Title:

Situation analysis for informing the global strengthening of the occupational therapy workforce

Running Title:

SWOT analysis of the occupational therapy workforce

Tiago S. Jesus [1]*, Karthik Mani [2], Sutanuka Bhattacharjya, [3] Sureshkumar Kamalakannan [4], Claudia von Zweck [5], Ritchard Ledgerd [5], *World Federation of Occupational Therapists*

1. Center for Education in Health Sciences, Institute for Public Health and Medicine, Feinberg School of Medicine, Northwestern University, Chicago, Illinois, USA; tiago.jesus@northwestern.edu

2. Department of Occupational Therapy, School of Health Professions, The University of Texas Medical Branch at Galveston. Galveston, Texas, USA; kamani@utmb.edu

3. Department of Occupational Therapy, Byrdine F. Lewis College of Nursing and Health Professions, Georgia State University, Atlanta, Georgia, USA; sbhattacharjya@gsu.edu

4. Department of Social Work, Education and Community well-being, Northumbria University, Newcastle upon Tyne, United Kingdom; sureshkumar.kamalakannan@northumbria.ac.uk

5. World Federation of Occupational Therapists (WFOT), Geneva, Switzerland; admin@wfot.org

* Correspondence: tiago.jesus@northwestern.edu

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Abstract

Background: Occupational Therapists are needed for meeting the health, rehabilitation, and occupational needs of the population worldwide, but there is no strategy for strengthening the occupational therapy workforce against a backdrop of an insufficient and inequitable supply worldwide.

Objective: To perform a situational assessment of occupational therapy workforce development and research toward informing a global human resources strategy for the occupational therapy workforce strengthening.

Method: A multi-methods design incorporating Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis based on scoping review findings, workforce development frameworks, and expert feedback.

Results: Strengths included identified workforce research trends, gaps, and findings. Weaknesses included a shortage of workforce research, lack of uniform and readily available workforce datasets, absence of workforce research programs, over-reliance on descriptive and non-experimental research, lack of research on workforce topics (e.g., diversity), and lack of labor market or economic analyses. Opportunities are the availability of guidance and tools for strengthening the health and rehabilitation workforce worldwide, and increased membership from low- and middle-income countries (LMICs) in the World Federation of Occupational Therapists. Threats include the suboptimal funding of occupational therapy workforce research, the lack of occupational therapists data on international datasets and studies, suboptimal educational capacity in LMICs, lack of professional regulation and uniform workforce data collection in many contexts, and a perceived lower priority of this health workforce focused on health and wellbeing rather than medical outcomes.

Conclusion: This SWOT analysis identifies strengths and opportunities to be seized and weaknesses and threats to be addressed by development of a strategy for the global strengthening of the occupational therapy workforce.

Keywords: Health Workforce, Occupational Therapy, Situation Analysis, SWOT.

Background

Occupational Therapists are needed for meeting the health, rehabilitation, and occupational needs of the population worldwide.[1] To do so, the occupational therapy workforce must satisfy supply requirements, be equitably distributed (e.g., across geographies, service levels), and meet key competency standards.[1] The development of the occupational therapy workforce worldwide has, however, been inconsistent across nations, even among those of similar income level. For instance, recent workforce data collated by the World Federation of Occupational Therapists (WFOT) shows that Italy has less than one-tenth of the population-adjusted occupational therapists than Denmark.[2] The same dataset also indicates that 54 out of 89 countries, many of which are low- and middle-income countries (LMICs), had less than one occupational therapist per 10,000 inhabitants, with a per-capita supply of up to 22,000 times less than Denmark's.[2] Furthermore, occupational therapy workforce research also has shown inequitable distributions of occupational therapists within geographic areas (e.g., rural versus urban), sectors (e.g., public or private) or services (e.g., mental versus physical health) of the same country.[3]

The insufficient supply and inequitable distribution of the occupational therapy workforce occurs against a backdrop of an ageing population and a growingburden of non-communicable conditions and disability, globally.[4] For example, a 17% increase was observed in the world's physical rehabilitation needs per capita from 1990 to 2017.[4] Hence, a high and increasing global disability burden exists for an insufficient supply and inequitable distribution of the occupational therapy workforce.

