



Assessment of Knowledge, Attitude and Experiences towards Conducting Research: A Cross Sectional Study among Physiotherapists in Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Aim: The aim of this study was to investigate the knowledge, attitudes and experiences towards conducting research among Physiotherapists in Nigeria. This study also aim to determine the main barriers and challenges associated with research participation

Methods: A total of 207 Physiotherapists in Nigeria participated in this cross sectional study. A web based questionnaire with Uniform resource Locator (URL) link was shared on various Physiotherapy social media platforms (Facebook, WhatsApp, Telegram and Twitter). All responses were collated in Google sheets.

Results: The findings of this study revealed good knowledge (87.9%) and attitude (59.4%) towards conducting research among Physiotherapists in Nigeria. There was also fair level of participation in research as only 42% were currently involved in research. The top barriers for conducting research were financial support (97.5%), statistical support (88.1%) and research training and skill (86.1%). 87.9% reported to have participated in writing a medical research at some point, only 49.8% read medical journals consistently, only 42.0% have published a research paper in a medical journal. There was significant difference between level of age and age among participants (P=0.015). The level of knowledge however didn't differ among gender (P=0.111). There was significant association between participants who did research methodology in undergraduate, currently involved in

research and level of knowledge (p=0.05, 0.004).

Conclusions: Physiotherapists in Nigeria have good knowledge and attitude towards research but participation was fair. Level of knowledge differs across different age group. Financial support was the major barrier towards conducting research among Physiotherapists in Nigeria.

Keywords: Research; physiotherapist; knowledge; attitude.

1. INTRODUCTION

In our daily lives, research is really important. Research is the act of gathering and analysing data in order to get a better knowledge of the phenomena being investigated [1]. Without research, it would be nearly difficult to keep up with changes in illnesses and their determinants [2]. Research is an overlooked but crucial component in the advancement of medical knowledge, including health care. To be an effective researcher, one must have a wide range of abilities and expertise in research methods. Research methods training is an essential yet underappreciated aspect of the physiotherapy curriculum, since most students regard it as merely a course to complete. As a result, the graduate will have little or no knowledge of research technique and domains.

Evidence-based practice has allowed physiotherapy to develop into a more independent and academic profession in many countries [4]. Patients and the general public gain from physiotherapy research because it allows them to obtain the most appropriate therapies based on clinical reasoning that integrates the best scientific knowledge [5]. These values are mirrored, for example, in the World Confederation for Physical Therapy's policy statement on research [6] and the Chartered Society of Physiotherapy's physiotherapy practice guideline [7] in the United Kingdom. Health practitioners, including physiotherapists, are required to incorporate study results into their practice and make changes as a result [8]. Clinical research advantages can only be realized when findings are published in peer-reviewed publications. The goals of this cross-sectional survey study were to (a) determine the level of knowledge of physiotherapists in Nigeria; (b) investigate their various attitudes toward research; (c) learn about their research experiences; (d) determine the major barriers to conducting research; and (e) determine the effect of physiotherapists' socio-demographic characteristics on knowledge and attitude.

2. METHODS

2.1 Study Design

A cross-sectional study was carried out among Physiotherapists across the six geopolitical zones in Nigeria. A web-based questionnaire was used. An initial test on the questionnaire was done on 20 physiotherapists at the Physiotherapy Department of FMCA to ensure that the draft questionnaire was understandable. A web-based link was generated for the questionnaire and was shared on various Physiotherapy social media platforms (Facebook, WhatsApp, Telegram, Twitter, and LinkedIn). Participants were also asked to share the questionnaire link among their Physiotherapy colleagues to reach a larger audience. Participants were recruited from community groups via the online platform across all states and territories in Nigeria between August to December 2021.

2.2 Study Population

Nigerian Physiotherapists who are licensed and capable of responding to an online questionnaire took part in the research. Study participants included Physiotherapists in (a) Clinical (b) Academic settings. This study also included Physiotherapists undergoing a compulsory one-year (c) National Youth Service Corps (NYSC) and (d) Internship. This study excluded undergraduate students of Physiotherapy.

