

*Full Length Research Paper*

# **Cardiopulmonary physiotherapy as a specialty: Students' experience and factors that influence their career choice**

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**Studies have shown that physiotherapy students have limited knowledge about cardiopulmonary physiotherapy specialty despite the increased need for cardiopulmonary physiotherapy services in Nigeria. The study aims to assess undergraduate physiotherapy clinical students' experiences in the cardiopulmonary physiotherapy specialty and the factors that influence their career choice. A cross-sectional survey was conducted on 115 undergraduate physiotherapy clinical students (year 4 and 5), College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria, who were purposely selected. A questionnaire that was modified from a similar study conducted in Canada was used for the data collection. This questionnaire elicited information on students' perception and factors responsible for the choice of cardiopulmonary specialty. Data were analyzed using descriptive statistics of mean and standard deviation, frequency and percentages. Out of the total respondents, 62.6% were male while the females were 37.4%. A small fraction (21.8%) of the respondents indicated a keen interest in specializing in cardiopulmonary physiotherapy. Job accessibility, experiences in the field, exciting aspects of the field and research potential were influential factors negatively affecting students' decision. Few clinical physiotherapy students expressed career intention in cardiopulmonary physiotherapy. Therefore, thorough clinical exposure and training of undergraduate physiotherapy students are highly recommended to stimulate informed interest and motivation in cardiopulmonary physiotherapy.**

**Key words:** Physiotherapy, cardiopulmonary, specialization, career choice.

## **INTRODUCTION**

The profession of physiotherapy is a highly recognized one and physiotherapists all over the world play a major role in providing health care. They are healthcare professionals concerned with the assessment, diagnosis, treatment, and prevention of dysfunction and impairment of movement in people of all ages and within a wide

range of contexts (Odebiyi et al., 2008). It is noteworthy to mention that the physiotherapy profession has been mostly recognized for its expertise in fixing musculoskeletal injuries; hence, the most common perception is that physiotherapists are only involved in the treatment and management of musculoskeletal

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injuries (Reeve et al., 2012; Janaudis-Ferreira et al., 2016; Prendushi, 2017). Therefore, students are more likely to specialize in orthopaedics or sports physiotherapy.

Cardiopulmonary or cardio-respiratory physiotherapy (CRP) is a specialty in the physiotherapy profession that focuses on preventing, managing, treating, and rehabilitating individuals with cardiopulmonary health challenges (Dean et al., 2014). However, it has been observed that professionals in the cardiopulmonary team such as the cardiologists, pulmonologists, and cardiopulmonary nurses are more recognized when compared to the cardiopulmonary physiotherapists (Dissanayaka and Banneheka, 2014; Hussey et al., 2017). A report from a study conducted in Canada revealed that only 2.1% of physiotherapists currently practicing in Canada had worked with individuals suffering from cardiopulmonary disease, despite the increased need for cardiopulmonary physiotherapists care as compared to about 40.9% of physiotherapists who were employed in musculoskeletal practice. A lot of challenges regarding enlistment and retention of cardiopulmonary physiotherapists and concerns over the competency of students and new graduates have also been noted (Hussey et al., 2017).

Studies have been conducted on the perceptions of students (Roskell and Cross, 2003; Narin et al., 2018; Puckree et al., 2011), patients (Forbes et al., 2017; Reyes et al., 2020) or other categories of persons about the physiotherapy profession (Odebiyi et al., 2008; Vincent-Onabajo et al., 2014; Anieto et al., 2019). A common finding from this study revealed that most people have limited knowledge of physiotherapy and they are aware of exercise and treatment of musculoskeletal conditions but not aware of other specialty treatments that physiotherapy offers.

More so, in countries like New Zealand (Thomas and Bendall, 2019), Australia (Bridges et al., 2011), Portugal (Alda Marques et al., 2018), Canada (Janaudis-Ferreira et al., 2016), United Kingdom (Prendushi, 2017), studies have been conducted to determine students' lack of interest in cardiopulmonary physiotherapy. However, there is lack of reference study reporting Nigeria clinical student interest in cardiopulmonary physiotherapy. Also, there is a shortage of studies on cardiopulmonary physiotherapy's future aspirations and physiotherapy students' career intentions. There is a need to investigate students' perception of choosing a career in cardiopulmonary physiotherapy in Nigeria and determine the factors that influence their career choice during their professional development. Therefore, this study sought to obtain an insight into the recent experiences of physiotherapy students on cardiopulmonary specialty, thus exploring professional specialization choices among physiotherapy students in Nigeria. It also aimed to assess the factors influencing the choice of physiotherapy specialty and barriers faced by physiotherapy students

in making this choice.

