

CLINICIANS' TRAINING AND INTERESTS IN LE RESEARCH

Mei Fu, Jane Armer, Saskia Thiadens, Vanessa Hurless, Joseph Feldman, Sheila Ridner, Jan Weiss, Patricia Meringer, Catherine Tuppo, Joseph Meringer, Janice Cormier

Abstract

Background: It is essential to understand clinicians' research training to advance the field of lymphoedema through continuous research and implementation of evidence-based practice. **Aims:** To investigate clinicians' training, interests, and opinions regarding lymphoedema research. **Methods:** A survey was conducted by the National Lymphedema Network (NLN) Research Committee from 2007–2009. A sample of NLN professional members was recruited. Descriptive and comparative data analyses were performed. **Results:** Among 317 clinicians who completed the survey, 52.4% had received some formal research training. The clinicians rated the most important obstacles for research were lack of funds, followed by lack of time and lack of knowledge. Clinicians rated that the most beneficial education programme should focus on performing clinical research in a busy clinic setting with limited resources. Over 80% of the clinicians expressed interests in research training on critical evaluation of current lymphoedema research, development of research ideas and clinical protocols, and writing fundable grants. **Conclusions:** This survey identified clinicians' research training needs and obstacles. Professional organisations may use this information to strategically plan educational opportunities and venues. **Declaration of interest:** None.

Key words

Clinicians' perspective
Lymphoedema
Research
Evidence-based practice
Dissemination

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Lymphoedema is a chronic and debilitating condition that has been largely neglected by the healthcare community, resulting in limited clinical and basic science research in the field (Pyszel et al, 2006; McLaughlin et al, 2008; Cormier et al, 2009; Fu and Rosedale, 2009). Continuous research and efforts in disseminating knowledge through

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evidence-based practice is critical to identify optimal lymphoedema treatment and management modalities. In comparison to other areas, the number of clinicians in the lymphoedema field who conduct and disseminate research is limited. In the authors' opinion, it is essential to understand the current state of clinicians' research training, interests,

and opinions to facilitate research and implement evidence-based practice through development of training interventions to meet clinicians' needs. The purpose of this survey study was to understand the current state of clinicians' research training, including their needs and perceived obstacles. A secondary objective was to identify methods to support future lymphoedema research and knowledge dissemination.

Background

The National Lymphedema Network (NLN) is an internationally recognised non-profit organisation founded in 1988 to provide education and guidance to patients with lymphoedema, healthcare professionals and the general public by disseminating information related to primary and secondary lymphoedema. The NLN is supported by tax-deductible donations and is a driving force behind the movement in the US to standardise quality treatment for patients with lymphoedema. The NLN also supports research into the causes and possible alternative treatments

for this often incapacitating, long-neglected condition.

In response to the expressed interests in lymphoedema research from its members, the NLN Research Committee had an extensive discussion in 2007 to determine how the NLN could support and address these research inquiries to facilitate research and promote evidence-based practice in the lymphoedema field. The committee developed a survey instrument to investigate clinicians' research training, interests, and opinions.

Methods

Sampling

The NLN professional members were invited to complete the survey which was made available on the NLN website from 2007 to 2009. Announcements and electronic messages that included a link to the survey were also sent directly to the NLN members. Completion of the survey served as the respondents' consent to participate in the survey. The survey was available for completion from 2007 to 2009.

Instrument

The survey consisted of 17 items that included questions about demographic information related to work responsibilities and clinicians' research training and experience. Respondents rated obstacles, interests, and training on a 5-point Likert scale of one representing the least and five representing the most. Qualitative responses were also collected.

Data downloading and verification

Raw data were downloaded using the Excel files. Automated descriptive data analyses were generated by the survey software. Human-in-the-loop (HITL) method was used to verify data accuracy and ensure minimum data errors (Sollenberger et al, 2005). HITL refers to the need of human intervention when dealing with electronic data (Zaidan and Callison-Burch, 2009). Detailed explanations of each step of HITL are presented in Table 1.

