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Patient Knowledge of Conservative Management of Symptomatic Knee Osteoarthritis at Orthopedic Clinic, in SFHP, Riyadh (A Primary Health Care Prospective)

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Abstract

Background: *Knee osteoarthritis is a joint disease that is either symptomatic or asymptomatic. Changes in structures in and around knee joint occurs in this condition. This disease is more dominant in females than in males, the prevalence also is increasing with increased age and presence of obesity. Knee osteoarthritis is managed by non- operative treatment options such as exercise and analgesics in primary care.*

Aim: *To assess patient knowledge about non operative treatment of symptomatic knee osteoarthritis provided in family medicine department.*

Method: *This study is cross sectional descriptive study, it was conducted between the periods from 1st May 2017 to 1stDecember 2017 on symptomatic knee OA patients who were visiting the orthopedic clinic at family medicine department in Security Forces Hospital. The study was performed using questionnaire. All Statistical analysis was perform using SAS version 9.2 (SAS Institute, Inc, Cary, NC).*

Results: *43.6% of patients knew about conservative management for knee OA, weight reduction was the most common strategy known by patients (95.1%), followed by physiotherapy (77%), and then pain killer (45.9%). 94.3% of patients used pain killer, 51.4% used weight reduction, 75.7% used physiotherapy and 25% used intra-articular injections.*

Conclusion: *There was low knowledge of patients about knee OA conservative management, several demographics and co-morbidities were associated with the level of knowledge. Patients had negative attitude to family physicians regarding their treatment.*

Keywords: *Knee OA management, Knowledge, Knee OA patients, Family physicians.*

Introduction

Osteoarthritis (OA) is a chronic common condition which causes functional limitations, fatigue, pain and increased health care utilization [1]. Knee OA is a joint disease form that is prevalent in both symptomatic and radio graphically evident[2]. It involves changes in structures in and around knee joint, the dominant

changes including the formation of osteophytes and loss of cartilage[3]. Also, articular and periarticular soft tissue changes occur in Knee OA such as joint effusions[4] and synovial hyperplasia [5]. Knee OA is less prevalent in males (6.8%) than in females (11.4%)[6]. The prevalence of OA is increasing as a result of population aging and increased obesity[7]. The definite cause of OA is unknown, however there are risk factors for OA including systemic and local biochemical factors. The systemic factors including gender, overweight, age and genetics, whereas local biochemical factors involving muscle weakness, joint injury and malalignment, moreover the biochemical cascade can be activated by mechanical load[8]. Clinical Knee OA is managed by non pharmacological options such as exercise and analgesics in primary care[9,10]. Exercise was found to improve walking speed, function, strength and self-efficacy, also it reduce the risk of other chronic conditions, pain and progression of the disease[11-13].

Literature review

The management of OA aims to control pain and reduce functional limitations, the management involves pharmacologic and non pharmacologic modalities[2]. Conservative non pharmacological treatment are the primary option for OA patients [14,15], as the clinical guidelines for knee OA recommended it as the first line of management [16]. Non pharmacological therapy includes education of patient about the disease nature, the benefits and risks of different treatment options[17]. Treatment strategy also involves using of heat and cold as safe and low cost option which can be used either solely or in combination with other treatments for Knee OA[18]. Therapeutic exercises have shown effectiveness for Knee OA[19]. Exercises are prescribed for Knee OA patients as they slow and minimize the pathological process of OA by modifying possible risk factors of disease progression, reduce the impairment caused by OA, reduce pain[2]. The pharmacological systemic treatment of knee OA involves using of NSAIDs, opoids, oral paracetamol and intra-articular corticosteroids injections[20]. Insufficient knowledge can act as a potential barrier for OA care and self-management[21]. Alami et al, conducted qualitative study based on semi-structured interviews of a stratified sample of 81 patients in France and found that patients of knee OA had negative perception of drugs which resulted in low compliance with treatment[22]. OA patients should be empowered to manage the disease and its symptoms[23]. Patients need sufficient knowledge to understand the nature of the disease and the treatment options to make their decisions and cope with their condition[24]. Little is known about the knowledge of patients regarding non operative management of symptomatic knee OA, so we conducted the current study.

Patients & Methods

Subjects and study design

This study is cross sectional descriptive study which was conducted between the period from 1st May 2017 to 1st December 2017 on symptomatic knee OA patients who were visiting the orthopedic clinic at family medicine department in Security Forces Hospital, Riyadh, Saudi Arabia.

The inclusion criteria were:

- Saudi patients
- age 35 years and older
- Patient referred from family medicine to a specialized orthopedic clinic.

The exclusion criteria were:

- non Saudi patients
- asymptomatic knee OA
- patients booked for surgical treatment

Sample Size and Technique

Using expected prevalence of Knee Osteoarthritis is 24.88% as 50% as given in literature for calculating our sample size. Under the simple random sampling with margin of error at 5% and the confidence level at 95%, we needed a sample of size 246. Allowing for 15% non-response rate the final required sample size is 283.

We used the following formula

$n=z2(1-p)d2$

Where n=sample size, z=z statistic for the level of confidence, P= expected prevalence and d= allowable error. This formula assumes that "P" and "d" are decimal values.