## METHODS

### Design and participants

This cross-sectional study involves undergraduate physiotherapy clinical students from Obafemi Awolowo University, Ile-Ife, Osun state, Nigeria. Prior to the study, a standard formula was used to estimate sample size. Minimum sample of 111 was expected to power the study. Therefore, 115 clinical students were purposely selected.

### Instrument

A questionnaire on perspectives of Canadian final-year physiotherapy students on cardio-respiratory physiotherapy as a career choice developed by Tania Janaudis-Ferreira et al. (2016) was modified and used as the survey instrument for this study. The validity of this instrument was attested to by experts in physiotherapy. Likewise, reliability of this questionnaire was done through internal consistency with Cronbach's alpha of 0.74. The reliability was found to be excellent and this justifies the suitability of this instrument. The six (6) section and 38-item questionnaire comprised questions designed to obtain information from the respondents regarding their perception and factors that influence their career choice of cardiopulmonary physiotherapy field. The first section sought information about the socio-demographic profile as well as the cardiopulmonary posting placements of the respondents. The second section comprised questions assessing their physiotherapy placements or posting. The third section sought information on the career intention of the respondents. The fourth section assessed students' interest in specializing in cardiopulmonary physiotherapy. The fifth section examined students' opinions on cardiopulmonary physiotherapy, while the sixth section asked general questions on factors that influenced their opinion of cardiopulmonary physiotherapy. These influences were listed on a Likert scale of strongly positive influence, somewhat positive influence, no influence, somewhat negative influence, and strongly negative influence. The perception was grouped into three sections, which included positive influence (summation of strongly positive and somewhat positive), no influence, and negative influence (summation of somewhat negative and strongly negative) to all related questions.

### Data collection procedure

Ethical approval was sought and obtained from the Health Research and Ethics Committee, Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Nigeria. The nature, purpose, and rationale of the study were thoroughly explained to the participants. Participants were assured of utmost confidentiality and were not required to reveal their names on the questionnaire. An informed consent form was distributed to the participants after which, the questionnaires were administered.

### Data analysis

Each question was coded and data entered into Statistical Package for the Social Sciences spreadsheet. Data were in the nominal/ordinal form, and analyzed using the Statistical Package for the Social Sciences (version 23, SPSS Inc, Chicago, IL, US).

Data were assessed with descriptive statistics of mean, standard

**Table 1.** Sociodemographic characteristics of participants.

Characteristics	n (%)	Mean (SD)
<b>Age</b>		22.75 (1.908)
<b>Gender</b>		
Male	73 (62.6)	
Female	42 (37.4)	
<b>Have you studied physiotherapy degree other than your current university</b>		
Yes	6 (5.2)	
No	109 (94.8)	
<b>Intention of employment after physiotherapy degree in your home country</b>		
Yes	51 (44.3)	
No	20 (17.4)	
Undecided	44 (38.3)	
<b>Total</b>	<b>115 (100)</b>	

Source: Author

deviation, frequency and percentages.

## RESULTS

### Socio-demographic data

A total of 115 (male=62.6%; females=37.4%) clinical physiotherapy students participated in the study. The respondent's mean age was  $22.75 \pm 1.91$  years ranging from 19 to 27 years. (Table 1)

### Students' experience on cardiopulmonary physiotherapy posting

Majority of the student (50.4%) have rotated cardiopulmonary posting twice and that was in their year 4 (72.7%). A greater percentage of these students (89.2%) had found cardiopulmonary physiotherapy valuable as regards an increase in the knowledge base, 1.7% was neutral and 9% found it invaluable. About two-third (64.8%) of the students reported that they enjoyed cardiopulmonary posting, 19.8% were neutral and 15.3% did not enjoy it. The majority of the students (92.2%) had not requested their elective placement in cardiopulmonary (Table 2).

### Career intentions

Majority of the students (66.9%) stated that they are not aware before the commencement of their physiotherapy program that physiotherapists had a role in the management of cardio-respiratory conditions. A larger percentage of students (73.9%) did not know the various

physiotherapy specialties before beginning a physiotherapy degree. All students (100%) also responded that they intended specializing in an area of physiotherapy. Findings showed that 76.5% (88) of the participants were interested in the neurology specialty, 71.3% (82) were interested in musculoskeletal specialty, 33.9% (39) were interested in geriatrics physiotherapy, 30.4% (35) were interested in community physiotherapy, 25.2% (29) were interested in paediatrics physiotherapy. In comparison, only 21.8% (25) of the students responded that they were too or quite interested in specializing in cardio-respiratory physiotherapy (CRP) (Table 3).