2.3 Sample Size Determination

$$n = \frac{Z^2 pq}{e^2}$$

$$n = \frac{1.96^2 \times 0.2 \times 0.8}{0.05^2} = 246$$

Which is valid where n 0 is the sample size, Z 2 is the abscissa of the normal curve that cuts off an area α at the tails (1 - α equals the desired confidence level, e.g., 95%). (Cochran 1963). e is the desired level of precision, p is the estimated proportion of an attribute that is

present in the population (20%), and q is 1-p. The value for Z is found in statistical tables which contain the area under the normal curve.

2.4 Sampling Technique

Simple random sampling and systematic random sampling were used.

2.5 Data Collection Techniques

An online link to the web-based questionnaire was shared on social media platforms (Facebook, WhatsApp, Telegram, Twitter, and LinkedIn). This study did not include information that could indisputably identify any study participants such as name and workplace address. The criteria's for the study were on the first page of the online questionnaire.

2.6 Study Tools

A self-designed form was used to obtain socio-demographics such as gender, age, designation, specialty, highest educational qualification, and years of practice. This questionnaire also obtained information on if participants did research methodology at undergraduate or postgraduate as the case may be. This study also made use of a structured online survey questionnaire was used to collect data from participants. This was developed on evidence from previous studies [2,19,20]. This questionnaire assessed the participant's knowledge, attitude, and barriers towards conducting research. We conducted a pilot research with 20 Physiotherapists after making changes to the questionnaire to ensure its validity, reliability, clarity, and understanding. Experts assessed the questionnaire's content validity, and the questionnaire's face validity was checked for clarity and understanding. Knowledge questions had a Cronbach's alpha coefficient of 0.894, attitude questions had a Cronbach's alpha coefficient of 0.878, barriers had Cronbach's alpha coefficient of 0.789, and questions on experience had a Cronbach's alpha coefficient of 0.70.

2.7 Variables and their Measurements

Knowledge: The correct answer received a one, while the incorrect response received a zero (a higher score indicates better knowledge). There were 10 questions on the basics of research methodology to assess knowledge. The overall score was calculated by adding all of these

together (percentage frequency for knowledge). We divided knowledge into three categories: excellent (>80% of the maximum possible total score), good (50–79% of the highest possible total score), and fair (less than 50% of the maximum possible total score).

Attitude: The attitude questions were designed with 4-point Likert scale responses (Strongly agree, agree, strongly disagree, and disagree). For positive items under attitude, strongly agree was given a score of five, while strongly disagree was given a score of one. For negative things, strongly agree was given a score of one, while strongly disagree was given a score of five (a higher score indicates a better attitude).

Barriers: There were 10 multiple choice options under barriers towards research.

Experience: There were 6 questions designed with a "yes or no" answer to assess participants' experience towards conducting research.

2.8 Statistical Analysis

Data was collated on Google sheets and analysis was done with PHYTON programming language (3.6.4). Statistical libraries such as Pandas, Seaborn and SCIPY.STATS were used. Data was tested using Shapiro-Wilk and Kolmogorov–Smirnov tests and the distribution of all outcomes were found to follow normal distributions. Descriptive statistics of frequency distribution, mean, standard deviation and percentages were used to summarize the socio-demographic characteristics of the participants. Chi square and independent t-test were used in comparing categorical and continuous demographic variables respectively. Statistical tests were two-sided and level of significance was set at 0.05. Dependent variables were knowledge, attitude, barriers and experience.

3. RESULTS

We found out from this study that 51.7% of the physiotherapists were 26-36 years of age and that majority were of the male gender (53.1%). Most physiotherapist had less than 5 years of practice with about 72.9% having only first degree. About 95.2% of the respondents did research methodology in undergraduates. 42% are currently involved in research while 52.7% had previous research publications. This is result is presented in Table 1. Figure 1 showed that 53.6% had medium knowledge about research, 34.3% had excellent knowledge while only 12.1% had low. Table 2 showed the responses of the Physiotherapists to the knowledge questions.

