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Quasi experimental analysis to evaluate the effects of educational sessions in improvement of Knowledge Practice regarding Food hygiene among women in rural community.

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Abstract

Care *Introduction:* Food is a vital need for a human being it's a source of energy that provides important ingredients for body growth. According to the European Food Safety Authority food composition affecting 69553 individuals, with the domestic kitchen as a second-most typically reported setting for food contamination. Food handlers (women) play an important role in the incidences of food spoilage. By health education knowledge of food, hygiene can be improved. ***Methods:*** Quasi-experimental study design was used in this study by using pre and post-test phase, conducted among women in rural community Ali Raza Abad Lahore, to determine the effectiveness of health education on knowledge and practice of food hygiene in women. The sample size was 60 that calculated by using convenient sampling technique in which those participants selected who were conveniently available to participate in the study. SPSS version 21 statistical software was used for data analysis at 95% of confidence interval and P-value was 0.05 ***Results:*** Results showed that the total mean of knowledge before intervention was 15.75 but after intervention, the total mean of knowledge was 27.93 similarly the total mean of practice before the intervention was 16.23 but after interventions mean of practice was 34.95 that showed the significant increase in knowledge and practice of women regarding food hygiene. ***Conclusions:*** This study described the effectiveness of health education for knowledge and practice of food hygiene among women in the rural community. The mean knowledge and practice score on food hygiene increased significantly after health education.

Keywords- Effectiveness. Health education. Food hygiene. Knowledge. Practice.

INTRODUCTION

Food is a vital need for a human being, it's a source that provides important ingredients for body growth. Food is an important need with important nutrients. It can be contaminated from water, air, dust, and instrumentation by food handlers. Due to modifications in food manufacturing, usage, and training practices further as eating habits all have a direct impact on health. Therefore, it's important to stay food free from contamination (1). The World Health Organization (WHO) states that about 1.8 million persons died from diarrheal diseases in 2005, mainly due to the ingestion of contaminated food (WHO, 2014).

In the European Union (EU), in 2012, a total of 536 food spoilage incidences were reported that resulted in 330 illnesses, 200 hospitalizations, and 6 deaths (2). Presence of many pathogens in foods is more common in Pakistan. Expect estimation of food wastage in Pakistan is very difficult, due to lack of checking, investigation and infection control team in food premises. Poor handling and storage of milk, nuts and cereal grains are the vital cause of food contamination (3). The cases of unhygienic food utilization and food spoilage showed In 2014, that the World Health Organization's Food waste Burden Epidemiology estimated 570 million cases of food spoilage and waste which caused 351 000 associated deaths worldwide (4).

Food handlers play an important role in incidences of food spoilage, due to their ignorance and lack of adequate knowledge of food hygiene like proper handling, manufacturing, and consumption of food. Food handler's improper knowledge and practice can cause serious problems for a state (1). It is effective to enhance food hygiene knowledge among food handlers through community-based food hygiene teaching programs (5). Health education can increase the information and practice of food hygiene, on the other hand, community-based health education programs can improve the information and practices of food hygiene, there are many evidence of which shows the effectiveness of education sessions to enhance the knowledge of participants (6).

Recent studies illustrate that the educational and coaching program is productive in improving food hygiene knowledge of participants (7). Education and training regarding basic food hygiene principles are emphasized as vital factors conducive to the reduction of food spoilage, multiple supplying multivariate analysis identified education as an answer for knowledge improvement and increased awareness (8). The analysis of many studies showed that health education can improve and enhance the knowledge and practice of food safety and food hygiene, on the other hand, it can review the previous knowledge of food handlers to show the positive attitude and practices towards food hygiene (9).

MATERIAL & METHODS

Setting

The setting of the study was a community of Ali Raza Abad located on Raiwind Road Lahore Punjab Pakistan.

Research design

The quasi-experimental study design was used in this study by using a pre and post-test phase.

Population

The population of this study was women those preparing and handling the food for the family in the selected rural community of Ali Raza Abad.

Sampling

Convenient sampling techniques were used in this study for data.

Research instrument

A semi-structured questionnaire was used in this study for assessing knowledge and practice. The questionnaire consists of 3 parts one demographics 2nd knowledge of food hygiene and 3rd one practice questions 1st section contained gender, age group, qualification and experience of cooking. 2nd knowledge section contained 12 questions with a total of fifty responses and 3rd part of the questionnaire consists of fifteen practice questions with a total of sixty options.

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Data gathering procedure

1st of all the sample of 60 women divided into 4 groups due to unavailability of 60 participants at the same place and same time each group contained 15 participants and all the groups entertained in community. Total 4 sessions of health education given with 40 minutes/session in 1st-week pre-intervention data collected by questionnaire and 1st session of education delivered in 4 groups one by one, all the session delivered with the same way. Interventions were done by using standardized teaching plans translated in Urdu language and teaching methods like lecture method poster presentation and visual charts regarding food hygiene.

