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Incidence of Foot and Ankle Pain Among Housemaids Using Foot and Ankle Outcome Score

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ABSTRACT

AIM: To find out incidence of foot and ankle pain among housemaids using foot and ankle outcome score.

INTRODUCTION: The physical demands of housemaids often go unrecognised ,particularly in relation to musculoskeletal disorders. Among these,foot and ankle pain stands out due to the extensive periods of standing,walking, and performing physically demanding tasks that are inherent to their roles.

METHODOLOGY: It is a cross-sectional study using foot and ankle outcome score. 100 participants who had a work experience of 2 or more than 2 years. They were selected using convenience sampling.Each participants BMI was calculated.Foot and ankle outcome score was used to collect the data in an interview format.

RESULT: Out of 100 participants 32% of them have severe pain during climbing stairs,48% have severe difficulty during heavy domestic duties like scrubbing floor,41% have extreme difficulty while squatting,65% of the housemaids are aware of their problem constantly even during their work hours and 37% of them have severe difficulty with the foot/ankle in general.

CONCLUSION: The study also shows a direct relationship between the age,working hours in a day, and the BMI of the housemaid.

KEYWORDS: Foot and ankle pain, Foot and ankle outcome score, Housemaids,

INTRODUCTION

A large population of women in India from the lower socioeconomic status work as "housemaids' ', who must carry out household work, often for as long as 12-14 hours a day, with a minimal pay. Each occupation requires hard work. Housemaids carry out diverse household work that range from cutting vegetables in the kitchen to washing clothes. These dissimilar activities, often carried out with inappropriate postures over a few years, predispose the Housemaids to a variety of musculoskeletal disorders (MSDs).[1]The prevalence of musculoskeletal disorders among the general population of India is not well documented. Among the many challenges they face, one recurrent, yet under-reported issue is the enduring spectre of foot and ankle pain.[2]

Musculoskeletal pain is the commonest cause in the general population which may lead to increase in sick

leaves and lack of interest in work. MSDs are the most common cause of chronic pain and physical disability Globally affecting the quality of life of hundreds of million people.Studies on MSDs have indicated a large gender bias, affecting more women than men in the same age group.[2] One of the risk factors for developing musculoskeletal pain is poor ergonomics during the physical work which can be repetitive movements, overuse, overexertion and faulty posture.[2]

The current fast paced life in urban localities has made the need of domestic help necessary in almost every household. Housemaids are employed for tasks such as cooking, sweeping, mopping floors, washing clothes and utensils, vacuuming, dusting, etc. These tasks are physically very demanding and require bending, climbing, crawling, reaching and twisting movements to be done repetitively and for a long period of time which can lead to poor ergonomics. Such repetitive motions, combined with the absence of adequate breaks, result in considerable strain on their lower limbs. Housemaids also frequently bear the responsibility of lifting and carrying young children, a task that places significant stress on their backs, knees, and, notably, their feet.[1]

As the human foot provides base of contact with the ground, it plays an important role in all weight bearing activity, walking, provides stability, balance, helps to adapt to the surfaces, and even acts as shock absorption. When an individual develops any kind of foot pain it interrupts the biomechanical function of the foot which can lead to abnormal gait, difficulty in walking, balance impairment which can lead to many musculoskeletal problems like neck pain, shoulder pain, knee pain, leg pain, foot pain, etc.[3]

A cross sectional study on Prevalence and associated factors of foot and ankle pain in nurses showed that foot and ankle pain has occurred frequently in nurses and this pain prevents them from performing their daily living and work activities. This Study also shows that factors associated with pain were footwear comfort, psychosocial and several personal Factors.[20] Another population-based study on prevalence and correlates of foot pain proved that, in community nearly one in five of population has been affected with foot pain & it is commonly correlated with old age, Obesity and female gender. [5]

The risk situations that are favourable to develop musculoskeletal pain in housemaids are prolonged standing, the burden put on body segments, repetitive movements, excessive strength to complete certain tasks, unbalanced postures, beside the poor ergonomics during their work.

Ergonomic strategies are not widely practised in the cleaning profession in housemaids. If ergonomic principles can be integrated into existing tools and work environments then productivity can be increased,and foot and ankle pain can be reduced thereby reducing the risk of foot and ankle injuries. To work on the issue of foot and ankle pain,it is essential to find out the prevalence of foot and ankle pain in housemaids.[1]

Through this study, we seek not only to quantify the extent of foot and ankle pain among housemaids but also to comprehensively examine its impact on their daily lives. Thus, to reduce the risk of injuries in housemaids,thereby improving their quality of life and overall well being we need to find out the prevalence of foot and ankle pain.