In this context, the WFOT initiated a process to develop a global strategy toward strengthening the worldwide occupational therapy workforce. The process began with a three-pronged scoping review of the occupational therapy workforce

research.[5] First, we examined the global status of occupational therapy workforce research by mapping the volume of studies, as well as geographic areas addressed and the type of methods used, including stratifying funded and non-funded research.[6] Second, we identified the types of findings that were generated by the occupational therapy workforce research, including trends in topics across nations.[3] Lastly, limitations and future recommendations reported by the included papers were summarized as possible facilitators or barriers for the strengthening of the occupational therapy workforce.[7]

In this *short communication*, we aim to build on this acquired knowledge, as well as on findings of an external environmental scan and feedback provided by experts, to perform a situational assessment of the development of occupational therapy workforce and its research - toward informing a global human resources strategy for its strengthening.

Methods:

We used a Strengths, Weaknesses, Opportunities and Threats (SWOT) framework to develop the situational assessment. SWOT analytical tools have been used for informing health workforce developments,[8, 9] and focuses on identifying which *Strengths* and *Opportunities* might be optimized, as well as *Weaknesses* and *Threats* to be minimized or overcome for advancing a system. Here, we used a SWOT analysis to lay the foundations, of need and opportunity, for developing strategies for strengthening the worldwide occupational therapy workforce.

Within a SWOT framework, *Strengths* and Weaknesses are considered internal factors, where *Strengths* represent a competitive advantage for that system or its own development, while *Weaknesses* refer to limitations of the system or organization that may hamper its progress; hence, both refer to properties of the system under study. In turn, *Opportunities* are any factors that may act as a facilitator to the progress of the system or organization, whereas *Threats* refer to barriers that serve as a disadvantage; both Opportunities and Threats refer to properties external to the system under review.

Drafting the SWOT

In the context above, the Strengths and Weaknesses of our SWOT framework were primarily identified from the findings of our recent scoping review of the occupational therapy workforce research. The three-pronged scoping review addressed: 1) the scope of the literature and its research methods,[6] 2) the types of findings generated,[3] and 3) the self-reported limitations and recommendations.[7] Data and reports generated by WFOT were also used to inform the Strengths and Weaknesses, e.g., data from the WFOT human resources project.[3]

The identification of Opportunities and Threats was based on major health workforce development frameworks and development activities. These include the Global Strategy on the Human Resources for Health,[10] which provides global guidance for workforce research and developments, and the Global Strategic Directions for Strengthening Nursing and Midwifery which provides a profession-specific development guide.[11] We also relied on a recent guidebook from the World Health Organization on developing health labor market analyses.[12] Furthermore, we used frameworks and tools (e.g., Rehabilitation Competency Framework; Six Rehab Workforce Challenges)[8, 13] that can guide broader rehabilitation workforce developments. Finally, we relied on a recent analysis of publication and funding trends on the health workforce literature,[14] and on the current occupational classification system and global databases for reporting health workforce data.[15, 16]

Based on these sources, a subset of the authors (TJ, CvZ, and RL) elaborated on a draft SWOT analysis, then subjected to expert review and refinement suggestions.

Consulting experts

Four experts were invited by WFOT to provide feedback for the development of the occupational therapy human resources strategy. Three of the experts were external to the research team and included: the author most frequently cited in the preceding scoping reviews; an external consultant involved in rehabilitation workforce strengthening; and a scholar in health economics and health workforce with expertise in LMICs. Finally, the panel also included one of our research authors (KM)

not directly involved in drafting the SWOT analysis. This expert added workforce expertise for both high-income countries and LMICs. All experts were occupational therapists, except for the scholar in health economics. Altogether, the advisors had occupational therapy, human resources policy and management, rehabilitation workforce, and health policy and economic expertise, across global regions. The acknowledgement section provides the experts' names and positions for the three of the four advisors that consented to this acknowledgement.

