Title: Factors promoting proficiency in cardiorespiratory physiotherapy practice in Nigeria

Authors: Oke KI, Ph.D,[1] Birabi BN, Ph.D,[2] Fawole HO, MSc[1]

[1]Department of Physiotherapy, College of Medical Sciences, University of Benin, Benin City, Edo State, Nigeria.

[2]Department of Medical Rehabilitation (Physiotherapy), University of Maiduguri, Borno State, Nigeria.

Corresponding author: Dr. Kayode Israel Oke, Department of Physiotherapy, College of Medical Sciences, University of Benin, Benin City, Nigeria.

Email: kayode.oke@uniben.edu, (+234) 803 50 27408

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Abstract

Background: Cardiorespiratory physiotherapy practice is one of the specialty areas experiencing gradual development in Nigeria.

Objective: This paper attempts to describe the factors that influence proficiency of physiotherapy specialists in cardiorespiratory care practice in Nigeria.

Methods: A descriptive qualitative design using a structured and validated questionnaire was adopted. Participants were physiotherapists from various health institutions in Nigeria who gathered for continuous professional development (CPD) training programmes in cardiorespiratory practice. Ninety-four percent (82/87) of the participants, which included 49 males and 33 females completed the questionnaire forms. Descriptive and inferential statistics were used to explore the data obtained using SPSS. Alpha level was set at 0.05.

Results: The results of the study showed that age($r=0.861$, $p=0.843$) and gender ($r=0.399$, $p = 0.691$) of cardiorespiratory physiotherapy practitioners do not significantly influence their proficiency in practice while years of experience ($r=0.612$, $p=0.003$) and institutions of practice ($r=0.041$, $p<0.000$) showed significant association with practitioners' proficiency in terms of familiarity with modern cardiorespiratory devices. Also, the institution where an individual practices was found to be significantly associated with proficiency in terms of confidence in assessment of patients with cardiorespiratory problems($r=0.020$, $p=0.016$). Finally, continuous professional development programmes had positive association with familiarity with intensive or critical care equipment($r = 0.032$, $p = 0.018$).

Conclusion: Proficiency in cardiorespiratory physiotherapy is influenced by factors such as institution of practice, number of years of practice in a speciality area, and participation in specialized continuous professional training.

Keywords: Cardiorespiratory; Physiotherapy; Intensive Care Unit; Specialization; Respiratory Devices

Introduction

Physiotherapy intervention is an important component in the management of patients in intensive care and has been shown to provide both short-term and medium-term benefits (Zeppos, Patman, Berney, Adsett, Bridson & Paratz, 2007). Physiotherapists are recognized as playing an important role in the management of patients with respiratory disease (Garrond & Lasserson, 2007; Kendall & Jackson, 1993). In recent years, patients with respiratory diseases are treated with different devices to remove mucus from the airways and the improvement of pulmonary function (Hristara-Papadopoulou, Tsanakas, Diomou & Papadopoulou, 2008).

Physiotherapy is an integral part of the management of patients with cardiopulmonary challenges in respiratory intensive care units as well (Clini & Ambrosino, 2005). Physiotherapy may be indicated for patients in the intensive care setting when they have retained secretions or have radiological evidence of atelectasis and infiltrate. It may be used as prophylaxis in conditions such as acute head injury and smoke inhalation (Wong, 2000).The most important goal of cardiorespiratory physiotherapy is to enhance the overall patient's functional capacity and to restore respiratory and physical independence, thus decreasing the risks of bed rest associated complications (Clini & Ambrosino, 2005). Physiotherapy interventions include postural drainage, breathing exercises, percussion, vibration, manual hyperinflation, coughing, huffing, and suction. Body positioning, which primarily aims to optimize ventilation-perfusion ratios, and mobilization and exercise are physical therapy interventions not traditionally considered as part of the treatment for such patients (Wong, 2000). The role of the physiotherapist, which also includes maintenance of musculoskeletal function, optimization of neurological status, is extending to areas such as extubation/decannulation, ventilator weaning, trouble-shooting mechanical ventilation problems and therapeutic fiber-optic bronchoscopy. The physiotherapist is also involved in emergencies (Jones, Ntoumenopoulos & Paratz, 2008). The physiotherapist needs to be competent in the handling of the equipment and should be able to interpret and analyze the recorded data relevant to patient’s assessment before treatment (Downie, 1993).

