working in a clinical role (i.e., directly with patients)
- PTs with a caseload of > 50% patients over the age of 18

What happens if I choose to participate?

We invite you to participate in this Internet-based questionnaire through FluidSurveys. Your participation is **voluntary**, and all answers will remain completely **anonymous**. The questionnaire is designed to take approximately 10 minutes to complete. You may choose to withdraw at any point and exit the questionnaire. Upon completion, you will be given the option of entering your email address to be entered in a random draw to win a \$100 gift certificate to Tim Hortons. We estimate the odds of winning are 1 in 700. You will also be given the option of entering your email address to receive a summary of the findings once the study is complete. Your email address will in no way be associated with your questionnaire answers.

Whom do I contact if I have concerns?

If you have any concerns regarding the questionnaire, feel free to contact Brittany Semkowich, Student Investigator, at brittany.semkowich@mail.utoronto.ca or Katey Knott, Clinical Advisor, at knottk@smh.ca. Thank you for considering participation in our study.

Do you wish to continue?

[Clicking yes brings them into Eligibility questions section.]

Yes/No

Eligibility

Are you a physiotherapist currently working in Ontario?
Yes/No

Do you work full- or part-time in an in-patient hospital setting (rehab or acute)?

Yes/No

Are you currently working in a clinical role (i.e., directly with patients)?

Yes/No

Is your caseload >50% patients over the age of 18?

Yes/No

[If they answer Yes to all:] You are eligible to complete the questionnaire. Do you consent to continue?

Yes/No [Yes = entrance into questionnaire]

[If they answer No to any of the four questions] You are not eligible to participate in this study. Thank you for your time.

Demographics

1. What is your sex?

Male ☐ Female ☐ Other ☐

2. What is your age in years? _____ years

3. At which university did you complete your entry-level physiotherapy degree?

- ☐ Queen's University
- ☐ University of Toronto
- ☐ Western University
- ☐ McMaster University
- ☐ University of Ottawa

Other Canadian university Please specify:

International university Please specify:

4. In which year did you graduate from your entry-level physiotherapy degree?

5. What is your highest degree attained?

- ☐ Bachelor's
- ☐ Master's
- ☐ PhD

6. Please estimate the total number of years you have practised physiotherapy: _____ years

7. Please estimate the total number of years you have practised physiotherapy in an **in-patient** setting: _____ years

8. Please indicate if you **currently work** in the following setting:

- a) Acute care Yes/No
- b) Rehabilitation Yes/No
- c) Other Yes/No

If other, please specify: _____

9. Please indicate if you **currently work** in the following geographical areas:

- a) Metropolitan (population >500,000) Yes/No
- b) Urban (population 100,000–500,000) Yes/No
- c) Rural (population <100,000) Yes/No

10. Which Local Health Integration Network (LHIN) do you currently practise in?

- ☐ Erie St. Clair
- ☐ South West
- ☐ Waterloo Wellington
- ☐ Hamilton Niagara Haldimand Brant
- ☐ Central West
- ☐ Mississauga Halton
- ☐ Toronto Central
- ☐ Central
- ☐ Central East
- ☐ South East
- ☐ Champlain
- ☐ North Simcoe Muskoka
- ☐ North East
- ☐ North West
- ☐ Unsure

Practice

11. As an **in-patient physiotherapist**, have you ever worked directly with a patient who is **super-morbidly obese (SMO)**?

Yes/No

[If Yes, goes to nos. 12–14. If No, goes to nos. 15 onwards (skips #12–14).]

Practice

12. Please estimate the number of patients who were **SMO** under your direct care in **the last year**: _____ patients

13. What is the **heaviest** patient you have treated as an **in-patient physiotherapist**?

- <300 lb. ☐ 301–400 lb. ☐ 401–500 lb. ☐
- 501–600 lb. ☐ >600 lb. ☐

14. When working with patients who are SMO, how frequently do you incorporate the following?

- a) Range of motion
Never / Rarely / Sometimes / Often / Always
- b) Bed mobility
Never / Rarely / Sometimes / Often / Always
- c) Transfers
Never / Rarely / Sometimes / Often / Always

d) Ambulation

Never / Rarely / Sometimes / Often / Always

e) Exercise prescription

Never / Rarely / Sometimes / Often / Always

f) Chest physiotherapy

Never / Rarely / Sometimes / Often / Always

Practice

15. There are practice guidelines available to me regarding the treatment and mobilization of patients who are SMO.

Disagree / Somewhat disagree / Neutral / Somewhat agree / Agree

16. There are policies that restrict admittance or participation in certain programmes for patients who are SMO.

Disagree / Somewhat disagree / Neutral / Somewhat agree / Agree

17. There is appropriate equipment available to me to mobilize/treat patients who are SMO (e.g., bariatric lifts, beds with increased weight capacity).

Disagree / Somewhat disagree / Neutral / Somewhat agree / Agree

18. Overall, my facility is well prepared to facilitate physiotherapy treatment of patients who are SMO.

Disagree / Somewhat disagree / Neutral / Somewhat agree / Agree

Knowledge

19. For each of the following, please indicate whether or not you acquired any knowledge about **assessment** of patients who are SMO:

- a) Entry-level physiotherapy degree Yes/No
- b) Continuing education course Yes/No
- c) Work training/in-service Yes/No
- d) Clinical experience Yes/No
- e) Other Yes/No

If other, please specify: _____

20. For each of the following, please indicate whether or not you acquired any knowledge about **mobilization** of patients who are SMO:

- a) Entry-level physiotherapy degree Yes/No
- b) Continuing education course Yes/No
- c) Work training/in-service Yes/No
- d) Clinical experience Yes/No
- e) Other Yes/No

If other, please specify: _____

21. For each of the following, please indicate whether or not you acquired any knowledge about **exercise prescription** for patients who are SMO:

- a) Entry-level physiotherapy degree Yes/No
- b) Continuing education course Yes/No
- c) Work training/in-service Yes/No

- d) Clinical experience Yes/No
- e) Other Yes/No

If other, please specify: _____

22. For each of the following, please indicate whether or not you acquired any knowledge about **equipment** designed for use with patients who are SMO:

- a) Entry-level physiotherapy degree Yes/No
- b) Continuing education course Yes/No
- c) Work training/in-service Yes/No
- d) Clinical experience Yes/No
- e) Other Yes/No

If other, please specify: _____

Attitudes

Please indicate the extent to which you agree with the following statements:

23. If working with a patient who is SMO, I would feel **confident**:

- a) Assessing
Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree
- b) Mobilizing
Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree
- c) Prescribing exercise
Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree
- d) Using bariatric equipment
Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree

24. I am reluctant to work with patients who are SMO for fear of personal injury.

Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree

25. I prefer if patients who are SMO are not assigned to my caseload.

Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree

26. If given the choice, I am willing to treat a patient who is SMO.

Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree

27. I am willing to attend educational opportunities to learn about treatment of patients who are SMO.

Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree

28. Physiotherapy treatment is likely to improve at least one health outcome (e.g., functional mobility, decreased comorbidities) for patients who are SMO.

Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree

29. Patients who are SMO have less rehabilitation potential.

Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree

30. Patients who are SMO will benefit less from physiotherapy treatment because they are often less motivated to participate.

Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree

31. I feel limited in my ability to treat patients who are SMO due to a lack of

- a) Knowledge
Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree
- b) Clinical experience
Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree
- c) Equipment
Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree
- d) Staff to assist
Disagree / Somewhat disagree / Neutral /
Somewhat agree / Agree

Thank you for your participation in our questionnaire. If you have any comments or questions, please use the space provided.