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Title: Physiotherapy in Madagascar: current challenges and opportunities for development

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ABSTRACT

Purpose: World Health Organisation data show that low and middle-income countries have a higher prevalence of disabilities. Madagascar is the ninth poorest country in the world. This report aims to analyse the current difficulties faced by physiotherapists and physicians working in the hospital setting, and offer recommendations for how healthcare services can develop in future.

Materials and Methods: Data were collected over the course of three months in the form of observational logs, interviews, and questionnaires. Interpreters were used in all interviews, and written questionnaires were translated from English to Malagasy.

Results: Thematic analysis of all data collected was completed with key themes emerging: difficult working conditions, including high patient volume and limited staff capacity or treatment space; limited recognition of physiotherapy as a profession, with no autonomy for physiotherapy staff; low standard of clinical reasoning skills being used in practice; and variable levels of clinical competence, with little evidence of active continuing professional development or appropriate training specific to the needs of clinicians.

Conclusions: The current practice of physiotherapy in Madagascar mirrors the challenge in low-income settings. This study highlights the ongoing needs of the profession, including increasing clinical reasoning skills, updating the physiotherapy curriculum and further development of multidisciplinary team work.

INTRODUCTION

Low and middle income countries have a greater prevalence of disability than high income countries.[1] The World Health Organisation (WHO) Global Disability Action plan (2014-2021) aims to remove barriers and improve access to healthcare services for people with disabilities by strengthening and extending rehabilitation, support services, and community-based rehabilitation.[2] Madagascar has a population of 25.5 million people, and is ranked as the ninth poorest country in the world with a gross national income of $1,510 per capita. Most people in Madagascar live in poverty with 78% of the population living on less than US$1.90 per day.[3] Madagascar has extensive natural resources but political instability over the last decade has diminished economic growth. Expenditure on health in 2014 was $44 per capita. The Malagasy government aims to institute universal coverage in line with the WHO World Health Report but this will require further investment in human resources, infrastructure, and training programmes.[4]

Healthcare in Madagascar

Hospitals and other healthcare services in Madagascar are overseen by the Ministry of Health, which advises and supports the Malagasy government in matters relating to healthcare provision. One area that is increasingly recognised as needing development is rehabilitation.[5] Delivering the recently published national plan for rehabilitation will require a skilled workforce.[6] However, the number of rehabilitation staff is low,[7] for example, there are only 300 physiotherapists in the country.

One of the limiting factors in the expansion of rehabilitation professionals is the lack of a regulatory body such as the United Kingdom's Health Care Professions Council (HCPC) or the French Ordre Des Masseurs-Kinesitherapeutes to set standards of education and training to ensure that services are delivered safely and effectively. On graduation, physiotherapists begin working in hospitals, and the hospital reports back to the Ministry on the current skill levels of the physiotherapists in each hospital. The Ministry then organises training programmes for physiotherapists based on need through non-governmental organisations such as Humanity & Inclusion or MoveAbility (International Committee of the Red Cross).

The Association des Kinesitherapeutes de Madagascar

The Association des Kinesitherapeutes de Madagascar (AKIMA) was established in 2008 to support the development of physiotherapy in Madagascar. AKIMA works closely with the University in teaching and setting the curriculum, and supports the Ministry of Health in deciding the continuing professional development (CPD) needs of physiotherapists in Malagasy hospitals. Furthermore, AKIMA act as a trade union for physiotherapists in Madagascar. AKIMA aims to give protection to physiotherapists, however membership of AKIMA is not a prerequisite to practice as a physiotherapist in Madagascar.

Recently, AKIMA became a recognised member of World Physiotherapy. AKIMA hopes that by becoming a member of World Physiotherapy it will have access to networking opportunities and training to develop the skills of physiotherapists in

Madagascar. AKIMA is currently focused on developing a Masters of Physiotherapy programme in Madagascar. The Masters will be based at and awarded by the University of Antananarivo. Teaching on the Masters will be delivered by medically qualified staff. The hope is that by attaining a Masters in physiotherapy, physiotherapists will be able to train student physiotherapists on the undergraduate programme instead of relying on physicians to deliver the training.

