

Are Clinical Physiotherapy students in Nigeria aware and knowledgeable about Tele-physiotherapy?

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Abstract

The uptake of telehealth into physiotherapy practice in Nigeria can be enhanced when potential graduate physiotherapists are knowledgeable and have positive perception towards its utilization. This study was designed to investigate clinical physiotherapy students' awareness, knowledge and perception of tele-physiotherapy. Participants were selected from the oldest and best-rated training institution in Nigeria (University of Ibadan) through a sampling technique of convenience into this cross-sectional population-based survey. Data on awareness, knowledge and perception of students about tele-physiotherapy was collected using an existing structured, self-administered validated questionnaire. Data were analyzed using Chi-square test at $\alpha = 0.05$. Results: Participants (37females; 24males) constituted 90% of the total student population and were aged 21.36 ± 1.54 years. Thirty-nine participants were aware of the term tele-physiotherapy and their source of information was majorly (56.4%) from web journals. More than half of the participants reported negative perception of tele-physiotherapy. Twenty four participants reported good knowledge while fifteen reported poor knowledge of tele-physiotherapy. Male and female students were comparable in their awareness ($p=0.53$), perception ($p=0.37$) and knowledge ($p=0.33$) of tele-physiotherapy. Level of study was not associated with participants' awareness ($p=0.78$), perception ($p=0.29$) and knowledge ($p=0.43$) of tele-physiotherapy. Significant association exists between participants' perception and awareness ($p=0.02$) and no significant association between perception and knowledge ($p=0.18$) of tele-physiotherapy. Clinical physiotherapy students from University of Ibadan are fairly knowledgeable about tele-physiotherapy and more than half of them appear to have negative perception of the integration of information and communication technology into the Nigerian physiotherapy clinical practice.

Keywords: Telemedicine; Distance Learning; Tele-physiotherapy.

Resumen

Los estudiantes de Fisioterapia Clínica en Nigeria son conscientes y bien informados acerca de Tele-fisioterapia?

La comprensión de la telemedicina a la práctica de fisioterapia en Nigeria se puede mejorar cuando los fisioterapeutas potenciales graduados están bien informados y tienen una percepción positiva con respecto a su utilización. Este estudio fue diseñado para investigar la conciencia, el conocimiento y la percepción de los estudiantes de fisioterapia clínica sobre la tele-fisioterapia. Los participantes fueron seleccionados de la institución de formación más antigua y mejor valorada en Nigeria (Universidad de Ibadan) a través de una técnica de muestreo de conveniencia en este estudio basado en la población de la sección transversal. Los datos sobre la conciencia, el conocimiento y la percepción de los estudiantes acerca de la tele-fisioterapia se recogieron mediante un cuestionario validado, de estructura existente, autoadministrado. Los datos fueron analizados mediante el uso del test Chi-cuadrado en $\alpha = 0,05$. Los resultados son: los participantes (37mujeres; 24 hombres) constituyeron el 90% de la población total de los estudiantes y tenían la edad de $21,36 \pm 1,54$ años. Treinta y nueve participantes eran conscientes del término tele-fisioterapia y su fuente de información era principalmente (56,4%) de las revistas web. Más de la mitad de los participantes informaron percepción negativa de la tele-fisioterapia. Veinticuatro participantes informaron buen conocimiento, mientras que quince informó el escaso conocimiento de la tele-fisioterapia. Estudiantes de ambos sexos eran comparables en su conciencia ($p = 0,53$), la percepción ($p = 0,37$) y el conocimiento ($p = 0,33$) de la tele-fisioterapia. El nivel de estudio no se asoció con la conciencia de los participantes ($p = 0,78$), la percepción ($p = 0,29$) y el conocimiento ($p = 0,43$) de la tele-fisioterapia. Existe una asociación significativa entre la percepción y la conciencia de los participantes ($p = 0,02$) y ninguna asociación significativa entre la percepción y el conocimiento ($p = 0,18$) de la tele-fisioterapia. Los estudiantes de fisioterapia clínica de la Universidad de Ibadan, Nigeria son bastante bien informado sobre la tele-fisioterapia y mucho más de la mitad de ellos parecen tener la percepción negativa de la integración de la tecnología de la información y la comunicación en la práctica clínica de fisioterapia de Nigeria.

Palabras clave: Telemedicina; Educación a distancia; Telefisioterapia.

Os estudantes de fisioterapia clínica na Nigéria estão conscientes e bem informados sobre telefisioterapia?

