

Original Research Article

Prevalence of musculoskeletal disorders among the house wives following kitchen work

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Received: 17 May 2022

Accepted: 04 June 2022

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ABSTRACT

Background: Kitchen work related pain is one of the commonest problems now a day in housewives. During the kitchen work females have to work in awkward postures, prolonged working positions, repeated movements, improper working environment and manual handling of objects with different size, shape and weights. This study was aimed to find out the prevalence of musculoskeletal disorders (MSDs) in housewives following kitchen work.

Methods: The study examined 85 healthy housewives aged between 20 to 45 years from Ahmedabad. Participants were selected as per selection criteria by simple random sampling. Written informed consent was taken from all the participants and participants were requested to fill up the questionnaires. The questionnaires- Cornell musculoskeletal discomfort questionnaire (CMDQ) and Cornell hand discomfort questionnaire (CHDQ) were used in this study. Participants were not involved in any other type of work.

Results: The result of the study showed that there was high prevalence of musculoskeletal pain in lower back (64.61%), neck (61.18%), upper back (56.47%), hand (55.29 %), and wrist (52.38%) areas.

Conclusions: The study concluded that high prevalence of musculoskeletal discomfort was found among the housewives following kitchen work with predominant affection of lower back, neck, upper back, hand and wrist areas.

Keywords: Musculoskeletal discomfort, Kitchen work, Housewives, Prevalence

INTRODUCTION

Housewives are pioneers and key to development of quality of human life, major part of time of the day they spend in the kitchen, so, high physical work strain, nonneutral postures, prolonged static muscle contractions and repetitive movements are regarded as harboring an increased risk of musculoskeletal pain.¹ Homemaking and kitchen task is a labor conventionally performed by women, spending approximately 3.2 hours in India. Chopping, stirring, and lifting utensil were found to be complex activities, requiring multiple changes in posture.² Housewives, who spend most of the time in kitchen while performing the daily household activities continuously without taking rest, are at the greatest risk due to lack of awareness of the basic principle, poor working conditions and traditional work methods and tools.³

Musculoskeletal pain is very common in both developed and developing countries with estimates of prevalence ranging from 11-60%.⁴ Musculoskeletal conditions affect more than 1.7 billion people worldwide and have the 4th greatest impact on the overall health of the world population, considering both death and disability.⁵ This burden has increased by 45% during the past 20 years and will continue to escalate unless action is taken.³ Global burden of disease study 2010, demonstrates the impact of musculoskeletal diseases as the second greatest cause of disability globally in all over the world. Quality of life (QOL) is an important indicator for musculoskeletal disease.⁶ Pain disorders have a negative impact on work ability and work effectiveness.⁷ Persistence of musculoskeletal pain results in decreased productivity which at the end leads to poor quality of life.⁶ A kitchen worker's work is characterized by long standing hours,

constant leaning forward of the body, repetitive upper body movements, lifting heavy items in awkward positions, static postures and heavy workloads.⁷ These include prolonged grasping of cooking utensils, and cutting vegetables, all of which require the forceful exertion of hands, wrists, and forearms. In addition, a cook often has to keep moving the wrist in repetitive cutting activities.⁸ Musculoskeletal pain continues to be a major cause of morbidity with considerable economic and societal consequences. According to a recent review, MSDs, particularly low back pain, neck pain and shoulder pain, are the main reasons for work related consultations in general practice.⁹ Kitchen workers are mostly women with a high physical workload. Very little systematic research has focused on this occupational group.⁷ In a nationally representative study in Finland, kitchen aids had an increased risk of low back disorders leading to hospitalization. It seems reasonable to assume that kitchen workers have a high occurrence of even other musculoskeletal pain problems, and further that these cluster by anatomic area.⁷

