Knowledge, Attitude and Perceived Practice of the management of Osteoarthritis Among Physicians in Primary Health Care Centers in Khobar, Dammam and Qatif in Saudi Arabia: 2019, A Cross-Sectional Study

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Abstract:

Introduction:

The greatest portion of healthcare provided for osteoarthritis patients occurs in PHC setting. Knowledge and attitudes of osteoarthritis care among physicians in PHC is essential for provision of good healthcare for the patients. This study aimed to assess the level of knowledge, attitude and perceived practice of the management of Osteoarthritis among physicians working in the ministry of health (MOH) primary health care centers (PHCCs) in the Eastern Province of KSA.

Methods:

This is a cross sectional study targeted all physicians working in Khobar, Dammam and Qatif PHCs of MOH, Saudi Arabia. Dentists, Radiologists, Physicians working in pure administrative work who are not in contact with patients were excluded from this study. Data were collected from physicians through an electronic self-administered questionnaire.

Results:

A total sample of 204 medical practitioner from primary healthcare centers, working in Eastern province, were included in this study. More than a half of the respondents were females (59.3%) and the majority (98%) were Saudis. The majority (55.9%) of the medical practitioners had poor knowledge about osteoarthritis. The least correctly answered that shoulder, in the present study, was the least affected joint with only 36.3% correct answers. About 92% answered correctly that osteoarthritis had multifactorial causes. The greatest proportion of the

respondents (96.1%) thought that osteoarthritis is a common health problem in KSA. The most common non-pharmacological practice, in the present study, was initiating weight loss which is reported by 77% while the most common pharmacological practice was prescribing Acetaminophen which is reported by 75.5%, followed by NSAIDS (63.7%). Significant determinants for knowledge were specialty and presence of previous training in osteoarthritis.

Conclusions:

The level of knowledge about osteoarthritis among PHC physicians was inadequate as the majority had poor level of knowledge. Generally, negative attitudes were not common among the respondents but those who responded as neutral were quite common. Pharmacological and non-pharmacological practices were quite common among the physicians.

Keywords: Osteoarthritis, Disability, Awareness, Perception. Attitude, Management, Saudi

Introduction:

Osteoarthritis is the most prevalent type of joint disorder in the world. Its prevalence increases with aging and women are generally more affected than men. The knee and hip are the major joints affected by the disease, and contribute to the majority of total joint arthroplasty surgeries [(1)]. Osteoarthritis is among the most common conditions the primary healthcare physicians are consulted for [(2)].

Recent evidence shows that the development of osteoarthritis is in fact multifactorial including trauma, inflammatory reactions, biochemical reactions and metabolic manifestations [(3).] Risk factors are roughly equal for knee and hip osteoarthritis and they include age, gender, obesity, knee or pelvic surgery, significant trauma, squatting and heavy lifting [(1)]. It is important to note that environmental traditions and practices are highly associated with these risk factors. In the Asia-pacific region risk factors of osteoarthritis are modeled into social norms and behavior. Including religious practices (ie; praying), social etiquette (sitting criss-cross) and types of toilet (sitting on the floor) [(4)].

Diagnosis of osteoarthritis is primarily clinical. Patients usually present with pain upon joint usage. The pain progresses into severe deliberating pain associated with functional limitations. Functional limitations also occur due to the pathological degenerative process and patients usually show signs of instability and giving away. Diagnosis is confirmed using imaging modalities (conventional radiography, MRI and ultrasound) however, radiographic findings are not always consistent with the clinical presentation. Laboratory work is needed for patients with symptoms of inflammatory joint disease. These include rheumatic factor, C-reactive protein and erythrocyte sedimentation rate [(5-9)].

Management of osteoarthritis is initiated by patient education programs and goal-setting approaches [(10).] Patients are advised to exercise, lose weight, and use walking aids especially in knee and hip osteoarthritis. Pharmacological therapy is given for symptomatic patients who fail the non-pharmacological therapy, it includes NSAIDs and topical analgesic for pain management, alongside with serotonin-norepinephrine reuptake inhibitor; (duloxetine) [(11, 12)]. Surgical treatment is dominated by total joint replacement, which is highly effective in patients with advanced knee and hip OA when conservative therapies have failed to provide adequate pain relief [(13)].