To conduct a rigorous analysis of this matter, we turn to a valuable instrument in the field of orthopaedics and healthcare research: the Foot and Ankle Outcome Score (FAOS). The FAOS is a standardised questionnaire meticulously designed to gauge various dimensions of foot and ankle health, offering valuable insights into pain levels, functional limitations, and overall quality of life.

The foot and ankle outcome score consists of 42 items as effect indicators of 5 subscales of pain, other symptoms, activities of daily living, recreational activities and quality of life. The questionnaire is validated for inferior calcaneal heel pain, acquired flat foot deformity, ankle ligament reconstruction, ankle

osteoarthritis, it is also used in Achilles tendinosis and is validated to be used in other orthopaedic conditions for research purposes.

Cronbach's alpha was for foot and ankle outcome score 0.95-0.97 for pain,0.97-0.98 for ADL,0.94-0.96 for recreational activities,0.89-0.92 for quality of life and 0.72-0.82 for symptoms. construct validity is 0.58-0.68.[9]

The aim is to find out incidence of foot and ankle pain among housemaids using foot and ankle outcome score and the objective of the study is to find out the incidence of pain in the foot and ankle and to find its effects on activities of daily living,recreational activities and the quality of life

METHOD AND MATERIALS

This was a cross-sectional study conducted in ulhasnagar, Thane using convenience sampling with 100 participants. The participants were female housemaids between the age of 18-40 years, who worked for 5 or more than 5 hours per day and for 2 or more than 2 years and who understood either English, hindi or marathi. Approval was taken from the ethics committee of TMV's Lokmanya Tilak College of Physiotherapy.The purpose of the study was explained to the participants and their informed consent was taken. Demographic details like Name,age,address,contact number of all the participants were collected.Data collection sheet was filled in which any history of recent trauma or surgery to the lower limb was asked.Height,Weight was taken and BMI was calculated.Foot and ankle outcome score which has the domains of pain,symptoms,ADL's,recreational activity and quality of life was filled for every participant in interview form.Observations and readings were noted and correlated accordingly.

DATA ANALYSIS AND RESULTS

Descriptive statistics like percentage and frequency was calculated.Following graphs represent the inclusion criteria and the necessary details taken into consideration for the study.