University training for Physiotherapy in Madagascar

The first school of physiotherapy opened in Antananarivo, the capital of Madagascar in 1978. Initially physiotherapy was a diploma-based course but changed to a Bachelor of Science (BSc) degree programme in 2013. This BSc physiotherapy degree is delivered at the University of Antananarivo.

To work as a lecturer on a university teaching programme in Madagascar, a Masters-level qualification is required. Madagascar does not currently have a Master's programme in physiotherapy and undergraduate physiotherapy teaching is provided by medically-qualified staff. Currently, three physiotherapists are employed as 'monitors' to provide basic instruction in the principles of physiotherapy and assist with administration of the degree programme. The intake for the physiotherapy degree is fifteen students per year. This number is decided by the Ministry of Health and is based on the budget for delivery of physiotherapy in hospitals and the number of positions available in the country. Students obtain their degree after 3 years of study. All university teaching is theory based. Students receive practical training during their second and third year of study by going on placement to one of three

main teaching hospitals based in Antananarivo, or Antsirabe, Madagascar's second city. Placements are a component of the degree programme and last for a duration of four months in the second year of study, and four months in the third year of study. There is no formal supervision or grading structure during practical training whilst on placement. In addition, physiotherapists in practice do not receive guidance or training on how to supervise students or the requirements of student placements.

The purpose of this report is to gain an understanding of how physiotherapists work in these challenging circumstances and to provide recommendations for how the physiotherapy profession in Madagascar can develop.

Methods

Study Design

This study includes qualitative interviews, questionnaires and observational logs. This study was deemed by the local research ethics committee to be a service development project and not to require ethical approval. Permission to observe work within all hospitals was obtained from the lead rehabilitation medicine physician and chief physiotherapist within each hospital prior to arrival.

Participants

All participants gave verbal consent to be interviewed, observed or provide written feedback in the form of questionnaires. Information was provided on day one at each hospital setting during an introductory meeting to all physiotherapists and physicians. Participants included every physiotherapist and physician working at each hospital site, as well as representatives from the Ministry of Health, University of Antananarivo, and AKIMA. Participation in the study was voluntary, and participants were informed that if they did not wish to be included in the study, they could inform the researcher of this during observations, or refuse to attend the interviews. Confidentiality was maintained throughout by removal of any participant identifiable information during the write up of observational logs, interview transcription, or questionnaire translation.

Setting

Data were collected over a three-month period from the staff of six hospitals in five cities in Madagascar. These hospitals were chosen as they incorporate a rehabilitation department within the hospital. The outpatient rehabilitation department of each hospital was chosen as the location for data collection as this is the only area in hospitals where physiotherapists work. This range of hospitals was chosen to give an accurate representation of physiotherapy services across Madagascar. One researcher travelled to each hospital location and collected all data involved in this study. Figure 1 shows a map of Madagascar with key locations were data were collected shown. Please note that two hospitals were located in the same City.

INSERT FIGURE 1 HERE (map of Madagascar)

Observations

The researcher spent a week at each hospital and observations were completed for four hours each day in each hospital's outpatient rehabilitation department. The researcher wore a physiotherapy uniform throughout, but made it clear that she was there to observe practice, not to treat patients. The following information was logged: number of therapists, patients, assessments, treatment methods used, equipment utilised, and therapist and patient comments on service. If participants did not wish to be observed in practice, they informed the researcher of this on the morning of each observation day. The researcher reiterated each day to participants that participation in the study was voluntary.

Interviews

Following observations, face-to-face interviews were conducted with physiotherapists and physicians at each site with a translator present who spoke fluent Malagasy, English, and French. Interview questions were drawn up based on the results of the logs made of observations of practice. Table 1 shows the interview questions used. Interviews took approximately thirty minutes per participant and were audio recorded. The translator translated each interview verbally during the interview. The researcher then transcribed the interviews following the interview, and removed any identifiable participant information to ensure anonymity.