The primary healthcare physicians are often the first to evaluate patients with joint symptoms related to osteoarthritis. Globally, there are several studies conducted to assess the management of OA in the PHC centers [(14-17)]. There are few studies from the middle east examined the practices of PHC physicians in OA management [(18, 19)].

Literature Review:

In 2015, A study from Canada was done to evaluate the perceptions of PHC physicians regarding total joint replacement surgery and their confidence in selecting patients for the surgery. It showed variable perceptions about total joint arthroplasty (TJA) and PHC physicians were able to perceive a classic candidate present with moderate pain and disability, identify some absolute contraindications to TJA, and the overestimated TJA

risks and effectiveness. PHC physicians reported moderate confidence in decision for referral. Independent factors of low confidence were female gender (OR = 2.18, 95% CI: 1.06-4.46) and lack of knowledge about surgical indications (OR = 3.54, 95% CI: 1.87-6.66) [14].

In a study aimed at examining the knowledge, attitudes, and practice patterns of primary care clinicians in USA regarding the management of mild-to-moderate OA, primary care clinicians tend to prescribe an oral non-steroidal anti-inflammatory drug regimen for mild-to-moderate OA. A physical therapy maintenance program was recommended to patients with initial or recurrent OA. Two-thirds of participants reported unfamiliarity with Osteoarthritis Research Society International guidelines for OA management [15].

In a cross-sectional study in A-Jouf province of Saudi Arabia done in 2011, about three-quarters of PHC physicians surveyed considered OA a common disease. About 28% of physicians will achieve continuity of care for OA, and 57% will refer patients immediately or later to a specialist. Almost 40% reported good knowledge of OA radiographic changes. This study illustrates that the overall physicians' knowledge towards OA was inadequate [18].

In a study done in Iraq in 2017, it was found that knowledge, attitude and practice of PHC physicians regarding OA management were good in general. Physicians who are board-trained and physicians who were in practice for less than 5 years showed better knowledge, attitude and practice in the management of OA [19].

Study Rationale:

Osteoarthritis is a common progressive degenerative disorder with severe disabling outcomes. 80% of patients with osteoarthritis develop limitations of movement and 25% lose their ability to perform daily life activities, this questioning the entity of osteoarthritis management in the first line of care; the primary health care. There's no adequate Saudi literature covering the topic of osteoarthritis management in Saudi Arabia. This study sheds light on the cardinal roles of family physicians to prevent development of osteoarthritis, delay its progression and avoid the inevitable pain and disability among patients with osteoarthritis.

Research Question:

What is the level of knowledge, attitude and perceived practice of the management of Osteoarthritis among physicians working in the ministry of health (MOH) primary health care centers (PHCCs) in the Eastern Province of KSA?

Aim:

Evaluate of knowledge, attitude and perceived practice of PHC physicians in the management of Osteoarthritis.

Objectives:

1. To assess the knowledge of physicians working in MOH PHCCs in the Eastern Province of KSA regarding Osteoarthritis.
2. To describe the attitude of physicians working in MOH PHCCs in the Eastern Province of KSA regarding Osteoarthritis.
3. To assess the perceived practice of physicians working in MOH PHCCs in the Eastern Province of KSA regarding Osteoarthritis.
4. To identify barriers in PHC physician in the management of Osteoarthritis.

Methodology:

1. Study Design:

A cross-sectional study.

2. Study Setting:

MOH PHCCs in Khobar, Dammam and Qatif cities in Eastern Province of KSA

3. Study Time:

From Nov. 2019 till Nov. 2020.

4. Study Sample:

Physicians working in Khobar, Dammam and Qatif PHCCs of MOH. The choice of physicians working in these cities for this study is explained by that they are the main cities in Eastern province of KSA and they have a higher number of PHCCs when compared with other cities in the province.

5. Inclusion criteria:

All family physicians and general practitioner working in Khobar, Dammam and Qatif PHCCs of MOH were included.

6. Exclusion criteria:

Dentists, Radiologists, Physicians working in pure administrative work who were not in contact with patients.

7. Sample size:

All family physicians and general practitioner in PHCCs in Khobar, Dammam and Qatif were included in the study. The sample size were 342 physicians.

8. Data collection method:

Data were collected from physicians through an electronic self-administered questionnaire. If the response rate found to be low, a manual collection was considered.