A compreensão da telemedicina na prática da fisioterapia na Nigéria pode ser melhorada quando os futuros fisioterapeutas estão bem informados e têm uma percepção positiva quanto à sua utilização. Este estudo foi desenhado para investigar a consciência, o conhecimento e a percepção dos alunos de fisioterapia clínica sobre a telefisioterapia. Os participantes foram selecionados a partir da instituição mais antiga e mais valorizada na Nigéria (Universidade de Ibadan) através de uma técnica de amostragem por conveniência neste estudo formação transversal de base populacional. Os dados sobre a consciência, conhecimento e percepção dos estudantes sobre o tele-fisioterapia foram coletadas através de um questionário estruturado, validado, auto-administrado. Os dados foram analisados por meio do teste do qui-quadrado de $\alpha = 0,05$. Os resultados são: os participantes (37mulheres; 24 homens) ,90% do total da população de estudantes com idade entre $21,36 \pm 1,54$ anos. 39 participantes estavam cientes do termo tele-fisioterapia e a principal fonte de informação (56,4%) era de revistas da web. Mais da metade dos participantes relataram percepção negativa da tele-fisioterapia. 24 participantes relataram bom conhecimento, enquanto quinze relataram conhecimento limitado de tele-fisioterapia. Os estudantes de ambos os sexos foram comparáveis em sua consciência ($p = 0,53$), percepção ($p = 0,37$) e conhecimento ($p = 0,33$) de tele-fisioterapia. O nível de estudo, não foi associada com a consciência de participantes ($p = 0,78$), percepção ($p = 0,29$) e conhecimento ($p = 0,43$) de tele-fisioterapia. Existe uma associação significativa entre a percepção e a consciência dos participantes ($p = 0,02$) e nenhuma associação significativa entre a percepção e conhecimento ($p = 0,18$) de tele-fisioterapia. Os estudantes de fisioterapia clínica na Universidade de Ibadan, Nigéria são muito bem informados sobre o tele-fisioterapia e mais da metade deles parecem ter a percepção negativa da integração da tecnologia da informação e comunicação na prática clínica da fisioterapia na Nigéria.

Palavras chave: Telemedicina; Educação a distância; Telefisioterapia.

INTRODUCTION

Telehealth is gradually becoming a growing and changing field of health care delivery both in developed and developing nations. The benefits accrued to telehealth include its potential to improve access to health care, improve medical educational opportunities for professionals, increase public health awareness and improve health outcomes¹⁻³ Many health disciplines have integrated telehealth in the healthcare delivery. These disciplines include medicine, radiology, nursing, rehabilitation, physiotherapy, pharmacy, paediatrics, cardiology, ophthalmology.⁴⁻²⁸ In Nigeria, few studies focusing on evidence for its effectiveness on outcomes of care in some clinical conditions are available for referencing.²⁹

Many initiatives have been taken to develop telemedicine applications in rehabilitation³⁰. Published studies show that tele-rehabilitation mainly addresses patient's functional assessment, patient's clinical management at distance, and management of rehabilitation programs by remote, selection of the needs of the patient or the caregiver, teleconsulting, education of professionals and caregivers.³¹ Therefore, tele-physiotherapy which is an integral part of tele-rehabilitation is worthy of recognition. Tele-physiotherapy does not represent a separate medical specialty; rather it is a tool that can be used by health providers to extend the traditional practice of physiotherapy outside the walls of the typical physiotherapy practice. Tele-physiotherapy is the use of information technology in supporting physiotherapy over the internet beyond the current manual, dedicated and hospital-based physiotherapy sessions.¹⁷ It is the design and development of an integrated platform that supports synchronous and asynchronous phys-

iotherapy collaborations^{4,17} between different users, automated rating of physiotherapy exercises, electronic recording for physiotherapy compliance by patients, and provision of a three-dimensional (3D) visual output to feedback and motivate the patients to perform the physiotherapy exercises.¹⁷ Tele-physiotherapy may be as simple as two medical professionals discussing a case over the telephone, or as advanced as using video teleconferencing systems.³² It can also be referred to as the development of telemonitoring systems via information and communication platforms to facilitate self-physiotherapy management by individual patients from the confines of their homes.

The integration of telehealth into physiotherapy practice in Nigeria appears low. Many reasons are attributable to this low uptake. These reasons include lack of awareness of telehealth by healthcare workers and the end users (patients), lack of training among healthcare professionals, inadequate basic healthcare infrastructure, and technological hiccups.¹⁴ Students play a vital role in creating awareness. Studies have been carried out on students' awareness, knowledge and practice of telehealth in medicine, nursing and dentistry but it appears there is no published study on students' awareness, perception and knowledge of tele-physiotherapy globally. The uptake of tele-physiotherapy can be enhanced when potential graduate physiotherapists are knowledgeable and have positive perception towards its utilization. This study was designed to investigate clinical physiotherapy students' awareness, knowledge and perception of tele-physiotherapy, compare male and female students' awareness, knowledge and perception of tele-physiotherapy and the association-

among their awareness, knowledge and perception of tele-physiotherapy.

