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*Research Article*

# Management of Knee Osteoarthritis: Knowledge and Adherence to Clinical Practice Guidelines Among Physiotherapists in Selected Hospitals in Lagos State, Nigeria

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**ABSTRACT**

Osteoarthritis of the knee joint (OA) is one of the most common conditions resulting to chronic disability predominantly in elderly population. The management of knee OA has been characterized by variations among physiotherapists within Lagos state, Nigeria. However, there is a need for physiotherapists as a whole to embrace evidence –based clinical practice guidelines in the management of this condition. This study was aimed at determining if the physiotherapist's characteristics (such as age, highest educational attainment, year of induction, years of experience and setting of practice) influence the knowledge and adherence to clinical practice guidelines in knee OA management and to find out if there is a need to develop clinical practice guidelines in the management of knee OA. This was a cross-sectional descriptive survey involving 104 physiotherapists from selected health care facilities in Lagos state. They were required to complete a 33-item questionnaire which collected information on socio-demographic data, work experience, treatment activities and their knowledge and adherence to knee OA clinical practice guidelines. Only a small percentage (16.30%) of the respondents were knowledgeable about knee OA clinical practice guidelines while even a smaller percentage (14.40%) of the respondents adhere to knee OA clinical practice guidelines. Knowledge and adherence were influenced by setting of practice (p=0.001, p=0.027). Majority (93.30%) of the respondents recommended the need for knee OA clinical practice guidelines in Nigeria. A small population of the respondents is knowledgeable and adheres to knee OA clinical practice guidelines. Some of the characteristics of the physiotherapists influence the knowledge and adherence to knee OA clinical practice guidelines. However, findings show that there is a need to develop a knee OA clinical practice guideline in Nigeria in other to standardize and improve effective treatment outcome in patient care.

**Keywords:** *Knee osteoarthritis, Clinical practice guidelines, Knowledge and Adherence.*

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## INTRODUCTION

Osteoarthritis (OA) is a common condition that results into disability and it is very predominant among the geriatic population. Osteoarthritis is a universal joint disease that occurs among human populace worldwide. It is a leading cause of disability of duration of more than 3months (Grazio and Balen, 2009). The cost-effective of OA is high, in terms of management of those individuals and their families who must adapt their lives and homes to the disease, and those due to lost work efficiency (Altman, 2010).

The high prevalence of Knee OA and its presentation at early age most especially among younger women with obesity makes it an important condition of public health concern. The occurrence of knee OA increases with certain socio demographic characteristics of an individual such as age, weight and longevity (Bliddal and Christensen, 2009).

The painful symptoms and other associated clinical features of OA may have a great effect on quality of life of the affected individuals both physically and psychologically. Knee OA result from several pathophysiological mechanisms, affecting articular cartilage, meniscus, ligament, and peri-articular muscles of the knee. It is painful and disabling ailment that affects a large number of patients. Despite the complications that arise from this condition many patients with knee OA can be treated in the primary health care centers (Peat *et al*, 2001).

Institute of Medicine (IOM) defined clinical practice guideline as a management guide that include recommendations proposed to improve patient care which are collated from a systematic review of evidence and an

assessment of various types of care options (Ladeira, 2011). The clinical practice guidelines influence clinical decisions making by providing the clinician with clear recommendations about what to do in certain situations (Ladeira, 2011).

Clinical practice guidelines are not self- limiting. The development of clinical practice guidelines and their availability to health care professionals does not guarantee their use. The developer may have some responsibility for the distribution of the guideline; they seldom have duty for implementing the guideline (Shekelle *et al*, 2012).

The limited use of developed evidence-based practice guidelines as resulted into what is now known as the know-do-gaps, which is the gap between what is already known and what is practiced clinically. This knowledge gap is predominantly obvious in conditions in which different management methods are contentious and no particular therapy is generally efficacious (Pablos-mendez and Shademani, 2016). From clinical experience and literature, the management of patients with Osteoarthritis of the Knee has been associated with a large spectrum of variation within and between countries, among general practitioners, medical specialists and other health care Professionals which could be due to several factors such as clinical experience, evidence-based literature, clinical reasoning, hospital policies etc. Compliance with clinical practice guidelines seem to be problematic as developing them. Health care practitioners frequently depend on common ideas and individual opinions rather than research evidence to make management options (Scott et al, 2010).