Data Collection Tool

Study Questionnaire:

Questionnaire were used and its validity were reviewed from a primary study done in Al Jouf province, Saudi Arabia (Knowledge, Attitude and Perceived Practice of the management of Osteoarthritis Among Physicians in Primary Health Care Centers in Al Jouf Saudi Arabia)[12] . It consists of 4 parts; demographic data, knowledge, attitude, and practice.

Pilot study

A cross-sectional pilot study was performed prior conducting definitive study to ascertain that the questionnaire was clear and easy to be understood by the respondents. It was distributed to 30 family medicine residents in Al-Aqrabeya Postgraduate Centre of Family Medicine Studies, MOH in Eastern province. The results of pilot study were excluded from the final research results. Based on the result, modifications may be needed.

Study variables

- **Dependent variables:**

PHC physicians' level of knowledge towards O.A, PHC physicians' attitude towards O.A , PHC physicians' practice towards O.A.

- **Independent variables:**

Educational level, workplace, number of clinics per week, number of osteoarthritis patient seen per week, working period, and including different variables to assess knowledge, attitude, and perceived practice of O.A.

Ethical Consideration

Approval of the study were conducted from IRB committee in postgraduate family medicine residency program of MOH in Eastern Province. And approval from public health administration of MOH were requested prior to implementation of the study. A consent was taken before enrolment of any participant. Confidentiality of data were insured throughout all stages of study. Participation in this study is voluntary and participants have the right to withdrawn from the study at any time.

Data Management and Analysis Plan:

An electronic questionnaire is going to be used. The data were entered and analyzed by Statistical Package of Social Science SPSS, version 26. The descriptive statistics such as frequencies, percentages were calculated to summarize nominal and ordinal data, while mean and standard deviation or the range to describe numerical variables. Chi-squared test was used to evaluate the association between the predictor variable and the knowledge.
The total score of knowledge was categorized into two categories, those who answered less than 60% (less than 18 questions) of the questions correctly was considered to have poor knowledge, those who answered more than 60% (>18 questions) were considered to have a good level of knowledge. Logistic regression modeling was used to identify significant predictors of knowledge about osteoarthritis. Any P-value < 0.05 was considered as an indication for a statistically significant association or difference.

Results:

A total sample of 204 physician from primary healthcare centers, working in Eastern province,

were included in this study. More than a half of the respondents were females (59.3%) and the majority (98%) were Saudis.

About 58% aged 24 to 34 years old, whilst only 9.8% were older than 45 years old. The greatest proportion of the physicians were working in Qatif (44.1%), 36.3% were from Dammam region, while 19.6% were from Khobar region. Regarding specialty of the physicians, about 60% were either general practitioners or family medicine residents, whereas 29.4% and 10.8% were family medicine specialists or consultants, respectively. Only 18.1% responded to the question of working days and 12.7% were working 4-7 days per week. The majority of the physicians (61.3%) had been trained in the management of osteoarthritis (table 1).

Distribution of correct answers, towards knowledge of osteoarthritis, among the respondents is demonstrated in table 2. Proportion of correct answers of knowledge questions were widely variable as it ranges from 36.3%, in regards to the least affected joints, to 91.7% in regards to etiology of osteoarthritis. Moreover, questions about radiological features had a low rate of correct answers as only 41.2% and 49.5% correctly answered questions of associated radiological changes and using of radiography for confirmation of the diagnosis. Regarding general knowledge about osteoarthritis, the majority (55.9%) of the physicians had poor knowledge about osteoarthritis. This figure was calculated based on ≤6 correct answers.

Attitudes towards osteoarthritis among the physicians in primary healthcare centers are demonstrated in table 3. The greatest proportion of the respondents (96.1%) thought that osteoarthritis is common health problem in KSA, while the lowest proportion of the respondents (39.7%) agreed that previously received training was not adequate to manage patients with osteoarthritis. Furthermore, about 95% agreed that collaboration with other health professionals is very important tools for care of patients with osteoarthritis. Generally, negative attitudes were not common among the respondents but those who responded as neutral were quite common.

Tables 4-6 presented practices of the physicians regarding osteoarthritis care. The most common non-pharmacological practice was initiating weight always which is reported by 77%, followed by 65.7% reported that they were always offering patient education and self-management programs. However, the least reported non-pharmacological practice was Advise practicing Tai Chai which was mentioned by only 12.3% as always practiced.

