Vol 3 Issue 5 Nov 2013

Impact Factor : 1.9508 (UIF)

ISSN No :2231-5063

Monthly Multidisciplinary Research Journal

GoldenResearch Thoughts

IMPACT FACTOR : 1.9508 (UIF)

Welcome to ISRJ

RNI MAHMUL/2011/38595 **ISSN No.2230-7850**

Indian Streams Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial Board readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

International Advisory Board

Editorial Board

Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India
Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.isrj.net

Golden Research Thoughts
Volume-3, Issue-5, Nov-2013
ISSN 2231-5063

Available online at www.aygrt.isrj.net

Benefits Of Using Ergonomic Kitchen Designs For Today's Homemakers

Sajida Sultana
Assistant Professor

Abstract: The kitchen today is the most used rooms in the whole house and it is being emphasized with the Modern technologies. Kitchen planning with ergonomic concepts inducted is the need of the hour in order to have a stress free homemaking activity. The interior spaces of buildings are designed as places for human movement, activity and repose. There should be a fit between the form and dimensions of interior spaces and our own body dimensions. Our body movements are the vital aspect on how a kitchen should be designed for a homemaker. The dimensions would result on how we reach for something on a top or bottom shelf, perform work, sit down at a table or lean against any space. Ergonomics play a vital role in designing a kitchen area free from fatigue, reduction of unnecessary movements and excessive expenditure of human energy and time. The main aim was to study the Usage of Ergonomically Designed Kitchen by the homemakers in Chennai. Ex post facto research design was used for this study. A sample of 1000 Homemakers were randomly selected for survey with 500 using Ordinary and 500 using Modular Kitchens.

Key words: Ergonomic Kitchen Designs , Homemakers , Modern technologies .

INTRODUCTION:

Kitchen is an asset to any house and a truly worthwhile investment. A well planned, well equipped and good kitchen design must cater to a family's lifestyle, their eating habits and entertainment patterns and should make cooking and related tasks a pleasure. A kitchen which is comfortable to work in, easy to maintain, beautiful to see and time and energy saving is the dream of every homemaker. A kitchen designed with ergonomic concepts can offer comfortable and efficient work areas. A kitchen is the symbol of the culture of the family. It is the centre of multi various activities and the heart of any house. Every kitchen is unique in itself. But there is scope for enhancing the work environment of the homemaker by incorporating ergonomic concepts to make kitchen more functional with good reach levels and more storage zones and counter spaces for working which are an instant welcome and cheer to the homemakers today. (Mahoney, 2009).

Ergonomic kitchen spaces are another great way to save time and energy. Kitchen requires a lot of body mechanics to complete the activities . Accordingly, an efficient ergonomic kitchen space requires to ease the stress in looking out for utensils and ingredients in the kitchen. The completion of early work would reduce fatigue(Zeisel, 2006).

Kitchens should be well planned and comfortable. The main component of ergonomics is not complete without anthropometry and posture. These features are required for an ideal kitchen as anthropometric measurements are extremely useful in designing kitchen. The activities like bending, reaching, and lifting things involves the use of both the limbs and posture can be related here as it is for the correct use of position of body and its limbs of the homemakers while using the kitchen atmosphere (Bullock,1990).

OBJECTIVES OF THE STUDY

1.To analyse the duration of kitchen usages among the homemakers.
2.To analyse the reasons for stress encountered by the Homemakers during meal preparation in the ordinary and modular kitchens.
3.To understand the ergonomic awareness of the homemakers in the ordinary and modular kitchen.

METHODOLOGY

Purposive sampling technique was adopted for the study. The samples of 1000 homemakers were selected from Chennai. The samples were divided into 500 homemakers using ordinary kitchen and 500 homemakers using modular kitchen. The study was carried out with the use of questionnaire to collect the data.

RESULTS AND DISCUSSION

In the present study percentage analysis, Chi Square test and t test has been used to interpret the data. With the help of these analysis the following discussion has been given below.

The table below reveals the duration of the kitchen usages by the homemakers and the number of homemakers who switched over to the use of modular kitchen because of the ergonomic benefits .