METHOD

The study was a population-based cross-sectional survey. Participants were selected from the oldest and best-rated training institution in Nigeria (University of Ibadan) through a sampling technique of convenience. Participants' informed consent was obtained. They were physiotherapy students at the clinical phase (300 level–500 level of study) of their undergraduate physiotherapy training. Participants' bio data of age, sex, level of training and data on awareness, knowledge and perception of students about tele-physiotherapy was obtained using an a modified version of an existing structured, self-administered validated questionnaire on awareness, knowledge and perception of physiotherapists on tele-physiotherapy.³³ The questionnaire is a four-part (part 1-sociodemographic information, part 2-information on awareness, part 3-information on knowledge, part 4-information on perception), 32-item instrument. Data were analyzed using descriptive statistics of frequency, means, percentages, pie charts, bar charts, and Chi-square test at $\alpha=0.05$.

RESULTS

Participants (37 females; 24 males) were aged 21.36 ± 1.54 years. They constituted 26, 20 and 15 students at the 300, 400 and 500 level of study (figure 1). Participants constituted 90% of the total student population. Thirty-nine (64%) participants (24 females; 15 males) were aware of the term tele-physiotherapy (figure 2) and their source of information was majorly (56.4%) from web journals. Twenty four (39.3%) participants (11 females; 13 males) reported good knowledge of tele-physiotherapy while fifteen (24.6%) participants (10 females; 5 males) reported poor knowledge of tele-physiotherapy (figure 3). More than half of the participants (23 females; 11 males) reported negative perception of tele-physiotherapy (figure 4). Male and female students were comparable in their awareness ($p=0.53$), perception ($p=0.37$) and knowledge ($p=0.33$) of tele-physiotherapy. Level of study was not associated with participants' awareness ($p=0.78$), perception ($p=0.29$) and knowledge ($p=0.43$) of tele-physiotherapy. There was a significant association between participants' perception and awareness ($p=0.02$) and no significant asso-

ciation exists between perception and knowledge ($p=0.18$) of tele-physiotherapy.

