

Assessment of the Need for Ergonomically Functional Relaxing Chair for Kitchen Related Standing Activities in Restaurants

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Abstract – A restaurant worker, who works in the kitchen, doing the different activities in continuous standing posture and spent most of the time inside the buildings and therefore experiences the greatest amount of exposure while performing various activities is at greatest risk. They do the work which is very labor intensive. The workers working in the restaurants withstand the pressure, string of working for long hours, suffering from high blood pressure due to prolong standing posture, lifting heavy pots and kettles and working near hot ovens and grills. An occupational hazard includes slips and falls, cuts and burns. Restaurant relaxing chair is one of important furniture design that cause people especially who work in the restaurant feel uncomfortable after prolong stand. Each parts of chair should be designed properly so that it can have more ergonomics characteristics to ensure the user get a good posture. It also can assist the user to minimize fatigue and injury by fitting the chairs to the body size, strength and range of movement. Correct sitting and standing posture is an important factor for the prevention of musculoskeletal symptoms. Therefore, the study was undertaken to develop and design of ergonomically, functional and aesthetically relaxing chair for kitchen related standing activity. For the present study 120 workers from the four south Indian restaurant i.e. Sri Nidhisagar, Raaga the family restaurant, Tamarind and Inchara the family restaurant, Bangalore city Karnataka State. Research design used was descriptive cum experimental. Purposive sampling was used and data was gathered by interview method. The workers were mainly literate and aged from 25-40 years. The data further showed the existing condition of the restaurant workers were satisfactorily regarding the work environment. Besides this occupational risks were involved which can result in health hazards. Statistical analysis showed the significant difference in physiological cost of work and different activities such as preparation, cooking, serving and dishwashing performed by the restaurant workers.

Keywords: Restaurant Workers, Relaxing chair, Occupational Hazards

I. INTRODUCTION

The hotel, restaurant and catering sector covers a wide range of different Businesses, including hotels, pubs and restaurants, contract caterers in various industrial and commercial premises, fast-food, cafes and bistros. It plays an important role as a job creator in the service sector and in the economy as a whole in many states. The hotels and restaurant sector includes a range of tasks and jobs that pose different risks. The complexity of the sector makes it difficult to present an exhaustive view of the situation. Much attention goes towards working in kitchens. A common pain that related to this situation is Musculoskeletal Disorder (MSD). The pain is related to the damage or defect happen to any parts of the worker's body especially the thoracic area which is at the back side body part of the worker. This could happen if the restaurant worker does not practice the right position during work. This pain can be a permanent pain if there is no action or research taken to help restaurant workers in increasing the level of comfort while working. Those actions can be summarized to be the change in the way of seating or in other words the design of chair used by the restaurant workers. Restaurant relaxing chair is one of important furniture design that cause people especially who are work in the restaurant feel uncomfortable after prolong stand. Each parts of chair should be designed properly so that it can have more ergonomics characteristics to ensure the user get a good posture. It also can assist the user to minimize fatigue and injury by fitting the chairs to the body size, strength and range of movement. Correct sitting and standing posture is an important factor for the prevention of musculoskeletal symptoms. Nowadays in the market there are many resources that can produce the restaurant relaxing chair in various shapes, sizes and types. According to the Vishwanathan(1991) a functionally designed restaurant kitchen is much more than merely a food storage and place for cooking, its main objective being to increase the work output with least utilization of the human resources. The restaurant kitchen must be designed as per the needs of the restaurant workers to reduce physiological

cost of work and fatigue to the minimum as well as which maintain a good working posture. A good working posture reduces the physiological cost of work to the minimum whereas, static muscular efforts and incorrect posture for longer duration during kitchen activities may cause tiredness and may increase the energy expenditure in proportion to the physical efforts involved, leading to irreparable damage to the body (Sangwan, *et al.* 2003).

In the present study we evaluated the exposure of the restaurant workers in the kitchen related standing activities such as preparation, cooking, serving and dish washing. Four restaurants were purposively selected for the present study namely- Sri nidhisagar, Raaga the family restaurant, Tamarind and Inchara the family restaurant, Bangalore city, Karnataka State. Health effects of occupational exposure due to prolong standing posture in restaurant workers, including backache, muscles pain, pain in lower leg, pain in lower back, pain in joints, shoulders, high blood pressure, increased heart rate etc.