Table 1

Steps of Human-in-the-loop (HITL) method

Steps	Explanations
1. Determination of the most constant items reflecting the real number of respondents	In the survey, only the item regarding location of practice could conceptually be considered the constant item reflecting the real number of respondents, since all of the other items in the survey allowed multiple responses. Answer options for this item were: US and Non-US, so the totality of these two responses should reflect the real number of respondents if the two responses could be summed to 100%.
2. Identification of duplicated responses	A total of 104 duplicated responses were identified
3. Identification of whether the duplicated responses were from one or multiple respondents	Differentiation of responses was possible by examining raw data by checking email addresses. A total of 104 duplicated responses were identified from two respondents in this survey
4. Determination of the actual 'true' number of responses	Since email addresses were collected, we examined non-duplicated responses with their corresponding email addresses to check if there were duplicated emails. All of the non-duplicated responses had a unique corresponding email address, totalling 317. Therefore, the total number of survey respondents was 317

Data analysis

Descriptive and comparative analyses were performed to summarise respondents' demographic information, research training and experiences, perceived obstacles and future interests.

Results

Demographics

A total of 317 clinicians completed the survey, including physical therapists (n=104, 32.8%), occupational therapists (n=102, 32.2%), massage therapists (n=47, 14.8%), physicians (n=26, 8.2%), registered nurses (n=43, 13.6%), nurse practitioners (n=9, 2.8%), and doctorally-prepared researchers (n=11, 3.5%). Over 60% of respondents (n=206, 65%) were occupational and physical therapists (Table 2).

Among the 317 clinicians, 83% (n=265) practised in the United

States, representing 43 states with most respondents from Texas, California, New York, New Jersey, Arizona, Florida, Maine, Massachusetts, Ohio, and Pennsylvania. Only 16.4% (n=52) practised outside of the US, representing Australia, United Kingdom, and Canada. More than 60% of the clinicians work in hospital-based lymphoedema treatment centres (n=200 63.1%), followed by free-standing treatment centres (n=65, 20.5%), universities (n=36, 11.4%), research (n=23, 7.3%), managed care organisations (n=10, 3.2%), veterans' association (VA) (n=6, 1.9%).

The majority of clinicians (n=275, 86.8%) provided direct patient care. The rest reported that their primary work responsibilities included academic education (n=48, 15.1%), administration (n=61, 19.2%), and research (n=46, 14.5%). About 8% (n=26) of the clinicians reported

Table 2

Demographics

n=317	n	% (100)
Geographic area		
Practice in the US	265	83.6
Practice outside of the US	52	16.4
Occupation*		
Physical therapist	104	32.8
Occupational therapist	102	32.2
Massage therapist	47	14.8
Registered nurse	43	13.6
Nurse practitioner	9	2.8
PhD prepared researcher	11	3.5
Medical doctor	26	8.2
Type of practice		
University	36	11.4
Veterans' Association	6	1.9
Hospital/hospital-based	200	63.1
Research	23	7.3
Managed care organisation	10	3.2
Free-standing treatment centre	65	20.5
Primary work responsibilities		
Academic educator	48	15.1
Administrative	61	19.2
Clinical patient care	275	86.8
Research	46	14.5
Other**	26	8.2

* Respondents were allowed to select more than one category
 ** Other: CEO, programme coordinator, educator, consultant, board examiner

that their work responsibilities were home health care, care coordinator, chief executive officer (CEO), training/consulting marketing and breast healthcare coordinator.

Research experience

Over 50% of the clinicians (n=166; 52.4%) received some formal research training, while 47.6% (n=151) reported never receiving any formal research training. Of those who received formal training in research, the majority (n=86, 51.8%) were trained during their master's degree, followed by a course (n=39, 23.5%), doctoral programme (n=17, 10.2%) and other (n=24, 14.5%) (Table 3).

Role in research

About 30% of clinicians (n=93; 29.3%) had been primary investigators in research projects, while 26.8% (n=89) reported having a role as a research assistant and 22.4% (n=71) reported having other roles in research such as co-investigators or protocol developers. A total of 19.2% (n=61) of the clinicians had performed or collaborated on basic science research, 35.3% (n=112) on clinical or protocol-based research, 37.9% (n=120) on case studies (Table 3).