METHODS

Participants were 85 healthy female housewives aged between 20 to 45 years from Ahmedabad. Participants were selected as per selection criteria by simple random sampling. Participants with selection criteria such as the females working in standing kitchen minimum 3 hours per day and minimum 5 days per week (kitchen work is done almost exclusively when standing or walking), the age of the female housewives between 20-45 years, the females who are willing to participate in the study, the female housewives doing kitchen work for minimum two years and the housewives doing only kitchen work were selected and those participants with history of trauma within last 1 year, history of any congenital or acquired musculoskeletal deformity, neurological conditions, cardio pulmonary conditions, history of other pathological conditions like osteomyelitis, and neoplasm, history of acute musculoskeletal injury or degenerative diseases, the

females who are doing kitchen work for less than 2 years and the females who are doing household work like washing the clothes manually, mopping and cleaning utensils were excluded for the study. Written informed consent was taken from all the participants. The aim and process of study design was explained to all participants. Participants demographics (name, age, gender, height, and weight) were collected before filling the questionnaires. Then participants were requested to fill up the questionnaires, questionnaire includes pain/discomfort felt by the patient in different segments of the body, its frequency and interference with her ability to work during last 7 days.

Cornell musculoskeletal discomfort questionnaire and Cornell hand discomfort questionnaire

The Cornell musculoskeletal discomfort questionnaire (CMDQ) is a 54-item questionnaire containing a body map diagram and the Cornell hand discomfort questionnaire (CHDQ) is a 6-item questionnaire containing a hand map diagram showing 6 shaded areas of the hand questions about: prevalence of musculoskeletal pain, discomfort and interference with work, during the previous week in different regions of the body. Total discomfort score was calculated by using the formula frequency×discomfort×interference, where higher the scores indicated more discomfort. The validity of CMDQ has been extensively tested by Dr. Oguzhan Erdinc in Turkey with good results.¹⁰

Statistical analysis

Data analysis was done through Microsoft excel by Microsoft Windows. Percentage calculation of each category was done.

RESULTS

The sample was composed of 85 participants (age mean±SD=34.94±7.62 and SE=0.8).

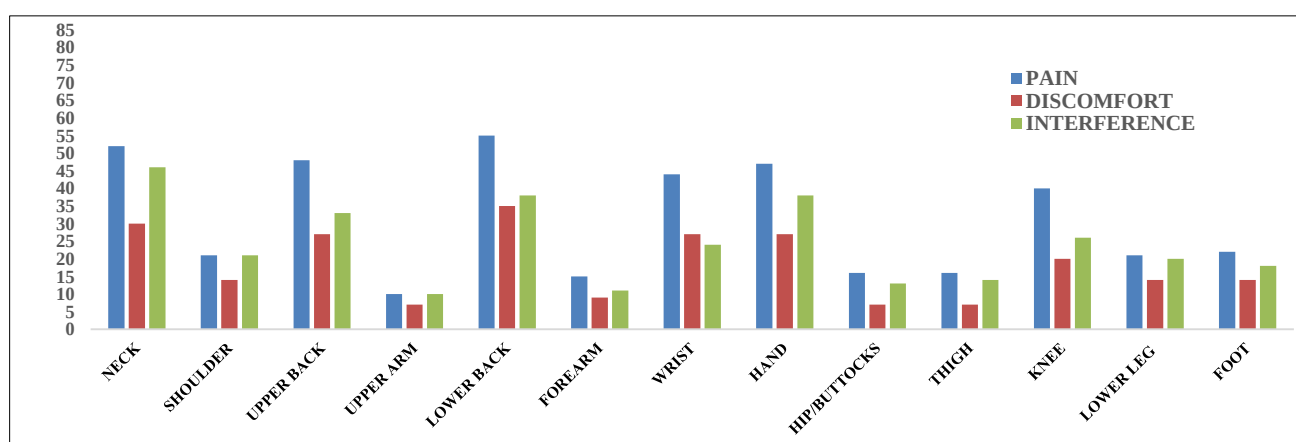


Figure 1: Result of CMDQ and CHDQ shows number of participants having pain, discomfort and work interference in body regions. X axis shows number of participants and Y axis shows prevalence of pain, discomfort and interference.