II. METHODOLOGY

Four restaurants were purposively selected for the present study namely-Srinidhisagar, Raaga the family restaurant,

Tamarind and Inchara the family restaurant, Bangalore city, Karnataka State. An exhaustive list of restaurant workers were taken from their respective departments, then from the list, 120 restaurant workers performing group of activities as preparation of food, cooking, serving and dish washing were selected. From each subcategory 20 workers were selected for the experimental data thus making 120 samples for survey and 20 samples for controlled group. The details of sampling design are presented in figure. Simple random sampling without replacement was used to select the study area and workers. Sample size was determined before the data collection. For the descriptive data the sample size of 120 was selected and 20 workers of the total sample were selected for experimental data. Descriptive data was collected personally by using the interview schedule method. Experimental data like moisture, temperature, light and noise was also taken while performing the different activities in restaurant kitchen. All the subjects volunteered for the study. They were informed about the study. The study protocol is presented in figure.

The assessment of the need for relaxing chair for kitchen related standing activities in restaurants were studied for one year among restaurant workers in for restaurants.

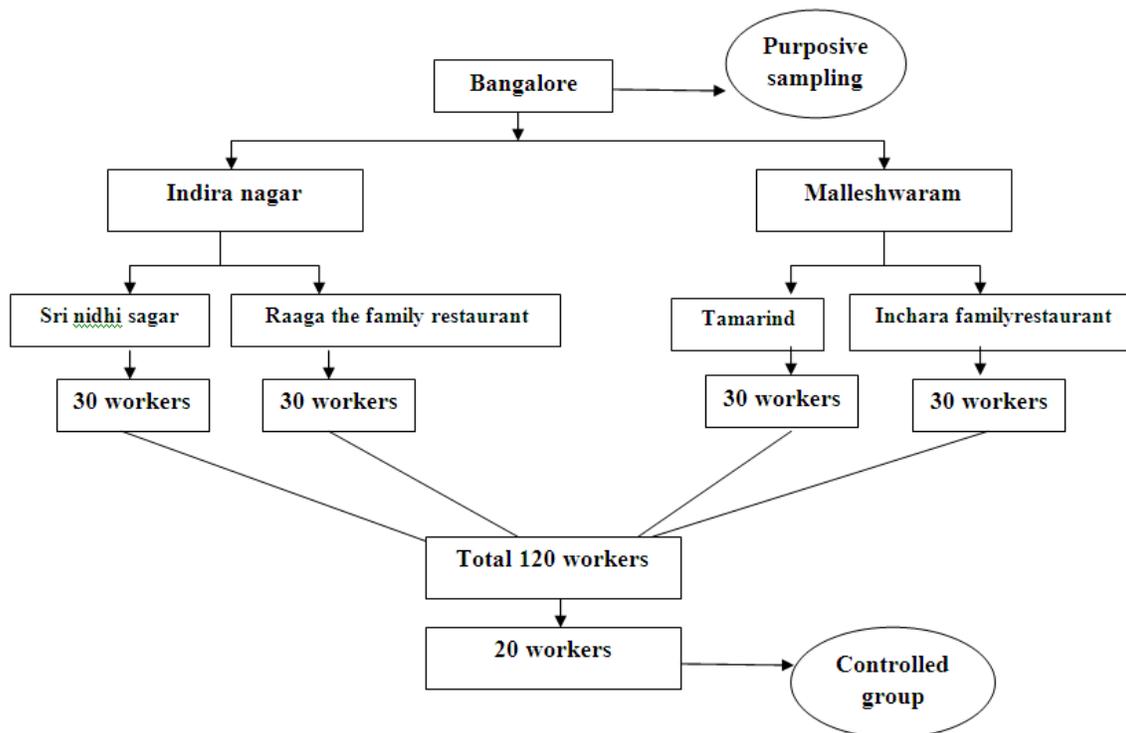


Fig. 1 Sampling Design

III. RESULTS

The workers who were working in the restaurant kitchen must withstand the pressure and stress of working for long hours, suffering from high blood pressure due to prolong standing posture, lifting heavy pots and kettles and working near hot ovens and grills. Occupational hazards involves slip and falls, cuts and burns so there is a need to take care of that kind of workers. The workers who are working in prolong standing posture needs relaxation for few minutes so that they can feel comfortable and make their work more efficient, faster and less fatiguing. The Table I envisaged that about 57% of the workers use some furniture to relax their body in which about 40% were involved in the preparation activity and rest of them were involved in dish washing activity. The furniture

