

Evaluation the Impacts of Knee Osteoarthritis on Quality of Life among Jordanian Patients Using the Arabic Version of the Western Ontario and McMaster Universities Arthritis Index (WOMAC)

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Abstract

Introduction: Knee osteoarthritis is one of the most common knee pathologies worldwide. The physical activity level of individuals with knee OA has been evaluated among different countries, but never done in Jordan. However, the life habits of Jordanian including eating habits, living area environment, life style, and other daily practices are different from western countries.

Aim: The main purpose of this study is evaluating the effects of knee OA on quality of life for Jordanian before prescribing any of the recommended orthotics interventions.

Method: 50 participants (42 females, 8 males, 57 ± 12 years, and 86 ± 18 kg) were recruited in this investigation. Each participant was asked to fill a WOMAC questionnaire. Results: the total WOMAC score (0.66 ± 0.15) and pain score (0.65 ± 0.18) are high among Jordanian knee OA patients. Most of the patients complain from severe pain during using stairs, praying, and sitting on floor to having a meal. Knee stiffness is more noticeable in the morning and some daily activities were limited due to pain.

Conclusion: The life habit in Jordan is different from other countries. Jordanians have special daily activities that increase pain, joint degeneration, and accelerate the need for total knee replacement surgery. Thus, orthotics and therapists should be aware about those activities and ask their patients to reform their life style before prescribing any orthotics interventions for better outcomes.

Keywords: Knee osteoarthritis; Osteoarthritis; Arthritis index; Pathologies; Knee replacement surgery

Introduction

The knee joint is one of the most common weight bearing joints affected by Osteoarthritis (OA). Knee Osteoarthritis is a wear and tear pathology which constitutes of degenerative

changes of the knee cartilages such as osteophytes' formation in the joint space which leads to articular bone enlargement [1]. Furthermore, knee OA is considered as one of the main causes of disability for elderly than stroke and pulmonary diseases [2]. The number of individuals who has knee OA is increasing yearly. For instance, 10% of individuals aged over 55 in the UK population have knee moderate to severe OA [3]. Unfortunately, it is expected that by 2035, 8.3 million people in the UK aged 45 and over could have knee osteoarthritis [3]. Unfortunately, the prevalence of individuals with knee OA in Jordan is not available.

The knee joint has three parts: medial and lateral tibiofemoral joints, and patellofemoral joint. The medial part is the most affected part by OA because, normally, the load on medial side is equal 2.5 times of the load on the lateral side which makes the medial side is more affected than the later side of the knee Joint [4]. The main risk factors for knee OA are: gender, obesity, and sport injuries [5].

Clinical knee OA features include pain during activity and rest; crepitus, joint instability, knee and ankle varus, physical activities level limitations such as walking slowly, short steps length, and cannot walk for a long distance due to pain and muscles weakness. Those activity limitations could have vital impacts on quality of life and daily living activities [6].

Various questionnaires are used to evaluate the quality of life (QOL) of individuals with OA such as Western Ontario and McMaster University Osteoarthritis Index (WOMAC). This questionnaire is the most commonly used questionnaire to evaluate the functional level of knee OA patients. This questionnaire is available in 80 languages including Arabic. Besides, it has three subscales to examine 24 activities: Pain (5 items), Stiffness (2 items), and Physical Function (17 items). Additionally, it is available in 5-point Likert, 11-point numerical rating, and 100 mm visual analogue scale formats, but the 5-point Likert is the easiest format that has four options: 0 none, 1 mild, 2 moderate, 3 high, and 4 extreme. The higher high score indicates more severe symptoms [7-11].

Many researchers have used the WOMAC to investigate the functional level of knee OA patients in Arabic countries such as

Egypt [12], nevertheless, no researches has been conducted impact of knee OA among Jordanian populations to understand the their quality of life impairment and the required orthotics interventions for the n in future.

Therefore, this study aims to evaluate of IMPACT knee OA on quality of life among Jordanian knee OA patients using WOMAC questionnaire. To our knowledge no previous study has investigated the physical level in Jordan using the Arabic version of WOMAC [11]. The results will be important for orthotist and physician who work with medial knee OA patients.

Methods

Subjects

Fifty participants were selected from hospital of university of Jordan (45 females and 5 males, 56 ± 8 years, 88 ± 16 kg). A professional orthopedic surgeon diagnosed the participants at University of Jordan hospital. Potential participants were tested based on the Altman et al. [1] criteria and were checked to have localized pain around the knee joint, ability to walk independently without severe pain, ability to use stairs without any external assistance, and no joint replacement and no previous knee surgery has been done. The study was approved by the University of Jordan Research and Governance ethical committee and informed consent was obtained from each individual.

Subject preparation and procedure

Each participant was asked to fill WOMAC questionnaire at their first visit after they were accepted to take a part and had

been examined by professional orthopedic surgeon and professional orthotist. Arabic version of WOMAC is used [1] because it will be easier for Jordanians patients to read and understand it without need for a translator, and to avoid translation bias.

Data management

Outcome variables included: pain (5 items), stiffness (2 items), functional level (17 items), and total WOMAC score. Each item (question) is scored out of 4 (0: none, 1: mild, 2: moderate, 3: high, 4: Extreme). Hence, pain score will be 0-20, stiffness score between 0-8, and functional level score between 0-68, and total score of WOMAC is between 0-96. The total score for each part will be divided on the maximum score to calculate the ratio. Descriptive tests were used to examine average and standard deviations for all participants.