Therefore, this study is designed to ascertain the knowledge and adherence to clinical practice guidelines in the management of knee OA amongst physiotherapists in selected health care facilities in Lagos State, Nigeria.

## MATERIALS AND METHODS

**Study area:** The study areas were selected Teaching Hospitals, General Hospitals and Private Physiotherapy Clinics in Lagos State.

**Participants:** One hundred and four (104) physiotherapists were involved in this study. They were recruited from selected public and private physiotherapy outpatient clinics in Nigeria using the purposive sampling technique.
**Study design:** Cross-sectional descriptive survey.

### Study Instrument

**Questionnaire Design:** The initial draft of this questionnaire was adapted from a previous study by Ayanniyi *et al*, 2017. This served as a guide used in a focus group comprising academics and clinicians to develop a final draft. The questionnaire consist of 5 sections both closed and opened ended questions with a case study on the management of osteoarthritis of the knee:
*Section A:* This contains demographic data of the participants, which includes age, sex, highest level of educational attainment, University of graduation, year of graduation, year of induction into physiotherapy practice and location of practice.
*Section B:* This was used to obtain work experience of the participants including years of practice, place of practice, type of facility, sub-specialty and cadre in physiotherapy practice.
*Section C:* This obtained information of a case study on the management of knee OA.
*Section D:* Sought information on participant's general treatment activities.
*Section E:* This was used to obtain information on the participant's knowledge about knee OA clinical practice guidelines, and their implementation in practice.
Prior to the distribution, the questionnaire was assessed by two physiotherapy educators at the College of Medicine, University of Lagos and two clinicians at the Lagos University Teaching Hospital; in order to determine the face and content validity. Corrections were made according to their inputs.

### Administration of the questionnaire/ethical consideration

Prior to the commencement of this study, the objectives of the study were clearly explained to the participants in a cover note of the questionnaires in order to seek their informed consent. The approval for this study was gotten from the Health Research and Ethics Committee of College of Medicine, University of Lagos, Idi- Araba, Lagos, Nigeria with approval number: CMUL/HREC/07/17/225 Informed consent was obtained from the participants prior to the commencement of this study and they were assured of confidentiality of their responses.

Copies of the questionnaire were distributed to practicing physiotherapists from all teaching Hospitals, Specialist Hospital, Military Hospitals, Sports Centers, and Private Physiotherapy Clinics. The questionnaires was distributed on a one-on-one basis to practicing physiotherapists across selected Hospitals in Lagos State, the completed questionnaires were retrieved after completion.

### Measurement of outcome variables

This was assessed using the section E of the questionnaire that asked questions on the knowledge and adherence to knee osteoarthritis clinical practice guideline.

### Data Analysis:

The data was analyzed using statistical package for Social Science Version 21 and summarized with frequency, mean, standard deviation and percentage. Inferential Statistics of chi square was used to find association between variables. Level of significance was set at $p \leq 0.05$.

## RESULTS

**Socio demographic characteristics:** A total of 140 questionnaires were distributed to physiotherapists in Lagos State and 106 copies were returned with 104 copies valid for analysis giving a response rate of 75.71%.
The age range of respondents was between 21 and 60 years, 22 being the least and 58 being the highest, with most of the respondents 27(26.00%) between 21-25 years (Table 1). Majority, 60 (57.70%) of the respondents were females while

44 (42.30%) were males (Table 1). Inferential statistics of Chi square showed that there was no statistically significant association ($X^2$= 2.624, p=0.758) between age of respondents and knowledge of knee OA clinical practice guidelines; however the younger respondents have more knowledge about the clinical practice guidelines. But there was a statistically significant association ($X^2$=14.383, p=0.013) between age of the respondents and adherence to knee OA clinical practice guideline (Table 1).