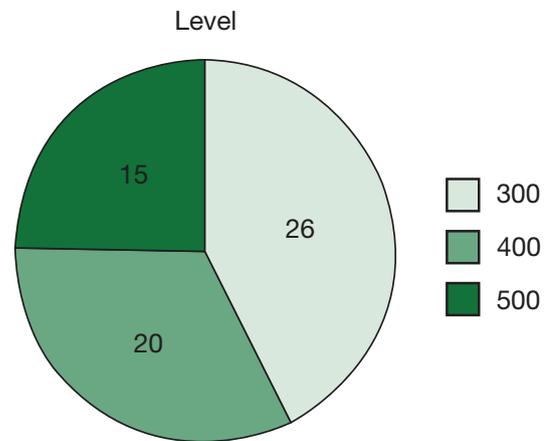


Figure 1: Distribution of participants by Level of study

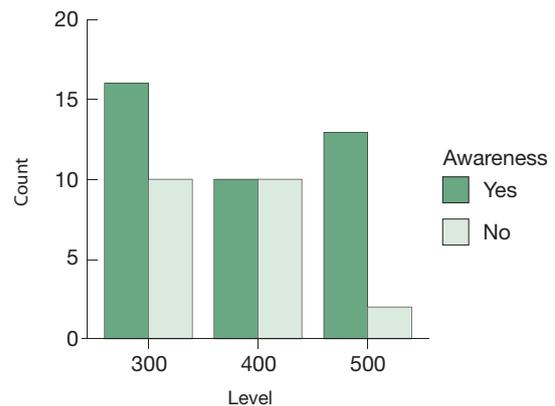


Figure 2: Participants' awareness of telephysiotherapy

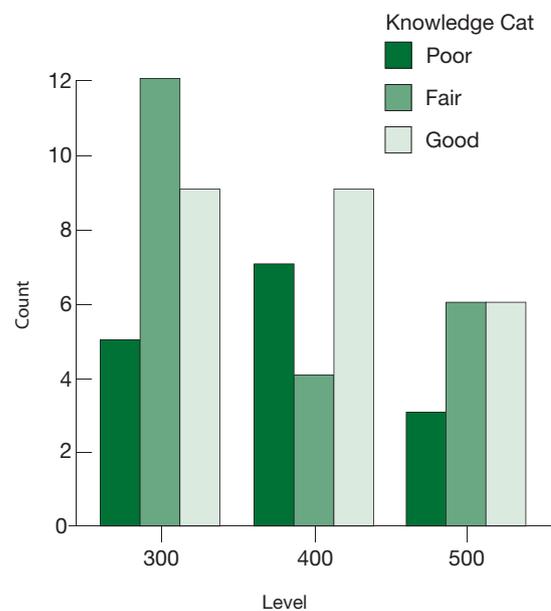


Figure 3: Participants' knowledge of telephysiotherapy

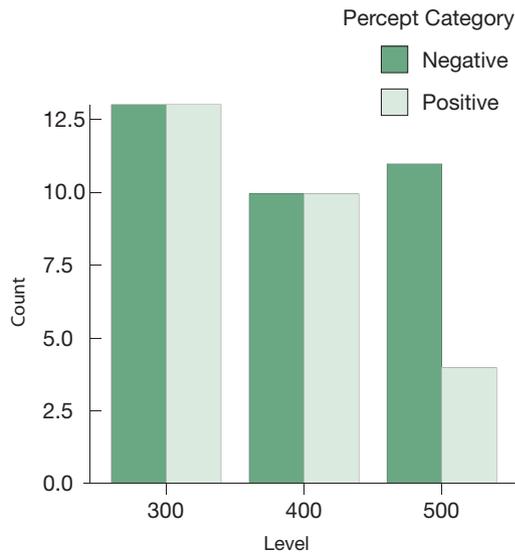


Figure 4: Participants' perception of telephysiotherapy

DISCUSSION

Tele-physiotherapy is an emerging concept in the Nigerian healthcare delivery. The adoption of tele-physiotherapy in clinical practice has many benefits. The awareness and knowledge of tele-physiotherapy among physiotherapists in Nigeria is moderate. The survey revealed that physiotherapy students at the clinical phase of their undergraduate training are fairly knowledgeable about tele-physiotherapy. This could be explained by the fact that some studies on tele-physiotherapy have been carried out by some of their lecturers. Their awareness and knowledge of tele-physiotherapy could be enhanced by this, however the negative perception reported by more than half of the participants in this study could be as a result of the fact they have not had any experience in the utilization of tele-physiotherapy in patient care. Finding differs from the findings of Edirippuligea *et al*³⁴ who reported a minimal awareness and knowledge of nursing students with regard to e-healthcare. Forty-three (77%) of the respondents in their study were not familiar with the term e-health as compared with 64% reported in this study. In a similar study among medical students, Edirippuligea *et al*³⁵ reported that the majority of students were familiar with the term e-health but their knowledge and skill to practice this modality was extremely limited. Boringi *et al*³⁶ also reported low awareness and limited knowledge about teledentistry among dental students at the clinical phase of study. The uptake of tele-physiotherapy in Nigeria appears low. Very few published studies on the effect of tele-physiotherapy on health outcomes are available for referencing in Nigeria. Perceived challenges to the implemen-

tation of tele-physiotherapy have been reported.¹⁴ Measures should be designed in order to enhance the implementation of tele-physiotherapy by physiotherapists in Nigeria. One of such measures is through education of students at undergraduate phase of training. Physiotherapy education in Nigeria should include telehealth, health informatics and tele-physiotherapy as courses in the university physiotherapy curriculum. This should invariably address the challenge of inadequate knowledge and negative perception of tele-physiotherapy among physiotherapy students and future physiotherapists. According to McNeil *et al*,³⁷ students' educations have a significant impact on their knowledge, opinions, and awareness of future work. To the best of the author knowledge, there was no previous study assessing awareness, knowledge and perception of tele-physiotherapy among physiotherapy students in Nigeria. Sex and level of study do not have any bearing on the students' awareness, knowledge and perception of tele-physiotherapy as reported by the students who participated in this study. As expected, there was a significant association between participants' perception and awareness though no significant association exists between perception and knowledge of tele-physiotherapy. From the available and accessible literature, there is no single study on the awareness, knowledge and perception of students about tele-physiotherapy in English published literature. The findings from this study can only be discussed with studies on students' population in other health disciplines. The integration of Telehealth in the different disciplines can be facilitated when students are equipped with the skills required to facilitate e-healthcare applications at undergraduate level of their formal e-healthcare training. This will definitely increase their awareness, improve their knowledge and produce a positive perception in their views about telehealth. Students' preparedness is very central to a successful implementation of telehealth in the healthcare delivery system.

CONCLUSION

Clinical physiotherapy students from University of Ibadan, Nigeria are fairly knowledgeable about tele-physiotherapy and more than half of them appear to have negative perception of the integration of information and communication technology into the Nigerian physiotherapy clinical practice. A qualitative study will be necessary to further explore students' awareness, perception and knowledge of tele-physiotherapy. Courses on tele-physiotherapy should be included in the curriculum of undergraduate physio-

therapy training programme in Nigeria in order to further improve their knowledge and enhance the integration of tele-physiotherapy in the Nigerian clinical practice.

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