Table-1
Duration of Kitchen Usage By The Homemakers

I	No of years of using kitchens	Ordinary Kitchen		Modular kitchen		Chi-Square Value	Level of significance
		N	%	N	%		
1	Less than 2 years	81	16.2	318	63.6	77.618	p<0.01
2	2– 4 years	96	19.2	62	12.4		
3	4 – 6 years	140	28.0	62	12.4		
4	Above 6 years	183	36.6	58	11.6		
II	**Switched Over to modular kitchen**						
1	Yes	135	27.0	-	-		
2	No	365	73.0	-	-		

It could be noted from table that 36.6% of the homemakers using ordinary kitchens were using their kitchens above 6 years and 63.6% of the homemakers using modular kitchens were using their kitchens for less than 2 years. Nearly 27% of the Homemakers using Ordinary kitchens had switched to modular kitchen but majority of 73% of the ordinary kitchen using homemakers were using their same kitchens. Statistically significant association was observed between the number of years of using their kitchens and the type of kitchens used by the homemakers at $p<0.01$ level ($\chi 2 = 77.618$).

Table-2
Stress during Meal Preparation By Homemakers

S.No.	Meal preparation	Ordinary Kitchen		Modular Kitchen		Chi-Square Value	Level of significance
		N	%	N	%		
1.	Break fast	185	37.0	315	63.0	109.570	p<0.01
2.	Lunch	172	34.4	115	23.0		
3.	Dinner	143	28.6	70	14.0		

Almost 37 % of the homemakers who belonged to ordinary kitchen category had encountered stress during Breakfast and 63 % of the modular kitchen using homemakers found more stress during breakfast only because of varied reasons , the other homemakers had encountered stress during lunch or dinner. Statistically significant association was observed between the type of kitchens and the stress encountered during meal preparation at $p<0.01$ level ($\chi 2 = 109.570$).

Stress among homemakers in Kitchen Use

The table below shows the reasons for stress among the homemakers in kitchen use and the results are computed in percentage analysis. The reasons for stress were noted on rating scale of strongly agree, agree, and disagree. Majority(97 %) of the homemakers using ordinary kitchens strongly agreed upon not having good reach levels for storage in their kitchens. Nearly 89 percent of them faced stress during meal preparation and not encountered easy maintenance in their respective kitchen The homemakers using modular kitchen significantly differed in their opinion in their reasons for stress during meal preparation.

Table -3
Reason For Stress By The Homemakers Using Ordinary And Modular Kitchen

I	Reasons for stress	Ordinary Kitchen			Modular Kitchen		
		SA	A	DA	SA	A	DA
1.	More time taken for collecting ingredients for cooking	71.0	29.0	-	2.0	3.0	90.0
2.	More distractions during peak hours	77.0	23.0	-	61.0	26.0	13.0
3.	Insufficient floor space for homemaker & cook at same time	69.0	31.0	-	-	3.0	97.0
4	Extra movements taken from counters to sink and refrigeration to sink	69.0	31.0	-	87.0	4.0	9.0
5.	Not good reach levels for storage	97.0	3.0	-	23.0	6.0	71.0
6.	Insufficient floor space for all labour saving devices	71.0	29	-	3.0	4.0	93.0
7.	Faced stress during meal preparation	89.0	11.0	-	15.0	48.0	37.0
8.	Had bodily discomfort after meal preparation	91.0	9.0	-	23.0	6.0	71.0
9.	Had sufficient space for each activity in the kitchen	12.0	34.0	54.0	49.0	31.0	20.0
10.	Not encountered easy maintenance	89.0	11.0	-	81.0	27.0	78.0

% exceeds 100 due to multiple responses

Majority of (97 %) homemakers disagreed on their views regarding kitchens not having insufficient floor space for the homemaker and cook at the same time in the kitchen. Ninety three Percent of the homemakers disagreed on insufficient floor space for all the labour saving devices inside the kitchen premises. But 87 % of the homemakers strongly agreed that their stress would have been increased due to extra movements taken from counters to sink and refrigerator in their respective kitchens.

Relationship between stress encountered in kitchen by the homemakers and the type of kitchen

The table-4 below indicated the relationship between the type of kitchen and the stress encountered by the homemakers in them. Mean, Standard deviation and 't' test was used to show the significant association.

Table-4
Relationship between stress encountered in kitchen by the homemakers and the type of kitchen

Type of Kitchen	N	Mean	Std Deviation	Std Error Mean	't' Value	Level of Significance
Ordinary kitchen	**500**	**23.1040**	**4.30142**	**.19237**	**29.988**	**P<0.01**
Modular kitchen	**500**	**16.3667**	**2.58816**	**.11586**		

The table shows that the stress encountered in ordinary kitchen had mean value(23.1040) and modular kitchen had mean value (16.3667) and this shows a significant association that with the use of modular kitchens the homemakers were facing lesser amount of stress when

compared to the homemakers using ordinary kitchens. Statistically significant association was noted in the stress encountered at $p<0.01$ level ($t=29.988$).