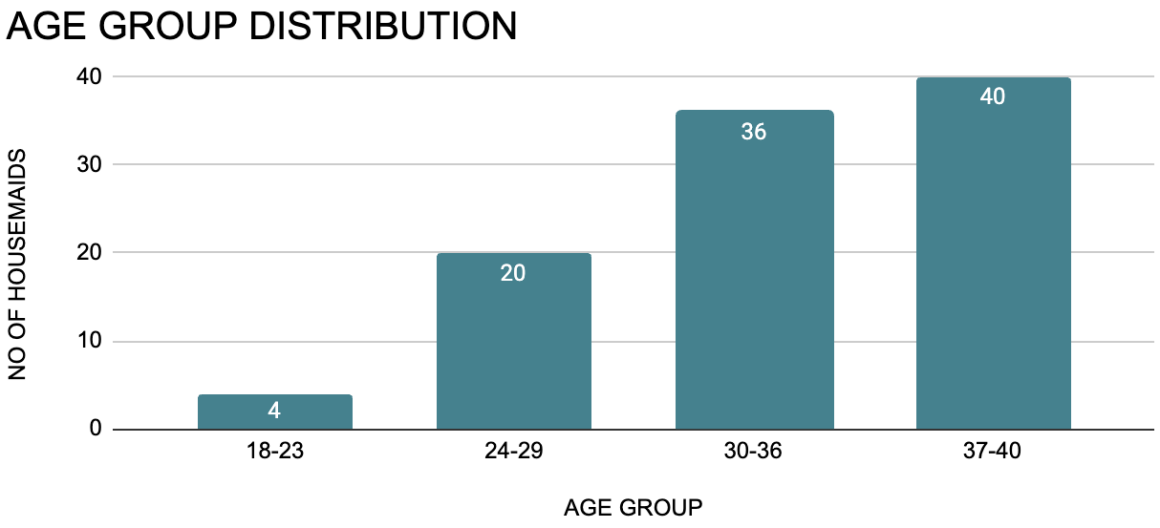

Fig.1 The graph depicts the number of housemaids in a particular age group

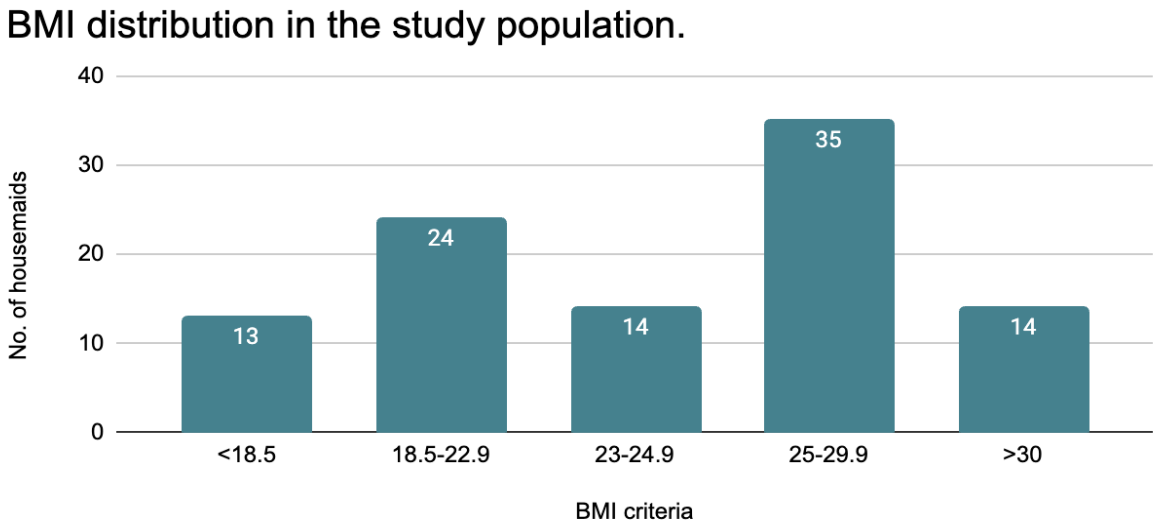

Fig.2 The graph depicts BMI values of the housemaids.

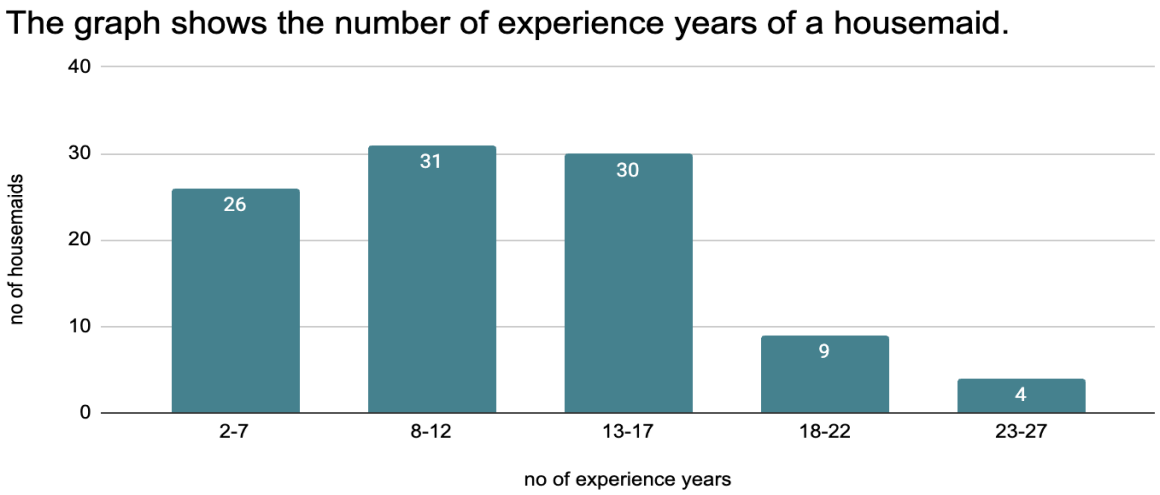

Fig.3 The graph depicts the experience years of a housemaid.