Analyze data

Data analysis was done by comparing pretest and a post-test score of the questionnaire with the use of paired t-test in SPSS version 21 statistical software for data analysis, in pre and post-test results. A 95% confidence level is used for the study and a $P \leq 0.05$ was considered statistically significant.

Scoring and Grading of knowledge Responses

There were twelve stem questions on knowledge of food safety and hygiene with fifty responses. Only thirty-three of those responses were correct. One mark awarded for every correct response and no mark for wrong or I don't know the response and a total of thirty-three most possible scores were used for knowledge of food safety and hygiene. A score of 0-11 marks out of thirty-three marks was graded be poor knowledge, a score of 12-22 marks out of thirty-three marks was graded as honest knowledge and a score of 23-33 marks out of thirty-three marks was graded pretty much as good knowledge.

Scoring and Grading of practice Responses

3rd part of the questionnaire consists of fifteen practice questions with total sixty options each question contain four options 1st always, 2nd many time, 3rd sometime and 4th option labeled as never. The grading of each option was followed as always=3, many time=2, sometime=1 and never=0 with total 45 marks. The scoring and grading of practice questions

were the same as knowledge questions 0-22 score out of 45 graded as the poor practice of food hygiene and 23- 45 graded as good practice of food hygiene.

Ethical consideration

All the rules and regulations administered by the ethical committee of Lahore School of Nursing, The University of Lahore, informed consent taken from all the participants. All the data kept confidential.

Study timeline

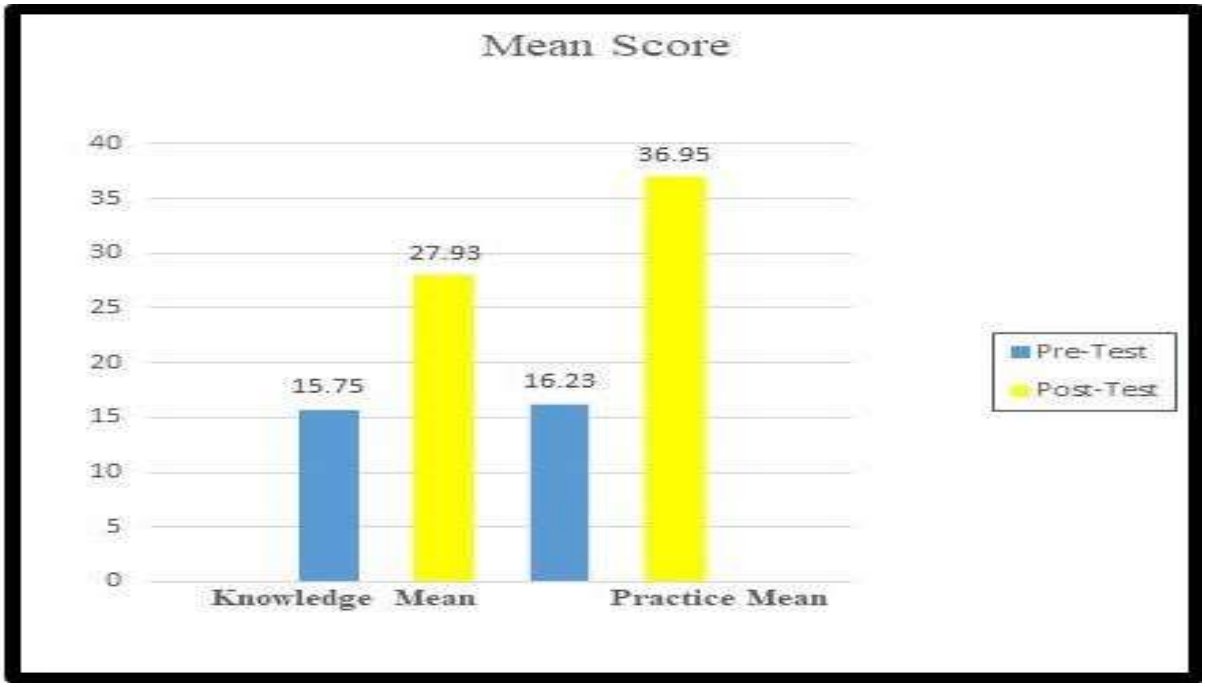
Duration of the study was 4 month (September 2018 to December 2018)

RESULT

This section presents the outcomes of the study, Profile of the respondents and outcome of the questionnaire regarding knowledge and practice of food hygiene and also represents the result of paired t-test comparison before and after intervention and results for the objective of this study "to evaluate the effectiveness of education regarding food hygiene among women in rural community

All the participants who participated in this study were female. The age range of participants was 18-48 most respondents were between the ages of 28 and 37 years (41.7%).

