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Knowledge and Physical Health Status about Knee Osteoarthritis in Saudi Arabia 2024

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Abstract:
Background: approximately 10% of people universal suffer from osteoarthritis (OA), a permanent degenerative joint disease that causes pain and impairment.
Aim of the study: To assess of knowledge and physical health status for Saudi women about knee osteoarthritis
Research design: This study used a descriptive study design.
Setting: The orthopedic outpatient clinic at Saudi University Hospital served as the study's location. A sample of (160) adult women under diagnosis knee osteoarthritis 20-65years.
Tools: used in study women's interview questionnaire sheet to assessment women's knowledge about knee osteoarthritis and physical health status assessment.
Results: The study sample's age ranged from 50 to 65 years old, not working (61.7%), body mass index were obese (47.5%) and have a level of knowledge very little about knee osteoarthritis (50%).
Conclusion: The majority of the study women were having pain while walking in flat surface, ascending or descending stair while stuffiness, stiffness in the morning and problems while raising from setting on the floor, use stair while carrying heavy things, using water closed and having heavy domestic duties and half of the study sample (50%) had knowledge very little about knee osteoarthritis.
Recommendations: Provide educational program for women with knee osteoarthritis that about diet, exercises, weight reduction and medication and constantly training courses for nurses about how to deal with patients with knee osteoarthritis.
Keywords: Knowledge, Knee Osteoarthritis & Physical Health Status of women

Introduction:

Osteoarthritis (OA) is the most common type of arthritis. It is a complex disorder that can affect the articular cartilage, bones, ligaments, and synovium. It contributes to degenerative and reparative processes and inflammation of the joint. OA may affect different body joints, both proximal and distal, most commonly occurs in the knee joint (**Kandasamy et al., 2024**). Primary and secondary osteoarthritis are the two categories of the condition. Articular degeneration in primary osteoarthritis has no discernible underlying cause. Either aberrant articular cartilage, as in rheumatoid arthritis (RA), or an aberrant concentration of force across the joint, as in post-traumatic reasons, can result in secondary osteoarthritis **(Springer et al., 2019).**
Factors that increase the risk of developing osteoarthritis (OA) include articular trauma,

occupation, extended standing, muscle weakness or imbalance, weight gain, and metabolic syndrome; non-modifiable factors include age, genetics, race, and gender-females are more prevalent than males **(Manlapaz et al., 2018).**

Clinical signs of osteoarthritis (OA) include knee pain, which usually develops gradually, gets worse with extended exercise, gets worse when bending over or climbing stairs, gets worse with inactivity, gets worse over time, and results in knee stiffness, knee swelling, and impaired ability to walk **(Kisand et al., 2018).**

Assessment of patients with knee osteoarthritis is divided in to subjective assessment and objective assessment, the subjective evaluation obtains a complete history of the pain, including when it first appeared, whether it was abrupt or gradual, and whether the same knee has ever been injured before. The following are typical subjective signs of knee OA: stiffness in the morning, dull aching pain, discomfort after sitting, pain after moving more, and trouble bearing weight on the afflicted limb **(Cui et al., 2020).**

During assessment must be observe of the knee: If the OA is really reactive or irritated, it could be big, swollen, or red. Generally, movement patterns during rest and when simulating everyday tasks like rising and falling off a chair are observed **(Cui et al., 2020).** Gait assessment: is there any stiffness during gait, is there a considerable reduction in the affected knee's capacity to bear weight, and is the usage of walking aids necessary owing to pain? Palpation: An acutely exacerbated OA knee may present with edema, temperature fluctuations, and joint line discomfort.

Normal functional activities like climbing stairs may be impacted, ROM (flexion and extension) may be limited due to stiffness or the formation of osteophytes in the joint, strength is normally reduced in an OA knee due to pain and deconditioning, and balance may be affected due to pain; these need to be evaluated to rule out the risk of falls **(Michael et al., 2020).**

There are two types of treatment for osteoarthritis in the knee: non-surgical and surgery. When non- surgical treatments are ineffective, the initial course of treatment switches to surgical intervention. There are numerous non-surgical options for the management of osteoarthritis in the knee. While these procedures don't change the fundamental cause of the condition, they can significantly lessen pain and disability **(Aweid et al., 2018).**

Osteoarthritis (OA) of the knee significantly impairs function and quality of life. Ignorance of knee OA and its treatment alternatives reduces treatment adherence, which impacts function and symptoms and raises medical expenses. People who mostly reside in the industrialized world recognized a number of factors that influenced their experience with the condition, including as their level of pathological comprehension, its symptoms, other people's perceptions of it, and functional impairment. But these features are unable to capture the realities of those from diverse cultural backgrounds in developing nations like the Middle East (**WHO, 2018).**

Aim of the study: To assess of knowledge and physical health status for Saudi women about knee osteoarthritis.

