

Knowledge, attitude, and practice of primary health care physicians in the management of osteoarthritis in Al-Jouf province, Saudi Arabia

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ABSTRACT

Background: Primary health care (PHC) physicians manage most patients with osteoarthritis (OA). In Saudi Arabia, very little is known about the management of OA by PHC physicians. This study aims to assess knowledge, attitude, and practice of PHC physicians in the management of OA. **Materials and Methods:** During October 2011, a cross-sectional survey was conducted on physicians who were practicing at the primary care centers in AlJouf province of Saudi Arabia. The physicians were asked to fill a valid questionnaire comprised of 35 closed ended questions, 6 items about their socio-demographic characters, and a very well modified 29 questions about their knowledge, attitude, and practice in the management of OA. Data was processed and analysed using SPSS (version 16) program, the level of significance was set as Chi-square test was applied for analysis of categorical data. **Results:** Response rate (77/90=85.6% yielded 77 questionnaires for analysis. The mean \pm SD age of respondents was 38 (12.3) years. Majority of the physicians surveyed, 58 (75.3%) considered OA as a common health problem in Saudi Arabia. Only 28 (36.4%) physicians surveyed will achieve continuity of care for OA, whereas more than half ($n=44$; 57.1%) will refer OA immediately or later to the specialists. The proportion of continuity of care for OA among physicians with diplomas was more than that found among general practitioner (57.1% vs 34.1%; $<.05$). Only 30 (39%) of physicians appeared to know the radiographic changes associated with OA. 21 (27.3%) of physicians manage an average of 5-10 patients with OA per week. Almost 3/4th of the physicians ($n=57$; 74%) prescribe NSAIDs, and only ($n=14$; 18.2%) prescribe acetaminophen for OA. Less than 1/5th of the physicians surveyed ($n=12$; 15.6%) prescribe herbal medicine for OA. Almost all physicians subscribe to regular training programs about OA. **Conclusions:** Appropriate attitude with lack of knowledge was found, and practice of our physicians with regards to this disorder appeared inappropriate. More education focusing on the disorder is recommended.

Key words: Attitude, continuity of care, knowledge, nonsteroidal anti-inflammatory drugs, osteoarthritis, practice, primary care

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INTRODUCTION

Osteoarthritis (OA) is the most prevalent form of arthritis worldwide.¹ Its prevalence in many countries exceeds the prevalence of other common medical conditions such as diabetes mellitus, hypertension, ischemic heart disease, and tuberculosis.^{2,3} The disorder is one of the most common

conditions encountered by both primary health-care (PHC) physicians and specialists.^{3,4} It is a degenerative disorder involving not just the articular cartilage but the entire joint organ, including the subchondral bone and synovium.^{5,6} Despite many years of research, the condition still has an uncertain aetiology.^{6,7} However, wide range of systemic, genetic, biomechanical, and environmental factors contribute to the development of this condition.⁸ Although OA is a disease of older age, signs of OA can appear at 40 years of age.⁹ The symptoms of OA can vary from minimal to severe pain and stiffness of joints, but overall, the disease is responsible for considerable chronic health problems, long term disability,^{9,10} and creates a significant economic burden to the health services.¹⁰⁻¹² In addition, it has a high indirect cost through loss productivity of individuals and their carers.^{11,12} Moreover, OA has a

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significant impact on quality of life as a result of decreased functioning, and patients often have psychological distress and decreased social functioning.^{13,14}

The diagnosis is largely clinical because radiographic findings do not always correlate with symptoms.^{15,16} Routine laboratory investigations may include erythrocyte sedimentation rate, rheumatic factor, and C-reactive protein for patients who have symptoms suggestive of inflammatory joint diseases.¹⁶ Treatment involves pain relief, prevention of further deterioration, and protection from the side effects of medications.^{16,17} PHC physicians are often the first and sometimes the only health-care providers for OA.^{3,18,19} Of all the cases treated by PHC physicians, only minority of OA may need referral.¹⁹⁻²¹ Therefore, it is essential for them to be familiar with the various treatment options to optimize care. Many studies in different countries have evaluated OA either in the hospitals or in PHC-settings,^{3,18-20,22} there have been a very few attempts to identify a specific impact of this condition and its symptoms among physicians practicing in Saudi Arabia. Therefore, this study aimed to assess knowledge, attitude, and practice of PHC physicians in the management of OA.