INSERT TABLE 1 HERE (table of interview questions)

Questionnaires

A translator was not available for information collected from four of the included hospitals. This was due to lack of funding and lack of availability of local translators in these areas. Instead, observations were collected and questionnaires which were pre-translated into Malagasy were given to physiotherapists and doctors. The items of the questionnaire were the same eight questions used during the face-to-face interviews. Questions were open ended and respondents were invited to provide free text comments. Questionnaires were printed and handed out to participants in paper format. Participants were given twenty-four hours to complete the questionnaire and return it to the researcher. Participants answered the questionnaire questions in Malagasy or French. The researcher then removed any identifiable information from the questionnaire to ensure anonymity before scanning and emailing completed

questionnaires to the translator who transcribed and translated the questionnaires into English and returned them to the researcher.

Analysis

Data were analysed using a thematic analysis approach, based upon the Braun and Clarke model.[8] All observations, interview transcripts, and questionnaires were read through to gain an understanding of themes. These themes were then grouped into subthemes, with a total of 7 main themes and 20 subthemes being deducted from the observations and transcripts. Representative quotations were then chosen for each theme and subtheme.

Results

Every physiotherapist and physician from each of the 6 centres surveyed were invited to take part in the study. This totalled 57 people, of whom 56 agreed to participate. 35 physiotherapists, 16 physicians, and 5 representatives of national healthcare organisations participated in the study. 1 physician from Hospital 1, and 1 physician from hospital 6 declined to take part in the study due to lack of available time to conduct an interview, these physicians were therefore not observed or included in any of the results. Table 2 shows the number of physiotherapists and physicians included in each hospital.

INSERT TABLE 2 HERE

From the analysis of the data, seven main themes and twenty subthemes emerged- see figure 2.

INSERT FIGURE 2 HERE

Number of Patients

A key challenge facing physiotherapists in Madagascar is the high number of patients each is expected to see. This led to therapists explaining that they do not feel that they can complete treatment to the high standard that they would like:

“We have such a low number of physiotherapists, we have too many patients. Sometimes this can lead to physiotherapists not being able to treat patients properly due to capacity.” (Physiotherapist, Interview)

When describing multidisciplinary team (MDT) work, physicians described how MDT meetings were instituted for a short period of time. But with large numbers of patients and few physiotherapists, the MDT meetings were deemed too time consuming and were therefore cancelled indefinitely:

“We had some training about team meetings with different cores [professions], like doctors, physiotherapists, and orthotists. The problem is we don’t have time because of the number of patients so we don’t have these meetings anymore.”

(Physician, Interview)

In all centres surveyed, patients arrived for appointments on a first come, first served basis. This would often lead to therapists treating two or three patients at once. Physiotherapists explained that patients find it difficult to make set appointment times due to poor road infrastructure, transportation links, and large distances to travel.

“Patient appointment times would not work here as patients struggle to keep appointments as they have to travel far.” (Physiotherapist, Interview)

Recognition of Profession

The title ‘physiotherapist’ is not a protected title in Madagascar as in other countries, such as the UK. Many physiotherapists reported feeling that most of the population do not understand the work that they do. Others reported that they do not feel that they are a respected profession, and do not receive as much respect as their nursing colleagues:

“I would like to improve people’s understanding of physiotherapy. There is confusion between physiotherapy and traditional massage.”

(Physiotherapist, Questionnaire)

“I believe we should have a separate core, I mean separate from the nursing profession which physiotherapy currently sits under. If we were separate we would have more respect, be able to protect each other and protect our profession.”

(Physiotherapist, Questionnaire)

Physiotherapy is a low-paid profession in Madagascar, with most physiotherapists having to supplement their income from the public sector by working in private settings. Physiotherapists explained that they would prefer to work in the public sector only, however cannot afford to do so, therefore, many spent their mornings working in public hospitals and afternoons in private hospitals:

“Physiotherapists work in both public and private hospitals to support the need and maximise their earnings. Public hospitals are their priority but they work privately around their commitments.” (Physiotherapist, Interview)

Autonomy

Physiotherapists do not have autonomy to determine physiotherapy treatment in Madagascar. Instead, physicians prescribe the treatments required that are specified for the diagnosis and condition, and set the number of treatment sessions.