Table 1. Association between Knowledge, attitude and socio demographic variables

Variables		Level of Knowledge				P value	Level of attitude			
		Low (%)	Medium (%)	High (%)	Total (n=207)		Good (%)	Poor (%)	Total (n=207)	P value
Age in years	<25	1(0.5)	9(4.3)	17(8.2)	27(13.0)	0.015	16(7.7)	11(5.3)	27(13.0)	0.705
	26-36	18(8.7)	56(27.1)	33(15.9)	107(51.7)		67(32.4)	40(19.3)	107(51.7)	
	37-47	4(1.9)	31(15.0)	16(7.7)	51(24.6)		29(14.0)	22(10.6)	51(24.6)	
	>48	2(1.0)	15(7.2)	5(2.4)	22(10.6)		11(5.3)	11(5.3)	22(10.6)	
Gender	Female	7(3.4)	53(25.6)	37(17.9)	97(46.9)	0.111	57(27.5)	40(19.3)	97(46.9)	0.888
	Male	18(8.7)	58(28.0)	34(16.4)	110(53.1)		66(31.9)	44(21.3)	110(53.1)	
Years of practice	<5	13(6.3)	47(22.7)	34(16.4)	94(45.4)	0.470	57(27.5)	37(17.9)	94(45.4)	0.940
	6-10	6(2.9)	31(15.0)	13(6.3)	50(24.2)		30(14.5)	20(9.7)	50(24.2)	
	11-15	4(1.9)	11(5.3)	14(6.8)	29(14.0)		18(8.7)	11(5.3)	29(14.0)	
	16-20	1(0.5)	16(7.7)	7(3.4)	24(11.6)		13(6.3)	11(5.3)	24(11.6)	
	>21	1(0.5)	6(2.9)	3(1.4)	10(4.8)		5(2.4)	5(2.4)	10(4.8)	
Highest educational qualification	Graduate (BPT/BMR)	21(10.1)	83(40.1)	47(22.7)	151(72.9)	0.468	92(44.4)	59(28.5)	151(72.9)	0.752
	Postgraduate Masters	3(1.4)	17(8.2)	15(7.2)	35(16.9)		19(9.2)	16(7.7)	35(16.9)	
	PhD	1(0.5)	11(5.3)	9(4.3)	21(10.1)		12(5.8)	9(4.3)	21(10.1)	
Did research methodology course in undergraduate?	No	0(0)	9(4.3)	1(0.5)	10(4.8)	0.059	7(3.4)	3(1.4)	10(4.8)	0.207
	Yes	25(12.1)	102(49.3)	70(22.8)	197(95.2)		67(32.4)	130(62.8)	197(95.2)	
Did research methodology course in Postgraduate?	No	0(0)	1(1.8)	2(3.5)	3(5.3)	0.684	2(3.5)	1(1.8)	3(5.3)	1.000
	Yes	4(7.0)	27(47.4)	23(40.4)	54(94.7)		19(33.3)	35(61.4)	54(94.7)	
Currently involved in Research?	No	17(8.2)	73(35.3)	30(14.5)	120(58.0)	0.004	41(19.8)	79(38.2)	120(58.0)	0.668
	Yes	8(3.9)	38(18.4)	41(19.8)	87(42.0)		33(15.9)	54(26.1)	87(42.0)	
Previous research publications?	No	15(7.2)	52(25.1)	31(15.0)	98(47.3)	0.367	40(19.3)	58(28.0)	98(47.3)	0.671
	Yes	10(4.8)	59(28.5)	40(19.3)	109(52.7)		34(16.4)	75(36.2)	109(52.7)	

Table 3 and Figure 2 showed the various attitude of Physiotherapists to research, about 59.4% of the respondents had good attitude about research while 40.6% had poor attitude. 97.6% agreed that it is important for physiotherapist to know about research methodology. Nearly third-fourth (75.3%) agreed that conduction of research is difficult. 61.4% disagreed that undertaking research increases burden on already overworked physiotherapists while majority (70.6%) are confident in interpreting and writing a research paper. Depicted by Table 4, the top barriers perceived by the respondents for not participating in research projects were financial support (97.5%), statistical support (88.1%), research training and skill (86.1 %%)

and lack of self-interest and motivation (85.1%). As indicated in Table 5, 87.9% of the respondents have participated in writing any medical research. Also from Table 5, 50.2% hardly read medical journals while only 42% have published any research paper in a medical journal.