Research question: What about knowledge and physical condition of Saudi women with osteoarthritis in their knees?

Subjects and Methods:

Design of research: The study's goal was achieved by using a descriptive study approach.

Setting: The orthopedic outpatient clinic at Saudi University Hospital

Sample:A sample of (160) adult women under diagnosis knee osteoarthritis are comprising the subsequent parameters: age in the range of 20 to 65 years. Admitted to orthopedic clinic at Saudi **University Hospital.**

Tools of the study:

Three tools were used in this study and were created by the researcher with the assistance of supervisors to gather the data required for this investigation after examining national and international literature.

Tool (I): Women's Questionnaire for interviews This tool, which the researcher created to evaluate women's conditions, is divided into two parts:

Part I: Personal characteristic information from the women: It was created to evaluate the individual attributes of the patient, such as age, admission date, place of residence, degree of education, and employment.

Part II: Medical and physical information of the women: It was designed to determine the health issues facing women in the following ways: overall physical examination of the women, It contained information on height, weight, BMI, kind and date of surgery, and any family history of chronic illnesses.

Body mass index (BMI) can be calculated as follows: $\frac{Weight(in\ kilograms)}{Height\ (in\ meters)2}$

This equation and classification of BMI were adopted from (Davis and Syed, 2000)

Within standard level	20 to 26
Over weight	26 to30
Obesity	30 to 40
Obesity with morbidity	≥ 40

Tool (II): Assessment of women knowledge about knee osteoarthritis: It was designed to asses of women knowledge about knee osteoarthritis, It included knowledge about anatomy of knee joint, function, definition of knee OA, signs and symptoms of knee OA, complications, prevention and treatment. **Tool (III): Physical Health Status Assessment**

The knee joint status of the patient was evaluated using the Physical Health Status Assessment. This section covers the three dimensions of the Western Ontario and McMaster Universities Arthritis Score (WOMAC). The 24 items are divided into three subscales: pain (5 items, score range: 0–20), stiffness (2 items, score range: 0–8), and function limitation (17 items, score range: 0-68).

a pilot study.

A pilot study's objectives were to determine the tools' applicability, identify any peculiarities in the statements' clarity that would impede the data collection procedure, and calculate how long it would take to finish the interview schedule. The pilot study included 16 women, or 10% of the sample, no modifications were done. The pilot sample was included in the study.

Content Validity:

Three highly qualified professors in the fields examined the study tools' content validity.

Data from the orthopedic outpatient clinic at Saudi University Hospital were gathered over the course of four months, in 2024, from June to September. Before the women answered any of the interview- based questionnaires, they were informed of the study's objectives.

- During the first interview, the researcher identified herself in order to establish a communication channel and complete the questionnaire, Assess weight, height and body mass index, Assess of women knowledge to word knee osteoarthritis and assess of physical health status for women.

Ethical approval:

- The scientific research ethics committee provided ethical approval for the study

Ethical considerations

- study participants' privacy was taken into consideration during data collection; there was no risk to study participants during the application of the research; confidentiality was guaranteed; and study participants had the right to refuse participation or to withdraw from the study at any time without giving a reason.

Statistical analysis

The collected data was summarized, coded, tabulated and computerized and then the data descriptive statistics (frequencies, percentages, mean and standard deviation) were done using

computer program Statistical Package for the Social Sciences (SPSS). Pearson Correlation was used to measures the statistical relationship, or association between two continuous variables. It is known as the best method of measuring the association between variables of interest because it is based on the method of covariance. It gives information about the magnitude of the association, or correlation, as well as the direction of the relationship **(Nikolić et al., 2012)**

Results:

Table (1): The highest percentage of the studied sample of their age range from 50≤65yrs were (61.7%), (51.8%) were living in urban areas, illiterate (40%), not working (68.7%). As regarding body mass index for study women the highest percent were obese (47.5%).

Variables	**N**	**%**
Age by years		
20<29	5	6.2
29<40	19	14.8
40 <50	57	42
50≤65yrs	79	61.7
Residence		
Urban	83	51.8
Rural	77	48.1
Level of education		
High education	11	13.8
Secondary education	43	26.8
Read and write	51	32.8
Illiterate	55	34.3
Occupation		
Working	50	31.2
Not working	110	68.7
Body Mass Index		
Normal to 20 less than 26	34	21.2
Over weight 26-29	45	28.1
Obese 30-39	76	47.5
Morbid obesity 40	5	31.2

Table (2): Illustrated that regarding present past history for study sample (30%) were undergoing surgery, (35.5%) were have diabetes and (12.6%) were have hypertension.

