



PREVALENCE OF KNEE DYSFUNCTION AND ITS ASSOCIATED FACTORS IN HOUSEMAIDS IN PATIALA.

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ABSTRACT

The knee is a complex modified hinge joint. The stability of joint is provided by various soft tissue structures like the anterior and posterior cruciate ligaments, the medial and lateral collateral ligaments, the menisci, the capsule and the muscles crossing the joint. The majority of housemaids are women, poor and immigrants with minimal education and has to work like cleaning, washing utensils, clothes, cooking etc. Factors like travelling distance, BMI, parity etc may have effect on the knee pain. The main objective is to find the prevalence of knee dysfunction and its associated factors in housemaids in Patiala. **Methods:** Based on inclusion and exclusion criteria 100 subjects were taken for the study, subjects fill the questionnaires about Knee injury and Osteoarthritis Outcome Score, and self made questionnaire on factors affecting knee pain. **Result:** The subjects were assessed on the basis of Knee injury and osteoarthritis outcome score (KOOS) scoring in which 39.1% of the subjects had no problem in knee (Frequency=52), 33.1% had mild problem (Frequency=44), 18% had moderate problem (Frequency=24), 8.3% had severe problem (Frequency=11) and 1.5% had extreme problem (Frequency=2). **Conclusion:** 39.1% of subjects had no problem in knee while, 33.1% had mild problem, 18% had moderate problem, 8.3% had severe problem and 1.5% had extreme problem. Association of knee pain with factors is significant for working hours, travelling distance, number of deliveries, Body Mass Index and economical status

KEYWORDS : Knee dysfunction, Osteoarthritis, Housemaids, KOOS

INTRODUCTION

The knee joint is known to be a complex modified hinge joint having movements flexion and extension about the sagittal plane, varus and valgus rotation about the frontal plane and facilitates the medial rotation at the end of the knee flexion and the lateral rotation at the terminal extension of the knee at the transverse plane.¹ The stability of joint is provided by various soft tissue structures like the anterior and posterior cruciate ligaments, the medial and lateral collateral ligaments, the menisci, the capsule and the muscles crossing the joint.² Goldblatt et al³ stated that a thorough knowledge of the complex anatomy and biomechanical function of the structures of the knee is essential to make accurate clinical diagnoses and decisions regarding the treatment of the multiple-ligament-injured knee.

Ferreira AH⁴ observed that continuous knee pain and osteoarthritis has negative impact on psychic domain and quality of life. According to Oxford⁵, a housemaid is a girl or woman who is a servant employed to do house work such as sweeping, cleaning utensils, washing clothes, cooking, caring of children and such other work. Waerness⁶ in his study says, given the nature of housework, Women's work is comprised of many small tasks like cooking, moping, cleaning activities, washing clothes, ironing clothes, washing utensils which on the whole cannot be concentrated according to ordinary principles of effective allocation of time. Housemaids are part of community who leave their primary living place or their families because of challenging life events that obligate them to search other alternatives to survive or for perceived better life. The majority of housemaids are women, poor and immigrants with minimal education⁹. Body Mass Index¹⁰, is defined as a person's weight in kilograms divided by the square of the person's height in meters (kg/m²). Sharma Let al¹¹ stated BMI has negative effect on knee particularly in women. It shows an association between an increased body mass index (BMI) and knee osteoarthritis.

METHODOLOGY

Sample

A total of 133 subjects were taken from in and around Patiala for the survey on the basis of inclusion and exclusion criteria having age 21-40 years and with 3 years of work.

Procedure

Research was survey in nature and 150 subjects were taken out of which 17 were excluded based on inclusion and exclusion criteria and 133 subjects were selected by Snowball sampling from different areas of Patiala. Informed consent was taken from 133 subjects. Subjects were interviewed and assessed on a self made assessment form to fulfill the inclusion and excluded on the basis of special tests like Anterior Drawer test, Posterior Drawer test, Patellar Grind test, Varus

stress test, Valgus stress, Apley's compression test, Apley's distraction test and Mc Murray test. Then the subjects filled questionnaire Knee Injury and Osteoarthritis Outcome Score about knee to find about the prevalence of dysfunction and how it affect the quality of life of such subjects. After that another self made questionnaire was used to find out the effect of factors like parity, hours of working, type of work, mode of travel. Then data was analysed and result was obtained.