Depicted by Table 1, there was significant difference between age and level of knowledge (P=0.000). There was also significant difference between a respondents response to if he/she did research methodology, currently involved in research and level of knowledge (P=0.05). There was no difference between attitude and socio-demographic variables.

Table 2. Knowledge regarding research work

S/N	Statements	Correct (%)	Incorrect (%)
1	Research is what?	180(87.0)	27(13.0)
2	Which of the following is the first step in starting the research process?	169(81.6)	38(18.4)
3	Primary data sources includes all but one?	68(32.9)	139(67.1)
4	Quantity data can be divided into?	82(39.6)	125(60.4)
5	What are the core elements of a dissertation?	192(92.8)	15(7.2)
6	A set of data in which its values or observations can be ranked or having rating scale attached is called?	132(63.8)	75(36.2)
7	Primary data have already been collected by others (T/F)	126(60.9)	81(39.1)
8	Past data is also known as?	116(56.0)	91(44.0)
9	What type of research seeks to gain in-depth understanding of matters beyond what can be put into numerical figures?	178(86.0)	29(14.0)
10z	What does it indicate when the P<0.05?	140(67.6)	67(32.4)

Table 3. Attitude towards research

Statements	Agree (%)	Strongly Agree (%)	Disagree (%)	Strongly Disagree (%)
It is important for Physiotherapists to know about research methodology	18.4	79.2	1.4	1.0
Patient outcome improves with continued medical research	18.4	80.7	0.5	0.5
Research methodology should be made compulsory for both undergraduate and postgraduate students	22.2	74.9	0.5	2.4
Conduction of research is difficult	62.3	12.1	14.5	11.1
Undertaking research increases burden on already overworked	24.2	14.5	35.3	26.1

Statements	Agree (%)	Strongly Agree (%)	Disagree (%)	Strongly Disagree (%)
physiotherapists I feel confident in interpreting and writing a research paper	44.0	26.6	16.4	13.0

Table 4. Barriers towards conducting research (Multiple response)

Barriers towards Conducting Research	Percent of cases
Financial support	97.5%
Statistical support	88.1%
Research training and skill	86.1%
Self-interest and motivation	85.1%
Technical and logistic support like	79.7%
Mentorship and teamwork	79.2%
Linkages with other institution	70.8%

Table 5. Experiences towards conducting research

Experiences	Yes (%)	No (%)
Have you participated in writing any medical research?	182(87.9)	25(12.1%)
Do you read medical journals consistently?	103(49.8)	104(50.2)
Have you attended workshops on research methodologies?	91(44.0)	116(56.0)
Have you presented a research poster?	80(38.6)	127(61.4)
Have you published any research paper in a medical journal?	87(42.0)	120(58.0)
Have you received an award for any research project?	23(11.1)	184(88.9)