Variables	**N**	**%**
Undergoing surgery	48	30
Diabetes	56	35
Hypertension	37	12.6
Asthma	1	1.2
Lung disease	3	3.8
Kidney disease	4	2.5

Table (3): Mentioned that (85%) research participants had incorrect answer about questions related to knowledge about knee OA.

knowledge	N		%
-What is the anatomy of knee?	Correct	-	-
	Incomplete correct	6	7.5%
	In correct	154	92.5%
-List functions of knee joint?	Correct	-	-
	Incomplete correct	8	12.8%
	In correct	152	87.2
-Define knee osteoarthritis?	Correct	2	2.4%
	Incomplete correct	34	42.4%
	In correct	124	55.2%
-List signs and symptoms of knee OA?	Correct	8	5%
	Incomplete correct	136	85%
	In correct	16	10%
-List complications of knee OA?	Correct	-	-
	Incomplete correct	138	86.2%
	In correct	22	13.8%
-List how to prevent knee OA?	Correct	-	-
	Incomplete correct	122	76.2%
	In correct	38	23.8%
-What is treatment of knee OA?	Correct	-	-
	Incomplete correct	76	47.5%
	In correct	84	52.5%
-List important of knee exercises?	Correct	-	-
	Incomplete correct	42	26.2%
	In correct	118	73.8%
-What are types of exercises?	Correct	-	-
	Incomplete correct	4	2.5%
	In correct	156	97.5%
-List technique of each exercise?	Correct	-	-
	Incomplete correct	2	1.2%
	In correct	158	98.5%

Table (4): Mentioned that half of the study sample (50%) had knowledge very little about knee OA.

Knowledge	N	%
Poor	80	50
Fair	30	18.75
Good	50	31.25

Table (5): Revealed that as regarded to assessment of physical health status (49.2%) of the study women were have pain while walking in flat surface, ascending or descending stair, at night while stuffiness, the majority of the study women (76.5%) were have stiffness in the morning, regarding to function, the majority of the study women (91.2%) were have problems while raising from setting on the floor, use stair while carrying heavy things, using WC and having heavy domestic duties.

Dimension assessed			
		N	
Pain			
While walking on flat surface	No	85	
	Yes	75	
Ascending or descending stair	No	3	
	Yes	157	
At night in bed	No	66	
	Yes	157	
Sitting or lying	No	90	
	Yes	70	
Sending upright	No	93	45.1
	Yes	67	5.3
Stuffiness			
On first walking in the morning	No	36	22.5
	Yes	124	76.5
Later in the day	No	65	31.3
	Yes	96	19.1
Function			
Descending stairs	No	1	1.2
	Yes	159	49.8
Ascending stairs	No	0	0
	Yes	160	100
Raising from setting on the floor	No	20	12.5
	Yes	140	
Standing	No	87	
	Yes	73	
Bending to floor	No	115	48.3
	Yes	47	
Walking on flat	No	138	
	Yes	22	
Getting in\out car	No	130	
	Yes	30	18.7
Going shopping	No	90	
	Yes	72	
Putting on stocks	No	127	
	Yes	33	
Raising from bed	No	94	
	Yes	66	41.2
taking of stocks	No	115	
	Yes	45	
Lying in bed	No	99	
	Yes	61	
Use of stair while carrying heavy things	No	7	4.3
	Yes	153	
Setting	No	71	44.3
	Yes	89	
WC(use western toilet or municipal toilet	No	53	
	Yes	107	
Heavy domestic duties	No	14	17.5
	Yes	146	91.2
Light domestic duties	No	125	49.6
	Yes	35	21.8

Discussion

The most widespread form of knee osteoarthritis (KOA), is a degenerative condition caused by chronic joint failure and attacks, particularly to the joint cartilage. It can lead to considerable functional impairments. Weight-bearing joints are more commonly impacted than other types of joints. **(Munthe et al., 2021).**

Regarding personal characteristic of the patients under investigation, the results of the present study showed that over half of the women under investigation were between the ages of 50 and 65. These findings are consistent with **(Mohamed 2019)**, who stated that patients in the categories under study were mostly between the ages of 45 and 55. Moreover, **(Saffari et al., 2018)** stated that as the population ages, osteoarthritis will become much more common in the near future.