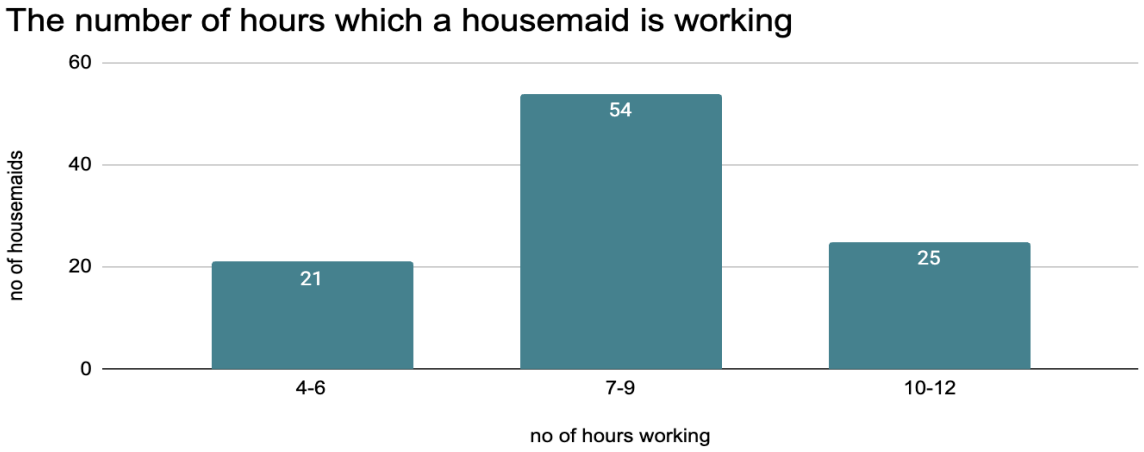

Fig.4 The graph depicts the number of hours a housemaid is working in a day

Table.1 Frequencies of symptoms in the past week.

	have swelling in foot/ankle	feel grinding,hear clicking or any other noise when foot or ankle moves	foot/ankle catch/hang up when moving
never	4	2	4
rarely	26	22	34
sometimes	31	39	34
often	36	31	36
always	3	6	2

The above table shows, 39% of housemaids often have swelling,37% often hear clicking sounds from the ankle/foot.

Table.1a Severity of stiffness in the past week.

	severity of stiffness in the morning	severity of stiffness after sitting,lying or resting later in the day
none	8	12
mild	36	333
moderate	38	34
severe	18	20
extreme	0	1

The above table shows, 21% housemaids had severe stiffness after resting later in the day.

Table.2a Frequency of pain.

	how often do they experience pain
never	3
monthly	17
weekly	15
daily	51
always	14

51% of housemaids felt pain daily,while 14% felt pain constantly.

Table 2b Frequencies of pain in the past week.

	twisting/pivoting the foot/ankle	walking on a flat surface	going up or down stairs	standing upright
none	4	6	4	35
mild	38	37	33	33

moderate	32	36	31	24
severe	24	20	30	7
extreme	2	1	2	1

26% of housemaids had severe pain in twisting and pivoting of foot/ankle and 32% had severe pain while going up and down stairs.

Table 3 Frequencies of difficulty in the following activities in the past week.

	none	**mild**	**moderate**	**severe**	**extreme**
descending stairs	4	32	32	31	1
rising from sitting	15	41	32	9	3
standing	22	29	37	10	2
bending to floor	5	33	41	17	4
walking on a flat surface	4	33	45	18	0
going shopping	4	29	36	26	5
rising from bed	21	54	16	7	2
lying in bed	34	51	7	5	3
getting on/off toilet	17	55	24	**3**	1
heavy domestic duties	2	17	33	35	13
light domestic duties	8	34	36	20	2

32% of housemaids had severe pain while descending stairs,31% had severe pain while going shopping and 48% had pain doing heavy domestic duties.

Table 4 The table shows the degree of difficulty a housemaid faces for the following recreational activities.

	squatting	**running**	**jumping**
none	4	2	2
mild	22	26	27
moderate	33	28	28
severe	28	32	29

extreme	13	12	14

41% of housemaids had severe pain while squatting,44% had severe pain while running and 43% had severe pain while jumping.

Table 5a How often the housemaids are aware of their foot/ankle problems.

	awareness of foot and ankle problem
never	8
monthly	12
weekly	15
daily	45
constantly	20

45% of housemaids were aware of their problem daily and 20% were aware of it constantly.

Table.5b Quality of life of housemaids

	any lifestyle modifications	**lack of confidence because of the foot or ankle**	**in general,difficulty with foot or ankle**
none	71	54	11
mild	22	32	28
moderate	1	10	24
severe	6	3	25
extreme	0	0	12

DISCUSSION

Housemaids have become a necessity of the families living in the urban area. A large population of women in India are from lower economic status who work as housemaids to meet their daily living. Housemaids are employed for various tasks such as cooking,sweeping,mopping floors,washing clothes and utensils,dusting,etc. Even if all the activities are dynamic in nature,the standing posture determines static strain on the muscles that may contribute to the pain occurring in the lower limbs.