Physiotherapists of different age range, varying level of experience and training, practicing in different types of medical facilities with intensive and cardiac care units attend to patients with cardiorespiratory problems in Nigeria. To the best knowledge of the researchers, there is no document on what factors promote the proficiency of the cardiorespiratory physiotherapy care in Nigeria.

The aim of this study therefore was to determine the factors that promote the proficiency of cardiorespiratory physiotherapy practice in acute and intensive care centres in Nigeria.

Methods

This exploratory study used a descriptive approach to investigate factors that promote cardiorespiratory physiotherapy care practice in Nigerian medical facilities. The study was conducted on 87(35males, 52females) Nigerian physiotherapists who gathered for a continuing professional development education programme on cardiorespiratory care. The questionnaire was developed by the researchers and validated by a jury of experts (ICC= 0.88- 0.92). It sought information on respondents' socio-demographic data including sex, age, years of experience, qualifications and training. Other information that involved professional practice setting, number of physiotherapists in the practice setting, techniques and equipment used in their day-to-day cardiorespiratory care practice were collected. Questions were asked on confidence level in the assessment of patients with respiratory problems, participation in continuous professional development programmes among others. Data collected was analyzed using SPSS (Version 16.0 Chicago IL, USA). Descriptive statistics of mean, standard deviation, frequency counts and percentages as well as inferential statistics of Pearson's product moment correlation statistics were used to explore the data. Alpha level was set at 0.05. Participants received, completed and submitted the questionnaires at the venue of a workshop. No incentive was given for participation in the study.

Result

A 94.3% response rate (82) was achieved, after 5(5.7%) of the questionnaire forms were found unusable and discarded due to errors in filling. Thirty-three males(41%) and 49 females(59%) physiotherapists completed the questionnaires.The mean age, years of experience, average number of physiotherapists in an institution and number of physiotherapists in acute care services are presented in Table 1.

Table 1: Descriptive Statistics of Respondents

Variable	Mean	SD	Range (Min - Max)
Age, yrs	31.57	7.59	0 - 51
Years of Experience, yrs	6.32	4.72	0 - 25
# of PTs in an institution	13	10	0 - 52
# of PTs in acute care	3	4	0 - 12

Key: SD=Standard Deviation; Min=Minimum; Max=Maximum; PTs= Physiotherapists; # = number

Forty-nine(59.6%) of the respondents practice in tertiary teaching hospitals, 3(3.7%) in federal medical centres, 22(26.8%) in general hospitals and 8(9.8%) in private health facilities. Majority 50 (61.0%) of the respondents were non-specialists with only 6 (7.3%) specialized in cardiopulmonary, 11 (13.4%) in orthopaedics and surgery, 4(4.9%) in paediatrics, 5(6.1%) in Obstetrics and Gynaecology and 6(7.3%) in neurological physiotherapy. Twenty-three (28.0%) respondents use conventional techniques in their practice while 59(72.0%) of them use modern respiratory devices.

As seen in table 2, years of practicing experience of the respondents was significantly associated with proficiency in the use of respiratory care devices(r = 0.612, p =0.003). Institutions of practice of the respondents had significant associations with the use of respiratory care devices (r= 0.041, p<0.000) and confidence in the assessment of patients with respiratory challenges(r= 0.020, p= 0.016). The study also revealed that participation in continuous professional development programmes had positive associations with familiarity with intensive or critical care equipment(r= 0.032, p= 0.018).