Statistical Analysis

Numbers and percentages were used to summarize categorical/qualitative. Where numeric/ quantitative data were summarized by means and standard deviations for normal data and medians and inter quartile ranges for non-normal data. Comparison between groups for categorical variables was done using chi-square or Fisher's exact test. We used t-test or Mann–Whitney U test for comparison between groups for quantitative variables for two groups and analysis of variance (ANOVA) or Kruskal-Wallis H test for three or more groups. To identify risk factor or to estimate the adjusted association we used logistic regression models. All Statistical analysis was perform using SAS version 9.2 (SAS Institute, Inc, Cary, NC).

Results

The present study included 283 knee OA patients, the demographics of patients were as in table (1) ; the patients'age range was 42-72 years old with a mean± SD of 57.7±8 years. Females were more dominant than males 75% and 25% respectively. 40% of patients had secondary education, 32.1% had high school education, 18.6% and 9.3% were illiterate and had primary education respectively. There were 44.3% of patients housewives, 39.3% were retired and 16.4% only were working. The majority 80.7% were married, while 15% and 4.3% were widow and divorced respectively. The weight of patients ranged from 86-115 Kg with a mean of 89.3±11.5 Kg, while the height range was 145-181 Cm with a mean of 159.4± 9.3 Cm. The range BMI of participants was 23.6-45.3 with a mean of 35.3 ±4.6. There were 38.6% of patients reported that they had family history of knee OA, while 53.5% didn't know that and 7.9% didn't have family history. Most of patients 57.8% reported having symptoms for3-5 years, whereas 28.6% reported less than 3 years and 13.6% reported more than 5 years. Patients were investigated for co-morbidities they were suffering, 67.9% of patients reported having chronic diseases, 47.1% and 32.1% reported suffering hypertension and dyslipidemia respectively, there were 20% suffering diabetes mellitus, 12.1% suffering cardiovascular disease and 4.3% only had obesity. Table1 &figures1-6 summarize the demographics and clinical characteristics of patients.

Table1: Demographics and clinical characteristics of patients

Demographics and clinical characteristics	%
Age	
Range	42-72
Mean±SD	57.7±8
Gender	
Male	25
Female	75
Educational level	
Illiterate	18.6
Primary school	9.3
Secondary school	40
High school	32.1
Occupation	
Employed	16.4
Retired	39.3
Housewives	44.3
Marital status	
Married	80.7
Divorced	4.3
Widow	15
Weight	
Range	68-115
Mean ± SD	89.3±11.5
Height	
Range	145-181
Mean ± SD	159.4±9.3
BMI	
Range	23.6-45.3
Mean ± SD	35.3±4.6
Family history of knee Osteoarthritis	
Yes	38.6
No	7.9
I don't know	53.5
How long have you had symptoms of osteoarthritis	
<3 years	28.6
3-5 years	57.8
>5 years	13.6
Co-morbidities	
Chronic diseases	67.9
Hypertension	47.1
Dyslipidemia	32.1
Diabetes mellitus	20
Cardio vascular disease	12.1
Obesity	4.3