Almost all of these tasks are physically very demanding,which can lead to a number of musculoskeletal disorders because of the poor posture they acquire during working. Furthermore, the standing posture impedes the venous return and thus elevates the blood hydrostatic pressure in the veins of the lower extremities,causing accumulation of liquids with swelling and pain.[3]

These tasks require repetitive and prolonged bending,crawling,climbing,reaching and twisting movements. This could lead to overexertion and put their body under stress. Because of the overexertion of the muscles,the functional ability of the muscles decreases by metabolic exhaustion,which can manifest as weakness,pain,fatigue or subjective discomfort because of more strain created in the body.[4]

This study aimed to determine the incidence of foot and ankle pain among housemaids working in ulhasnagar,Thane and also discuss the factors associated with it.The current study shows that the 39% of

housemaids often had swelling in foot/ankle,felt grinding,heard clicking or any other noise when foot/ankle moves and their foot/ankle catches/hangs up while moving.21% had severe stiffness during sitting,lying or resting later in the day,65% experience pain daily.This can be because the overuse of the muscles during the day causes fatigue later in the day leading to stiffness and pain.32% housemaids had pain while going up and down stairs.48% housemaids have severe difficulty in heavy domestic duties like moving heavy boxes,scrubbing floors,etc.41% have extreme difficulty while squatting.45% of them are aware of their problems daily and 20% of them are aware of it constantly during the day even while working.37% of them have extreme difficulty with their foot/ankle in general.

This result is parallel to the study done by Ayshath Munazila C.M , Shirin Shahana K.M , Merlin Rajan, Sandeep K.R , Mudasir Rashid Baba on prevalence of foot and ankle pain among housekeeping staff which concluded that 60.4% reported pain while going up and down stairs, 58.4% reported pain while prolonged standing and 23.9% felt that their daily activities were interfered due to the pain.[2] In the current study 14% of the housemaids came under the overweight category,35% were class 1 obese and 14% were class 2 obese showing that the increased weight of the body increases the risk of musculoskeletal problems in the weight bearing joints.Increased BMI can also lead to increased weight bearing on the foot and ankle leading to falling of arches which can cause pain and difficulties.[5] While working,the housemaids are bare feet which in turn again increases the load on the foot and ankle as there is no footwear which can act as a shock absorber leading to trauma on the foot and ankle musculature. 40% of them were under the age group of 37-40 years and 36% of them were under the age group of 30-36 years. 39% of the housemaids had an experience of 13-22 years and 79% of the housemaids were working for 7-12 hours per day which in turn says that the longer they work and for more years,leads to overuse of the joint and the muscles which inturn increases the load on the musculoskeletal system leading to increased foot and ankle pain.[3] Most of the housemaids are not able to take frequent breaks during their work hours which lead to immense load on the joints and muscles, so taking a few work breaks would also be beneficial as the muscles will get time to recover from the fatigue[6] . Importantly, age is one of the statistically significant variables regarding pain. It has been suggested that the relationship between age and pain could be explained by the accumulation of exposure, also called allostatic load, and age-related degeneration of joints and loss of muscle strength[7]

Regardless of the causes our study reported the association between ankle and foot pain during walking on uneven surfaces and reduced health related quality of life.

CONCLUSION

It may be concluded from the study that 65% of housemaids of ulhasnagar,Thane, experience pain on daily basis, 32% of them have severe pain during climbing stairs,48% have severe difficulty during heavy domestic duties like scrubbing floor,41% have extreme difficulty while squatting,65% of the housemaids are aware of their problem constantly even during their work hours and 37% of them have severe difficulty with the foot/ankle in general,which has also lead to a poor quality of life.The study also shows a direct relationship between the age,working hours in a day,experience years amd the bmi of the housemaid.Therefore,the following study shows that proper ergonomic advice should be given to the housemaids to correct the awkward working postures,application of proper work-rest cycles,modifying the workstation and equipment and use of developed gadgets for mopping floors if possible.

LIMITATIONS

One of the limitations is that the study was done in a single geographical area,thus the outcome might not be similar to other areas, also, the sample size was also less,further studies should be done with a larger sample size.

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