### Factors responsible for specializing in cardiopulmonary physiotherapy

Factors that influence students' career choices in the cardiopulmonary physiotherapy were asked from students who indicated an interest in specializing in cardiopulmonary physiotherapy (Table 4). Job accessibility (40%), exposure/experiences in the field (56%), exciting aspect of the field (64%), and the potential for research (52%) were noted to be the influential factors, negatively affecting their decision to specialize in cardiopulmonary while potential salary (40%) will positively influence their choice to specialize in the field. Also, factors that would deter students from cardiopulmonary physiotherapy choice as revealed from this study included greater interest in another area of physiotherapy (33%) and lower job availability (26.1%).

The most common preferred work settings in cardiopulmonary physiotherapy reported by the students included cardiac rehabilitation (52.2%) while the intensive care unit (9.6%) was found to be the least preferred work setting (Figure 1). The opinion of students was asked on

**Table 2.** Students' experience on cardiorespiratory physiotherapy.

Variable	n (%)
<b>No. of placements</b>	
1	49 (42.6)
2	58 (50.4)
3	8 (7.0)
<b>Year of placement</b>	
4th year	83 (72.7)
4th and 5th year	32 (27.8)
<b>Settings where cardiorespiratory placements were completed</b>	
ICU	79 (68.7)
Medical	82 (71.3)
Surgical	52 (45.2)
Community	10 (8.7)
Outpatient	65 (56.5)
Other	3 (2.6)
<b>I found cardiorespiratory placement/s valuable in regard to increasing my cardiorespiratory knowledge</b>	
Strongly disagree	6 (5.4)
Somewhat disagree	4 (3.6)
Neither	2 (1.7)
Somewhat agree	64 (57.6)
Strongly agree	35 (31.5)
<b>I found cardiorespiratory placements enjoyable</b>	
Strongly disagree	8 (7.2)
Somewhat disagree	9 (8.1)
Neither	22 (19.8)
Somewhat agree	52 (46.8)
Strongly agree	20 (18.0)

Source: Author

cardiopulmonary physiotherapy generally (Table 5) and it was found that the factors including student's clinical experience (55.6%), evidence of literature (53.9%), cardiopulmonary physiotherapy clinical supervisor or educator (60.8%) and cardio-respiratory physiotherapy lecturers (51.3%) will positively influence their opinion.

## DISCUSSION

The findings of this study showed that most student physiotherapists entered their physiotherapy program with no prior knowledge of which specialty they were interested in. Therefore, most students had an equal chance at selecting their most preferred specialty as they journeyed through their physiotherapy field. Despite this, there was a low turnout of students interested in specializing in cardiopulmonary physiotherapy, as observed in this study. This finding is also in sync with

results from similar studies conducted among physiotherapy students in Canada (Janaudis-Ferreira et al., 2016), New Zealand (Thomas and Bendall, 2019), Australia (Prendushi, 2017), Portugal (Alda Marques et al., 2018), and the United Kingdom (Roskell and Cross, 2003) showing few students' interest in cardiopulmonary physiotherapy specialization. This lack of interest in cardiopulmonary physiotherapy has led to a lack of recognition of cardiopulmonary specialists and could have a long-term damaging effect on the hiring of cardiopulmonary physiotherapists. In the long run, this may affect these specialists' continuity, thereby posing a threat to the future of the cardiopulmonary physiotherapy specialty (Reeve et al., 2012; Janaudis-Ferreira et al., 2016). Also, individuals with acute and chronic cardiopulmonary conditions may experience reduced access to cardiopulmonary physiotherapy specialists, thereby affecting these individuals' management. This suggests that Nigerian physiotherapy students need to be

**Table 3.** Students' specialization interest in physiotherapy.

Characteristics	n (%)
<b>Awareness that physiotherapists have a role in the management of cardiorespiratory problems</b>	
Yes	38 (33.0)
No	77 (66.9)
<b>Prior to beginning your physiotherapy degree, did you know what specialty/area within physiotherapy you wanted to work</b>	
Yes	30 (26.0)
No	85 (73.9)
<b>Total</b>	<b>115 (100)</b>
<b>Physiotherapy specialty</b>	
Pediatrics	29 (25.2)
Community	35 (30.4)
Musculoskeletal	82 (71.3)
Neurology	88 (76.5)
Geriatrics	39 (33.9)
Cardiopulmonary	25 (21.8)
Others	25 (21.8)
Multiple option allowed	