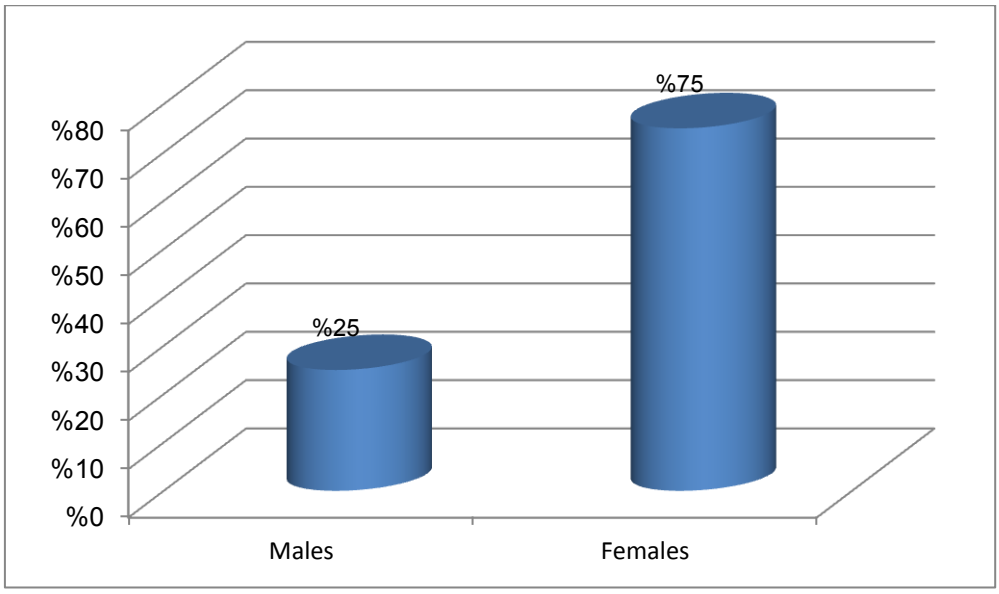

Fig 1: Gender distribution

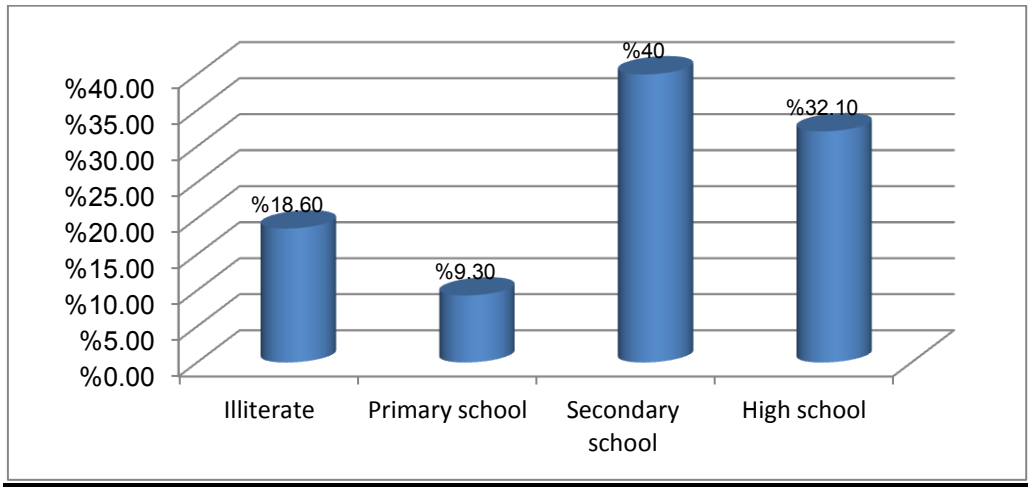

Fig 2: Educational level of patients

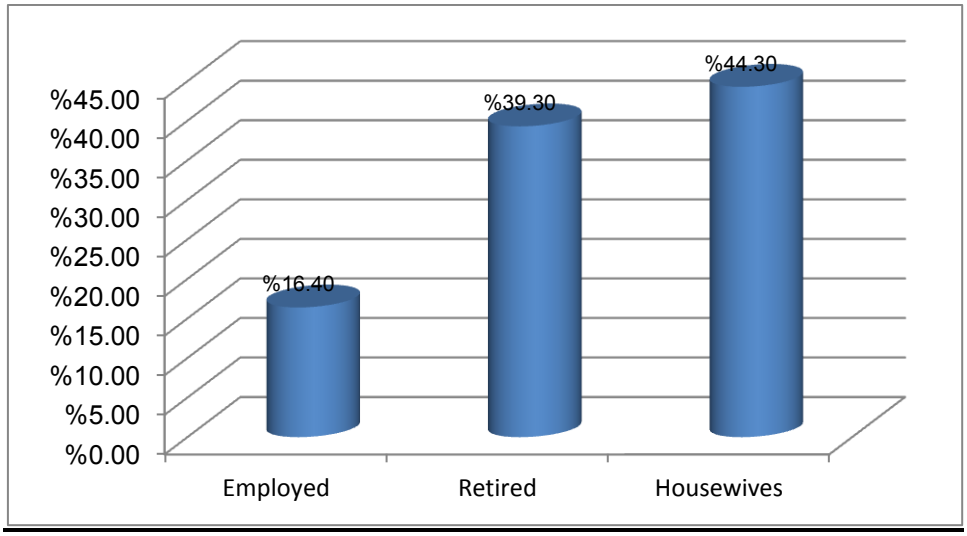

Fig 3: Occupation of patients

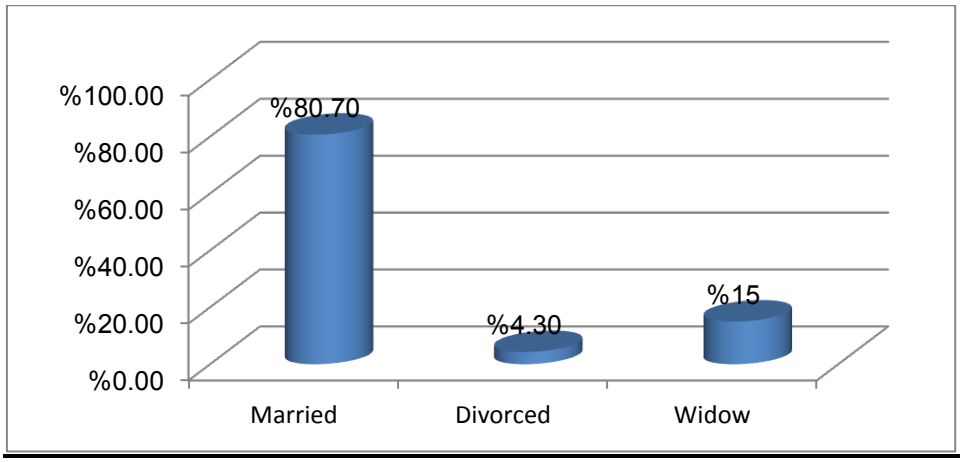

Fig 4: Marital status of patients

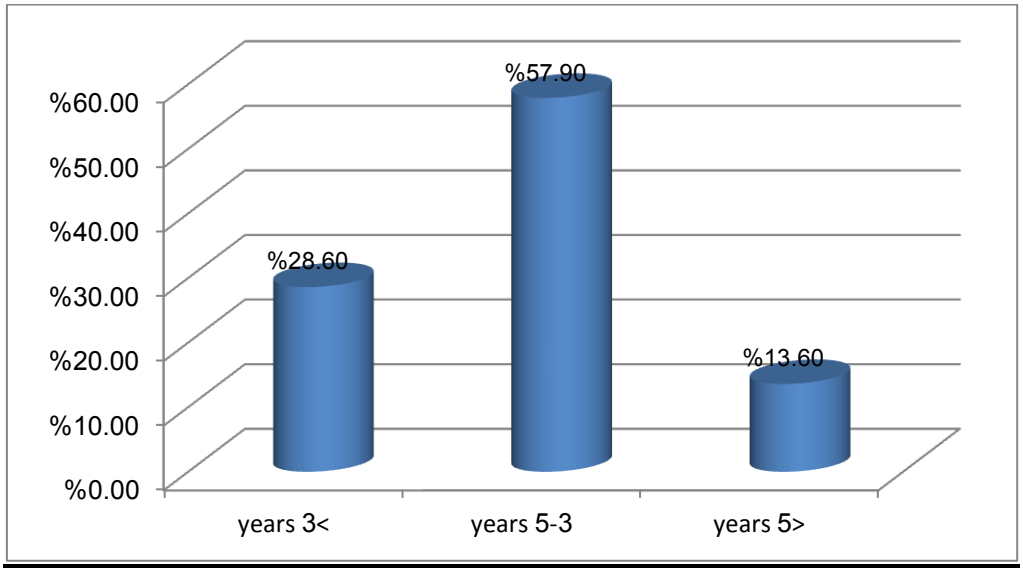

Fig 5: Duration of symptoms of OA

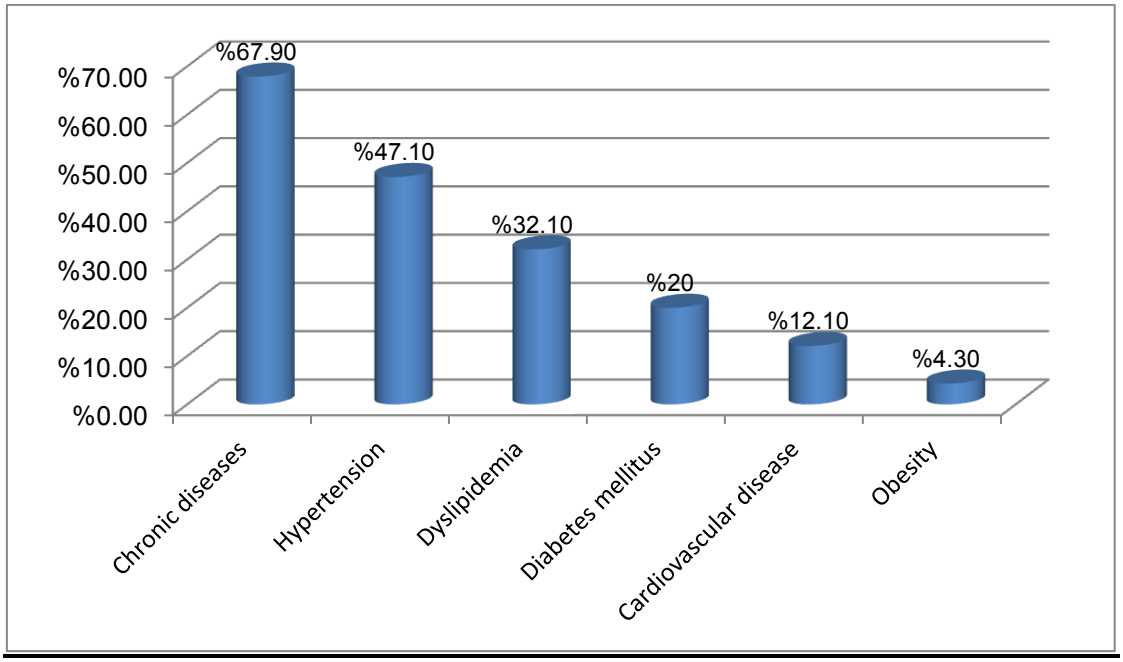

Fig 6: Co-morbidities of patients

The knowledge regarding conservative management for knee OA involved knowledge about presence of conservative management and type of it. Almost forty four percent (43.6%) of patients reported presence of conservative management for knee OA, (figure7). The knowledge regarding type of conservative treatment is shown in figure 8, knowledge about weight reduction was the most among patients (95.1%), followed by knowledge about physiotherapy (77%) and the pain killer (45.9%), there was no one knew about intra-articular injection (0%).