About 83% of clinicians (n=262; 82.6%) reported that they had not participated in a grant writing seminar,

while 17.4% (n=55) had participated in one organised by the NLN. Among the 55 respondents who had participated in an NLN grant writing seminar, 74.5% (n=41) reported that the course provided background information for understanding lymphoedema research, while only 18.2% (n=10) reported that it resulted in initiation of a research project. Additionally, 23.6% (n=13) reported that the seminars had helped refine a research proposal, supplemented previous training, and/or motivated them to initiate a research project.

Obstacles

Using a 5-point Likert scale of one representing the least and five representing the most, the clinicians rated the main obstacles to performing research were lack of funds (mean=3.73), followed by lack of time (mean=3.51) and lack of knowledge related to the research process (3.19); and insufficient patient caseload (mean=1.86) (Figure 1).

With regard to future interest and beneficial training programmes, clinicians rated training in how to perform clinical research in a busy clinic setting with limited resources as most beneficial (mean=4.05), followed by clinical protocol development (mean=3.84), writing fundable grants (mean=3.82), identifying research most readily to be translated into clinical practice (mean=3.66), manuscript writing (mean=3.52), how to develop a research question (mean=3.12), how to read and evaluate research (mean=2.79), and how to conduct a literature review (mean=2.66) (Figure 2).

The majority of clinicians (83.3%, n=264) expressed interests in attending research training programmes focusing on critical evaluation of current lymphoedema research (mean=4.14), developing research ideas (mean=3.7), developing clinical protocol (mean=3.68), obtaining funding for lymphoedema research (mean=3.6), overview of clinical research designs (mean=3.52), and, lastly, a grant writing seminar (mean=3.25).

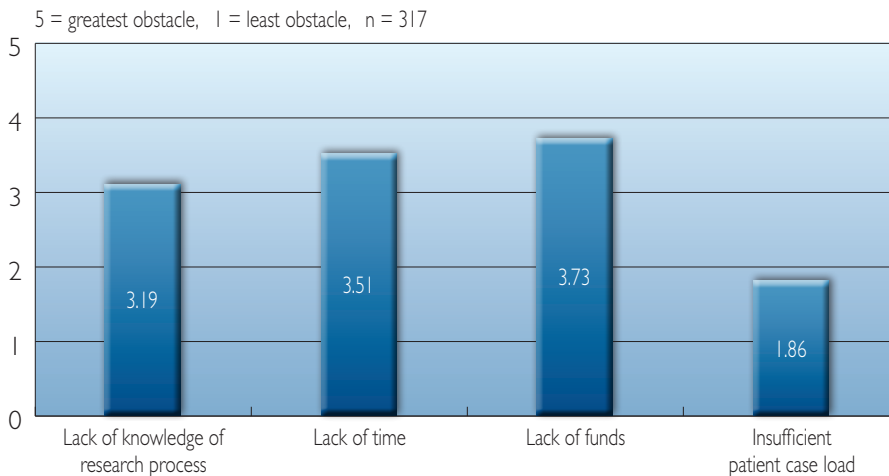


Figure 1. Obstacles to performing research.