Table No:01	Mean	P-Value	N
Knowledge score Pre-intervention	15.75	.000	60
Knowledge score post-intervention	27.93		60
Practice score pre intervention	16.23	.000	60
Practice score post intervention	36.95		60



The following table and figure showed the mean score of pre-post score of knowledge and practice with p-values. This table illustrates that the mean score of knowledge and practice improved in the post-intervention phase that was 15.75 in pretest knowledge and improved at 27.93 in post-intervention phase with p-value 0.000 that was less than 0.05, similarly the practice mean also improved from 16.23 to 36.95 in a post-test phase with p-value 0.000 that was less than 0.05.

Table No:2 Demographic Data			
S#	**Demographic Characteristic**	**N**	**%**
		60	100%
1		**GENDER**	
	Female	60	100%
	Male	0	0
2		**Qualification**	
	Non-educated	6	10.0%
	Primary	16	26.7%
	Middle	18	30.0%
	Secondary	20	33.3%
3		**Age Group**	
	18-27year	20	33.3%
	28-37year	25	41.7%
	38-47year	15	25.0%
4		**Experience**	
	6month-5year	17	28.3%
	6-10year	28	46.7%
	10-15year	5	8.3%
	16-20year	10	16.7%

Table No:03
Knowledge of food hygiene by respondents

Variables	Pre-intervention		Post-intervention	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Definition of food hygiene.				
Correct	**18**	**30.0%**	**52**	**86.6%**
Incorrect	**42**	**70.0%**	**8**	**13.3%**
Things that can prevent contamination of food during preparation.				
Hand washing	**07**	**11.6%**	**09**	**15.0%**
Wearing of cooking apron Use of gloves	**08**	**13.3%**	**15**	**25.0%**
Use of hair scarves & caps I don't know	**13**	**21.7% 20.0%**	**15**	**25.0% 30.0%**
	12	**33.3%**	**18**	**05.0%**
	20		**03**	
Cleaning of cooking utensils.				
Immediately after use	**13**	**21.7% 15.0%**	**15**	**25.0% 18.3%**
Before use	**09**	**21.7%**	**11**	**41.7%**
Before & after use I don't know	**13**	**41.7%**	**25**	**15.0%**
	25		**09**	
Should raw food be stored together with cooked food?				
Yes	**19**	**31.7%**	**48**	**80.0%**
No	**41**	**68.3%**	**12**	**20.0%**
Knowledge score pre-intervention=15.75		**Knowledge score post-intervention=27.93**		

Table No: 03 indicated that the majority of the participants did not know about the definition of food hygiene. In pre-intervention, only **n=18(30%)** respond correct to the definition of food hygiene but after intervention **n=52(86.3%)** respond correctly to the definition of food hygiene. Another question "Things that can prevent contamination of food during preparation" multiple options of questions like hand washing, wearing of cooking apron, Use of hair scarves & caps, I don't know showed the significant increase because the p-value of score after interventions was 0.00 that is less than 0.05 in all the options e.g. Wearing of cooking apron response before intervention was **n=08(13.3%)** and after intervention this response increased by **n=15(25.0%)** A question regarding storage and cooking and raw food together many respondents **n=19(31.7%)** responded wrong in pre-intervention and **n=41(68.3)** responded correctly in post-intervention, all the description shows that the knowledge of respondents in the pre-intervention phase, not enough but after intervention a vital increase came in the level of knowledge of respondents regarding food hygiene during handling.

Table No: 4
Practice of food hygiene among respondents

Variables	Pre-intervention		Post-intervention	
	Frequency	Percentage	Frequency	Percentage
use of cooking aprons and hair covers during food preparation				
	02	**3.3%**	**16**	**26.7%**
Always	**18**	**30.0%**	**33**	**55.0%**
Most of the time	**24**	**40.0%**	**08**	**13.3%**
Sometime Never	**16**	**26.7%**	**03**	**05.0%**
washing of raw foods and vegetables thoroughly under running water Always	**04**	**06.7%**	**18**	**30.0%**
Most of the time	**20**	**33.3%**	**30**	**50.0%**
Sometime Never	**16**	**26.7%**	**07**	**11.7%**
	20	**33.3%**	**05**	**08.3%**
Cleaning and sanitizing of cooking utensils before and after each use Always	**02**	**3.3%**	**13**	**21.7%**
Most of the time	**18**	**30.0%**	**25**	**41.7%**
Sometime Never	**24**	**40.0%**	**19**	**31.7%**
	16	**27.7%**	**03**	**05.0%**
Cleaning of cutting surfaces before and after cutting raw foods	**04**	**6.7%**	**15**	**25.0%**
Always	**14**	**23.3%**	**31**	**51.7%**
Most of the time	**22**	**36.7%**	**08**	**13.0%**
Sometime Never	**20**	**33.3%**	**06**	**10.3%**
Practice score post-intervention=16.23	**Practice score post-intervention=36.95**			