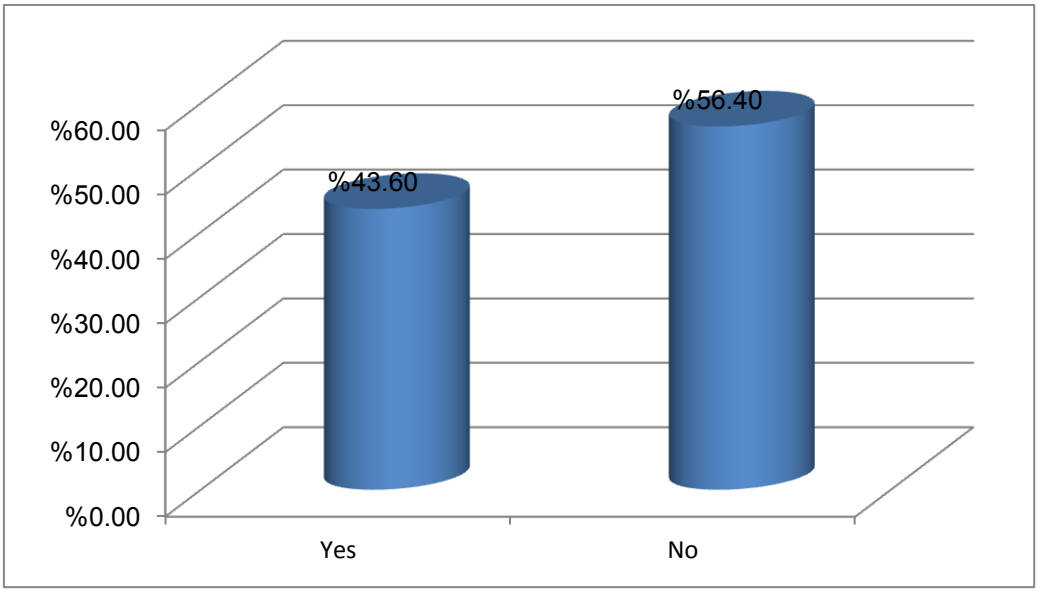

Fig 7: knowledge of patients about presence of conservative management for knee OA

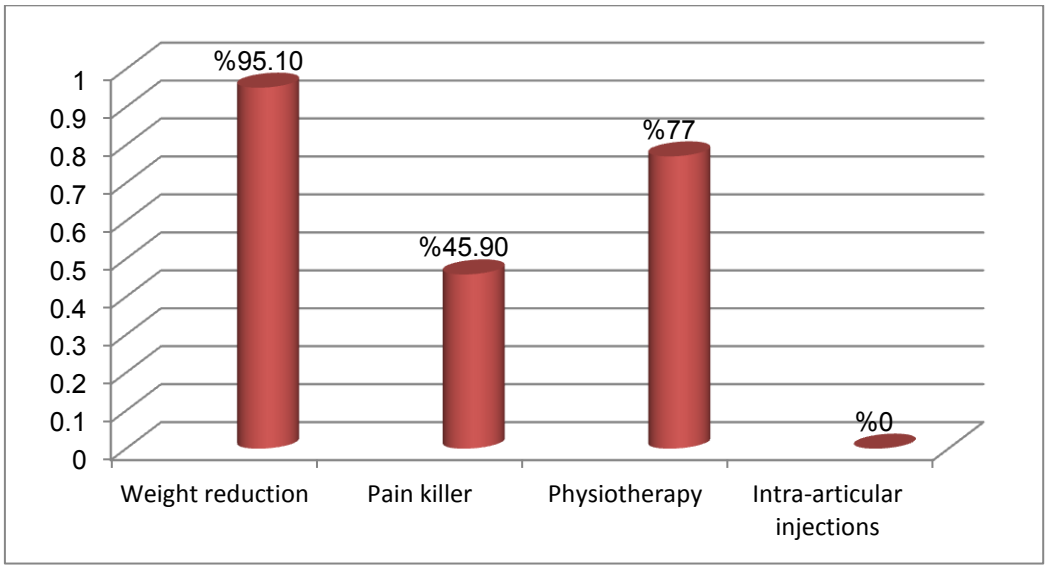

Fig 8: Knowledge of patients about types of conservative management

Attitude of patients regarding family physicians treatment knee OA was investigated (table 2), where 79.3% of patients stated that physicians can‘t treat knee OA, and 10.3 % reported that physicians gave them options of conservative management for knee OA. There were 30% of patients confirmed that they visited their family physicians more than once complaining of the knee pain and 70% said that family physicians referred them to orthopedics without trying using of conservative management, attitude of patients is shown in table 2. Regarding practice of

conservative management, 94.3% reported using pain killer medication, 97.7% of them used Paracetamol, 40.2% used NSAIDs, 2.3% used Opoids. 60% of patients said they used pain killer for more than 1 time, 31.4% said more than 5 times and 8.6% said more than 10 times. 58.3% of patients reported that pain killer didn't improve the pain, while 41.7% said it improved the pain, table3

Table 2: Attitude of patients toward family physicians regarding conservative management

	%
Family physician can treat knee osteoarthritis	
Yes	20.7
No	79.3
Family physician give you any options of conservative management for knee osteoarthritis before	
Yes	10.3
No	89.7
Did you visit your family physician more than once complaining of the knee pain before he/she referred you to orthopedics	
Yes	30
No	70
Did your family physician refer you to orthopedics without trying with you conservative management	
Yes	70
No	30

Table 3: Practice of different of conservative management

Variables	%
Tried pain killer medications before	
Yes	94.3
No	5.7
Kind of pain killer medications tried before	
Paracetamol	97.7
NSAIDs	40.2
Opioids	2.3
How many times used	
More than 1	60
More than 5	31.4
More than 10	8.6
Is pain improved by pain killers	
Yes	41.7
No	58.3
Tried Weight reduction	
Yes	51.4
No	48.6
How much weight did you reduce	
Range	1-14
Mean ±SD	4.9±3.7
Is pain improved by weight reduction	
Yes	70.8
No	29.2
Tried physiotherapy before	
Yes	75.7%
No	24.3%
For how many times	
1	0
2- 5	50
5-10	41.2
More than 10 times	8.8
Is pain improved by physiotherapy	
Yes	62.3
No	37.7
Tried Intraarticular injections before	
Yes	25
No	75
For how many times	
1	40
2	34.3
3	17.1
4	8.6
Is pain improved by Intraarticular injections	
Yes	17.1
no	82.9