MATERIALS AND METHODS

During October 2011 “a cross-sectional descriptive study was carried out among physicians practicing in PHC centers in alJouf province of Saudi Arabia (population 3×10^5)”, the province contains many towns like Domat alJanddal, Sowair, and Sakaka. There were around 150 physicians practicing in a total 30 PHC centers distributed equally in the province “after taking permission from the health-care authorities”, 90 newly designed self-administered anonymous confidential questionnaires with explanatory letters were sent to physicians practicing in 17 centers. The study protocol was discussed and approved by the research and ethical committee in College of Medicine of AlJouf University. The well-structured questionnaire comprised of 35 “closed-ended questions”. The first part covered demographic characteristics of physicians, and the second part of the questionnaire contained 29 closed-ended questions with variable items 2-20 focusing on physicians’ knowledge, attitude, and the most importantly, clinical points in the management of this condition.

On October 2011, the questionnaire was pre-tested during a pilot study that was conducted in 2 PHC inside Sakaka city. This was done to ensure clarity, relevance, and determine the amount of time needed to answer all items. The results of the pre-test were evaluated critically and some modifications were accordingly made. The average time needed to fill all items in the questionnaire was about 25 min. Results of the pilot study were not included in the final analysis.

Statistical analysis

Data were analysed using SPSS (version 16) program, was

considered significant, Chi-square test was applied for analysis of categorical data. Mean \pm SD and proportions were used to describe continuous and dichotomous data respectively.

RESULTS

Out of the 90 questionnaires distributed, 77 (85.6% response rate) were filled and returned back; these responses form the basis for analysis. The general characteristics of physicians surveyed are presented in Table 1. The majority of physicians in the study were males ($n=54$; 70.1%). The male to female ratio was found to be 2.3:1, with mean \pm SD age was 38.0 (12.3) years, range 27-62 years. Physicians with ≥ 10 years of practice constituted more than half of the sample ($n=40$; 52%). Less than half of the physicians surveyed had post-graduate degrees ($n=33$; 42.9%), and only ($n=14$; 18.2%) were Saudi nationals. Majority of physicians in this study ($n=58$; 75.3%) considered OA as a common health problem in Saudi Arabia. More than half of the physicians surveyed ($n=39$; 50.6%) believed that the condition is an underestimated health problem in Saudi Arabia.

When asked about what would they do if a patient with OA presents to their office, we found only ($n=28$; 36.4%) of the physicians surveyed responding that they will achieve

Table 1: Distribution of primary health care physicians according to their general characteristics

Characteristics	Primary health care physicians (N=77)	
	No	%
Gender		
Male	54	70.1
Female	23	29.9
Age (years)		
<30	7	9.1
30-40	40	51.9
41-50	25	32.5
51-60	2	2.6
>60	3	3.9
Post-graduate qualifications		
MBBS (General physicians)	44	57.1
Diploma	14	18.2
Master degree	19	24.7
Years in practice		
≤ 5	9	11.7
>5-10	28	36.4
>10-20	29	37.7
>20-30	8	10.4
>30	3	3.9
Nationalities		
Saudi	14	18.2
Egyptians	30	39.0
Sudanese	13	16.9
Other nationalities	20	25.9

continuity of care for OA; whereas more than half of them will refer OA immediately or later to the specialists. Three male, and two female physicians (6.5%) were not sure what they will do for OA [Figure 1]. The proportion of continuity of care for OA among physicians with diplomas was more than that found among general practitioners (57.1% vs. 34.1% $P<0.05$).

Table 2 shows physicians' correct answer rates on knowledge about OA distributed by their qualifications. Overall, only 49.7% of the answers were correct. As such, in each area, the mean proportion of the correct answers varied. The questions that were answered correctly by less than 50% of the PHC physicians pertained to the radiographic OA changes, commonly affected and often spared joints in OA, clinical and pathological features of OA, key recommendations for management of knee OA, and inflammatory type of OA that affects the hands. The questions that were answered correctly by more than 50% of the PHC physicians pertained to the cause of primary OA, and the differentiation of the primary and secondary OA. More than 50% of the physicians surveyed were aware of the fact that diagnosis of OA can almost always be made by history and physical examination. Also, more than 50% of the physicians surveyed were aware that the radiographs are generally the first-line confirmation of OA. On the basis of qualification, physicians with graduate degree have better knowledge about the pathological features of OA than physicians having diplomas and master's degree $P<0.05$ [Table 2].