Table No: 04 indicated that the practice of respondents was poor before intervention "use of cooking aprons and hair covers during food preparation" in pre-intervention always response were only **n=2(3.3%)** but after inter intervention always response were **n=16(26.7%)** similarly other responses most of the time n=18**(30.0%) to n=24(40.0%)** sometime n=18(30.0%) to n=08(13.3%) and never **n=16(26.7%) to n=3(05.0%)**,. Another question "Cleaning of cutting surfaces before and after cutting raw foods" in pre-intervention always response were only **n=4(6.7%)** but after inter intervention always response were **n=15(25.0%)** similarly other responses most of the time, sometime and never changed **n=14(23.3%) to n=31(51.7%)**, **n=22(36.7%) to n=08(13.3%), n=20(33.3%) to n=06(10.3%)**, respectively in pre and post-intervention. All the description shows that the P-value of paired t-test was 0.000 less than 0.05 at 95% confidence interval so the practice of respondents in pre-intervention phase was poor but after the intervention, the practice of respondents regarding food hygiene during preparation improved at a significant level.

Table No:05

	Paired Differences			t	DF	Sig (P-value)
	Mean	95% Confidence Interval of Difference				
		Lower	Upper			
Knowledge comparison Pre-Post	-12.18	-13.08	-11.28	-27.14	59	0.00
ice comparison Post	-18.71	-20.09	-17.33	-27.11	59	0.00

Paired Samples t-Test

According to the table No: 05 there were three main things that showed the significant improvement in knowledge and practice 1st significant value of results 0.00 was less than P-value 0.05 for both cases, 2nd mean difference and 3rd one degree of freedom in results 59 that was less than sample size, which supported the alternative hypothesis. **Normality of Data**

Shapiro-Wilk's test used to measure the normality of data, according to Shapiro-Wilk's test the (p>.05) and the visual inspection of the histogram, normal Q-Q plots, and box plot showed that the score of knowledge and practice in pre and post phase were normally distributed.

DISCUSSION

The mean age of the respondents was 32.07 ± 8.71years. This was just comparable to the results of the study conducted among women in the Federal Republic of Nigeria, and Malaysia (Pichler et al., 2014). This showed that the majority of the food handling ladies were middle-aged (10).

Previous studies conducted in Lagos and Owerri Nigeria had 98.6% and 86.7% of the respondents respectively were females (11). Sixty participants (100%) in this study were Muslims and its opposition to a report from Ghana (6). Most of the participants were married who participated in this study and this is too similar to the study conducted in food handling personals in Malaysia (7).

The maximum qualification of 33.3% of the participants was matric which agreed with studies done in Turkey and Bangkok (11). Contrary to this finding another Nigerian study showed that more than half of participants about (52.38%) had secondary education, the findings of this study and earlier studies have brought to light that educational levels of food handler's cuts across all levels with few having tertiary education (12).

At post-intervention, there was an increase in the level of knowledge on food hygiene among the respondents the knowledge means increased from15.75 to 27.93 that is similar to study in Slovenia reported the respondents increased the level of knowledge regarding food hygiene and mean difference showing statistically significant improvement in knowledge of food safety (7).

An Iranian study also observed a significant increase in knowledge of food handlers from 20.5 ± 4.03 before the intervention to 23.73 ± 3.75 after intervention, another study conducted in Korea also showed a significant improvement in the mean knowledge score of respondents in the intervention group from 49.3 before training to 66.6 after the training (7).

Health education on food hygiene in this study was found to improve the practice of food and hygiene among the respondents. At pre and post-intervention, mean of practice changes from 16.23 to 34.95 that is a good practice of food safety and hygiene. This result was similar to the finding of a study done in Kermanshah, Iran where there was a statistically significant increase in the mean practice score of the respondents from 12.93 ± 7.6 before to 36.11 ± 8.0 after the intervention, Similar studies conducted in Turkey and Malaysia reported findings in agreement with this study(7).

Limitations

A more comprehensive study needs to be examined with more generalizability by increasing sample size because this study has a small sample size and conducted in only one community.

Conclusion

This study describes the effectiveness of health education as an approach to improving knowledge and practice of food hygiene among women in the rural community. The mean knowledge score on food hygiene increased significantly after education. The practice of food safety and hygiene also improved with a statistically significant increase in mean practice scores after education.

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