There was no statistically significant association ($X^2$=2.889, p=0.089) between sex of respondents and knowledge of knee OA clinical practice guideline. There was also no significant association ($X^2$=1.433, p= 0.231) between sex of respondents and adherence to clinical practice guideline. The Highest educational attainment for most of the respondents is First Degree 66 (63.50%) while 3 (2.90%) had DPT (Table 1).

**Table 1:**
Association between Age, Sex, Highest educational attainment of Respondent and Knowledge and Adherence to Knee OA Clinical Practice Guidelines.

| Variable | | Knowledge | | | | Adherence | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Good n (%) | Poor n (%) | $X^2$ | p-value | Adhere n (%) | Not adhere n (%) | $X^2$ | P-value |
| Age (years) | 21-25 | 22(81.5) | 5(18.5) | | | 5(18.5) | 22(81.5) | | |
| | 26-30 | 18(85.7) | 3(14.3) | | | 4(19.0) | 17(81.0) | | |
| | 31-35 | 20(87.0) | 3(13.0) | 2.624 | 0.758 | 5(21.7) | 18(78.3) | 14.383 | 0.013* |
| | 36-40 | 12(100.0) | 0(0.0) | | | 0(0.0) | 12(100.0) | | |
| | 41-45 | 8(88.9) | 1(11.1) | | | 4(44.4) | 5(55.6) | | |
| | 46-60 | 10(83.3) | 2(16.7) | | | 7(58.3) | 5(41.7) | | |
| Sex | Male | 41(93.2) | 3(6.8) | 2.889 | 0.089 | 8(18.2) | 36(81.8) | 1.433 | 0.231 |
| | Female | 49(81.7) | 11(18.3) | | | 17(28.3) | 43(71.7) | | |
| Education | First Degree | 56(84.8) | 10(15.2) | | | 12(18.2) | 54(81.8) | | |
| | DPT | 3(100.0) | 0(0.0) | 2.392 | 0.495 | 0(0.0) | 3(100.0) | 5.481 | 0.140 |
| | Masters | 25(92.6) | 2(7.4) | | | 10(37.0) | 17(63.0) | | |
| | PhD | 6(75.0) | 2(25.0) | | | 3(37.5) | 5(62.5) | | |

*****Significance at p < 0.05; n= frequency; %= percentage; $x^2$= Chi-square*

**Table 2:**
Association between University of Graduation, Year of Induction, Years of work Experience and Knowledge and Adherence to Knee OA Clinical Practice Guidelines