The most common pharmacological practice was prescribing Acetaminophen which is prescribed always by 75.5%, followed by NSAIDS (63.7%). However, the least reported pharmacological practice was always prescription of opioid medications which was mentioned by only 5.9%. Only 19.6% said they always prescribe topical capsaicin to manage cases of osteoarthritis. Regarding referral, the most commonly practiced procedure is to refer patients to physical or occupational therapist which was reported by about a half of the respondents.

Table 7 shows the association between respondents' factors and knowledge about osteoarthritis using bivariate analysis. Significant determinants for knowledge were specialty and presence of previous training in osteoarthritis. However, association between knowledge and other factors such as gender, age groups, Moh sector, work load, and years of experience were not statistically significant. A significantly higher percentage of family Medicine Consultant (72.7%) had good knowledge when compared to other categories, particularly GPs and residents. Those who attended previous training about osteoarthritis had a good knowledge in comparison to those who had not (50.4% versus 34.2%). When the bivariate Spearman's correlation between knowledge score and years of experience was estimated, it was significant positive correlation with r=0.18.

Table 8 shows the findings of logistic regression where predictors selected by backwards step-wise selection. After exclusion of non-significant factors, only degree of specialty was significantly associated with knowledge about osteoarthritis. Family medicine residents were 2.3 more likely to had a good knowledge than general practitioners (p=0.046). Moreover, family medicine specialists and consultants were 3.6 and 8.4 more likely to had a good knowledge than general practitioners (p=0.002 and <0.001), respectively.

Discussion:

Osteoarthritis is one of the common chronic diseases that requires care in both primary and secondary healthcare settings [20]. Osteoarthritis commonly affects weight bearing joints such as knee, hips, hands and feet which may result in a substantial disability and loss of productivity. It exerts an increasing considerable burden on health system, particularly in the developed countries due to aging phenomenon [21]. In addition to the clinical burden of the disease, osteoarthritis had a negative psychological impact and decreased the quality of the life in comparison to healthy individuals or even with those who had other chronic diseases such as diabetes mellitus [22]. Physicians in primary healthcare centers (PHC) are usually the first healthcare providers for patients with osteoarthritis.

The minority of cases diagnosed by physicians in PHC referred for another specialist [23]. Hence, the greatest portion of healthcare provided for osteoarthritis patients occurs in PHC setting. Knowledge and attitudes of osteoarthritis care among physicians in PHC is essential for provision of good healthcare for the patients. Moreover, adherence to evidence-based guidelines in the management of cases is very important for achievement of improved outcomes [24]. Our study is the first study, in Eastern province of Saudi Arabia, that assessed knowledge, attitudes and practices in a representative sample of physicians who were working in PHC.

In the present study, the majority (55.9%) of the physicians had poor knowledge about osteoarthritis. In Al-jouf region of Saudi Arabia, a slightly lower percentage of correct answers (49.7%) about knowledge of osteoarthritis was found among physicians in PHC [18].

The least correctly answered that shoulder, in the present study, was the least affected joint with only 36.3% correct answers. Similar findings were reported among physicians in Al-jouf region where this question was the least correctly answered among all knowledge questions, with only 27.3% correct answers [18]. Differently, the majority of Iraqi physicians (73%) responded correctly to this question [19]. In this study, 91.7% answered correctly that osteoarthritis had multifactorial causes. A much lower percentage of correct answers (59.7%), regarding etiology question, was found in physicians working in Al-jouf region [18]. In Iraqi physicians, the majority 78.4% knew the correct answer of etiology question [19].

The findings revealed that questions about radiological features had a low rate of correct answers, as less than 50% correctly answered questions related to radiology. Similarly, among physicians in Aljouf region, questions about radiological features were answered correctly by less than 50% of physicians in PHC [18]. Inconsistent findings were reported in Iraqi physicians with more than 75% correct answers in regards to radiological features [19].

In a multinational interprofessional study, knowledge was the highest among physiotherapists and the lowest among nurses [25]. This could be attributed to the fact that physiotherapists are frequently dealing with osteoarthritis, particularly those who have some sort of disability.

Among the included physicians, the greatest proportion of the respondents (96.1%) thought that osteoarthritis is a common health problem in KSA. However, only 66.2% perceived that osteoarthritis in KSA has reached a level of public health significance and requires actions. A lower percentage of physicians in Al-jouf region (75.3%) thought that osteoarthritis is a common health problem in KSA and only 37.7% perceived that osteoarthritis requires action [18]. Among physicians in Iraq, a similar result was found where 91.7% agreed that osteoarthritis is a common health problem and 70.6% believed osteoarthritis requires public health interventions [19].