Regarding knee osteoarthritis patients' residence, the current findings more than half living in urban areas this result comes in agree with **(Jorgensen et al., 2021)**, who observed a connection between OA and living in a rural area.

Upon examining the patients' educational level distribution in the current study, it was discovered that over half of the study sample lacked literacy. This result is consistent with **(Abd Elfatah, et al., 2019)**, who demonstrated that more over half of the patients under study lacked literacy, and disagreement with the **(Uludağ & Kaşikçi 2019)** less than half of patients were educated, according to a research**.**

In terms of employment, it was observed that two thirds of the study sample were unemployed. This is consistent with (**Uludağ & Kaşikçi 2019)**, who observed that the majority of KOA patients were unemployed.

The present study revealed that; regarding body mass index for study sample the highest fourty percent in this study were obese this outcome is consistent with **(Nevitt, et al 2018)** who discovered that when engaging in weight-bearing activities, additional weight increases the biomechanical load on these joints. For example, when walking or climbing stairs, the forces across the knee and hip are two to four times the body weight.

From the opinion of researcher because obesity is linked to higher bone mineral density, aberrant hormone and growth factor levels, and other metabolic intermediates, it may raise the risk of osteoarthritis. In fact, there is proof that obesity has a systemic impact on the body due to the link between obesity and osteoarthritis in non-weight-bearing joints. In terms of comorbidity, diabetes and hypertension are present in over one-third of the individuals under study. The common classical risk factors for both knee osteoarthritis and hypertension, including aging, obesity, and chronic inflammation, may help to explain it.

Moreover, osteoarthritis and hypertension both have numerous gene involvement. Furthermore, low bone density, osteoarthritis, and hypertension may be linked to polymorphisms in the vitamin D receptor and the pro-inflammatory cytokine interleukin-6, which is responsible for hypertension and knee osteoarthritis. **(Zhang et al., 2017).** This result is consistent with the research carried out by (**Lin et al., 2020)** They came to the conclusion that comorbid illnesses affected most of the people they had evaluated.

The current study found that, in terms of women's assessment knowledge about knee osteoarthritis the half of the research sample knew very little about osteoarthritis. This result was consistent with a study carried out in Jeddah, Saudi Arabia, which likewise discovered that the sample population had little knowledge of OA. **(Alyami et al., 2020).** However, a different survey on the general public in Sudair, Saudi Arabia, discovered that most people had good awareness about OA. **(Alanazi et al., 2021)**.

Furthermore, but the results is not in the same line; In Saudi Arabia, Albaker et al., 2024 examined the level of awareness regarding osteoarthritis and its management and revealed that 32.9% (n=128) of the participants had good knowledge about osteoarthritis. Joint stiffness and swelling were identified, as the most common signs and symptoms of osteoarthritis. The risk factors

identified in the study were genetic factors and age, while the treatment options noted by the study were exercise, such as swimming, physical therapy, and joint replacement surgery. the study established a statistically significant association between age, education level, previous diagnosis of osteoarthritis, family history of osteoarthritis ($p = 0.004$, 0.001, 0.002, and 0.001, respectively), and level of knowledge about osteoarthritis. However, there was no statistically significant association between gender, marital status, smoking status, previous knee injuries, physical activity level, and the level of knowledge about osteoarthritis ($p > 0.05$)

As regarded to assessment of physical health the majority of the study women were have pain while walking in flat surface, ascending or descending stair, at night while stuffiness, the majority of the study women were have stiffness in the morning, regarding to function, the majority of the study women were have problems while raising from setting on the floor, use stair while caring heavy things, This outcome is consistent with the one produced by **(Gerstle et al., 2021)** that the majority of knee OA patients lament their diminished lower limb strength, mobility, and motor control when climbing and descending stairs. Studies have shown that a variety of characteristics, including age, gender, and a history of falls, affect how well elders do exercises when moving from the floor to the stairs **(Asar et al, 2020).**

Conclusion:

The half of the study sample (50%) had knowledge very little about knee OA, regarded to assessment of physical health status the majority of the study women were have pain while walking in flat surface, ascending or descending stair while stuffiness, the majority of the study women were have stiffness in the morning, regarding to function, the majority of the study women were have problems while raising from setting on the floor, use stair while carrying heavy things, using WC and having heavy domestic duties.

Recommendations:

1. Provide educational program for women with knee osteoarthritis about diet, exercises, weight reduction and medication
2. Continuously training courses for nurses about how to deal with patients with knee osteoarthritis

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