A total of 46 (59.7%) physicians surveyed knew that the primary OA is multifactorial, ($n=10$; 13%) identified metabolic cause of the primary OA, whereas 7 (9.1%) and 5 (6.5%) identified autoimmunity or infection and trauma respectively as the cause of OA.

In this study, we found more than half of the physicians surveyed ($n=44$; 57.1%) were comfortable in dealing with OA; male physicians more comfortable than females in dealing with OA (61.1% vs 47.8% $P<0.05$). Also, we

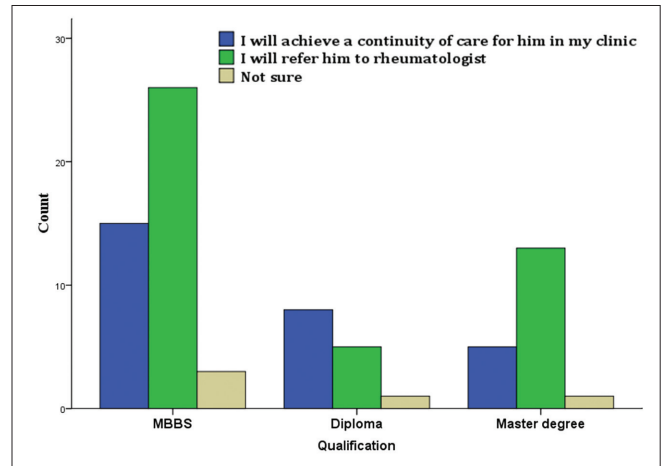


Figure 1: If osteoarthritis (OA) presents to the offices of the primary health care physicians, (the proportions of continuity of care for OA distributed by the physicians qualifications)

Table 2: Physicians' knowledge about osteoarthritis distributed by their qualifications (correct answer rates)

Question item: (Correct answer)	Correct; $n=77$ (%)	Physicians' qualifications			χ^2	P value
		MBBS ($n=44$)	Diploma ($n=14$)	Master degree ($n=19$)		
The cause of primary osteoarthritis is: (Multifactorial in origin)	46 (59.7)	26 (59.1)	8 (57.1)	12 (63.2)	3.221	0.502
Diagnosis of OA can almost always be made by history and physical examination: (True)	55 (71.4)	30 (68.2)	10 (71.4)	15 (79)	4.44	0.756
All of the following joints are commonly affected in osteoarthritis except: (Shoulders)	21 (27.3)	12 (27.3)	4 (28.6)	5 (26.3)	8.171	0.536
All of the following joints are often spared in osteoarthritis except: (Proximal interphalangeal [pip] joints)	24 (31.2)	15 (34.1)	5 (35.7)	4/19 (21.1)	5.068	0.368
Radiographs; OA changes include all of the following changes except: (Symmetric joint space narrowing)	30 (39.0)	20 (45.5)	5 (35.7)	5 (26.3)	9.478	0.788
Selected key recommendations for the management of knee osteoarthritis include all of the followings except: (Pharmacologic therapy is the cornerstone of OA management)	33 (42.9)	17 (38.6)	8 (57.1)	8 (42.1)	8.692	0.853
An osteoarthritis variant affecting primarily the hands runs in families and is inflammatory: (True)	22 (28.6)	13 (29.6)	4 (28.6)	5 (26.3)	8.829	0.405
Radiographs are generally the first-line confirmation of the presence of OA: (True)	49 (63.6)	27 (61.4)	10 (71.4)	12 (63.2)	4.783	0.930
Treatment should not be based solely on radiographic abnormalities: (True)	57 (74.0)	30 (68.2)	11 (78.6)	16 (84.2)	4.097	0.276
Primary and secondary osteoarthritis must be differentiated: (True)	57 (74.0)	31 (70.5)	9 (64.2)	17 (89.5)	4.305	0.159
Patients with osteoarthritis usually presents with all, except: (Joint moderate hotness)	30 (39.0)	20 (45.5)	5 (35.7)	5 (26.3)	2.752	0.100
Pathological features of OA include all of the followings except: (Increase the viscosity of the synovial fluid)	35 (45.5)	22 (50)	6 (42.9)	7 (36.8)	15.857	0.044

OA – Osteoarthritis

found that the proportion of male physicians who feel very confident during education of the patients with OA was more than that found among female physicians (54.6% vs 44.4% $P<0.05$).

When asked about drugs; nonsteroidal anti-inflammatory drugs (NSAIDs) were ranked first among 57 (74%) physicians surveyed, followed by acetaminophen (18.2%), whereas only 5 (6.5%) physicians prescribed topical analgesics for OA [Figure 2]. It was found that 12 (15.6%) of the physicians surveyed, prescribed herbal medicine for OA, being highest among those who practiced for 10-20 years $P<0.05$ (data not shown).

