

The viewpoint of a lymphedema clinician on nutrition regarding the evaluation and education of patients diagnosed with lymphedema

Tamala Marcin, Natalia Zborovsky

University of Saint Augustine for Health Sciences

Abstract

This study investigated the extent to which practicing lymphedema clinicians incorporate nutritional assessment and intervention strategies in their treatment protocols. A 13-item questionnaire was distributed to 278 Lymphology Association of North America (LANA) certified specialists in the southeastern United States. The survey examined educational background, nutritional training, scope of practice, and approaches to obesity risk assessment and intervention. Of the 58 respondents (21% response rate), 76% reported that nutrition education falls within their scope of practice, while only 41% received nutritional training during their initial lymphedema certification. The findings suggest a significant gap between clinicians' perceived importance of nutritional intervention and their formal training in this area.

Key words: lymphedema, training, nutrition, clinicians.

Correspondence: Tamala Marcin, University of Saint Augustine for Health Sciences, 1 News Place, St. Augustine 32086, FL, USA.
E-mail: tmarcin@usa.edu

Introduction

Lymphedema is a chronic debilitating condition affecting approximately 10 million Americans and 300 million people worldwide. It results from disrupted physiological function of the lymphatic system, leading to the accumulation of protein-rich lymphatic fluid in interstitial tissues.¹ The condition manifests in two forms: primary and secondary lymphedema, both characterized by significant swelling, pain, infection risk, and decreased mobility.

Evidence increasingly suggests obesity as a significant risk factor for lymphedema development,² particularly following cancer treatment-related lymphatic system damage. Increased body weight creates additional pressure on lymphatic vessels, impeding their function and promoting chronic low-grade inflammation.³

Traditional lymphedema management typically includes manual lymphatic drainage, therapeutic activities, compression bandaging, and maintenance compression garments. Recent evidence indicates that nutrition plays a crucial role in lymphedema development and management.² Research emphasizes the importance of maintaining healthy diet and body weight, particularly in cancer-related lymphedema therapy.³

Given the established connection between obesity, inflammation, and lymphedema risk, understanding the nutritional training of lymphedema-certified therapists and their perceived need for additional education is essential for comprehensive patient care.

Materials and Methods

Materials

This descriptive study employed a 13-item questionnaire (*Appendix A*) to collect quantitative data from LANA-certified lymphedema clinicians. The survey covered five key areas: educational background, nutritional training, scope of practice in nutritional training, evaluation of obesity risk factors, and obesity interventions.

The structure of the questionnaire comprised: 3 questions on educational characteristics, 3 questions on nutrition training, 1 question on nutritional patient education, 3 questions on obesity risk evaluation, and 3 questions on obesity interventions.

Response options included binary (yes/no) for two questions and ternary (yes/no/unsure or sometimes) for eight questions. Participants' responses indicated task performance frequency and perceived necessity.

The questionnaire underwent review by academic professionals and practicing lymphedema clinicians for content validity and clarity. Following the initial review, a third option (unsure/sometimes) was added to improve response accuracy. The University of St. Augustine for Health Sciences Institutional Review Board approved the research proposal.

Methods

All 278 LANA-certified specialists in the southeastern United States (FL, GA, NC, SC, AR, TN, VA, WV, KY, AL, MS, & LA) listed on the LANA website as of April 2024 were invited to participate. Survey packets containing a cover letter, consent form, questionnaire, and self-addressed postage-paid envelope were distributed via regular mail on June 1, 2024, with a 30-day response window. Data analysis utilized IBM Statistical Package for Social Sciences (SPSS) (Version 29.0.2.0) and Stata 13.1. Sample size calculations determined that 55 participants would provide results within a 10% margin of error at a 90% confidence level. Descriptive statistics and response proportions with 90% confidence intervals were calculated. A chi-square test of independence was performed to determine whether the clinician’s experience level (0-10 years vs 11-20+ years) is significantly associated with their practices in these three areas: nutritional education, data collection, and interventions for obesity.

tionnaire between June 1 and July 11, 2024 (Tables 1-4).

Key findings included: 41% reported receiving nutritional training during initial lymphedema certification, 82% indicated a need for additional nutrition training, 76% considered patient nutrition education within their scope of practice, 86% provided patient education on how the patient’s body weight impacted the treatment effectiveness, 45% evaluated patients for obesity, 40% provided obesity interventions, only 3% reported using nutrition surveys, 44.8% reporting performing Body Mass Index (BMI) calculation in patient assessment. There were variable responses to exercise prescription, particularly regarding vigorous aerobic activity; no significant association exists between clinician experience level and practices for nutritional education and data collection for lymphedema patients (5% significance level), and between clinician experience level and interventions for obesity in lymphedema patients (5% significance level).

Results

Demographics and response rate

Of the 278 clinicians surveyed, 58 (21%) completed the ques-

Clinicians’ exercise prescription patterns by experience level

Among clinicians with 0-10 years of experience: 65% prescribed moderate exercise, 32% did not prescribe vigorous exercise. Among clinicians with 11+ years of experience: 35% prescribed moderate exercise, 68% did not prescribe vigorous exercise.