Source: Author

**Table 4.** Factors that influence specializing in cardiorespiratory specialty.

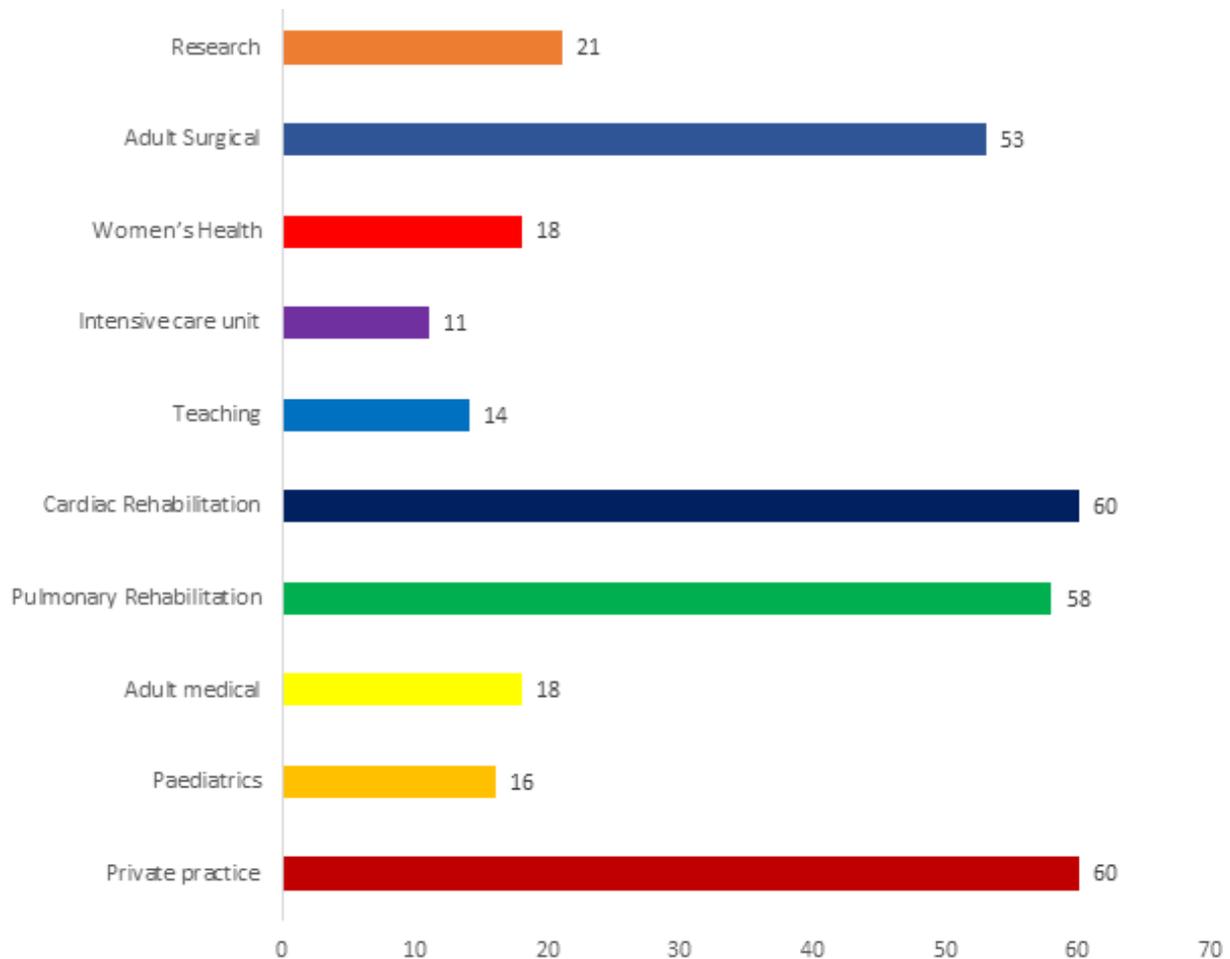
Variable	Positive influence n (%)	No influence n (%)	Negative influence n (%)
Job accessibility	5 (20)	10 (40)	10 (40)
Potential salary	10 (40)	9 (36)	6 (24)
Exposure/experiences in the field	5 (20)	6 (24)	14 (56)
Interesting aspects of the field	6 (24)	3 (12)	16 (64)
Potential for research	5 (20)	7 (28)	13 (52)
Influence from others	7 (28)	10 (40)	8 (32)

Source: Author

educated about the cardiopulmonary physiotherapy field to improve healthcare practice quality and safety. The interprofessional education and interprofessional collaborative practice approaches (Bridges et al., 2011; Pullon et al., 2013) may help educate physiotherapy undergraduates regarding specialization in physiotherapy.