Following the acceptance of a formal invitation from the WFOT, which included the terms of the experts' volunteer participation, an online meeting with the advisors was held by the researchers. The draft SWOT analysis was made available to the experts a priori, and was reviewed during the one-hour meeting. Open-ended, iterative, and verbal feedback was sought toward improving the SWOT analysis. Field notes were recorded by the researchers regarding missed or unclear elements.

The field notes taken during the meeting were instrumental for refining the SWOT analysis. Using the input provided by the advisors, the SWOT analysis was iteratively edited by the research team. The advisors subsequently had the opportunity to individually provide written input regarding the final version.

Results

Table 1 provides the final SWOT analysis, which included seven *Strengths*, seventeen *Weaknesses*, eight *Opportunities*, and nine *Threats*.

<Insert Table 1 around here>

In synthesis, the *Strengths* were related to the identification of workforce research trends, gaps, leverage points, and occupational therapy workforce findings that emerged from research involving diverse health occupational groups.

The *Weaknesses* include a shortage of workforce research, outdated research findings, lack of uniform and readily available workforce datasets, large heterogeneity in continuous development requirements, absence of workforce

research programs, over-reliance on descriptive and non-experimental research, rare availability of research on some workforce topics (e.g., international mobility, diversity), and lack of comprehensive situational analysis or deliberative workforce planning and evaluation, among others.

The *Opportunities* include the existence of guidance and tools for strengthening the health and rehabilitation workforce worldwide, the increased membership from LMICs in the WFOT, and the opportunity to use licensing or registration bodies as a more reliable source of occupational therapy workforce data, to name a few.

Finally, *Threats* include, but are not limited to, the suboptimal funding of occupational therapy workforce research, the lack of occupational therapists data on international datasets, suboptimal educational capacity in LMICs, frequent lack of professional regulation and reliable workforce data collection, and the current lack of occupational therapy as a discrete occupational category in the International Standard Classification of Occupations.

Additions that emerged from the experts' feedback

Components of the final SWOT analysis that emerged specifically from the experts' input (i.e., bullets without a supportive reference in the Table 1) are outlined below.

Specifically, the additions are related to *Opportunities* arising from increased societal participation and economic productivity of populations served by occupational therapy as result of workforce scale up investments, as well from the increasing number of occupational therapists with doctoral and master's level education able to undertake workforce research. An additional *Threat* was identified in relation to occupational therapy being seen as a lower priority in the health agenda because of a focus on functional and wellbeing outcomes versus survival or other medical outcomes. Finally, the importance of one *Weakness* was reinforced, notably, the lack of labor market or economic analyses for occupational therapy (e.g., cost of scale ups; return-of-investment analyses); although identified in the scoping reviews,[3] this weakness was not explicitly outlined in the initial SWOT.

Discussion

In this manuscript, we highlight the process and results of a SWOT analysis regarding worldwide occupational therapy workforce development and research. In doing so, we integrated the results of a three-pronged scoping review especially for internal-system components of the SWOT framework (i.e., *Strengths* and *Weaknesses*), and then used current workforce development frameworks and expert consultation especially for the external-environment components (i.e., *Opportunities* and *Threats*). This work is part of a multi-staged project of the WFOT to build the first ever global strategy for strengthening the occupational therapy workforce. The design of the strategy must be preceded by a comprehensive, yet balanced, situational assessment. Here, we described that assessment using a SWOT analysis.

Among the elements included in our SWOT analysis, Weaknesses were the most frequently identified. This finding may arise from the lack of a systematic program, agenda, or capacity toward developing and investigating the occupational therapy workforce and its strengthening, globally or in varying health system contexts.[8, 17, 18] The numerous weaknesses reinforce the need to build global strategic directions for the occupational therapy workforce strengthening. In turn, the mapping of precise weaknesses may prove very helpful to the task of designing strategies that aim to specifically address the areas of concern.