includes table, chair and stool. Nearly 33% worker use stool, 17% used table and only 8% workers used chair to relax their body. It was found stool to relax their body, involved in the preparation activity. The workers who were involved in the same activity used to take the rest of 20 minutes. The Table I also showed that about 30% of the workers said that the relaxation during the work did not interfere with their work performance, majority of the workers were engaged in the preparation activity for the above response. It was also found that majority of the workers from the cooking activity needed some furniture and time to relax their body.

Figure 1 showed the graphical representation of the workers on the basis of type of furniture used by the restaurant workers to relax their body fatigue from daily activities.

TABLE I TYPE OF THE FURNITURE USED BY THE WORKERS (N=120)

Furniture related information	Catagories	Total	Preparation	Cooking	Serving	Dish washing
Use of furniture to relax body	Yes	68(57)	49(40.83)	-	-	19(15.83)
	No	52(43)	-	-	-	-
If yes, name it	Table	20(17)	11(9.16)	9(7.5)	-	-
	Chair	9(7.5)	9(7.5)	-	-	-
	Stool	39(32.5)	37(30.83)	-	-	2(1.67)
	Any other	-	-	-	-	-
Time given to relax the body	10 min.	22(18)	8(6.67)	4(3.33)	10(8.33)	2(1.67)
	20 min.	39(32.5)	26(21.67)	5(4.16)	2(1.67)	6(5)
	30 min.	7(6)	5(4.16)	1(0.83)	-	1(0.83)
	More than 30 min.	-	-	-	-	-
Interference in work due to relaxation	Yes	5(4)	-	1(0.83)	4(3.33)	-
	No	35(29)	33(27.5)	-	-	2(1.67)
	Sometimes	28(23)	-	19(15.83)	3(2.5)	6(5)
If no, do you need to relax your body?	Yes	35(29)	12(10)	13(10.83)	6(5)	4(3.33)
	No	17 (14)	2(1.67)	6(5)	4(3.33)	5(4.16)

Value in parentheses indicate percentage

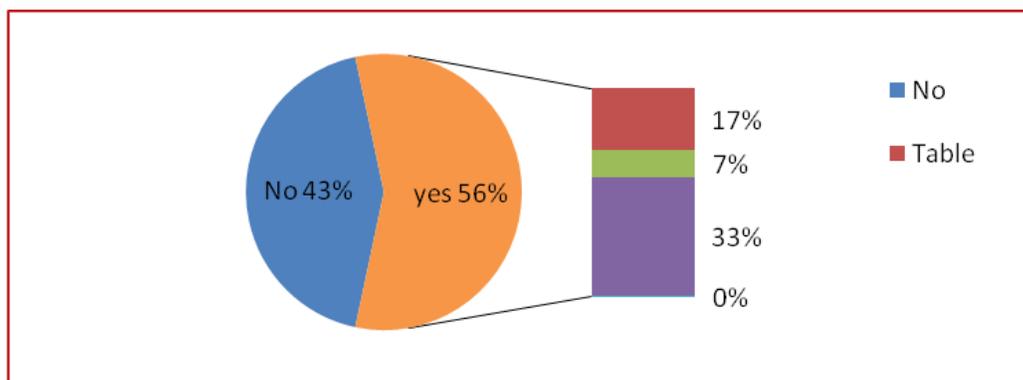


Fig. 2 Distribution of the workers on the basis of type of furniture

III. SUMMARY AND CONCLUSION

It was observed through the whole study that the workers were adopting absolutely wrong working posture which caused a various kind of pain in back, joints, shoulders, feet etc. some of the awkward postures are shown in the figures given below:



- No provision for head support
- No provision for back support
- No provision for hand support
- No provision for foot support

It was also observed that in order to avoid any kind of occupational injuries, risk and hazards there is a need to design and develop the relaxing chair for the restaurant workers who are engaged in the kitchen with continuous standing posture.

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