Table 1. Demographics of survey participants.

Educational characteristics	Categories and results n (%)
Professional credential	Physician 0 (0%) Nurse 0 (0%) Physical therapist 36 (62.1%) Physical therapist assistant 3 (5.2%) Occupational therapist 14 (24.1%) Certified occupational therapist assistant 0 (0%) Massage therapist 2 (3.4%) Other: nurse practitioner 3 (5.2%)
The number of years as a practicing as a lymphedema clinician	0-5 years 10 (17.2%) 6-10 years 15 (25.9%) 11-15 years 10 (17.2%) 16-20 years 8 (13.8%) 20+ years 15 (25.9%)
The organization in which the clinician initial training for lymphedema certification was completed	Academy of Lymphatic Studies 20 (34.5%) International Lymphedema and Wound Training Center 1(1.7%) Norton School of Lymphatic Study 18 (31.0%) University of Wisconsin 1 (1.7%) Klose Training 7 (12.1%) Klose and Norton Training 4 (6.9%) Dr. Vodder International School 2 (3.4%) Monarch Consulting and Education 1 (1.7%) Other: Dr. Lerner or Casley Smith International 4 (6.9%)

Table 2. Lymphedema clinicians training in nutrition.

Clinicians’ training in nutrition	Categories / results n (%)
Did your initial training for lymphedema certification include education on nutrition for a patient/client with lymphedema?	Yes / 24 (41.4%) No / 34 (58.6%)
Have you completed advanced training for nutrition for a patient/client with lymphedema?	Yes / 11 (19%) No / 47 (81%)
Do you think nutritional training is warranted as part of the entry-level training for lymphedema certification?	Yes / 48 (82.8%) No / 5 (8.6%) Unsure / 5 (8.6%)

Discussion

While most respondents consider nutrition education within their scope of practice, the minimal use of nutritional surveys (3%) suggests either a lack of appropriate assessment tools or limited adoption of existing tools for the lymphedema patient population.³ Structured nutritional assessment could enhance patient education and goal setting, potentially improving treatment outcomes

through active weight management^{4,5} The lack of consistent BMI calculation is noteworthy, given that obesity significantly impacts lymphedema development and treatment response. Patients with BMI ≥ 50 have greater risk of lower extremity lymphedema and may show decreased response to complete decongestive therapy.⁶

The limited prescription of vigorous aerobic activity may reflect concerns about patient tolerance. However, given the inverse relationship between exercise intensity and obesity,⁷ and

Table 3. Lymphedema clinicians' patient education in nutrition and the evaluation and interventions for obesity.

Evaluation and interventions for obesity Categories / results n (%)	
Patient's education in nutrition	
Is it within your scope of practice to educate a patient on how their nutrition impacts their lymphatic system?	Yes / 44 (75.9%) No / 3 (5.2%) Unsure / 11 (19%)
Evaluation for obesity risk	
As part of your assessment for a patient/client with lymphedema, do you calculate the body mass index?	Yes / 26 (44.8%) No / 23 (39.7%) Sometimes / 9 (15.5%)
As part of your assessment of a patient/client with lymphedema, do you have the client complete a self-report nutritional survey?	Yes / 2 (3.4%) No / 52 (93.1%) Sometimes / 2 (3.4%)
As part of your assessment of a patient/client with lymphedema, do you have the patient/client complete a self-report physical activity survey?	Yes / 25 (43.1%) No / 26 (44.8%) Sometimes / 7 (12.1%)
Interventions for obesity	
As part of your treatment for a patient/client with lymphedema, do you prescribe moderate-intensity aerobic physical activity for at least 30 minutes five days per week?	Yes / 23 (39.7%) No / 13 (22.4%) Sometimes / 22 (37.9%)
As part of your treatment for a patient/client with lymphedema, do you prescribe vigorous-intensity aerobic activity for at least 20 minutes three days a week?	Yes / 3 (5.2%) No / 37 (63.8%) Sometimes / 18 (31%)
Do you provide patient education on how their weight can impact the effectiveness of the treatment of lymphedema?	Yes / 50 (86.2%) No / 1 (1.7%) Sometimes / 7 (12.1%)

Table 4. Association in the number of years as a practicing as a lymphedema clinician their practices in these three areas: nutritional education, data collection, and interventions for obesity.

Clinicians' training in nutrition	
Did your initial training for lymphedema certification include education on nutrition for a patient/client with lymphedema?	$X^2 (1, N=58) = 0.124, p=0.724$
Do you think nutritional training is warranted as part of the entry-level training for lymphedema certification?	$X^2 (1, N=58) = 1.387, p=0.239$
Have you completed advanced training for nutrition for a patient/client with lymphedema?	$X^2 (2, N=58) = 1.254, p=0.534$
Patients' education in nutrition	
Is it within your scope of practice to educate a patient on how their nutrition impacts their lymphatic system?	$X^2 (2, N=58) = 2.860, p=0.239$
Evaluation for obesity risk	
As part of your assessment for a patient/client with lymphedema, do you calculate the body mass index?	$X^2 (2, N=58) = 5.527, p=0.072$
As part of your assessment of a patient/client with lymphedema, do you have the client complete a self-report nutritional survey?	$X^2 (2, N=58) = 2.802, p=0.246$
As part of your assessment of a patient/client with lymphedema, do you have the patient/client complete a self-report physical activity survey?	$X^2 (2, N=58) = 0.197, p=0.906$
Interventions for obesity	
As part of your treatment for a patient/client with lymphedema, do you prescribe moderate-intensity aerobic physical activity for at least 30 minutes five days per week?	$X^2 (2, N=58) = 9.027, p=0.011^*$
As part of your treatment for a patient/client with lymphedema, do you prescribe vigorous-intensity aerobic activity for at least 20 minutes three days a week?	$X^2 (2, N=58) = 6.816, p=0.033^*$
Do you provide patient education on how their weight can impact the effectiveness of the treatment of lymphedema?	$X^2 (2, N=58) = 1.939, p=0.379$