Different variables were investigated if they influenced the knowledge of patients or not, older age was significantly associated with lower knowledge (P-value<0.001). Being illiterate and having primary school were significantly associated with less knowledge (P-value<0.001, =0.001 respectively), whereas having high school was significantly associated with high knowledge (P-value<0.001). Occupation was significantly associated with the level of patients' knowledge, retired patients were of higher knowledge than others. Married patients significantly tended to have higher knowledge (P-value=0.01), whereas divorced ones tended to have less knowledge (P-value=0.03). Height, BMI and different co-morbidies significantly associated with the knowledge level, having chronic diseases, hypertension, dyslipidemia, diabetes mellitus significantly tended to have less knowledge. Patients weight and obesity had no influence on patients knowledge (P-value>0.05). Family history didn't influence the knowledge, except for those who didn't know any information about family history, they significantly tended to have less knowledge (P-value=0.02). Having OA symptoms for a period less than 5 years was significantly associated with the level of knowledge (P-value<0.001), having symptoms for less than 3 years was associated with high knowledge, while having symptoms for 3-5 years was associated with less knowledge.

Table 4: Factors affecting Knowledge regarding conservative management for knee osteoarthritis

Variables	Knowledge regarding conservative management for knee osteoarthritis		P value
	Know 43.6%	**Do not know 56.4%**	
Age	53.9 ± 7.7	60.7 ± 7	**<0.001**
Gender			
Male	32.8%	19%	0.062
Female	67.2%	81%	
Educational Level			
Illiterate	4.9%	29%	**<0.001**
Primary school	0%	16.5%	**0.001**
Secondary school	37.7%	41.8%	0.728
High school	57.4%	12.7%	**<0.001**
Occupation			
Employed	31.1%	5.1%	**<0.001**
Retired	54.1%	27.8%	**0.002**
Housewives	14.8%	67.1%	**<0.001**
Marital status			
Married	90.2%	73.4%	**0.017**
Divorced	0%	7.6%	**0.036**
Widow	9.8%	19%	0.157
Weight	90.6 ± 13.1	88.3 ± 9.9	0.287
Height	162.7 ± 10	156.7 ± 7.9	**<0.001**
BMI	34.3 ± 4.5	36.1 ± 4.5	**0.043**
Chronic diseases	39.3%	89.9%	**<0.001**
Hypertension	29.5%	60.8%	**<0.001**
Dyslipidemia	9.8%	49.4%	**<0.001**
Diabetes mellitus	9.8%	27.8%	**0.008**
Cardio vascular disease	9.8%	13.9%	0.463
Obesity	4.9%	3.8%	0.745
Family history of knee Osteoarthritis			
Yes	47.6%	31.6%	0.080
No	9.8%	6.4%	0.533
I don't know	42.6%	62%	**0.027**
How long have you had symptoms of osteoarthritis			
< 3 years	52.5%	10.1%	**<0.001**
3-5 years	37.7%	73.4%	**<0.001**
> 5 years	9.8%	16.5%	0.321

Discussion

The present study was conducted to assess the knowledge of knee OA patients about the conservative management. There was a low level of knowledge regarding the presence of conservative management for knee OA, only 43.6% knew about it, whereas 56.4% had no knowledge. Weight reduction was the most type of conservative therapy known by patients (95.1%) followed by physiotherapy, no one knew about intra-articular injections. Several factors influenced knowledge of patients, including age, educational level, occupation, marital status, weight, BMI, several co-morbidities, family history and duration of suffering OA symptoms. However, each factor of this significantly associated either with high knowledge or low knowledge. Older age, low education, being housewife, divorced, lower height, high BMI, chronic diseases, hypertension, dyslipidemia, diabetes mellitus, being unaware of family history of OA and symptoms lasting for 3-5 years were associated with low knowledge. Other factors were associated with high knowledge including, higher education, being retired, married and less than3 years suffering symptoms. There was no

previous studies done in other countries similar to ours, so we couldn't compare our results with previous ones. In the current study, although 45.9% only knew about pain killer, there were94.3% tried it before for treatment and the most commonly used one was Paracetamol (97.7%), however only 41.7% reported that pain killer improved their pain. There were only 51.4 % patients tried weight reduction, the mean of weight reduced by patients was 4.9 Kg, however higher percent 70.8% reported that the weight reduction reduced pain. Higher percent (75.7%) tried physiotherapy, half of them tried it at least 2 times and 62.3% reported the efficiency of physiotherapy in pain improvement. The least percent of patients (25%) reported trying intra-articular injections, and only 17.1% reported improvement by this strategy. The present study revealed that the most used type of conservative management was pain killer, but the most efficient one was weight reduction. It was stated that improving pain of patients can be done by pharmacological agents such as paracetamol, however, it was reported that the majority of patients preferred NSAIDs to paracetamol[20]. It was found that weight loss improves pain and function as obesity is a risk factor for developing knee OA and weight reduction is the key for effective primary and secondary disease prevention strategy[2]. Physiotherapy is a conservative non-pharmacological approach which include taping, supervised exercise programs, manual therapy, hydrotherapy and bracing[25]. It was found that physical activity was beneficial, but, it resulted in small to moderate effect on knee OA patients[26]. Regarding attitude of patients to family physicians toward their treatment, there were low attitude, where few percent thought that physician can treat OA (20.7%), the majority (89.7%) denied that family physicians gave them options for conservative treatment, 70% reported that physicians referred them to orthopedics without trying conservative management. A study from France reported similar findings regarding attitude and patient to physician relation, it was found that patients felt that their complains aren't taken seriously, and practitioner gave more attention to the knee than the patient and they act as technicians and no enough time spent on counseling and information[22]. It is very recommended to establish further study about this subject, as patients had low knowledge about the conservative management and negative attitude to family physicians.