Ergonomic Details of the selected homemakers

The ergonomic awareness level among the homemakers were computed with percentage analysis and results are given in the table-5 below.

Almost (74 percent) of the ordinary kitchen users had no knowledge about the concepts of ergonomics and its benefits involved in a kitchen design when compared to 78 percent of modular kitchen users who had much knowledge and awareness about the benefits of ergonomics.

Table-5
Ergonomic Details of selected Homemakers

I	Ergonomic Awareness	Ordinary Kitchen		Modular kitchen	
		N	%	N	%
1	Yes	130	26	390	78
2	No	370	74	110	22
II	**Beneficial aspect of using an ergonomic kitchen**				
1	Yes	130	26	390	78
2	No	370	74	110	22
III	**Discomfort and Fatigue**				
1	Yes	395	79	158	31.6
2	No	105	21	342	68.4
IV	**Musculo skeletal Disorder**				
1	Yes	395	79	158	31.6
2	No	105	21	342	68.4

It is also observed that the homemakers using ordinary kitchen had suffered more discomfort, fatigue and musculo skeletal disorders in using their kitchens. Nearly 79 percent of the ordinary kitchen users experienced more discomfort, fatigue and musculo skeletal disorders in comparison with only 31 percent of the modular kitchen users.

Relationship between Ergonomic Awareness of the homemakers and Characteristics of the Homemakers Percentage analysis and Chi Square test was used to compute the relationship between the ergonomic awareness and the different characteristics of the homemakers.

Table-6
Relationship between Ergonomic Awareness and Characteristics of the Homemakers

Details of the Homemakers	Ergonomic Awareness				Chi Square Value	Level of Significance
	Yes		No			
Educational Level	N	%	N	%	165.97	p<0.01
Below X	53	31.7	114	68.3		
X Std	73	45.6	87	54.4		
XII Std	80	44.4	100	55.6		
UG	149	51.0	143	49.0		
PG	89	55.3	72	44.7		
Professional Degree	20	50.0	20	50.0		
Employment Status					9.309	p<0.01
Working	459	57.7	336	42.3		
Not Working	94	45.9	111	54.1		
Type of kitchen used					231.080	p<0.01
Ordinary	157	31.4	343	68.6		
Modular	396	79.2	104	20.8		

The homemakers educational level showed significant association with the ergonomic awareness. Nearly 51 % of the Graduate homemakers were aware of the term ergonomics. Around 68.3 % of the homemakers who were educated below X Std were not aware of the ergonomic term. Statistically significant difference was observed between the ergonomic awareness level and the education of the homemakers at $p<0.01$ level($\chi 2 = 16.597$). The table below indicated the relationship between the employment status of the homemakers and the ergonomic awareness among them. Nearly 54.1 % of the working homemakers were aware of concept of ergonomics and 57.7 % of the non working homemakers showed that they were not aware of the ergonomic term. Statistically significant difference was observed between the ergonomic awareness level and the employment status of the homemakers at $p<0.01$ level ($\chi 2 = 9.309$) and type of kitchen ($\chi 2 = 231.080$).

CONCLUSION

The ergonomic awareness level is very less in the uneducated women. Stress is becoming an increasingly global phenomenon affecting women. Usually the morning breakfast meal preparation was found to be more stress out as the homemakers attend to various chores of the household at the same time. The amount of time spent in the kitchen

activity, the type of kitchen , the ergonomic benefits utilised by the homemakers in the kitchen is all very important factors to be considered for the well being of the homemakers. Statistically significant association was observed between age and the type of kitchen used at $p < 0.01$ level of significance, because as the age increases the homemakers adopting to the use of modular kitchens were also increased due to more knowledge and awareness on the use of ergonomically designed kitchens.

REFERENCE

1.Bullock, M. I. (1990). Ergonomics – The physiotherapist in the Workplace, United States: Churchill Livingstone Publishers, 204-206.
2.Gandotra, Oberoi& Sharma (2006). Essential of Ergonomics, Dominant Publisher. ISBN: 8178882760 .
3.International Ergonomic Association "What is Ergonomics". Retrieved Dec 6 2010 from http//iea.cc/01_what/what%20is%20 Ergonomic.
4.James Mahoney (2009). Creating an Ergonomic Kitchen, New York.
5.Jan Krebs (2004). Basic – Design and living, NY: Birk Hauser.
6.Jhamb, (1991). Work study ad Ergonomic, Pune: Event Publishing House, p.548.
7.Mike lawrance, Peter Joyce & Penny Swift (1988). Kitchen's practical Designs for Everyday Living, London: New Holland Publisher