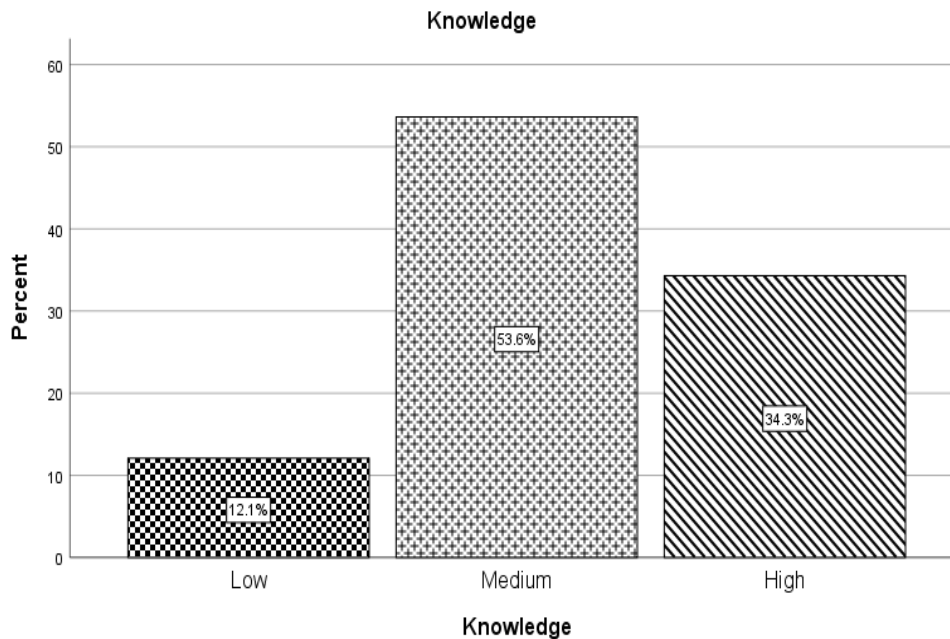


Fig. 1. Bar chart of level of knowledge

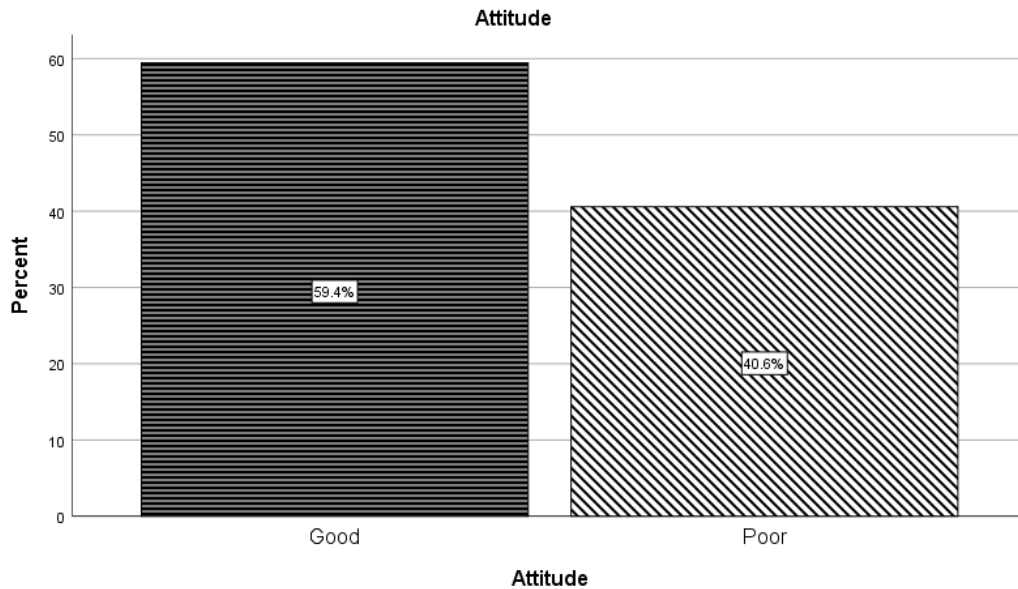


Fig. 2. Bar chart of level of attitude

4. DISCUSSION

Since the growth in awareness of the profession in Nigeria, this was the first study to look at the knowledge, attitude, experiences, and barriers to research among physiotherapists in Nigeria. In both academic and clinical settings, the country today has over 207 physiotherapists. Hamzat et al. [3] conducted a research similar to this when awareness was low with only 91 Physiotherapists. We looked into the knowledge, attitudes, and experiences of physiotherapists in Nigeria when it comes to conducting research. The primary barriers and challenges to participating in research were also identified in this study. The participants were mostly in the age ranges of 26-36 years (51.7%). This demonstrates the high frequency of young adults among Nigerian physiotherapists, with 53.1 % of males and 46.9% of females. According to Kulnik et al. [9], the most common age group in their study was 36-55 years old. The majority of those who took part had fewer than five years of experience (45.4%). This may be due to a higher number of physiotherapy students graduating from colleges and universities around the country than in preceding decades. 151 participants (72.9%) had a bachelor's degree in physiotherapy, and nearly all of them (95.2%) had studied research methods as an undergraduate. A total of 54 (26.1%) of the participants had research methodologies beyond undergraduate level. This implies reduced

interest in research after completion of undergraduate Majority of the physiotherapists specialized in Neurology. Kulnik et al. [9] reported similarly.

