

Postures difficulties faced by women while performing kitchen storage activities

■ SIMRANPREET KAUR, HARPINDER KAUR AND MUNINDER KAUR SIDHU

Received: 06.08.2012; Revised: 04.10.2012; Accepted: 11.11.2012

See end of the paper for authors' affiliations

Correspondence to :

HARPINDER KAUR
Department of Family
Resource Management, Punjab
Agricultural University,
LUDHIANA (PUNJAB) INDIA
Email: harp_07@rediffmail.
com

■ **ABSTRACT** : The homemaker is the predominant figure in the home and household work is the an indispensable part of the homemaker. The homemakers often work in awkward postures for long duration as some of the kitchen activities consist of repetitive work in a single position like storing and restoring of various kitchen items. They seldom realize the cost of energy and other physiological costs incurred due to wrong posture. Poor posture increases the physiological cost of work and energy expenditure. The static muscular efforts and incorrect posture if sustained for a long period of time can give rise to various types of health and musculo-skeletal problems Working posture becomes an important factor while designing ergonomically sound tools, equipment and workstation. Therefore, the present study was undertaken to find out various postures adopted by rural and urban homemakers of Ludhiana District while performing kitchen storage activities and to assess the difficulty score for each adopted posture. Results showed that while performing kitchen storage activities, the most difficult and frequently used posture adopted by both rural and urban respondents was forward and side bending. Therefore, some modifications were suggested for proper organization of existing storage units to reduce postural discomfort of respondents.

■ **KEY WORDS** : Working posture, Musculo-skeletal problems, Functional area, Workstation, Postural difficulty

■ **HOW TO CITE THIS PAPER** : Kaur, Simranpreet, Kaur, Harpinder and Sidhu, Muninder Kaur (2012). Postures difficulties faced by women while performing kitchen storage activities. *Asian J. Home Sci.*, 7 (2): 428-430.

The kitchen is the hub of any home, therefore, it is important that a kitchen is well planned, adequately organized and maximizes all the useable storage space to perform the kitchen tasks successfully of the specialized spaces of the home. The kitchen is the one that can most obviously be treated as a functional working area. The basic components of kitchen working area are the work surface, storage and major appliances. Working posture becomes an important factor while designing ergonomically sound tools, equipment and workstation. So, the need for assessing reduction of muscular stress on the women worker with the use of improved tools and implements was felt so that the women can be persuaded to use the effective improved equipment to ensure right work posture for the selected activities and can have least fatigue and discomfort to the body. Poor posture increases the physiological cost of work and energy expenditure. The static muscular efforts and

incorrect posture if sustained for a long period of time can give rise to various types of health and musculo-skeletal problems (Saha, 1999). Organization of work surface or storage space is considered important for decreasing cost of work. With a faulty design of kitchen storage shelves, even the normal person without primary anatomical or physical defects may develop degenerative tissue changes and decreased output with maximum input (Kumari and Dayal, 2009).

Objectives :

The present study was undertaken with the following objectives:

- To know the various postures adopted by rural and urban respondents while performing kitchen storage activities.
- To assess the difficulty score of each posture adopted by respondents during kitchen storage activities.
- To suggest modifications for proper organization of

existing storage units to reduce postural discomfort.

RESEARCH METHODS

The present study was conducted in both rural and urban areas of Ludhiana district. The random sampling technique was used to select 40 homemakers from rural and 40 homemakers from urban areas. For collecting the data, a pre-structured interview schedule was used to collect the information regarding various postures adopted by the homemakers and to find out the difficulties and problems faced by respondents while performing kitchen storage activities. The mean scores were calculated to find out the frequency and difficulty faced while adoption of various postures on three point basis by using the following formula:

$$\text{Mean} = \frac{\sum S}{N}$$

S = Scores assigned to respondents, n = Frequency distribution, N = Total number of respondents. Further the mean ranks were assigned on the basis of calculated mean scores.

RESEARCH FINDINGS AND DISCUSSION

The data collected on various aspects like frequency, duration and difficulty in adoption of various postures by rural and urban respondents have been analyzed and presented in Table 1 and Fig. 1:

It was observed from Table 1 and Plate 1 that the most frequent used postures adopted by both rural and urban respondents were forward and side bending. Therefore, these postures got I and II ranks, respectively, followed by squatting posture by rural respondents and bending on knees by urban respondents. Squatting and bending on knees were the postures adopted by the respondents to pick or place the items stored below the counters. The respondents adopted standing postures with slight variations *i.e.* standing with stretched arms or standing with raised feet. Both these



Plate 1 : Adoption of various postures by home makers

postures were adopted in situation when the height of shelves were not according to the respondents therefore to reach the item to be stored or restored they have to either stretch their arms or raise feet. Results by Joshi (2006) showed that respondents adopted standing, half bending and full bending postures during storing or picking up articles and frequency of changing postures were more in full bending followed by half bending and standing postures.