Physicians' responses on different aspects of attitudes toward OA are shown in Table 3. The vast majority of the physicians surveyed ($n=72$; 93.5) suggested that collaboration with other health professionals is very important tool to care OA; also ($n=66$; 85.7%) of them suggested more attention should be offered to OA. More than eighty percent of our sample considered PHC physician could be a useful person to support OA, and more than 3/4th of the same sample had interest to involve the family during care and education of OA.

Regarding their practices during the previous week; more than 1/4th of the physicians surveyed ($n=21$; 27.3%) managed 5-10 OA cases, ($n=23$; 29.9%) diagnosed 2-5 OA, ($n=18$; 23.4%) ordered 2-5 X-rays for OA, ($n=25$;

32.5%) requested 2-5 laboratory investigations for OA, and ($n=28$; 36.4%) of the same sample referred 2-5 OA patients to the specialists (data not shown).

Physicians' practices toward OA are presented in Table 4. More than 3/4th of the physicians surveyed ($n=55$; 71.4%) educate the patients about their condition. Majority of the physicians ($n=61$; 79.2%) used most of the time to discuss weight loss with OA patients. Less than half of the physicians surveyed ($n=34$; 44.2%) occasionally contact OA through telephone for social support. We found 48 (63%) physicians

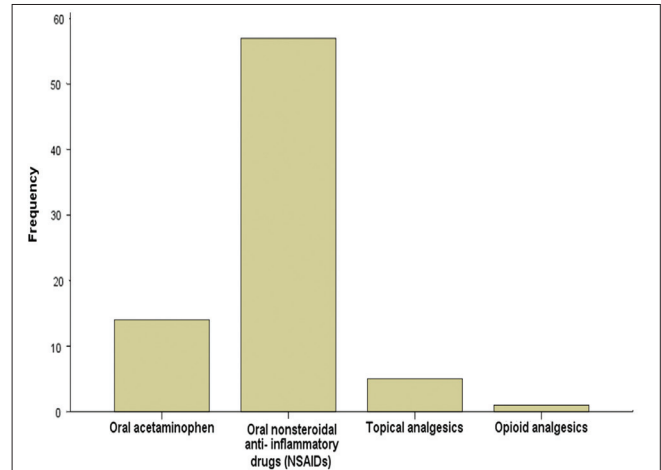


Figure 2: The most common drug/s that you prescribe to osteoarthritis

Table 3: Primary care physicians' attitudes toward osteoarthritis

Attitudinal items	Agree; N (%)	Disagree; N (%)	Not sure; N (%)
Do you think osteoarthritis is a common health problem in Saudi Arabia?	58 (75.3)	10 (13.0)	8 (10.4)
Do you perceive osteoarthritis is an underestimated health problem in Saudi Arabia?	39 (50.6)	12 (15.5)	24 (31.2)
Do you perceive an osteoarthritis in Saudi Arabia has reached a level of public health significance and requires actions?	29 (37.7)	24 (31.2)	22 (28.6)
Do you think an osteoarthritis is a part of growing old?	52 (67.5)	16 (20.8)	7 (9.1)
More attention should be offered to osteoarthritis patients	66 (85.7)	1 (1.3)	7 (9.1)
Do you think an osteoarthritis causes patients excessive anxiety and concern?	69 (89.6)	3 (3.9)	4 (5.2)
Would you prescribe medications for asymptomatic patients, but x-ray positive osteoarthritis findings?	31 (40.3)	38 (49.4)	7 (9.1)
Do you have an interest to involve the family in management of patient with osteoarthritis?	60 (77.9)	8 (10.4)	7 (9.1)
Did you perceive your training prepare you adequately to manage patients with osteoarthritis?	34 (44.2)	29 (37.7)	12 (15.6)
The primary health care physician could be a useful person to support osteoarthritis patients	62 (80.5)	8 (10.4)	5 (6.5)
Dealing with osteoarthritis patients is heavy going	32 (41.6)	28 (36.4)	15 (19.5)
Do you perceive the statement that "an osteoarthritis is not amenable to change"?	23 (29.9)	44 (57.1)	8 (10.4)
During counseling of patients with osteoarthritis; education for weight loss should be offered only to adults who are obese (BMI>30 kg/m ²)	43 (55.8)	27 (35.1)	5 (6.5)
Collaborations with other health professionals, especially trained nurses, dietitians, and physiotherapists is very important tools for care of patients with osteoarthritis	72 (93.5)	2 (2.6)	1 (1.3)
Do you perceive of screening programs for osteoarthritis is favourable to improve care of osteoarthritis patients?	54 (70.1)	11 (14.3)	10 (13.0)
Do you feel that Oral nonopioid analgesics (e.g., acetaminophen) usually produce a satisfactory results in the treatment of osteoarthritis patients in general practice?	39 (50.6)	26 (33.8)	10 (13.0)
Do you perceive the physicians in primary care centers are capable of achieving a major role in control of osteoarthritis?	46 (59.7)	18 (23.4)	11 (14.3)
Do you recommend to establish "Saudi guidelines to care and manage osteoarthritis?"	63 (81.8)	3 (3.9)	8 (10.4)
Do you perceive that nondrug therapy would be more beneficial than drug therapy for most osteoarthritis patients?	45 (58.4)	22 (28.6)	8 (10.4)