“So here in Madagascar, the doctors give a diagnosis and prescription to the physiotherapist. The doctor will also set the number of treatment sessions they would like the patient to have. After the patient has completed their course of physiotherapy, they will return to the doctor who will decide if the patient should continue with physiotherapy or not.” (Physiotherapist, Interview)

Communication between the physiotherapist and physician is encouraged throughout treatment and the physiotherapist can raise concerns back to the physician. However, both physiotherapists and physicians remarked that they feel that MDT working requires a lot of improvement:

“I really think that working with the doctors as we are is getting very difficult. Sometimes what they prescribe doesn’t work with the patient, or they want to continue the patient’s treatment when we know treatment should be stopped. There should be better communication between us to discuss these issues.”

(Physiotherapist, Interview)

"There should be a better relationship between doctors and physiotherapists to make the treatment better for patients and improve the service."

(Physician, Interview)

Many physiotherapists identified that they would like to have more autonomy to make the decisions regarding appropriate treatments for patients, however when questioned further, physiotherapists were not able to identify how this could be achieved. Physiotherapists were observed to use a mainly 'recipe-based approach' when treating patients:

Physiotherapist: "I would like to have more autonomy."
Researcher: "Do you have any ideas on how physiotherapists could achieve more autonomy."
Physiotherapist: "Personally, I don't really have any ideas, I just know that I would like to have more autonomy from the doctors in deciding what treatment to use."

(Physiotherapist, Interview)

Clinical reasoning

None of the physiotherapists interviewed reported having heard of the term 'clinical reasoning'. Examination of the university curriculum showed that physiotherapy treatment is based on the specific pathology with which patients may present. Therapists are taught a 'recipe-based approach' to treatment based on each

pathology, instead of a patient-specific treatment plan based on the results of their assessments:

"When we receive a patient, we look at the pathology first. Then using that we cater the assessment to the needs. For example, if the patient has cerebral palsy there is a particular assessment we perform. We are taught these assessments at university." (Physiotherapist, Interview)

However, when observing physiotherapists in clinical practice, a small number were completing a basic treatment plan from the analysis of their clinical findings. These therapists were often those who had been practicing for longer than their colleagues, and when questioned, reported developing these skills independently:

Researcher: "From my observations I have noted that physiotherapists at this hospital use basic clinical reasoning skills. Where do the Physiotherapists learn these skills, in the hospital or at University?"
Physiotherapist: "We acquire some of these skills at school and some from training sessions delivered by charities such as MoveAbility, or Humanity and Inclusion. I have been working for fourteen years, so I have learned a lot from my experiences."

(Physiotherapist, Interview)

Limited understanding of how specific exercises and treatment can carry over into function was observed throughout physiotherapy practice in Madagascar. Passive exercises were often used as a method of treatment with no functional analysis of

movement or impact on lifestyle discussed with patients during the assessment. Notetaking was not observed in any physiotherapy session, instead each patient brought a small notepad which documented the diagnosis from the physician and the number of sessions prescribed.

Treatment modalities

Massage as a form of treatment modality was often observed in physiotherapy practice. Physicians were found to prescribe massage as the preferred method of treatment for a wide variety of conditions:

"I think physiotherapists really have to do massage in order to establish a contact with the patient psychologically. It is tradition." (Physician, Interview)

Physicians felt that by prescribing massage, it allowed the physiotherapist-patient relationship to develop, and therefore the patient would be more willing to complete exercises taught by the therapist:

"If we use massage it is just to prepare for the exercise that they are going to do. Patients must do their exercises." (Physician, Interview)

Physiotherapists explained that massage is deeply rooted in Malagasy culture, therefore patients expect massage when coming to physiotherapy appointments:

“It has to do with our culture in Madagascar. Patients always want and expect the massage.” (Physiotherapist, Interview)

Physiotherapists were aware of the lack of evidence behind massage and some commented that they do not agree with its overuse as a treatment method, however, they felt that if they do not give massage, patients do not comply with physiotherapy, or respect their clinical decision:

“The difficulty is explaining my reasoning to the patient. They expect massage, but if I do not give the massage, they return to the doctor and say that they are not happy with their physiotherapy treatment.” (Physiotherapist, Interview)

Equipment and environment

Limited treatment space in hospitals meant that therapists often have to treat multiple patients at once, or have multiple therapists treating patients in the same room. Private and confidential treatment spaces were not often available in any of the hospitals surveyed.