This study also revealed that a more significant percentage of students who specialize in cardiopulmonary physiotherapy would prefer to work in a private practice setting. Hussey et al. (2017) in his study, also reported similar findings that students picked private practice settings as the primary workplace for cardiopulmonary physiotherapy. The role of cardiopulmonary physiotherapy in a private practice setting is secondary though important, where the therapist manage underlying

cardiopulmonary pathology of various neurological and musculoskeletal condition (e.g. chronic obstructive pulmonary disorder (COPD)) (Higgs et al., 2001). The misconception of students in private practice settings as the preferred primary workplace for cardiopulmonary physiotherapists needs to be corrected. This could be best done by exposing and educating undergraduate physiotherapy students on the scope of cardiopulmonary physiotherapy. Also, students in this study were positively and negatively influenced by clinical exposure or experiences in the field and interesting aspects. Similar to previous studies, exposure and experiences gathered during clinical postings pose a lasting thought on students' choice of cardiopulmonary physiotherapy specialization (Reeve et al., 2012; Janaudis-Ferreira et



**Figure 1.** Preferred work setting for cardiorespiratory physiotherapy.  
Source: Author

**Table 5.** Specializing in or not cardiorespiratory physiotherapy.

Variable	Negative influence n (%)	No influence n (%)	Positive influence n (%)
Own clinical experience	28 (24.3)	23 (30)	64 (55.6)
Evidence of literature	15 (13)	38 (33.1)	62 (53.9)
Peers	16 (13.9)	50 (43.4)	49 (42.6)
Cardiorespiratory clinical supervisor or educator	28 (24.3)	17 (14.8)	70 (60.8)
Cardiorespiratory lecturer	26 (22.6)	30 (26.1)	59 (51.3)

Source: Author

al., 2016). Roskell and Cross (2003) reported that students preferred other specialties compared to cardiopulmonary physiotherapy due to a lack of self-confidence and fear of killing a patient. This finding emphasizes the importance of clinical educators and practice placements (Alda Marques et al., 2018) on students' career choices. Furthermore, the availability of

mentorships such as clinical educators and supervising clinicians were determining factors on students' specialization in cardiopulmonary physiotherapy or not. Research has shown that when an advanced practice is dutifully designed and recognized, continuing education programs are put in place by clinical educators; students might be attracted to consider the specialty and also be

encouraged to pursue a more structured career path, thereby leading to a surge of new graduates to specialize in cardiopulmonary physiotherapy (Hussey et al., 2017). Hylin et al. (2007) also found out that inter-professional activities are an influential factor in students' pursuit of a cardiopulmonary physiotherapy career. This is because collaborative inter-professional practice, an effective tool, will help foster and promote knowledge and increase the passion for their professional field.

Greater interest in another area of physiotherapy and poor job availability was stated as significant factors that would likely deter students from working in cardiopulmonary physiotherapy. Research has shown that most physiotherapy students prefer to specialize either in neurology or musculoskeletal physiotherapy (Reeve et al., 2012; Hussey et al., 2017). The poor performance of students during the cardiopulmonary physiotherapy clinical exam might be linked to their negative exposure and poor clinical training. Shared learning among different specialties in physiotherapy is vital in advancing the professional image and status of cardiopulmonary physiotherapy in Nigeria. Rotational clinical postings that cut across all health disciplines for medical and other health career undergraduates will enhance shared learning among the clinical physiotherapy students (Reeve et al., 2012; Hussey et al., 2017, Janaudis-Ferreira et al., 2016). This will enable the students to have direct contact with practitioners from other health disciplines. Similarly, the cardiopulmonary physiotherapist body in Nigeria should intensify their effort to correct the misrepresentation of cardiopulmonary physiotherapy and enlighten clinical students about the role of cardiopulmonary physiotherapy in healthcare delivery.

Moreover, there was a statistically significant association between the number of cardiopulmonary placements and how to value cardiopulmonary physiotherapy. This suggests that students' value cardiopulmonary physiotherapy as they rotate more through cardiopulmonary postings.

### Limitation

This study's sample size was from one of the few universities offering physiotherapy courses in Nigeria. Therefore, information from this study may not be generalized to all physiotherapy students in Nigeria.

### CONCLUSION AND RECOMMENDATION

Few clinical physiotherapy students expressed career intention in cardiopulmonary physiotherapy. Comprehensive clinical training and exposure of undergraduate physiotherapy students are highly recommended to stimulate informed interest in cardiopulmonary physiotherapy. Further research

including qualitative studies is also recommended on cardiopulmonary physiotherapy choice among other Nigerian universities offering physiotherapy courses.

### CONFLICT OF INTERESTS

The authors declare no conflict of interests.

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