Methodologically, the SWOT proved to be an intuitive analytical tool. Initially used in the management literature, the SWOT framework has been now utilised in health policy and service research topics, including in the disability and rehabilitation field[8] and toward informing health workforce developments.[8, 9, 19] The framework facilitated the identification of *Strengths* and *Opportunities* to be seized, as well as *Weaknesses* and *Threats* to be addressed by global strategies, thus aligning with our development purposes. Moreover, the SWOT methodology focuses on both internal and external factors - also congruent with our development tenets. We acknowledge the need to develop workforce strategies that are responsive to specific occupational therapy workforce gaps and strengths; yet, we also recognise the need to synergistically frame those developments within other activities toward

strengthening the broader health and rehabilitation workforce.[8, 10, 13] The SWOT framework was instrumental for our purposes.

The work has the following limitations. Although we consulted a range of experts, including external, we did not develop a wide stakeholder consultation. We plan to develop a larger consultation on the strategies that will arise from this assessment. Also, experts were selected and invited by the researchers. Although it helped achieve a representative pool of experts, this approach can contribute to bias in the review of the SWOT.

Conclusion

This situation analysis used the intuitive SWOT framework toward identifying the strengths and opportunities to be seized and weaknesses and threats to be addressed when developing a strategy for strengthening the worldwide occupational therapy workforce. Strengths included having the workforce research trends, gaps, and findings identified. Weaknesses included a shortage of workforce research, lack of uniform workforce datasets, absence of workforce research programs, and over-reliance on descriptive and non-experimental research, to name a few. Opportunities include, for example, the availability of guidance and tools for strengthening the health and rehabilitation workforce worldwide. Finally, threats include, among others, the suboptimal funding of occupational therapy workforce research, the lack of occupational therapist workforce data on international datasets, and lack of professional regulation and suboptimal education capacity especially in many LMICs.

Strengths:	**Weaknesses**:
1. A recent, multi-pronged scoping review synthesized the global occupational therapy workforce research: studies,[6] findings,[3] limitations & recommendations.[7] 2. Trend topics identified: attractiveness & retention for underserved areas - Australia; supply & demand - US; integration of international workers - Canada.[3] 3. Rural/remote areas identified as underserved in HICs and LMICs, with exploratory research on factors associated to recruitment/retention.[3, 8] 4. Mental health (practice area) identified as underserved, but not in all contexts (e.g., easier to fill mental health vacancies in Sweden).[3] 5. A country-wide, service-level analysis in Saudi Arabia used international benchmarks, adapted them to a local context, and determined the requirements and costs for the required scale up of the occupational therapists for meeting the stroke rehabilitation needs.[3, 20] 6. The WFOT has a monitoring mechanism in place since 2006, updated every two years, to ask for and collate national data from Member Organizations.[2] 7. Studies with stratified data per occupations revealed findings (e.g., rates of turnover intention; private-public practice ratios; most significant factors leading to job satisfaction and retention; lack of diversity of the workforce) that are substantially different (i.e., with outstanding values, statistically different) for occupational therapist relative to other occupational categories, including rehabilitation professions; results reinforce the need for occupational therapy developments in addition to strategies for the broader health workforce.[3]	1. Only 57 publications (25 years, global), with little year to year growth of the occupational therapy workforce research.[6] 2. Many outdated findings (e.g., recruitment strategies decades ago, using dated information technologies).[3, 6, 7] 3. Overreliance on cross-sectional, descriptive, studies with no follow-up nor part of research programs.[3, 6] 4. Small, convenience samples, often from single settings/regions; findings are: not easily generalizable, not representative of the workforce and their strata, and have limited subgroup analyses. [3, 6] 5. Lack of longitudinal studies and experimental approaches.[3, 6] 6. Limited use of inferential statistics and standardized instruments. [3, 6] 7. Routine, administrative workforce data is often limited in availability and detail, scattered across sectors with unmergeable databases, sometimes not disaggregated for the occupational therapy workforce, and varies in data collection requirements, procedures, and timings sometimes within one country.[3] 8. Large imbalances across nations (even among HICs) in the supply of occupational therapists; variations not justified by varying levels of population need.[2, 3] 9. Few studies on LMICs (11%)[6] and many such countries have no training programs or professional regulation.[2, 7] 10. Studies on international mobility, compensation, human resources management, productivity, or task-shifting are rarely or not addressed.[3] 11. Few research-based, participatory processes to develop competency standards, with no impact evaluation.[3] 12. No situational analyses or other system-level, participatory analyses (e.g., co-created system dynamics modelling) of or including the occupational therapy workforce situation within or across jurisdictions. [3, 12] 13. No multi-year, data-based, deliberative (inter)national plans, their implementation, and evaluation.[3, 7] 14. Requirements for continuous development of licensing bodies vary substantially, even across jurisdictions of a country with no underlying evidence base or specific population need identified. [7] 15. Little research on diversity (ethnicity, gender) of the workforce compared to other occupational categories.[3]