The lowest proportion of the included physicians (40%) agreed that previously received training was not adequate to manage patients with osteoarthritis. Additionally, about a half of the physicians referred patients with osteoarthritis to physical or occupational therapist. This attitude and practice indicate a low confidence in dealing with osteoarthritis patients among a considerable proportion of the physicians. Referral practice is common among PHC physicians in Saudi Arabia. In Al-jouf region, more than a half of the physicians refer patients with osteoarthritis, immediately or later, to a specialist [18]. Some studies in the literature found a high referral rate of osteoarthritis in other countries due to the multidisciplinary nature of the disease. Multiple health professionals may be involved in the management of osteoarthritis such as

physiotherapist, psychologist, surgeons and specialists in pain control [26]. Satisfaction about training on osteoarthritis was very low among physicians in Iraq since only 16.9% agreed that training was adequate [19]. Although physicians in Iraq scored generally high in knowledge questions, they are not satisfied with training which may be more related to practical aspects of the training. Furthermore, confidence in referral of patients with osteoarthritis was assessed among PHC physicians in Canada. A moderate level of confidence was found which was affected by lack of knowledge [14].

In the present study, about 95% agreed that collaboration with other health professionals is very important tools for care of patients with osteoarthritis. Similar result found in Al-jouf region, as 93.5% of the physicians agreed to the importance of the collaboration with other health professionals [18]. Moreover, 81.9% of physicians in Iraq agreed to the collaboration with other health professionals [19].

The most common non-pharmacological practice, in the present study, was initiating weight loss which is reported by 77%. In like manner, the most common non-pharmacological practice among physicians in Al-jouf region was initiating weight loss [18]. Furthermore, 85.8% of the physicians in Iraq reported that they initiate weight loss always as a non-pharmacological management of the osteoarthritis [19].

In the present study, 65.7% reported that they were offering patient education and self-management programs. A slightly higher percentage 71.4% of physicians in Al-jouf region reported the same non-pharmacological practice [18]. offering patient education and self-management programs was also a common practice among Iraqi physicians with 70.6% practice rate [19].

The most common pharmacological practice was prescribing Acetaminophen which is reported by 75.5%, followed by NSAIDS (63.7%). However, the least reported pharmacological practice was prescription of opioid analgesics which was mentioned by only 5.9%. The same ranking of the pharmacological practices was reported in Al-jouf region with prescription rate of 62.3%, 59.7% and 10.4% for Acetaminophen, NSAIDS, and opioid analgesics [18]. Consistency in pharmacological practices among different areas in Saudi Arabia could be attributed to the uniformity of guidelines issued by Ministry of Health. Similar prescription patterns were found even outside Saudi Arabia. In Iraq, NSAIDs are ranked as the most common prescribed medications for osteoarthritis followed by non-opioid then opioid analgesics [19]. In Turkey, anti-inflammatory and ant-rheumatoid medications accounts for 59.6% of the medications prescribed for osteoarthritis [27]. The majority of the physicians in USA prescribed an oral non-steroidal anti-inflammatory drug for patients with mild-to-moderate osteoarthritis [15].

Significant determinants for knowledge were specialty and presence of previous training in osteoarthritis. A significantly higher percentage of family Medicine Consultant (72.7%) had good knowledge when compared to other categories, particularly GPs and residents. This is in agreement with the effect of specialty of knowledge about osteoarthritis among physicians in Oman [19]. In another study, GPs who were working in Al-jouf region had a significantly better knowledge about pathological features than physicians with master or postgraduate diploma [18]. This could be explained by the fact that graduate physicians had better knowledge about basic medical science such as physiology and pathology, while physicians with postgraduate degree are more clinically oriented. However, the overall knowledge about osteoarthritis was found to be associated with increase in academic qualification among Iraqi physicians [19]. A significantly lower proportion of Iraqi general practitioners (65.9%) answered correctly more than a half of the knowledge questions in comparison to 79.3% and 86.2% of those with diploma or board qualification [19] .