Conclusion

There was low knowledge of patients about knee OA conservative management, the highest knowledge was regarding weight reduction and it also was the most effective strategy to improve pain, however pain killer was the most commonly used. Patients had negative attitude to family physicians regarding their treatment.

Strength and limitations of the study

The strength points in this study include the novelty of the subject as no previous study investigate the knowledge of patients about knee OA management, as well as their attitude and practice, the sample size was convenient, the limitations of the study is the lack of comparison as no previous study was found to be similar to ours, so it is recommended to conduct further researches on this subject with larger sample size.

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List of Abbreviation

Abbreviation	Definition
oa	osteoarthritis
NSAIDs	Non-steroidal anti-inflammatory drug
n	Sample size
z	level of confidence
p	expected prevalence
d	Precision
SFH	Saudi Commission for Health
SCFHS	Saudi Commission for Health Specialty

Appendix I Study questionnaire

Questionnaire:
1) Height:
2) Weight:
3) Age:
4) Gender:
□ Male □ female
5) Educational Level
□ Illiterate □ primary school □ secondary school
□ high school □ diploma, bachelor □ Post graduate (Master, PhD…etc.)
6) Occupation
□ Student □ Employed (healthcare professional)
□Employed (others) □ unemployed □ Retired □ housewives

7) Marital status
□ married □single □ Divorced □ Widowed

9) Do you have one or more of the following chronic diseases?
□ Hypertension □ Dyslipidemia □ diabetes mellitus
□ cardio vascular disease □ obesity

10) Do you have a first degree family history of knee Osteoarthritis?
□ Yes □ No □ Unknown

11) How long have you had symptoms of osteoarthritis?

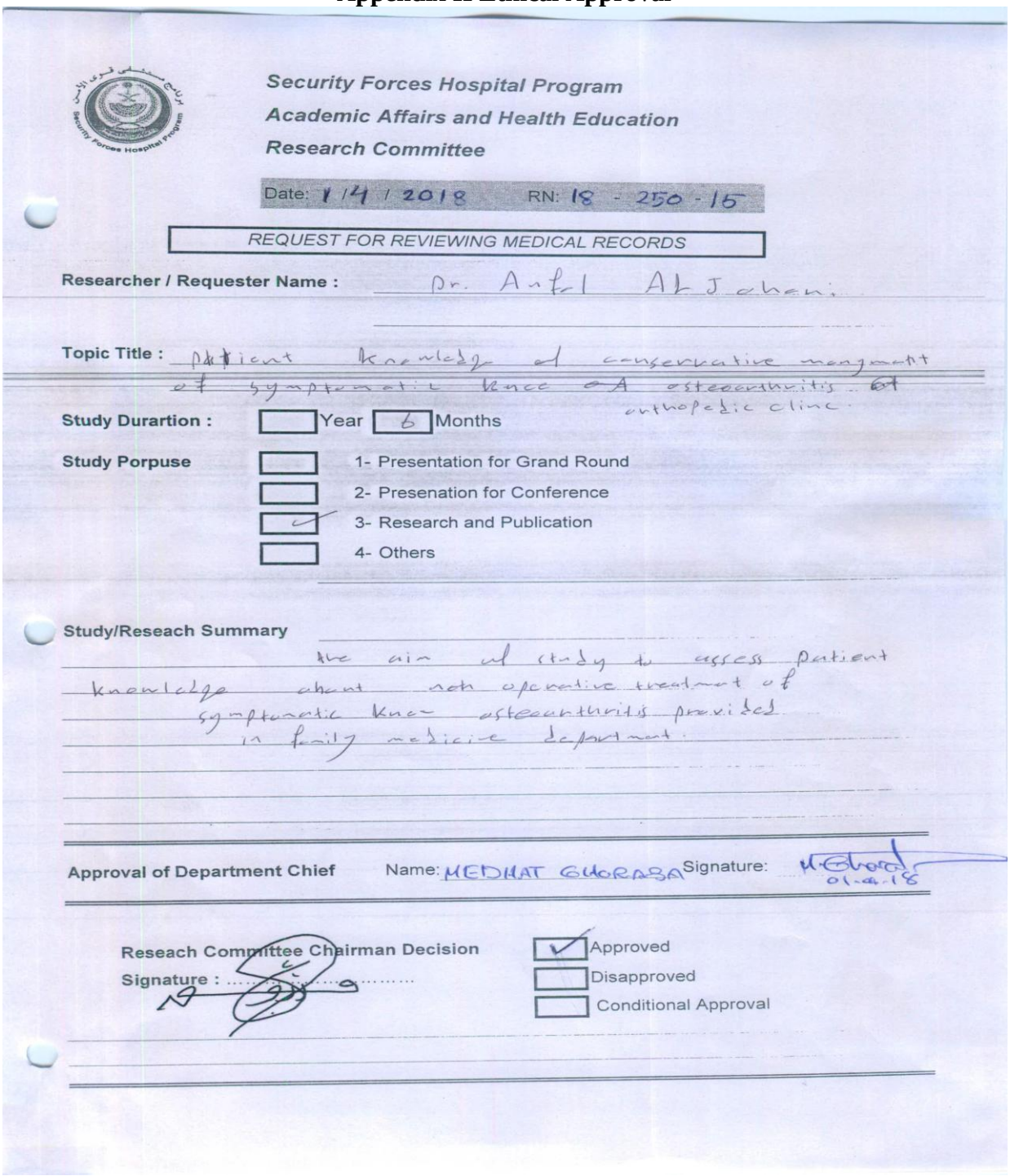
□ less than 3 years □ 3-5 years □ 5-10 years □ more than 10 years