	16. Lack of labor market or economic analyses (e.g., cost of scale ups; return-of-investment analyses).[3] 17. No research programs, hubs, teams, or networks (e.g., one-off studies conducted by master students).[3, 6, 7]
Opportunities: 1. Global cross-stakeholders input ("Rehabilitation 2030"; World Rehabilitation Alliance) on strengthening rehabilitation services and human resources, within a global development agenda[10] that increasingly includes the need to strengthen rehabilitation services and the health workforce overall. 2. Global tools (e.g., WHO's Rehabilitation Competency Framework; Guide for Rehabilitation Workforce Evaluation; National Health Workforce Accounts) recently developed for broader health workforce developments.[3, 10, 13] 3. The WFOT is developing a global workforce strategy[1, 3, 6, 7] and has developed minimum education standards. 4. The WFOT has observed a rise in membership from LMICs. 5. Multi-year, multi-cycle health workforce and occupation-specific workforce strategies exist (e.g., nursing & midwifery), providing development, implementation, and evaluation experiences.[10, 11] 6. Licensing bodies can be positioned to collect and maintain key occupational therapy workforce data, otherwise coming from too many sectors and databases.[7] 7. Occupational therapists promote independence, societal participation and economic productivity – the societal return of scale up investments can be positive, if studied. 8. Increasing numbers of occupational therapists trained at master or doctoral levels, possibly able to carry out workforce research with additional training or support. 9. Preliminary findings from the occupational therapy workforce research, coupled with solid workforce evidence, can be used for more advanced study designs (e.g., discrete experimental choices; testing recruitment and retention packages).[3, 7]	**Threats**: 1. Rates of funding support for occupational therapy research (20%)[6] less than health workforce research or rehabilitation research (>50%),[14] which affects the quality of the scientific methods. 2. Health workforce research that includes occupational therapists sometimes does not provide stratified results per occupation (e.g., aggregated for therapists or allied health professionals).[7] 3. Lack of capacity to scale up the occupational therapists supply in countries where training programs or occupational therapists are (nearly) absent.[8] 4. Lack of professional regulation, especially in many LMICs.[7] 5. Lower priority in the health agenda (e.g., not a large health workforce, without representation or training programs in many countries, and the focus on functional, well-being, and occupational outcomes versus survival or other medical outcomes). 6. Underdeveloped rehabilitation systems of care, particularly in many LMICs, contrasting with the population ageing and growing rehabilitation needs.[4] 7. The lack of occupational therapy workforce data in major databases / repositoria (e.g., National Health Workforce Accounts only provide occupational profile information for Medical Doctors, Nurses, Midwiferies, Dentists, and Pharmacists; Global Health Workforce Statistics database provides data for multiple occupations, including physiotherapists and their assistants but not for occupational therapists), impeding higher-levels analysis of the health workforce to be inclusive of the occupational therapy workforce.[12, 16] 8. Occupational therapy is not described and classified as one discrete occupation within the International Standard Classification of Occupations[15] and not mentioned in the global strategy for the human resources for health.[10] 9. Lack of a standard framework of data elements for the collection of occupational therapy workforce data [7]

Table 1: Strengths, Weaknesses, Opportunities and Threats analysis of the occupational therapy workforce development and research worldwide. Legend: WFOT: World Federation of Occupational Therapists. WHO: World Health Organization. HICs: High-income countries. LMICs: Low- and middle-income countries.

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