“I would like more space in terms of where we practice. I also would like better equipment, as I feel that we would be able to offer better treatments and service if we had access to more equipment.” (Physiotherapist, Questionnaire)

Equipment was outdated, dirty and often broken. Very little funding was available to ameliorate this situation. Some equipment was donated by NGOs or charities but when it breaks, or parts are lost, there are limited options available to fix or replace equipment as it did not originate in Madagascar and spare parts are expensive to source. No specialist seating options were observed in any of the centres. Physiotherapists reported that they felt they would be able to develop their skills and improve their practice with access to better equipment.

Continuing professional development and training

Malagasy physiotherapists do not have specific statutory requirements for CPD to uphold or maintain their practice. Nevertheless, physiotherapists engage in reflection, audit their skills and undertake local training programmes when possible. Additional training sessions are provided by foreign agencies, but are often not suited or relevant to the needs of physiotherapists in Madagascar. Limited access to research and resources makes independent upskilling difficult:

“I would like to be able to provide more training sessions which are specific to the situation in Madagascar. The problem is that some centres receive more training than others, so the level of skills across physiotherapy is not the same. This is what AKIMA are working on, we are trying to build an online platform so all physiotherapists have access to training, but so far this is difficult.”

(National healthcare representative, Interview)

“I would like all kinds of training in order to feel that I am doing my job well, but so far the only training I have received from foreign agencies has been about cerebral palsy. I find it difficult to access trainings specific to my learning needs.”

(Physiotherapist, Questionnaire)

University physiotherapy students begin their practical training whilst on placement. Before placement commences students will have never completed any practical training, as University training is entirely theoretical:

“Students are taught the theory of assessment for specific pathologies at University. They are taught this by doctors. When they reach their second year of study, they go on placement to hospitals where they begin practical training and are taught by physiotherapists.” (National healthcare representative, Interview)

“The problem with the study now is that in year one the focus is on non-physiotherapy specific topics. Then in Year 2 they undertake their first placement a month after starting, with little practical or theoretical physiotherapy knowledge. Then when they arrive here they have little knowledge to apply.”

(Physiotherapist, Interview)

Discussion

This is the first report to specifically analyse physiotherapy services and training in Madagascar. We highlight many of the challenges facing the physiotherapy profession in Madagascar. The limited number of therapists relative to patients' needs means that there is a large burden on physiotherapists. The impact on individuals and services is high with, for example, MDT meetings being cancelled and physiotherapists treating multiple patients at the same time. A lack of treatment space and inadequate equipment were also highlighted as problems.

Physiotherapists in Madagascar feel that their role is not respected and that patients do not fully understand the contribution that they can make. Kay reports similar attitudes towards physiotherapy in Vietnam.[9] One of the contributing factors to this situation is that physiotherapists do not have clinical autonomy and must follow the prescriptions of physicians. All physiotherapists surveyed in our study expressed their desire to increase their professional autonomy, however none were able to recognise how this could be achieved. Physicians prescribing treatment for physiotherapists to deliver is common practice in LMICs.[10] The World Physiotherapy policy statement on autonomy of physiotherapists encourages professionals to strive to achieve autonomy while recognising that responsible self-governance by physiotherapists must be in place.[11]

AKIMA are currently focusing on protecting the title of physiotherapist and increasing awareness of the physiotherapy profession as two of their main aims. In doing so,

AKIMA hopes to improve patient-therapist relations, build trust, and develop respect for the decisions of physiotherapists regarding treatment modalities and the clinical decision-making process:

Our study highlighted that undergraduate training in physiotherapy in Madagascar focuses on pathology-based treatments, with little or no teaching on assessment, clinical reasoning or functional activities. A lack of clinical reasoning skills makes it difficult for physiotherapists to develop individualised treatment plans which may explain why physiotherapists when they are in practice do not have autonomy of treatment.[11]

Malagasy physiotherapists expressed a strong desire to improve their skills independently, however a lack of available resources, equipment and access to research makes this difficult.[12]

We found that massage was often used as a treatment. We acknowledge the cultural background to massage and why it is important, however patient education, access to clinical research and closer MDT communication could serve to educate patients on the limits of massage and when it may be needed. Hughes *et al* investigated therapeutic massage and attitudes towards its use as a complementary therapy in private practice in the United Kingdom.[13] Their findings show that it is common

practice for therapists to rely on patients' perceptions of treatment techniques instead of choosing evidence-based therapies.