| Variable | | Knowledge | | | | Adherence | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Good n(%) | Poor n(%) | $X^2$ | P-value | Adhere N (%) | Not adhere N (%) | $X^2$ | Pv alue |
| University of Graduation | University of Lagos | 41(80.4) | 10(19.6) | | | 12(23.5) | 39(76.5) | | |
| | University of Ibadan | 19(95.0) | 1(5.0) | | | 8(40.0) | 12(60.0) | | |
| | Obafemi Awolowo University | 17(94.4) | 1(5.6) | | | 4(22.2) | 14(77.8) | | |
| | University of Nigeria | 5(71.4) | 2(28.6) | 6.465 | 0.373 | 0(0.0) | 7(100.0) | 10.421 | 0.108 |
| | Bayero University | 3(100.0) | 0(0.0) | | | 0(0.0) | 3(100.0) | | |
| | University of Maduiguri | 1(100.0) | 0(0.0) | | | 1(100.0) | 0(0.0) | | |
| | Abroad | 4(100.0) | 0(0.0) | | | 0(0.0) | 4(100.0) | | |
| Year of Induction | 1981-1985 | 3(75.0) | 1(25.0) | | | 2(50.0) | 2(50.0) | | |
| | 1986-1990 | 1(100.0) | 0(0.0) | | | 1(100.0) | 0(0.0) | | |
| | 1991-1995 | 3(75.0) | 1(25.0) | | | 3(75.0) | 1(25.0) | | |
| | 1996-2000 | 7(87.5) | 1(12.5) | 3.206 | 0.92 | 4(50.0) | 4(50.0) | 17.415 | 0.026* |
| | 2001-2005 | 10(90.9) | 1(9.1) | | | 2(18.2) | 9(81.8) | | |
| | 2006-2010 | 19(90.5) | 2(9.5) | | | 5(23.8) | 16(76.2) | | |
| | 2011-2015 | 25(80.6) | 6(19.4) | | | 3(9.7) | 28(90.3) | | |
| | 2016-2020 | 19(90.5) | 2(0.59) | | | 4(19.0) | 17(81.0) | | |
| Year of Experience | 1-5 | 35(79.5) | 9(20.5) | | | 8(18.2) | 36(81.8) | | |
| | 6-10 | 24(92.3) | 2(7.7) | | | 7(26.9) | 19(73.1) | | |
| | 11-15 | 11(91.7) | 1(8.3) | | | 3(25.0) | 9(75.0) | | |
| | 16-20 | 7(100.0) | 0(0.0) | 12.391 | 0.088 | 1(14.3) | 6(85.7) | 14.225 | 0.047* |
| | 21-25 | 3(75.0) | 1(25.0) | | | 3(75.0) | 1(25.0) | | |
| | 26-30 | 2(100.0) | 0(0.0) | | | 2(100.0) | 0(0.0) | | |
| | 31-35 | 8(100.0) | 0(0.0) | | | 1(12.5) | 7(87.5) | | |
| | 36-40 | 0(0.0) | 1(100.0) | | | 0(0.0) | 1(100.0) | | |

*****Significance at p < 0.05; n= frequency; %= percentage; $x^2$= Chi-square*

It was shown that there was no statistically significant association ($X^2$=2.392, p=0.495) between respondent's highest educational attainment and knowledge of knee OA clinical practice guideline. There was also no statistically significant association ($X^2$=5.481, p=0.140) between respondent's highest educational attainment and adherence to clinical practice guideline (Table 1).

**Work experience**

The result of the study revealed that majority 44 (42.30%) of the respondents have worked for 1- 5years, 12 (11.5%) had 11-15 years of working experience, while 1 (1.00%) had 36-40 years of work experience (Table 2). Chi square Analysis showed that there is no statistically significant association ($X^2$=12.391, p=0.088) between year of working experience of respondents and knowledge of knee OA clinical practice guideline. But there was a statistically significant association ($X^2$=14.225, p=0.047) between year of working experience and adherence to knee OA clinical practice guideline (Table 2).

Fifty-three (51.00%) of the respondents worked at Teaching Hospitals, 14 (13.90%) worked at Specialist Hospitals, 12 (11.50%) worked at General Hospitals, 3 (2.90%) worked as an academic and 1(1.00%) worked at Sports Center (Table 2). It was shown that there was a statistically significant association ($X^2$= 25.561, p=0.001) between respondent's setting of practice and knowledge of knee OA clinical practice guideline. Result also showed a statistically significant association ($X^2$=17.340, p=0.027) between respondent's setting of practice and adherence to knee OA clinical practice guideline (Table 3). The years of Induction into Physiotherapy Practice of the respondents were grouped using a 5 year interval with the majority of the respondents 31 (29.8%) falling within 2011- 2015 and 1 (1.00%) of the respondents falling within 1986-1990 (Table 3). Chi square Analysis showed that there was no statistically significant association ($X^2$=3.206, p=0.921) between year of induction of respondents and knowledge of knee OA clinical practice guideline. But it was shown that there was a statistically significant association ($X^2$=17.415, p=0.026) between year of induction of respondents and adherence to clinical practice guideline (Table 3).

Regarding the area of specialization of respondents, fifty-six (53.80%) of the respondents specialized in orthopaedics/musculoskeletal, 22 (21.20%) specialized in Neurology, while 1 (1.00%) specialized in both Geriatrics and Sports. Table 3 showed that there was no statistically significant association ($X^2$=6.028, p=0.737) between area of specialization of respondents and knowledge of knee OA clinical practice guideline. It also showed that there was no statistically significant association ($X^2$=9.615, p=0.383) between area of specialization of respondents and adherence to knee OA clinical practice guideline.