BMI – Body mass index

Table 4: Practices of primary health care physicians toward osteoarthritis; options in the management of patients with osteoarthritis includes the following as needed

In your clinic; options in care of patients with osteoarthritis, includes the following as needed:†	Most of the time N (%)	Occasionally N (%)	Not at all N (%)
Patient education and self-management programs	55 (71.4)	18 (23.4)	3 (3.9)
Social support through telephone contact	12 (15.6)	34 (44.2)	30 (39.5)
Physical and occupational therapy	36 (46.8)	26 (33.8)	14 (18.2)
Range of motion and strengthening exercises	31 (40.3)	24 (31.2)	21 (27.6)
Aerobic conditioning	18 (23.4)	33 (42.9)	25 (32.9)
Weight loss	61 (79.2)	7 (9.1)	8 (10.4)
Assistive devices for ambulation and activities of daily living	24 (31.2)	27 (35.1)	25 (32.9)
Oral nonopioid analgesics (e.g., acetaminophen)	48 (62.3)	21 (27.3)	7 (9.1)
Topical analgesics (e.g., capsaicin cream)	33 (42.9)	28 (36.4)	15 (19.5)
Nonsteroidal anti-inflammatory drugs	46 (59.7)	24 (31.2)	6 (7.8)
Intra-articular steroid injections	4 (5.2)	23 (29.9)	49 (63.6)
Opioid analgesics	8 (10.4)	17 (22.1)	51 (66.2)

†One physician did not respond to all items

never used steroid for intra-articular injections or opioid analgesics for OA. There were no statistically significant differences being noted between practice variables and any general characteristics of our sample, ($P>0.05$). The proportion of the general practitioners who educate their patient was always more than that found among the physicians with higher degrees (50% vs 15% $P<0.05$).

When asked about the main sources of their knowledge about OA; textbooks were ranked first among 59 (76.6%) physicians, followed by internet (11.7%), whereas medical journals were the main sources among 6.5% physicians.

DISCUSSION

PHC physicians play an important role with the care and education of people with OA.³ They can augment the knowledge and motivate OA to acquire a healthy life style, which would further lead to a good pain control and improve disability.^{3,4} But, the actual management of OA in the primary care, to date, has received little attention in the scientific literature and little is known on the management of OA by PHC physicians in the community.^{3,4} Our study is the first comprehensive PHC-setting-based study conducted in Saudi Arabia (AlJouf province) to obtain data on knowledge, attitude, and practice of PHC physicians in the management of OA. It is believed that our sample was representative of all PHC physicians practicing in Ijouf province, and accounted for more than half of the total. However, the present study proves that PHC physicians were aware of the magnitude of OA in Saudi Arabia, and more than 3/4th of them considered the condition as a common health problem in the country. This finding is encouraging, because the disorder is one of the most common disorders presented to the PHC physicians in people the over 50 years of age in the Kingdom of Saudi Arabia.⁶ In addition, we found more than half of the physicians surveyed believed that OA is underestimated health problem in Saudi Arabia. This finding is in

concordance with an international reports about the disorder, which revealed that OA is an under-recognized public health problem in many parts of the world.^{8,9}

