Abstract

Ergonomic plays a vital role in designing a kitchen area free from fatigue, reduction of unnecessary movement and excessive expenditure of human energy and time. The study analyzed the compatibility of kitchen centres with the anthropometric measurements of the homemaker and as to how modifications can be made to make modular kitchen more efficient and comfortable for the homemaker. An ergonomic evaluation of kitchen sink while cleaning utensils in standing posture and highest shelf reach by observation method was carried out.

A sample of 200 homemakers from Anand city was selected by proportionate sampling method. The criteria chosen for selection was that homemakers should be not working outside the home, living in own house and had no hire help in kitchen. Questionnaire was used to collect anthropometric measurements and kitchen information from the homemaker and the collected data was tabulated and analyzed statistically.

The results of the study revealed that the homemakers spent more than seven hours per day in kitchen activities and most of them were done in standing posture. One- fourth of the homemakers adopted high risk posture while rubbing and washing utensils while one-fifth homemakers had high or very high risk posture while reaching the highest shelf of the storage. The work centre height should be in relation to elbow height of the homemaker. 60% of respondents had “L” shaped kitchen layout. Exhaust fan and ceiling fan were used for exhaust in half of the kitchens. Four-fifth of kitchen had maximum intensity (500 lux) of day light in afternoon while they had moderate intensity (355 to 490 lux) of light in the evening. Half of the respondents faced high noise level (70 db) during work time in kitchen. Three-fifth of respondents found kitchen very dark and gloomy.

Three-fourth of respondents had provision of drinking water facility and both underground and overhead water storage facility in the kitchen. Majority of respondents had gas pipeline and municipality garbage pickup facility. Around half of the kitchen had satisfactory work triangle of 500-700 cm. 56% of respondents had white glow light in their kitchen. More than half of the kitchen had light neutral coloured distemper walls. Around half of kitchen had kotastone floor. Three- forth of kitchen doors, windows and storage were wood varnished. Electric appliances like refrigerator, mixer, hand mixer, sandwich maker and microwave/ oven possessed by almost all homemakers.

Satisfaction scale was developed to find out the extent of satisfaction level of the homemaker with respect to their modular kitchen. Three- fourth of the respondents were moderately unsatisfied with work centres in kitchen. Less than half of the respondents were unsatisfied with available storage space and surface height of the modular kitchen. A little less than half of the homemaker was very unsatisfied with the depth and width of kitchen sink, tap height of kitchen sink, placement of refrigerator. Less than half of respondents were unsatisfied while stretching needed to see the bottom of the vessel on the gas stove. Around half of the homemakers were satisfied with platform length, space to open/close the refrigerator door, space near kitchen sink and placement of electrical equipments in their modular kitchen.

When the hypothesis were computed between extent of satisfaction of the homemaker with respect to their modular kitchen and their variables related to worker, work place and work environment, the result clearly indicated that the satisfaction level of the homemaker with respect to their modular kitchen is influenced by the numbers of hours
spent by the homemaker in kitchen, use of electric equipments, existing work triangle in their modular kitchen and amount of lighting in the modular kitchen.

In- depth analysis of two kitchens with low satisfaction score were selected and analyzed in terms of their ergonomic design along with time and motion study and ergonomically improved kitchen designs were suggested which can directly improve the well being and efficiency of the homemaker.