**Treatment activities on knee osteoarthritis**

As regards the reasons for choice of treatment on the case study on knee osteoarthritis management, 65 (62.50%) of the respondents reported that their reason for their choice was due to evidence from literature. Sixty (57.70%) of the respondents identified physiotherapist's skill as a reason, while 9 (8.70%) of the respondents considered affordability of treatment as a yardstick for the choice of treatment.

**Table 3:**
Association between Setting of Practice and Area of Specialization on Knowledge and Adherence to Clinical Practice Guidelines.

| Variable | | Knowledge | | | | Adherence | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Good** n(%) | **Poor** n(%) | **$X^2$** | **pvalue** | **Adhere** n(%) | **Not adhere** n(%) | **$X^2$** | **Pvalue** |
| **Setting of Practice** | Teaching Hospital | 45(84.9) | 8(15.1) | | | 11(20.8) | 42(79.2) | | |
| | General Hospital | 11(91.7) | 1(8.3) | | | 3(25.0) | 9(75.0) | | |
| | Private Physiotherapy Clinic | 7()100.0 | 0(0.0) | | | 2(28.6) | 5(71.4) | | |
| | Domiciliary Service | 1(50.0) | 1(50.0) | | | 0(0.0) | 2(100.0) | | |
| | Military Hospital | 8(100.0) | 0(0.0) | 25.561 | 0.001 * | 0(0.0) | 8(100.0) | 17.340 | 0.027 * |
| | Sports Center | 1(100.0) | 0(0.0) | | | 0(0.0) | 1(100.0) | | |
| | Federal Medical Center | 4(100.0) | 0(0.0) | | | 0(0.0) | 4(100.0) | | |
| | Specialist Hospital | 13(92.9) | 1(7.1) | | | 6(42.9) | 8(57.1) | | |
| | Academics | 0(0.0) | 3(100.0) | | | 3(100.0) | 0(0.0) | | |
| **Area of Specialization** | Neurology | 18(81.8) | 4(18.2) | | | 4(18.2) | 18(81.8) | | |
| | Orthopaedics/Musculoskeletal | 50(89.3) | 6(10.7) | | | 16(28.6) | 40(71.4) | | |
| | Cardiopulmonary | 5(83.3) | 1(16.7) | | | 2(33.3) | 4(66.7) | | |
| | Paediatrics | 3(60.0) | 2(40.0) | | | 0(0.0) | 5(100.0) | | |
| | Surgery | 3(75.0) | 1(25.0) | 6.028 | 0.737 | 0(0.0) | 4(100.0) | 9.615 | 0.383 |
| | Womens' Health | 5(100.0) | 0(0.0) | | | 2(40.0) | 3 (60.0) | | |
| | Geriatrics | 1(100.0) | 0(0.0) | | | 0(0.0) | 1(100.0) | | |
| | Ergonomics | 2(100.0) | 0(0.0) | | | 0(0.0) | 2(100.0) | | |
| | Sport | 1(100.0) | 0(0.0) | | | 1(100.0) | 0(0.0) | | |
| | Other | 2(100.0) | 0(0.0) | | | 0(0.0) | 2(100.0) | | |

*****Significance at p < 0.05; n= frequency; %= percentage; $x^2$= Chi-square*

As at the time of the survey, 75 (72.10%) of the respondents manage patients with knee osteoarthritis, with majority of the respondents 67 (64.40%) treating between 1- 20 patients per week and 35 (33.60%) of the respondents treating between 21-40 patients per week, (Table 4).

Fifty-two (50.00%) of the respondents on the average manage patients within 41- 60 minutes on initial visit, while 2 (1.90%) of the respondents on the average manage patients within 1- 20 minutes on initial visit. Based on the average minute spent on follow up visit of the patients, 52 (50.00%) of the respondents spend 41- 60 minutes.