RESULTS

The subjects were assessed on the basis of Knee injury and osteoarthritis outcome score (KOOS) scoring in which 39.1% of the subjects had no problem in knee (Frequency=52), 33.1% had mild problem (Frequency=44), 18% had moderate problem (Frequency=24), 8.3% had severe problem (Frequency=11) and 1.5% had extreme problem (Frequency=2)

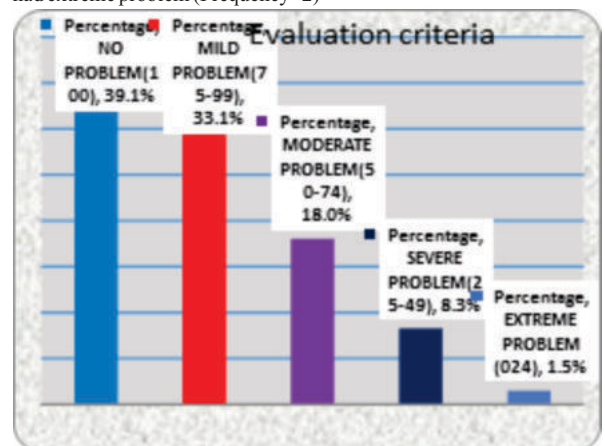


Figure 1: Knee injury and osteoarthritis outcome score (KOOS) scoring.

The chi-square test was used to determine the association between the score levels and selected demographic variables. It shows the association of scores of Knee injury and osteoarthritis outcome score and demographic variables. There was significant association of Knee injury and osteoarthritis outcome score with demographic variable age with Chi square value of 30.677. Knee injury and osteoarthritis outcome score was also significantly associated with factors like Working hours, Travelling distance, Number of deliveries, Body Mass Index and Economical status with Chi square value of 30.044, 33.808, 60.249, 55.458 and 47.126 respectively. Factors like Type of work and

Mode of transport were not significantly associated with Knee injury and osteoarthritis outcome score. The calculated Chi square values were less than the table at the 0.05 level of significance.

TABLE 2: VAS with value of no pain (Frequency=52), Mild pain (Frequency=26), Moderate pain (Frequency=39) and Severe pain (Frequency=16).

Criteria Measure Of Visual Analog Scale (VAS) Score			
Level of Scores	N= 133	Percentage	Frequency
SEVERE PAIN (7-10)		12.0%	16
MODERATE PAIN (4-6)		29.3%	39
MILD PAIN (1-3)		19.5%	26
NO PAIN (0)		39.1%	52
Maximum =10 Minimum=0			

Table 3: Association of Visual Analog Scale (VAS) Scores and Demographic Variables