The World Health Organisation recently launched the Rehabilitation 2030 initiative, which aims to develop strategies to improve the quality of rehabilitation services worldwide, and therefore reduce the unmet needs for physical rehabilitation services.[14] One study found a 66% increase in global years lived with disability (YLD) since 1990. Furthermore, YLD have more than doubled in low income countries.[15]

Limitations of this report

A variety of data capturing methods were utilised in this study. This was, in part due to pragmatic restrictions on our ability to collect data with an interpreter in all of the areas that we wished to visit. Where an interpreter was not available or physiotherapists were from centres that could not be visited, interview questions were translated into a questionnaire format. This may have presented difficulties with data collection, where less information was collected in the centres where questionnaires were used compared to interviews. A translator was used throughout this study which may have resulted in some information being lost or misinterpreted as a result. Temple *et al* discuss the translation dilemmas which emerge when utilising translators in qualitative research. They describe how translators make their mark on the information interpreted due to their own analysis of the information and assumptions of meaning equivalence.[16] A final limitation of this study is the

absence of reference to other allied health disciplines in Madagascar which face similar issues. Occupational therapy is in its infancy in Madagascar, and speech and language therapy as a profession does not exist. Future research into these areas and the development of the wider MDT would be beneficial.

Recommendations and Conclusions

From our study we are able to formulate a number of recommendations to develop physiotherapy in Madagascar. The Ministry of Health may wish to formulate a mandatory requirement that all physiotherapists must keep up to date with CPD and show evidence of how they are keeping skills up to date in practice.

The undergraduate curriculum needs to include clinical reasoning skills, teaching on new patient and follow-up assessments including formulating a patient-specific functional treatment plan, and the use of passive and active exercises to allow physiotherapists to enter the workforce having a good clinical understanding of the role of physiotherapy. Incorporating a research module into the undergraduate curriculum would allow physiotherapists to learn the necessary skills to analyse and critique evidence and apply this to their own practice.[17]

Training of physiotherapy tutors in teaching skills is required to move the current curriculum away from being delivered by physicians. One suggestion is to create a

Master's programme in physiotherapy incorporating teaching as a module, which would allow physiotherapists to train undergraduate students

Improvements in internet connections and access to resources would allow physiotherapists to keep abreast of current research and practices to allow them to develop their skills accordingly. Finally, collaborative MDT working between physiotherapists, physicians and other healthcare professionals would enhance joint decision-making, improve communication between professions and promote interprofessional respect.

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Dedications

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Table 1: Example of interview questions used

1.	How does the healthcare system work in Madagascar? Specifically, what is the role of physiotherapy in the healthcare system in Madagascar?
2.	What does a physiotherapy new patient assessment involve?
3.	How are patients referred to physiotherapy?
4.	Do doctors prescribe the treatment they would like physiotherapists to complete?
5.	Do you feel that physiotherapists in Madagascar have autonomy?
6.	What is your understanding of the term 'clinical reasoning?'
7.	Is there anything you would like to change or improve about physiotherapy in Madagascar?
8.	Is there anything you would like to change or improve about the healthcare system in Madagascar?

Table 2: Number of physiotherapists and physicians and data method used

Location	Number of Physiotherapists surveyed	Number of Physicians surveyed	Data collection method(s) used
Hospital 1	9 out of 9	6 out of 7	Observational logs, interviews
Hospital 2	8 out of 8	5 out of 5	Observational logs, interviews
Hospital 3	6 out of 6	1 out of 1	Observational logs, questionnaires
Hospital 4	5 out of 5	1 out of 1	Observational logs, questionnaires
Hospital 5	4 out of 4	3 out of 3	Observational logs, questionnaires
Hospital 6	3 out of 3	0 out of 1	Questionnaires
Total	35	16	