The path for OA diagnosis is through PHC physician that can be achieved with a careful history, physical examination, and radiographs may be required to confirm the diagnosis.^{10,11,13} It was interesting to find more than 2/3rd of the investigated physicians knew that the diagnosis of OA can almost always be made by history and physical examination.¹³ But, even then we found that only 27.3% of them knew the commonly affected joints in OA [Table 2].^{10,13-15,21-24} Moreover, it was found 61% of the physicians surveyed considered OA usually presents with moderate joint hotness. However, misconceptions about the clinical features of OA may hinder with the patient care and education, and highlights the confusion that persists among PHC physicians during approach to OA, because a markedly hot joint suggests a septic or inflammatory arthritis rather than OA.^{13,15,16}

It was found only 36.4% physicians out of the total will achieve continuity of care for OA; and more than half of the total will refer OA immediately or later to the specialists [Figure 1]. This could be because the key factors associated with successful care and education of OA are the physician's knowledge, interest level, and logistical ability to provide state-of-the-art care to the disorder which needs a multifactorial approach and logic referral if needed.¹⁷⁻²¹ In addition, the high rates of referral for OA may be due to cultural and community issues in the region of AlJouf, Saudi Arabia. Also, the condition is challenge, and difficult to manage with major social and psychological components associated with it.^{21-23,25}

Clearly, the overall knowledge toward OA among the PHC physicians was inadequate; but this does not necessarily reflect the picture of PHC physicians practicing in other parts of Saudi Arabia. It was found only 39% physicians appeared to know the radiographic OA changes.^{15,16,21,23} This

highlights lack of knowledge and lack of practice that persist among PHC physicians in this aspect, because radiography is generally the first-line to confirm the presence of OA.^{13,15,23} The cause of primary OA is multifactorial,^{15,22} it was found 59.7% physicians knew that. Only 28.6% physicians knew that an OA variant affecting primarily the hands runs in families and it is inflammatory. Also, less than half of the physicians studied knew the pathological features of OA.¹⁵ All these could be explained by the facts: (1) text books were the main source of knowledge about OA among the majority, and most of the text books are not updated. (2) more than half of the physicians surveyed received their training which did not prepare them to adequately manage OA. (3) Lack of Saudi guidelines to care for and educate about OA. All these findings may contribute to lack of knowledge among physicians practicing in our community in the management of OA.

The care of OA should involve a multidisciplinary approach with the aim to relieve symptoms and improve joint function.^{13,24,25} In the present study, 93.5% physicians surveyed suggested that collaborations with other health professionals, especially trained nurses, dietitians, and physiotherapists are very important tools to care for OA. But unfortunately, such a collection of trained manpower is rarely available at any one center in the developing world.² Also, more than 3/4th of the PHC physicians had an interest to involve the family during education and management of OA patient. However, educational skills about the disorder could optimize patient care and management and increase the doctor-patient relationship.^{3,13,24}

Relieving pain in the affected joints is one of the primary objectives in the management of OA. There is an array of modalities available for the treatment of OA pain.²⁵ Therefore, PHC physicians should be aware of proven and unproven medications for OA, because any misconception about OA drugs may interfere with patient care and safety.^{25,26} In the present study, it is found that almost 3/4th of physicians surveyed prescribe oral NSAIDs, and paracetamol constituted less than 1/5th of all prescriptions [Figure 2]. This finding is in concordance with the results of a previous study conducted in Turkey in 2002 to assess the drug preferences of PHC physicians for OA.²⁷ The referred study revealed that anti-inflammatory and anti-rheumatic products were the leading group which accounts for 59.6% of the prescribed drugs for OA among the investigated physicians.²⁷ In the present study, it is clearly evident that majority of physicians surveyed were less likely to consider minor surgical procedures such as intra-articular injections.

With the low levels of satisfaction, both with the treatment they receive and their overall care, it is not surprising that OA is the leading medical condition for which persons use alternative therapies. It is found that 15.6% of the physicians surveyed prescribe herbal medicine for OA.

This may be because of several herbal therapies can be recommended as part of an evidence-based approach to the treatment of OA.²⁸

In our study, we found that more than 4/5th of PHC physicians were of the view that "Saudi guidelines about care and management of OA" must be enacted, and almost all recommended to hold training programs for physicians, and nurses about OA.

CONCLUSION

Inappropriate practices and lack of knowledge about the management of OA appear pervasive among the majority of PHC physicians in Al-Jouf province of Saudi Arabia. This may be due to lack of structured training programs concerning OA. Well-planned Continuing Medical Education (CME) programs in the form of seminars and group discussion with rheumatologist are recommended for PHC physicians. Further studies are also required to identify other factors underlining the less than optimal management of OA in PHC setting.

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