The majority of respondents work in hospitals: 52.2 percent in public (state and federal) clinics and 31.4 % in private clinics, while 11.6 % work in universities. This indicates that clinical physiotherapists outnumber academic physiotherapists. About 42% and 52.7 % of those surveyed were now engaged in research and had previously published research, respectively. This suggests a reasonable amount of research engagement. However, Hamzat et al. [3] discovered that clinical physiotherapists had a low levels of involvement in research. In their study, Aksoy et al. [10] discovered that only 8.6% had previously engaged in research, but our data revealed that 52.7% had. Table 2 shows the responses of the participants to questions designed to measure the physiotherapist's knowledge of research. We also discovered that 53.6 % had a medium understanding of research, 34.3 % had an excellent understanding, and just 12.1 percent had a low knowledge. This indicates that physiotherapists in Nigeria have a solid understanding of research. Monges et al. [11], on the other hand, discovered a lack of knowledge among Physiotherapy residents in Ethiopian clinical departments. Another study conducted in India found that residents of a tertiary

care hospital had a fair knowledge of research [12].

In terms of physiotherapists' attitudes regarding conducting research, the majority of respondents (59.4%) had a positive opinion toward it. According to Monges et al. [11], medical residents in Ethiopia have a good attitude. Askoy et al. [10], who agreed with our findings, concluded that the majority of the participants had a positive attitude toward research. The significant majority of physiotherapists believed that knowing about research methods is crucial for physiotherapists, and that continuous medical research enhances patient outcomes. This finding also implies that physiotherapists are enthusiastic about clinical research. According to our research, 74.4 % of physiotherapists believe that doing research is challenging.

When respondents were asked to name the top three barriers to undertaking research, the top three were lack of financial support (97.5%), deficient statistical support (88.1%) and poor research training and skill (86.1%) . Financial restrictions, hectic schedules, and a lack of interest were the most significant barriers to doctors' engagement in research in primary care, according to many studies [13, 14]. Mentorship and teamwork (79.2%) were identified as barriers to undertaking research by the physiotherapists in this survey. Inadequate mentorship was also identified as a key impediment in research in two studies from the literature [15, 16]. Even while 87.9% said they had written a medical research paper at some time, only 49.8% said they read medical journals on a regular basis, and only 42.0 % said they had published a research article in a medical journal. The reason for their participation is mostly owing to the need of an undergraduate thesis, since they have not been active in any other research activities. A significant majority of respondents (56%) have never attended a workshop on research methodology, have never presented a research poster (61.4%), and have never won an award for any research project (88.9%).

There was a significant relationship between level of knowledge among participants and age ($p=0.015$) when looking at the level of knowledge among participants. The highest level of knowledge was found in the age groups (26-30 years: 15.9% and <25 years: 8.2%) while the lowest was found in those over 48 years of age. Because this age group is made up of recent graduates, it's possible that there's a lot of

research information that's been retained. Although there was no significant relationship between gender and knowledge level ($p=0.111$), female participants had a high level of knowledge (17.9%). According to a research by Moges et al. [11], there was evidence of a substantial gender difference in knowledge score. In this study, there was a strong connection between individuals who studied research methodology as an undergraduate, are now involved in research, and their level of knowledge ($p=0.05, 0.004$). Similar findings were also found in other literatures [2,17,18].

5. CONCLUSION

Overall, Physiotherapists in Nigeria had good knowledge and attitude towards conducting research. Majority had participated in writing research. There was fair level of participation in research among the participants. This study also identified various barriers towards conducting research.

7. RECOMMENDATIONS

There is a need for Physiotherapists in Nigeria to acquire knowledge and participate more in medical research. Research findings should be published to disseminate the results and motivate others. There should be regular training courses on research methodologies for Physiotherapists in Nigeria.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The Health Research Ethics Committee of the

Federal Medical Centre Abeokuta (FMCA) (FMCA/470/HREC/01/2021/12) granted approval for the study. Official permission was obtained from the Head of Physiotherapy Department FMCA.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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