evidence that even modest weight reduction improves lymphedema-associated comorbidities^{4,8} further research on vigorous exercise in obesity-induced lymphedema appears warranted. The difference between the length of practice of the lymphedema clinician and the frequency of recommending moderate to vigorous exercise as a treatment for obesity may be associated with the training or their clinical experience; further research on this difference may be necessary. This research reveals an interesting trend: Less experienced clinicians are significantly more likely to prescribe moderate and vigorous exercise compared to their more experienced colleagues. The variability in nutritional training during Complete Decongestive Therapy (CDT) certification highlights a potential gap in professional education. Given the common comorbidities in lymphedema patients requiring nutritional intervention,^{3,6,9} standardized nutritional training components may benefit the profession. Study limitations include: potential contact information inaccuracies due to postal mail distribution, lack of email addresses for alternative contact, absence of qualitative data collection that could provide insight into clinical decision-making, and limited geographic scope.

Conclusions

This research highlights a critical disconnect between lymphedema clinicians' understanding of nutrition's role in patient care and their formal preparation to provide nutritional guidance. To address this gap, healthcare institutions and professional organizations must prioritize the development of comprehensive nutritional education and standardized assessment protocols specifically designed for lymphedema management. Additionally, certification programs should integrate robust nutritional training components to ensure clinicians are equipped to deliver holistic care that encompasses both traditional lymphedema interventions and evidence-based nutritional support. Moving forward, research efforts should focus on creating and validating lymphedema-specific nutritional assessment tools while examining the synergistic

effects of combined nutritional and conventional therapeutic approaches. This integrated approach promises to enhance treatment outcomes and advance the standard of care for lymphedema patients. By implementing these recommendations, the field can work toward establishing a more comprehensive and effective treatment framework that fully incorporates nutritional care as a fundamental component of lymphedema management.

References

1. Greene AK. Epidemiology and morbidity of lymphedema. In: Lymphedema. Springer International Publishing; Cham, Switzerland; 2015. p. 33-44.
2. Khan N, Huayllani MT, Lu X, et al. Effects of diet-induced obesity in the development of lymphedema in the animal model: a literature review. *Obes Res Clin Pract* 2022;16:197-205.
3. Cavezzi A, Urso SU, Ambrosini L, et al. Lymphedema and nutrition: a review. *Veins and Lymphatics* 2019;8:8220.
4. Provan D. Body weight and the management of lymphoedema. *Br J Community Nurs* 2019;24:576-9.
5. Sanchez-Ramirez DC, Long H, Mowat S, Hein C. Obesity education for front-line healthcare providers. *BMC Med Educ* 2018;18:278.
6. Greene AK. Diagnosis and Management of Obesity-Induced Lymphedema. *Plast Reconstr Surg* 2016;138:111e-8e.
7. Jakicic JM, Powell KE, Campbell WW, et al. Physical activity and the prevention of weight gain in adults: a systematic review. *Med Sci Sports Exerc* 2019;51:1262-9.
8. Shallwani SM, Hodgson P, Towers A. Examining obesity in lymphedema: a retrospective study of 178 new patients with suspected lymphedema at a Canadian hospital-based clinic. *Physiotherapy Canada*. 2020;72:18-25.
9. Foster GD, Wadden TA, Vogt RA, Brewer G. What is a reasonable weight loss? Patients' expectations and evaluations of obesity treatment outcomes. *J Consult Clin Psychol* 1997;65:79-85.

Online supplementary material.
Appendix A. The 13-item questionnaire.

Received: 12 February 2025; Accepted: 28 March 2025; Early view: 7 May 2025.

Contributions: TM, NZ, design of the research, acquisition and interpretation of data, writing a draft of the study content; and submitting the final approval of the version to be published. The authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of interest: the authors declare no potential conflict of interest.

Funding: none.

Ethics approval and consent to participate: not applicable.

Informed consent: not applicable.

Patient's consent for publication: not applicable.

Availability of data and materials: all data generated or analyzed during this study are included in this published article.

Acknowledgments: the authors would like to thank Laura Flint, from Specialty Physical Therapy. The authors presented research findings via a virtual recording in November, on the National Lymphedema Network Newsletter.

Publisher's note: all claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article or claim that may be made by its manufacturer is not guaranteed or endorsed by the publisher.

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0).