Table 3: Correlations of factors that influence cardiopulmonary physiotherapy practice

Variables	R	p-value
Gender Vs Familiarity with C/ICU equipment	0.222	0.151
Gender Vs Decision making process	0.153	0.200
Gender Vs Use of modern respiratory devices	0.399	0.691
Gender Vs Assessment confidence of PCRP	0.146	0.100
Age Vs Familiarity with C/ICU equipment	0.701	0.297
Age Vs Decision making process	0.549	0.479
Age Vs Use of modern respiratory devices	0.861	0.632
Age Vs Assessment confidence of PCRP	0.862	0.843
Year of Experience Vs Familiarity with C/ICU equipment	0.887	0.777
Year of Experience Vs Decision making process	0.206	0.202
Year of Experience Vs Use of modern respiratory devices	0.612	0.003**
Year of Experience Vs Assessment confidence of PCRP	0.941	0.915
Inst. of Practice Vs Familiarity with C/ICU equipment	0.691	0.419
Inst. of Practice Vs Decision making process	0.158	0.122
Inst. of Practice Vs Use of modern respiratory devices	0.041	0.000**
Inst. of Practice Vs Assessment confidence of PCRP	0.020	0.016*
CPD attendance Vs Familiarity with C/ICU equipment	0.032	0.018*
CPD attendance Vs Assessment confidence of PCRP	0.497	0.065

Key: C/ICU= Critical/ Intensive care unit; PCRP= Problem with cardiorespiratory problem; Inst.= Institution; CPD= Continuous Professional Development; CI= Critical care;

Discussion

This paper discusses the factors that influence the proficiency of Nigerian physiotherapists in the cardiorespiratory care practice. Only a few physiotherapists (7.3%) who participated in this study are specialists in cardiorespiratory practice. A similar study conducted in India also reported low percentage of specialization in cardiorespiratory care practice with only 31% of the 82 studied physiotherapists in a national survey specialized in cardiopulmonary practice (Bhat, Chakrarthy& Rao, 2014). However, report of a similar study in Brazil revealed that 94% of the 67 physiotherapists working in neonatal intensive care units in the country had completed at least one specialization course in cardiopulmonary care practice (Liberali, Davidson, Miyashiro & dos Santos, 2014). The implication of this finding is that the low proportion of cardiorespiratory physiotherapist in this study reflects the proportion from a sample of physiotherapists in general, irrespective of practice settings. Still the low proportion suggests that there is the need to encourage specialization programmes such in cardiorespiratory physiotherapy in Nigeria.

The present study also revealed higher frequency of use of modern respiratory devices (72%) as compared to use of conventional techniques (28%) in their practice. An European study reported that involvement of physiotherapists in the use of more specialized techniques is a function of the number of physiotherapists working exclusively in an ICU (Norrenberg & Vincent, 2000). Institutions where physiotherapists practice had a significant relationship with their familiarity with critical and intensive care equipment and proficiency in the assessment of patients with cardiorespiratory problems. This is in agreement with previous studies reports that physiotherapists who work in non-invasive ventilation hospital services and intensive care centres demonstrated specialised ability and skills with regards to assessment and setting up of patients on non-invasive ventilator (Norrenberg & Vincent, 2000; Moran, Bradley, Elborn & Piper, 2005). Although age, gender, years of experience and institution of practice of physiotherapists did not have a significant relationship with clinical making decision abilities, results showed a significant relationship between years of experience of cardiorespiratory physiotherapists practice and familiarity with intensive care equipment. This finding is logical since it is to be expected that with more years of experience in a specialized practice come more familiarity with specialized equipment used in that practice. The same logic can be applied to the finding that participation in continuous professional development programmes is significantly associated with familiarity with the use of modern respiratory equipment and proficiency in assessment of patients with cardiopulmonary problems and supported by the findings of Wainwright & McGinnis, 2009 and Liberali et al., 2014.

Conclusion

Proficiency in cardiorespiratory physiotherapy is influenced by factors such as institution of practice, number of years of practice in a speciality area, and participation in specialized continuous professional training.

Conflict of interest: None

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