Demographic Data & Clinical Variables		Level Of VAS (N=133)				Association with VAS Score				
Variables	Opts	SEVERE	MODERATE	MILD	NO VAS	Chi Test	P Value	df	Table Value	Result
Age in years	Upto 25 Years	0	1	4	19	31.335	0.000	6	12.592	Significant
	26-35 Years	9	15	13	25					
	Above 35 Years	7	23	9	8					
Gender	Male	0	0	0	0	NA				
	Female	16	39	26	52					
Working Hours	Less than 2 Hours	1	0	0	9	36.630	0.000	9	16.919	Significant
	2-4 Hours	2	10	18	19					
	4-6 Hours	6	22	5	13					
	More than 6 Hours	7	7	3	11					
Type of work	Only 1 work	0	3	5	12	12.769	0.173	9	16.919	Not Significant
	2 types of work	7	12	8	7					
	3 types of work	2	5	3	8					
	4 types of work	7	19	10	25					
Mode of Transport	Public transport	5	7	3	3	12.570	0.183	9	16.919	Not Significant
	2 wheeler	1	5	3	5					
	Cycling	0	0	2	5					
	Walking	10	27	18	39					
Travelling Distance	Less than 2 km	0	7	12	30	35.873	0.000	9	16.919	Significant
	2-4 km	7	22	8	15					
	4-6 km	6	10	4	5					
	More than 6 km	3	0	2	2					
Number of Deliveries	None	0	5	4	23	46.735	0.000	9	16.919	Significant
	1 child	0	5	4	18					
	2 children	9	20	12	7					
	More than 2 children	7	9	6	4					
Body Mass Index	Underweight	0	0	0	4	51.136	0.000	9	16.919	Significant
	Normal Weight	1	13	11	39					
	Over weight	7	16	12	9					
	Obesity	8	10	3	0					
Economical Status (per month)	Less than 5 thousand	0	2	4	20	40.174	0.000	9	16.919	Significant
	5-10 thousand	5	10	9	23					
	10-15 thousand	10	17	8	6					
	More than 15 thousand	1	10	5	3					

squatting and kneeling is associated with increased risk of moderate to severe radiographic knee osteoarthritis.

The main causes of pain are given by Calmbach WL¹⁰ according to which teenage girls and young women are more likely to have patellar tracking problems such as patellar subluxation and patellofemoral pain syndrome. Active patients are more likely to have acute ligamentous sprains and overuse injuries such as pes anserine bursitis and medial plica syndrome.

A study suggested that there is potential link between occupation and the future risk of developing knee pain, work of housemaids like moping, washing clothes etc. leads to regular kneeling and standing postures which may lead to knee pain. As, there is a significant body of evidence demonstrating that individuals who have subjected their knees to significant and recurrent squatting, bending, kneeling and loading are far more likely to develop knee pain as stated by Dulay Gs¹¹.

The association of demographic data and clinical variables was significant for gender, working hours, travelling distance, and number of deliveries, Body Mass Index and economical status but was not significant for type of work and mode of transport. In a study conducted by Jordan¹² Low economic status leads to poor diet and lack

of awareness about body and working conditions as well as literacy rate is low in housemaids in India as stated by Sutradhar R¹³. Most of the housemaids are interstate migrants. Also majority are illiterate, 75% of them received below primary level education, because of which they lack knowledge in cleanliness and hygiene and that may be the one of the reason for pain prevalence of knee in housemaids.

DISCUSSION

The prevalence of pain may occur due to the type of work and different factors affecting it. The suggestive pathologies for knee pain are oxidative damage, thinning of cartilage, muscle weakening, and a reduction in proprioception.

The prevalence of osteoarthritis and patterns of joint involvement vary among different racial and ethnic groups. Factors like prolonged

Association with other factors is significant for working hours, travelling distance, number of deliveries, Body Mass Index and economical status, respectively and not significant for type of work and mode of transport. This can be justified by a study conducted by Jorgensen KT¹⁵ that risk of Osteoarthritis hospitalization was highest among married persons and persons with short education or low income particularly strong association between parity and risk of Osteoarthritis knee in women is compatible with a role of pregnancy-associated factors.

Another study conducted by Bliddal M¹⁶ stated that high pre-pregnancy Body Mass Index increases the risk of degenerative musculoskeletal conditions. Low and high Gestational weight gain, higher postpartum weight retention, and especially higher parity are associated with an increased risk. Prevention of being overweight before, during, and after pregnancy may reduce the risk of development of degenerative musculoskeletal conditions among mothers. House maids has

extraneous set of activities which include lots of standing, repetitive sitting, kneeling, stair climbing so the chances of knee pain occurs. This is justified by a study in which Occupations having eight specific physical activities: squatting, kneeling, stair-climbing, heavy lifting, walking, standing, sitting, and driving has more prevalence of knee pain as stated by Coggon Det al¹⁷.

CONCLUSIONS

Association of knee pain with factors is significant for working hours, travelling distance, number of deliveries, Body Mass Index and economical status.

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