12) From your knowledge, Is there a conservative management for knee osteoarthritis?
□ Yes □ No

If the answer was yes to question (12) please proceed to the next questions
13) If yes what kind of conservative management (you can choose more than one)
□ Weight reduction □ pain killer □ physiotherapy □ Intraarticular injections
14) From your knowledge, does family physician treat knee osteoarthritis?
□Yes □No
If the answer was yes to question (14) please proceed to the next questions

15) If yes ,Did your family physician give you any options of conservative management for knee osteoarthritis before?
□Yes □No
16) have you ever tried pain killer medications before?
□Yes □No
If yes what kind of pain killer?
□Paracetamol □ NSAID □ OTHERS (…….)
For how long? : …….
Is pain improved? : □Yes □No
17) have you tried to reduce your weight ?
□Yes □ No
If yes, how much weight did you reduce: ……
Is pain improved? : □Yes □ No
18) have you ever tried physiotherapy before?
□Yes □ No
If yes , for how long: 1 5 5-10 more than 10 times ……
Is pain improved? : □Yes □ No
19) have you ever tried Intraarticular injections before?
□Yes □ No
If yes , for how many times : ……
Is pain improved? : □Yes □ No
20) Did you visit your family physician more than once complaining of the knee pain before he/she referred you to orthopedics?
□Yes □ No
22) Did your family physician refer you to orthopedics without trying with you conservative management?
□Yes □ No

Appendix II Ethical Approval



Security Forces Hospital Program
Academic Affairs and Health Education
Research Committee

Date: 1 / 4 / 2018 RN: 18 - 250 - 15

REQUEST FOR REVIEWING MEDICAL RECORDS

Researcher / Requester Name : Dr. Anfal ALJohani

Topic Title : Patient knowledge of conservative mangment of symptomatic knee OA osteoarthritis at orthopedic clinc.

Study Durartion : [ ] Year [6] Months

Study Porpuse
[ ] 1- Presentation for Grand Round
[ ] 2- Presenation for Conference
[✓] 3- Research and Publication
[ ] 4- Others

Study/Reseach Summary

the aim of study to assess patient knowledge about non operative treatment of symptomatic knee osteoarthritis provided in family medicine department.

Approval of Department Chief Name: MEDHAT GHORABA Signature: 01-4-18

Reseach Committee Chairman Decision
Signature : .....
[✓] Approved
[ ] Disapproved
[ ] Conditional Approval

Appendix II C.V

Personal Data :
Name : Anfal mohammad AlJohani
Nationality : Saudi
Gender : Female
Date of birth : Novmber, 8th, 1989
Home address :Qurtuba, Riyadh city , Kingdom of Saudia Arabia
Language : Arabic . English
Contact information :
Mobile number : 00966541142844
Email address : dr_anfal@hotmail.com

Education

2015	Family Medicine Resident (SFH)
2013-2014	Internship year , July 1st 2013 – June 30th 2014
2013	Bachelor's degree , Faculty of medicine ,King Saud University , Riyadh . Kingdom of Saudia Arabia
2007	High School Degree . 79th Public School .

Exams and licenses taken

2014	Saudi License Exam . **Grade** = 83%

Researches

2017	Patient knowledge of conservative management of symptomatic knee osteoarthritis at Orthopedic Clinic, in SFHP, Riyadh; (a primary health care prospective)
2012	The link between vitamin D and asthma in Saudi Arabia. Supervised by: Dr. Saleh AlMuhsen

Conferences

2012	Internal medicine research day
2012	Recent trends in antimicrobial therapy
2012	11th Asia congress of endoscopic and laparoscopic surgery
2012	Obesity from cell to human
2013	24th scientific conference of Saudi heart association

Courses and Workshops

2012	Advanced Cardiovascular Life Support course
2015	Basic Life Support course
2012	The first specialty day
2013	Basic clinical and surgical skills day
2013	How to read ECG

Extra-Curricular Activities

2012	Participate in patient quality and safety day
2012	Participate in Rhinrology research day
2012	Communications skills workshops
2012	Organizer(11th Asia congress of endoscopic and laparoscopic surgery)
2012	Volunteer in Masdari group
2013	Organizer (How to read ECG**)**
2013	Organizer(intern day 2013)
2013	Organizer (24th scientific conference of Saudi heart association)