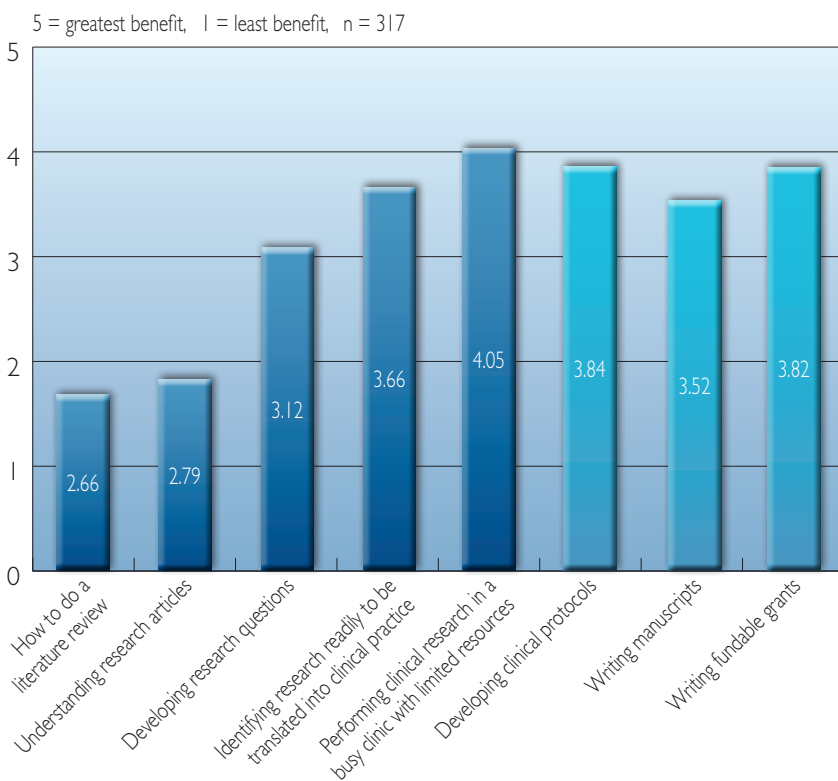


Figure 2. Benefits of performing research.

About 40% (n=125) of the respondents reported that they would be willing to spend \$100–200 on a workshop, while 16.1% (n=51) reported that they would only be willing to pay less than \$100 and 17.7% (n=56) would be willing to participate in a research-oriented workshop only if it were provided at no cost.

Discussion

With advances in technology, electronic data collection and data process have

become a more widely used and preferred approach for large-scale research surveys and on-site research. In addition to the noted advantages of technology for conducting research, it is equally important to recognise the limitations of technology assessment and the requirement for human intervention, particularly with respect to the interpretation of results. The HITL method used in this analysis has been shown to be an effective method for verification of data accuracy,

ensuring minimum electronic data errors, and guiding data analyses in a clinically meaningful way. The steps used in the current study provide a model for future studies using electronic technology to ensure the quality of data both for research and clinical evaluation.

Only 52.4% of clinicians reported to have received some formal training in research. Many of the respondents were physical, occupational, and massage therapists who reported a lack of research training and knowledge related to the research process. Given that these clinicians are providing direct care for patients, this underscores the importance of building skills necessary to understand and interpret research studies in order to provide the most effective evidence-based care. Since many of the clinicians have not been trained in research methods through their specialty educational programmes, it is necessary to address this lack of training by providing opportunities for lymphoedema healthcare providers to obtain the knowledge and build skills needed to understand the research process, critically evaluate current research findings, implement evidence-based practice, and conduct research.

The NLN provides clinicians with grant writing seminars at its biannual conference. However, the majority of survey respondents (82.6%) have never attended a grant writing seminar. Attendance at recent NLN research seminars has decreased from 49.1% in 2002 to 23.6% in 2006. Possible reasons for decreased attendance at NLN research seminars from 2002–2006 might include: (1) topics offered in the seminars might have not been matched with clinicians' research interests; (2) 2006 attendees may have participated in earlier seminars. The majority (74.5%) of seminar attendees reported that the research seminar(s) were beneficial to their education. Effort should be focused on providing alternative, easily-accessible, educational venues to increase clinicians' research knowledge and ability to disseminate research through evidence-based practice. One

Table 3

Research experience and role

Formal research training, n=317		
Yes	166	52.4%
No	151	47.6%
Types of training*, n=166		
PhD	17	10.2%
Masters	86	51.8%
Course	39	23.5%
Other**	24	14.5%
Role in research*, n=317		
Primary investigator	93	29.3%
Research assistant	89	26.8%
Other***	71	22.4%
Type of research performed*, n=317		
Basic science research	61	19.2%
Clinical/protocol-based research	112	35.3%
Case study/case series	75	23.7%
	120	37.9%

* Respondents were allowed to select more than one category

** Mentored training or certification

*** Collect data, serve on IRB committee, lobbying for research, gather information, student researcher

strategy would be to focus seminars or workshops or online courses on targeted topics identified by clinicians. Most interested and perceived beneficial topics identified in this study included:

- ▶ Critical evaluation of current lymphoedema research
- ▶ Developing research ideas
- ▶ Writing clinical protocols,
- ▶ Writing fundable grants.