Majority of the respondents, 83 (79.80%) administer 8 treatment sessions to the patients, while 2 (1.90%) of the respondents give 2 treatment sessions. During the first visit treatment of the case study on the management of knee osteoarthritis, 88 (84.61%) of the respondents reported that shortwave diathermy would be used as core treatment and 16 (15.39%) of the respondents reported that shortwave diathermy would be used as an adjunct treatment, 85 (81.73%) of the respondents reported that ice should be used as core treatment and 19 (18.27%) of the respondents reported that ice would be used as adjunct treatment, 80 (76.92%) of the respondents reported that education regarding weight would be used as core treatment and 24 (23.07%) of the respondents reported that education regarding weight would be used as adjunct treatment (Table 5).

As regards the assessment of the case study on the management of knee osteoarthritis, 92 (88.50%) of the respondents reported that they would assess the patient's range of motion, 90 (86.50%) of the respondents reported that the patient would be assessed with the aid of an X-ray, 89 (85.60%) of the respondents reported that the deformity of the patient would be assessed, 88 (84.60%) of the respondents reported that the patient would be assessed on palpation, 85 (81.70%) of the respondents reported that the muscle strength of the patient would be assessed, 84 (80.80%) of the respondents reported that the functional activity of the patient would be assessed.

**Table 4:**
Present Management, Number of cases seen and Average Minutes spent on patient used by the Respondents

| | | Frequency (N) | Percentage (%) |
|---|---|---|---|
| **Present Management** | YES | 75 | 72.10 |
| | NO | 29 | 27.90 |
| | TOTAL | 104 | 100.00 |
| **Average Cases Seen** | 1-20 | 67 | 64.40 |
| | 21- 40 | 35 | 33.60 |
| | 41- 60 | 1 | 1.00 |
| | 81- 100 | 1 | 1.00 |
| | TOTAL | 104 | 100.00 |
| **Treatment Time** | 1 - 20 | 2 | 1.90 |
| | 21-40 | 39 | 37.50 |
| | 41- 60 | 50 | 52 |
| | 61-80 | 2 | 1.90 |
| | 81- 100 | 9 | 8.70 |
| | TOTAL | 104 | 100 |

**Table 5:**
Most preferred Treatment modalities for Knee Osteoarthritis by Respondents

| Modalities | Core | | Adjunct | |
|---|---|---|---|---|
| | F (N) | (%) | F (N) | (%) |
| Bed Rest | 31 | 29.80 | 73 | 70.19 |
| Aerobic Exercises | 53 | 50.96 | 51 | 49.04 |
| Shortwave Diathermy | 88 | 84.61 | 16 | 15.39 |
| Stretching Exercises | 45 | 43.27 | 59 | 56.73 |
| Ice | 85 | 81.73 | 19 | 18.27 |
| Srengthening Exercise | 80 | 76.92 | 24 | 23.08 |

**Knowledge and adherence to knee osteoarthritis clinical practice guidelines**

Twenty-two (21.20%) of the respondents are aware of a Knee Osteoarthritis Clinical Practice Guidelines while 82 (78.80%) of the respondents are not aware. Majority 87 (83.7%) of the respondents are not knowledgeable, while 17 (16.30%) are knowledgeable about knee OA clinical practice guidelines. Some of the respondents who are knowledgeable mentioned some knee OA clinical practice guidelines such as American Association of Orthopaedic Surgeon (AAOS) and Osteoarthritis Research Society International guidelines (OARSI).

Fifteen (14.40%) of the respondents adhere to Clinical Practice Guidelines based on their knowledge of an existing Clinical Practice Guideline while 89 (85.60%) of the respondents do not adhere to any existing Clinical Practice Guideline if at all there were.

Eight (7.70%) of the respondents reported that their Hospital have a policy guideline on knee osteoarthritis management while 96 (92.30%) of the respondents do not have. Ninety-six (92.30%) of the respondents are knowledgeable that there was no Clinical Practice Guideline for practicing physiotherapists in Nigeria, while 8 (7.70%) of the respondents think there is.