The difficulty scores during maintenance of posture was assessed on three point scale and has been presented in Fig. 1. It was found that most difficult postures experienced by both rural and urban respondents were forward and side bending and bending on knees as these postures got I to III

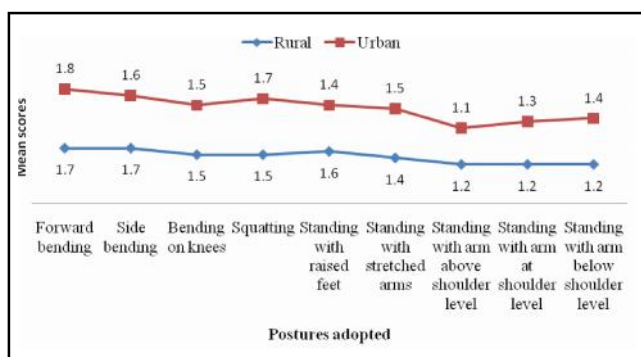


Fig. 1 : Difficulty scores on the basis of posture adoption
Difficulty score : Very difficult – 3, Difficult – 2, Less difficult – 1

Table 1 : Adoption of various postures by homemakers while performing kitchen storage activities

Postures adopted	Frequency			
	Rural		Urban	
	Mean scores	Mean ranks	Mean scores	Mean ranks
Forward bending	2.8	I	2.7	I
Side bending	2.5	II	2.5	II
Bending on knees	2.1	V	2.4	III
Squatting	2.3	III	2.0	VII
Standing with raised feet	2.0	VI	2.2	V
Standing with stretched arms	2.2	IV	2.3	IV
Standing with arm above shoulder level	1.9	VII	2.1	VI
Standing with arm at shoulder level	1.7	IX	1.9	VIII
Standing with arm below shoulder level	1.8	VIII	1.5	IX

Frequency Score : Very frequently – 3, Frequently – 2, Rare – 1

ranks, respectively. The squatting posture was also felt the most difficult by urban respondents which was used particularly to pick up or place items from the lower shelves or drawers. This activity forced the respondents to adopt bending posture which proved to create difficulty for them. It was further observed that rural respondents felt difficulty in maintaining standing posture on raised feet. This was due to the reason that overhead storage provisions were available in majority of the rural kitchens, and the height of which was unsuitable for homemakers which could lead to raise their feet to reach to the highest shelf to store or restore items. Chaudhary and Vinay (2005) found that due to more height of the top shelves, respondents had to raise their heels or used *patra* or *stool* to reach the top shelf. Both rural and urban respondents felt less difficulty in maintaining various standing posture *viz.*, standing with stretched arms, arm below shoulder level and arm at shoulder level. This may be due to the fact that majority of respondents felt comfortable in standing postures to perform all the kitchen activities due to standing type kitchens. Therefore, it can be concluded that bending or sitting postures were found as the most difficult postures as compared to various standing postures. Chattopadhyay *et al.* (2009) also mentioned that forward bending of the back was the most awkward posture in most of the construction jobs, hence postural stress was higher in low back than any other joints of the body.

Following suggestions were given to the respondents for proper organization of storage units

- The dimensions of the storage units should be designed according to the anthropometric measurements of the homemakers.
- The homemakers were made aware of storage principles which could help them for organization of existing storage space to avoid awkward postures.
- The homemakers were guided for proper designing of storage spaces to store various kitchen items like dry ingredients, kitchen tools and utensils, equipment and miscellaneous items.

Conclusion:

It was observed that while performing kitchen storage activities, the most frequent used postures adopted by both rural and urban respondents were forward and side bending, followed by squatting posture by the rural respondents and bending on knees by urban respondents. Squatting and bending on knees were the postures adopted by the respondents to pick or place the items stored below the counters. Therefore, it can be concluded that if the kitchen storage structures are designed by keeping in view the anthropometric requirements and storage principles, the postural discomfort can be reduced to great extent.

Authors' affiliations:

SIMRANPREET KAUR AND MUNINDER KAUR SIDHU,
Department of Family Resource Management, Punjab Agricultural University, LUDHIANA (PUNJAB) INDIA

■ REFERENCES

- Chattopadhyay, S.**, Basu, K., Sahu, S. and Paul, G. (2009). Ergonomic evaluation of postural stresses of male and female construction laborers employed in unorganized sectors in West Bengal. *Proc humanizing work and work environment (HWWE 2009). Internat. Conf. on Ergonomics.* pp. 131 - 137. Occupational Ergonomics Laboratory, University of Calcutta.(Abstr.).
- Chaudhary, N.** and Vinay, D. (2005). Determination of optimum work surface heights for kitchen based on ergonomic principles. *Proc humanizing work and work environment (HWWE 2005).*pp. 69. IIT, Guwahati (Abstr).
- Kumari, P.** and Dayal, R. (2009). Feeling of discomfort perceived by rural women while working in the existing kitchen arrangements. *Asian J. Home Sci.*, 3(2):158-160.
- Joshi, P.** (2006). A study on biomechanical problems of homemakers relating to existing storage spaces in the houses. M.Sc. Thesis, Punjab Agricultural University, Ludhiana (PUNJAB) INDIA.
- Saha, P.N.** (1999). Workload and postural stress. Advance training in ergonomics. SNTD Women's University, Mumbai (M.S.) INDIA.