Few attendees (n=10, 18.2%) reported that attendance to a lymphoedema research seminar resulted in the initiation of a research project. This may be due both to the fact that the majority of clinicians are more interested in understanding research findings and the way to disseminate research into practice, and that initiation of a research project needs more in-depth training. Single seminar training would not be sufficient to equip clinicians with the necessary knowledge and

Clinicians are also interested in building skills to identify research most readily to be translated into clinical practice.

skills to conceptualise, design, plan, and implement a research project. Professional organisations should further investigate clinicians' interest in systematic training and mentoring programmes to train those clinicians who are interested in progressing as independent researchers.

The lack of funds was identified as the most important obstacle to research. Clinicians believed they would mostly benefit from educational programmes that help to write fundable grants. Professional organisations should continue to arrange or sponsor events that focus on identifying and applying for

research funds. Six most interested educational topics for future research training programmes were identified: learning how to perform clinical research in a busy clinic setting with limited resources; critical evaluation of current lymphoedema research, developing research ideas, writing a clinical protocol, writing a fundable clinical research grant, and overview of clinical research design.

Clinicians are also interested in building skills to identify research most readily to be translated into clinical practice. Since the majority of clinicians provide direct care to patients, it is important for them to be able to critically evaluate current research findings and translate evidence-based knowledge into practice. Ongoing educational programmes with emphasis on updated critique of lymphoedema literature should be offered by professional organisations. Seminars or workshops or online courses should also focus on strategies concerning how to conduct a low-cost study by recruiting and retaining volunteers, decreasing participant attrition, or applying for research donations.

Lack of time was the second main obstacle identified by the clinicians. Although it is difficult to address this obstacle, one strategy that might be effective is to help clinicians understand the importance of research so they will be willing to optimise their time to participate in or conduct research. Time management workshops may be another valuable programme for lymphoedema healthcare providers. Addressing the issue of research funding would also aid clinicians by providing resources for research, enabling them to decrease the amount of time spent on other work that is done to support their practice.


The third important obstacle was lack of knowledge related to the research process. Clinicians who provide direct patient care should be equipped with adequate understanding of the research process, including

understanding of the existing literature and ethical issues in research. Our survey study showed that there was significant interest in critical evaluation of current lymphoedema research. Professional organisations and professional journals may organise series of seminars, workshops, online courses, and publication series on topics most beneficial for disseminating research findings into practice. Educational programmes focusing on the development of research ideas and writing clinical protocols are also rated as beneficial. In addition, programmes that include research methods or developing research ideas or writing clinical protocols were most desirable.

A limitation of the survey study was that only clinicians who were NLN members were offered the opportunities to participate in the study. Secondly, the question on seminar attendance related only to grant writing seminars that the NLN had previously offered. In addition, it would have been useful to know if participants attended other types of research seminars or workshops offered by other professional organisations, why they chose particular programmes or conferences, and what information they found particularly useful. In this way, more accurate information can be obtained to better plan future research training programmes.

Conclusions

This survey summarises clinicians' opinions related to research training, including the perceived obstacles, beneficial education programmes, and their interest related to future educational programmes. Research is critical in providing optimal patient care; it is important for clinicians to have training in research in order to understand the existing body of literature. This study has identified specific research needs and obstacles from the clinicians' perspectives in the lymphoedema community. Professional organisations can use these data to strategically plan future educational opportunities. Participants suggested additional educational venues including

online courses, publication series, workshops, and podcast. 

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Key points

- ▶▶ It is essential to understand the current state of clinicians' research training, interests, and perspectives to facilitate research development and implement evidence-based practice through design and delivery of educational and training interventions to meet clinicians' needs.
- ▶▶ Among the 317 clinicians who submitted the data, 83.69% (n=265) practiced in the United States, representing 43 states, and 16.4% (n=52) practiced outside of the United States, representing Australia, United Kingdom, and Canada.
- ▶▶ Over 50% of the clinicians (n=166; 52.4%) received some prior formal research training while 47.6% (n=151) reported never receiving any prior formal research training.
- ▶▶ The clinicians rated the main obstacles to performing research were lack of funds, followed by lack of time, and lack of knowledge related to the research process.
- ▶▶ Easily-accessible, multi-media, ongoing educational programmes should be offered by professional organisations with emphasis on updated critique of lymphoedema literature and strategies related to how to conduct a low-cost study, including recruiting and retaining volunteers, decreasing participant attrition, and applying for research funding and/or donations.

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