Limitations of this study are mainly related to the validation of the assessment tool due to lack of a validated questionnaire in the literature. However, we used a questionnaire that previously used in two studies, one of them conducted in Saudi Arabia [18, 19]. The consistency in the results between our study and previous studies indicates that the questionnaire reliability is reasonable.

Conclusions:

The level of knowledge about osteoarthritis among PHC physicians was inadequate as the majority had poor level of knowledge. The findings revealed that questions about radiological features had a low rate of correct answers. Generally, negative attitudes

were not common among the respondents but those who responded as neutral were quite common. The most common non-pharmacological practice was initiating weight loss and the most common pharmacological practice was prescribing Acetaminophen. Significant determinants for knowledge were specialty and presence of previous training in osteoarthritis. Significant positive correlation was found between knowledge score and years of experience.

Table (1): Distribution of the demographic and occupational characteristics of the respondents

Characteristic	Frequency	Percent (%)
Gender		
Male	83	40.7
Female	121	59.3
Age		
24-34	119	58.3
35-44	65	31.9
45-54	16	7.8
≥55	4	2.0
Nationality		
Saudi	200	98.0
Non-Saudi	4	2.0
Degree of specialty		
General practitioner	50	24.5
Family physician resident	72	35.3
Family physician specialist	60	29.4
Family physician consultant	22	10.8
Sector of MoH		
Qatif	90	44.1
Dammam	74	36.3
Khobar	40	19.6
Number of shifts spend in the clinic per week		
4-7	26	12.7
8-10	11	5.4
Have you trained in the management of osteoarthritis?		
Yes	125	61.3
No	79	38.7

Table (2): Distribution of correct answers for knowledge about osteoarthritis among the respondents

Items	Frequency	Percent (%)
K1: Can diagnosis of osteoarthritis almost always be made by history and physical examination?		
Incorrect answer	45	22.1
Correct answer	159	77.9
K2: Primary and secondary osteoarthritis must be differentiated?		
Incorrect answer	60	29.4

Correct answer	144	70.6
K3: Are radiographic changes, generally, the first line of confirmation to the presence of osteoarthritis?		
Incorrect answer	103	50.5
Correct answer	101	49.5
K4: What is the most common cause of osteoarthritis?		
Incorrect answer	17	8.3
Correct answer	187	91.7
K5: What is the least affected joint in osteoarthritis?		
Incorrect answer	130	63.7
Correct answer	74	36.3
K6: Treatment should not be based solely on radiographic abnormalities?		
Incorrect answer	39	19.1
Correct answer	165	80.9
K7: Radiographic changes of osteoarthritis.		
Incorrect answer	120	58.8
Correct answer	84	41.2
K8: Selected key recommendations for the management of knee osteoarthritis.		
Incorrect answer	81	39.7
Correct answer	123	60.3
K9: Presentation of osteoarthritis.		
Incorrect answer	73	35.8
Correct answer	131	64.2
K10: Pathological features of osteoarthritis.		
Incorrect answer	116	56.9
Correct answer	88	43.1
Knowledge (good knowledge > 6 correct answers)		
Poor knowledge	114	55.9
Good knowledge	90	44.1

Table (3): Attitudes towards osteoarthritis among the physicians in primary healthcare centers

Items	**Agree**		**Neutral**		**Disagree**	
	F	**%**	**F**	**%**	**F**	**%**
Do you think osteoarthritis is common health problem in KSA?	196	96.1	7	3.4	1	0.5
Do you perceive osteoarthritis is an underestimated health problem in KSA	126	61.8	57	27.9	21	10.3
Do you perceive an osteoarthritis in KSA has reached a level of public health significance and requires actions?	135	66.2	56	27.5	13	6.4
Do you think an osteoarthritis causes patients excessive anxiety and concern?	163	79.9	35	17.2	6	2.9

Do you have an interest to involve the family in management of patients with osteoarthritis?	157	77.0	46	22.5	1	0.5
Did you perceive your training prepare you adequately to manage patients with osteoarthritis?	81	39.7	75	36.8	48	23.5
Do you believe that collaborations with other health professionals, especially trained nurses, dietitians, and physiotherapist is very important tools for care of patients with osteoarthritis?	185	90.7	18	8.8	1	0.5
Do you perceive the physicians in primary care centers are capable of achieving a major role in control of osteoarthritis?	153	75.0	42	20.6	9	4.4

Table (4): Practices of the physicians regarding non-pharmacological management of osteoarthritis