Ninety-seven (93.30%) of the respondents think there is a need for Clinical Practice Guideline on knee osteoarthritis management while 7 (6.70%) of the respondents think there is no need for Clinical Practice Guideline on knee osteoarthritis management in Nigeria.

The response given by majority 38 (36.50%) of the respondents for the reason knee osteoarthritis clinical practice guideline is needed in Nigeria is for standardization of practice, 18 (17.30%) of the respondents said there is a need of clinical practice guideline for effective patient management, while 10 (9.60%) of the respondent said there is a need in other to better inform clinical decision making.

One (1.00%) of the respondents that said there is no need for clinical practice guideline gave a reason that the world is a global village and that the internet is a good tool to assist someone clinical decision making while 1 (1.00%) of the respondents said that 'one shoe does not fit all' therefore, the treatment given to patient should be individualized.

## DISCUSSION

The main purpose of this study was to determine the knowledge and adherence to knee OA clinical practice

guidelines amongst physiotherapists in selected hospitals in Lagos state and also to determine if the physiotherapist's characteristics (such as age, highest educational attainment, number of years of experience, setting of practice, area of specialization, year of graduation and year of induction) influence the physiotherapists knowledge and adherence to knee OA clinical practice guidelines.

It was evident from this study that physiotherapy seems to be a female dominated profession in Lagos state. This finding is at variance with previous findings from Ayanniyi *et al* (2017) which indicated that Lagos seem to have preponderance of male physiotherapists. However, differences in inclusion criteria might affect the gender population as intern physiotherapists were part of the study.
Findings from this study showed that physiotherapists use variety of treatment modalities with electrotherapy being the most popular treatment modality. This study is consistent with Ayanniyi *et al* (2017) which indicated the use of electrotherapy as the most common treatment approach by physiotherapists for knee OA management.

The utilization of therapeutic exercises and manual therapy requiring professionalism and evidence base was less favoured than electrotherapy modalities by most physiotherapists in Lagos state. This result is not in line with guidelines and recommendations for managing knee OA which was reported in the study by Fernandes *et al* (2013). The result also revealed that there were quite a number of respondents who recommended exercise therapy and education regarding weight loss as part of the treatment preferences. This is consistent with the recommendations and clinical practice guidelines on knee OA management (Hochberg *et al*, 2012). Bed rest and Acupuncture were less recommended for the management of knee OA by the respondents and this is consistent with the recommendations and clinical practice guidelines for knee OA management (Fernandes *et al*, 2012). This might be because most physiotherapists may lack the skill of acupuncture not to talk of using it as a mode of treatment. As for bed rest, the respondents might think it will aggravate the symptoms of knee OA.

The frequent combination of modalities by physiotherapists that were involved in this study revealed that the concept of using a single core modality, such as therapeutic exercise, is not common among physiotherapists in Lagos. This agrees with the results of the study of Ayanniyi *et al* (2017) which suggested that Nigerian physiotherapists are multi-modality dependent. This is in line with the findings of Holden *et al* (2008) among physiotherapists in the United Kingdom, which showed that treatment of knee OA in routine practice often involves several interventions given simultaneously.

There was high use of range of motion and plane radiograph as a tool for evaluating and diagnosing of knee OA by respondents in this study. Although, according to Royal Australian College of General Practitioners, (2009) its use is recognized in screening and confirming diagnosis in confusing situations of knee OA. This finding agrees with the study of Ayanniyi *et al* (2017) in which there was high utilization of radiograph as an assessment tool for knee OA management by physiotherapists in Nigeria. This mode of assessment is inconsistent with recommendations from most clinical practice guidelines on knee OA management (Peter *et al*, 2010).

The findings from this study revealed that evidence from literature is the most common reason for respondent's choice of treatment modalities. This is not surprising in view of recognition given to publications of evidence-based clinical practice guideline by many professional bodies with respect to the management on knee OA. Some respondents, nevertheless, ascribed their choice of treatment to their knowledge of certain skills. This finding is consistent with clinical practice guideline as a whole, where acquiring more skills is recognized as a means of improving clinical capability (Holden *et al*, 2008).