DISCUSSION

This study showed that the housewives were facing so many ergonomic problems due to their wrong working methods. Majority of the participants were working in awkward postures and prolong postures with the heavy utensils. The participants were affected by musculoskeletal disorders (MSDs) in one or more body regions. The high prevalence of MSDs among house wife suggests that kitchen work like chopping, stirring, and lifting utensil were found to be complex activities, requiring multiple changes in posture and it could be an independent risk factor contributing to the development of MSDs among women.

Women perform a wide variety of activities daily in the kitchen. Due to continuous work performance housewives suffer various kind of physical disorders like MSDs, pain in joints, back, shoulders, arms and hands due to prolong standing posture. If women work with a high degree of physical effort, then it leads to fatigue and frustration and other psychological issues as well.

The result of this study showed that 83.53% of the whole sample reported MSD of at least mild severity in at least one body part. The 76.47% of the whole sample reported that the discomfort experienced interfered with their ability to perform work efficiency.

There was high prevalence of pain in lower back (64.61%), neck (61.18%), upper back (56.47%), hand (55.29%) and wrist (52.38%) due to repetitive movements, awkward working postures, manual handling of the objects. The major prevalence of lower back pain in the current study can be the results of long-standing hours and lifting activities in awkward postures.

Chronic MSD exposes housewives to postural abnormality which can be followed by altered biomechanics of the anatomical structures. This further leads to development of complication and results in more serious conditions.

Haukka et al studied the co-occurrence of musculoskeletal pain symptoms in seven body sites and their combinations among women in kitchen work and concluded widespread co-occurrence of musculoskeletal pain symptoms were common among them with slight predominance in upper body. The results suggest that pain location should generally not be seen in isolation but that assessment of pain in several sites should be considered.⁷

Mehta et al ergonomically evaluated the various kitchen activities in different body postures, forward flexed (slumped) posture imposed the most loads. Ritu have analyzed working posture of 200 workers engaged in papad rolling by RULA methods and reported presence of higher stress on upper arm, lower arm and wrist.

Nazish et al conducted research “Prevalence of musculoskeletal disorder among house wives and working

women” with 100 subjects. The high prevalence of MSDs among house wife suggests that house work could be an independent risk factor contributing to the development of musculoskeletal disorder among women. Counselling, postural correction and awareness sessions should be conducted on ergonomics to maintain and prevent the MSDs among house wife and working women.

Bhatnagar aimed to investigate the prevalence of MSDs of housewives in Delhi and Noida. 100 housewives aged 25-35 years with no pregnancy were selected to participate in the study. The study indicated that 100% housewife were affected by MSDs in one or more body region. Housewives suffer pain with lower back (60%), shoulder (42%), upper back (38%), neck (35%), wrist/hand (29%), ankle/feet (26%), knee and thigh/hips/buttocks (20%) and elbow (18%) were prevented from perform their normal activities.¹²

Further studies involving larger population should be targeted, so that stronger results can be established and can be generalized. Further studies can also focus on level of physical activities, workplace evaluation, stress level and ergonomic status of the kitchen.

CONCLUSION

It is concluded from the result of the study that high prevalence of MSDs in housewives following kitchen work is reported. The study also concludes that lower back and neck are the most affected body regions followed by upper back, wrist and hand. Participants faced substantial interference with kitchen work due to musculoskeletal pain in body areas lower back, neck and upper back. The preliminary findings presented in this article is that physically demanding housework activities expose female homemakers to several known risk factors for MSDs of the lower back, neck, shoulder, and upper and lower limbs. This line of work should, therefore, be studied from an ergonomic point of view, so as to indicate opportunities for prevention. To avoid the problems caused by overload, it is advisable to do exercises.

ACKNOWLEDGEMENTS

Authors would like to thank all participants for their contribution and cooperation during this research. They are also thankful to C. M. Patel College of Physiotherapy, Gandhinagar, Gujarat, India.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Chovatiya NK, Solanki M. Prevalence of musculoskeletal disorders among the house wives following kitchen work. *Int J Community Med Public Health* 2022;9:2923-6.