Item	**Frequency**	**Percent (%)**
In your clinic, do you practice the following management options when dealing with patients diagnosed with osteoarthritis:		
Offering patient education and self-management programs.		
Always	134	65.7
Occasionally	57	27.9
Not at all	13	6.4
Exercise prescription		
Always	122	59.8
Occasionally	61	29.9
Not at all	21	10.3
Initiating weight loss		
Always	157	77.0
Occasionally	42	20.6
Not at all	5	2.5
Advise practicing Tai Chai		
Always	25	12.3
Occasionally	44	21.6
Not at all	135	66.2
Advise use of lateral wedges insoles		
Always	32	15.7
Occasionally	54	26.5
Not at all	118	57.8

Table (5): Practices of the physicians regarding pharmacological management of osteoarthritis

Item	**Frequency**	**Percent (%)**
In your clinic, do you practice the following management options when dealing with patients diagnosed with osteoarthritis:		

Topical capsaicin		
Always	40	19.6
Occasionally	61	29.9
Not at all	103	50.5
Acetaminophen		
Always	154	75.5
Occasionally	42	20.6
Not at all	8	3.9
NSAIDs		
Always	130	63.7
Occasionally	69	33.8
Not at all	5	2.5
Vit D supplements		
Always	95	46.6
Occasionally	74	36.3
Not at all	35	17.2
Glucosamine and chondroitin		
Always	28	13.7
Occasionally	53	26.0
Not at all	123	60.3
Duloxetine in severe cases		
Always	17	8.3
Occasionally	42	20.6
Not at all	145	71.1
Tramadol (opioid medications)		
Always	12	5.9
Occasionally	30	14.7
Not at all	162	79.4

Table (6): Practices of the physicians regarding interventional management of osteoarthritis

Item	Frequency	Percent (%)
In your clinic, do you practice the following management options when dealing with patients diagnosed with osteoarthritis:		
Application or referral for knee taping		
Always	25	12.3
Occasionally	70	34.3
Not at all	109	53.4
Application or referral for intraarticular corticosteroid injection		
Always	41	20.1
Occasionally	102	50.0
Not at all	61	29.9

Referral for physical or occupational therapist		
Always	100	49.0
Occasionally	82	40.2
Not at all	22	10.8
Referral for joint replacement surgery in moderate or severe cases		
Always	76	37.3
Occasionally	103	50.5
Not at all	25	12.3

Table (7): Association between respondents' characteristics and knowledge about osteoarthritis

Characteristics	knowledge about osteoarthritis		Chi-square	P value
	Poor knowledge	Good knowledge		
Gender				
Male	44	39	0.47	0.494
	53.0%	47.0%		
Female	70	51		
	57.9%	42.1%		
Age				
24-34	70	49	5.6	0.133
	58.8%	41.2%		
35-44	35	30		
	53.8%	46.2%		
45-54	9	7		
	56.3%	43.8%		
≥55	0	4		
	0.0%	100.0%		
Are you trained in the management of osteoarthritis?				
Yes	62	63	5.2	0.023*
	49.6%	50.4%		
No	52	27		
	65.8%	34.2%		
Degree of specialty				
General practitioner	38	12	17.8	<0.001*
	76.0%	24.0%		
Family physician resident	42	30		
	58.3%	41.7%		
Family physician specialist	28	32		
	46.7%	53.3%		
Family physician consultant	6	16		
	27.3%	72.7%		
Years of experience				
One year or less	13	5	2.2	0.337
	72.2%	27.8%		
2-5 years	62	51		
	54.9%	45.1%		

> 5 years	39	34		
	53.4%	46.6%		
Sector				
Qatif	51	39	0.73	0.693
	56.7%	43.3%		
Dammam	43	31		
	58.1%	41.9%		
Khobar	20	20		
	50.0%	50.0%		

Table (8): Findings of logistic regression model for predictors of knowledge of osteoarthritis among the physicians in PHC centers

Predictors	Categories	Reference group	Lower limit (95% C.I)	Risk ratio	Upper limit (95% C.I)	p value
Degree of specialty	Family physician resident	General practitioner	1.016	**2.262**	5.036	0.046*
	Family physician specialist	General practitioner	1.588	**3.619**	8.247	0.002*
	Family physician consultant	General practitioner	2.698	**8.444**	26.426	<0.001*

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