The results of this study revealed that majority of the respondents discharge their patients after about 8 treatment sessions. However, this is consistent with French guidelines for lower limb OA management which promotes supervised physical therapy-led exercise for at least eight treatment sessions (Peter *et al*, 2010). This finding is not in support of the results of the study by Ayanniyi *et al* (2017) who reported that most of the existing clinical practice guidelines have no recommendations for the number of treatment sessions for knee OA. This result also disagrees with the findings of the study by Holden *et al* (2008) which reported that majority of the physiotherapists discharge their patients after 5 treatment sessions.

It was reported that minority of the respondents who were aware of knee OA clinical practice guidelines mentioned some of the available clinical practice guidelines such as American Association of Orthopaedic Surgeon and Osteoarthritis Research Society International Guidelines. Majority of the respondents were not aware of any knee OA clinical practice guidelines. One of the respondents mentioned a physiotherapy website (physiopedia) as a source of knee OA clinical practice guideline which is false to the best of my knowledge. This reflects that there is misconception among physiotherapists about the difference between knee OA clinical practice guideline and treatment protocols in the management of knee OA.

The finding that there was no statistically significant association between age, highest educational attainment, year of induction, university of graduation and area of specialization of respondents and knowledge of knee OA clinical practice guidelines suggests that age, highest educational attainment, year of induction, university of graduation and area of specialization might not have an influence on physiotherapist's knowledge of knee OA clinical practice guidelines. However, the younger respondents have more knowledge about the clinical practice guidelines. There was statistically significant association between age, year of induction, year of work experience and setting of practice of the respondents and adherence to knee OA clinical practice guideline. This shows that some of the socio-demographic characteristics of the respondents have an influence on the adherence to knee OA clinical practice guidelines.

The results from this study revealed a statistically significant association between setting of practice and knowledge and adherence to knee OA clinical practice guidelines, which may suggests that the setting of practice of

the physiotherapists may influence his/her knowledge and adherence to knee OA clinical practice guidelines. Respondents working at teaching hospitals were more knowledgeable about clinical practice guideline than their counterparts in other setting of practice (private hospitals) and this may be due to the prevalence of musculoskeletal conditions in the physiotherapy department of such hospitals and therefore a need to be vast in evidence-based clinical practice guidelines and recommendations of major musculoskeletal conditions.

Majority of the respondents were not aware of any knee OA clinical practice guidelines which could be the main reason why a number of treatment preferences is not consistent with recommendations of knee OA clinical practice guidelines in the western countries. This corroborates the findings of Ayanniyi*et al* (2017) which suggests that there is disparity in the practice between physiotherapists in Nigeria and those of western countries such as Canada, United States, United Kingdom on the appropriate use of recommended core modalities in the management of knee OA.

A few of the respondents reported that their work place have policy guidelines for knee OA management which reveals why setting of practice of a few respondents influence knowledge and adherence to clinical practice guidelines for management of knee OA.

Majority of the respondents also recommended that there is a need for knee OA clinical practice guidelines in Nigeria. This according to the respondents will standardize practice, aid the use of evidence-based physiotherapy practice, increase uniformity of treatment and lead to effective management of knee OA patients. This conforms to the findings of Ayanniyi *et al* (2017) who also reported that respondents in their study recommended that physiotherapy policy makers should consider the option of developing a clinical practice guideline for the management of knee OA in Nigeria

In conclusion, this study has provided an overview of physiotherapy management of knee OA in Lagos state. Findings have shown some areas of consistency with clinical practice guidelines for knee OA management, however, there was a poor consensus among physiotherapists in Lagos state on how knee OA should be managed. It highlighted delicate areas of concern regarding evidence-based practice such has the high utilization of plane radiographs in the diagnosis of knee OA and the use of electrotherapy modalities (shortwave diathermy) in the treatment knee OA. This study has identified the differences in practice compared to developed countries like Australia, Canada, United States of America.

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