Results

Over all, the total score of WOMAC is higher among Jordanian knee OA patients (0.66 ± 0.15) (**Table 1**). Mostly, Jordanian patients were complaining from pain during activities than stiffness. The pain was severe during using stairs and standing for a long time (64% and 48% respectively) (**Table 2**). The stiffness was noticeable among Jordanian knee OA patient in the morning more than the rest of the day (**Table 3**). Related to physical activities, some domestic activities are limited among Jordanian knee OA patients due to pain and feeling anxiety such as stairs climbing, bending on floor for praying and eating. While walking on level was the most accessible daily activity for Jordanian knee OA patients (**Table 4**).

Table 1: Pain, stiffness, and total WOMAC sores for Jordanian knee OA patients.

Criteria	Average ratio for 50 participants	SD
Pain	0.65	0.18
Stiffness	0.52	0.27
Physical activity level	0.53	0.12
Total WOMAC	0.66	0.15

Table 2: Frequency of pain score for each question among Jordanian participants.

Pain scale	None (%)	Mild (%)	Moderate (%)	High (%)	Extreme (%)	Total number= 50
Walking on flat surface	6 (12%)	9 (18%)	18 (36%)	9 (10%)	8 (16%)	50
Going up or down stairs	0	2 (4%)	1 (2%)	15 (30%)	32 (64%)	50
At night while	7 (14%)	9 (18%)	8 (16%)	9 (18%)	17 (34%)	50
Sitting or lying	7 (14%)	12 (24%)	15 (30%)	9 (18%)	7 (14%)	50
Standing upright	2 (4%)	4 (8%)	8 (16%)	12 (24%)	24 (48%)	50

Table 3: Frequency of stiffness score for each question among Jordanian participants.

S scale	None (%)	Mild (%)	Moderate (%)	High (%)	Extreme (%)	Total number= 50
How severe is your stiffness?						
1: After first wakening in the morning.	5 (10%)	12 (24%)	10 (20%)	12 (24%)	11 (22%)	50
2: After sitting lying or resting later in the day	9 (18%)	6 (12%)	20 (40%)	11 (22%)	4 (8%)	50

Table 4: Frequency of physical activity score for each question among Jordanian participants.

PF scale	None (%)	Mild (%)	Moderate (%)	High (%)	Extreme (%)	Total number= 50
What Degree of difficulty do you have?						
1: Descending stairs	0	2 (4%)	2 (4%)	14 (28%)	32 (64%)	50
2: Ascending stairs	0	1 (2%)	2 (4%)	13 (26%)	34 (68%)	50
3: Rising from sitting	0	8 (16%)	10 (20%)	16 (32%)	19 (38%)	50
4: Standing	2 (4%)	4 (8%)	8 (16%)	15 (30%)	21 (42%)	50
5: Bending to floor	1 (2%)	5 (10%)	8 (16%)	13 (26%)	23 (46%)	50
6: Walking on flat	8 (16%)	12 (24%)	18 (36%)	6 (12%)	6 (12%)	50
7: Getting in/out of car	0	4 (8%)	13 (26%)	18 (36%)	15 (30%)	50
8: Going shopping	2 (4%)	5 (10%)	10 (20%)	11 (22%)	22 (44%)	50
9: Putting on socks/stockings	1 (2%)	13 (26%)	18 (36%)	7 (14%)	11 (22%)	50
10: Rising from bed	1 (2%)	7 (14%)	12 (24%)	17(34%)	13 (26%)	50
11: Taking off socks/stockings	2 (4%)	13(26%)	16(32%)	9 (18%)	10 (20%)	50
12: Lying in bed	4(8%)	13(26%)	19(38%)	9 (18%)	5 (10%)	50
13: Getting in/off bath	8 (16%)	9 (18%)	13 (26%)	10 (20%)	10 (20%)	50
14: Sitting	5 (10%)	8 (16%)	23 (46%)	10 (20%)	4 (8%)	50
15: Getting on/off toilet	3 (6%)	11(22%)	13(26%)	17(34%)	6 (12%)	50
16: Heavy domestic duties	0	1 (2%)	2 (4%)	11 (22%)	36 (72%)	50
17: Light domestic duties	3 (6%)	7 (14%)	20 (40%)	16 (32%)	4 (8%)	50

Discussion

This study has examined the impact of the Knee OA on quality of life among Jordanians patients. This is the first study to our knowledge that investigates the quality of life of Jordanian knee OA patients. The results of this study shows that the total score of WOMAC is high among those patients due to the life style and routine habit that Jordanians have such as using stairs, standing for long time, and sitting of floor for praying or eating. Those activities are associated with high load over the knee joint which leads to increase the knee joint degeneration and cartilage breakdown over time [5]. Moreover, it is suggested that any activities that needs more than 15 degrees knee flexion would increase the shear force on the knee joint and it must be avoided for patients with knee problems [13]. Furthermore, up to 6 times body weight force across the knee joint during stairs climbing which represents half amount of force during walking on level [13]. That makes climbing stairs is a challenging physical

activity for patients with knee OA and must be avoided or limited, as possible.

Conclusion

Knee OA has become one of the most knee pathologies among elderly. Different reasons could accelerate the joints degeneration such as weight and excessive activities with knee twisting and rotation. Jordanian community is quite different from western community with different life style. Jordanian life includes various activities that needs knee twisting like eating on the floor, praying, and stairs climbing. Those activities should be limited or avoided by Jordanian knee OA to dwindle the knee joint degeneration and the need for total knee replacement surgery. Hence, orthotist's and physician must inform their patients to avoid some activities for better outcomes with using knee brace or any other rehabilitation interventions.

Future studies are required to examine patients at different hospital and include more participants. Additionally, prevalence

of knee OA among Jordanian must be evaluated for better database.

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