

Determination of Awareness Regarding Food Safety Among Students and Staff Members of University of Lahore

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Abstract:

Food hygiene are the conditions and measures necessary to ensure the safety of food from production to consumption. Lack of adequate food hygiene can lead to food borne diseases and death of the consumer.

Objective:

To determine the awareness regarding food safety among students and staff members of University of Lahore.

Methods:

The cross-sectional study was carried out at The University of Lahore, Defence Road Campus and study completed within 9 months. A convenient sampling technique was used to collect sample. Data were collected through a pre-tested questionnaire from 384 subjects including students, teaching and non-teaching staff members as well as lower staff. Data were analyzed by using SPSS version 22.0. Frequencies were calculated and results were shown in tabular and graphical form.

Results:

More than 90% of participants were aware of importance of washing hands with soap and water and had good hand washing practices. About 90% of them were aware of personal hygiene practices. Males had 86% awareness about cooking techniques on food quality where females had 97% awareness. Males had less knowledge about cooking protocols (31%) then females (41%). Knowledge about storing food was also less in males (41%) then females (62%).

Conclusions:

The level of awareness among all participants was high and there was no considerable difference among gender and profession regarding food safety awareness. Males tend to have less knowledge about cooking and storing food than females.

Key words:

Food Safety, Personal Hygiene, Foodborne illness, World Health Organization, Food processing and storage.

Introduction:

Food safety/food hygiene refers to those circumstances and practices that aid in preserving food quality and also in prevention from infections and foodborne illnesses.¹ According to World Health Organization (WHO), Food hygiene are the conditions and measures necessary to ensure the safety of food from production to consumption.² According to WHO, diseases caused by contaminated food are important public health problem in the modern world. Millions of people in the world suffer from these transmitted diseases by consuming unhygienic food every year.^{3,4} Though there is not a known figure of people who suffer from these diseases, but studies suggest that there were about 1.8 million people annually killed due to consumption of populated water and food.⁴ Food borne diseases obstruct socioeconomic growth by damaging health care systems, and destroying state finances, leisure industry and trade.⁵ According to WHO, an estimate of the Global Burden of Food borne diseases in December 2015, illnesses that people get from consuming unhygienic food are significant reasons of illness, disability and mortality all around the world.⁶ Food insecurity is another major problem of developing countries like Pakistan, According to National Nutritional Survey (NNS) 2011, it was calculated that almost 58 percent of Pakistanis undergo from food insecurity.⁶ The main aim of food safety/hygiene is to avoid the food borne illnesses and food poisoning. It is very important to evaluate the awareness of food safety in any society to have better health outcomes, basically evaluation means to determine the significance, worth or condition of usually by careful appraisal and study.⁷ Whereas, awareness is the state or condition of being aware; having knowledge; consciousness.⁸ According to recent international studies, the awareness of food

safety among adults is approximately less than 50% which is a major cause of food borne illnesses in whole world. Occurrence of food borne diseases however, is more prevalent in developing countries due to poor hygiene, lack of potable drinking water, contaminated inappropriate food storage facilities and lack of food safety education.⁹

In 2012, a research survey was carried out in Greece by Lazou T *et al*, results that students who correctly answered the questions about food handling were only 38% and awareness about food safety was 37%. Those students seemed to have good hand washing practices to prevent cross-contamination, but few of them knew about usage of food thermometers during cooking. Subjects were, usually, aware of the effects of freezing on bacteria but they do not know about carriers for food borne pathogens, this study also reveal that females had better food handling scores than males, while overall food safety awareness score was almost similar for males and females.¹⁰ Other study carried out in Saudi Arabia in 2017 by Al-Shabib NA *et al*, suggested that the students had good knowledge about food safety, they were aware of cleanliness of kitchen area and cooking utensils, measures to prevent cross-contamination and personal hygiene, but they were less aware about heat treatment of food and its temperature. Chi-square test results exposed that male and female student's exhibit similar food safety knowledge and practices.¹¹ A study in north of Jordan carried out by Osaili TM *et al*, in 2011, concluded that total percentage of food safety awareness was 33.9. It was observed that students had more knowledge about practices to prevent cross-contamination and sanitizing measures, and had less awareness about those items that are associated with cooking, food handling and sources of food borne pathogens. Results from Chi-square showed that senior students and those having major in health sciences had good score of knowledge about food safety i.e. ($P < 0.05$).¹² In 2014, Turnbull - Fortune S *et al*, studied Practice, Behaviour, Knowledge and Awareness of Food Safety among Secondary & Tertiary Level Students in Trinidad, West Indies. Results illustrated that almost 76% of the students washed their hands every time after handling uncooked chicken/meat or fish. About 68% of them thought that it was quite safe to only wash or clean the cutting boards after cutting raw

chicken/meat or fish. 10% respondents believed that it was very safe to thaw foods outside fridge, and 25% of them responded that it was not risky to keep hot food for >4 hours at room temperature.¹³ In 2007, a survey conducted by Abbot JM *et al*, in Ethiopia to assess Knowledge, attitudes, and practices among students in Angolela indicated that around 52% of subjects had sufficient understanding about accurate hygiene. Mostly (99%) reported that they wash their hands before each meal, but only 36.2% use soaps for hand-washing. While 76.7% students described that it is important to wash hands after using washrooms, only 14.8% of them truly followed that.¹⁴ Similar studies had been conducted among students in Seoul and Ulsan by Mead PS *et al*, 2014 on identification of food safety awareness, results from survey showed that almost 91.9% subjects had no knowledge about unhygienic foods, and 67% of them lack in knowledge about proper hand-washing methods.¹⁵

Keeping in view the above mentioned facts, current study designed in order to identify the perception of personal hygiene and consumption of safe food among the subjects and to assess their food handling practices. This will help to identify level of knowledge regarding the food safety among subjects and to build awareness regarding food that is safe and healthy for individuals to maintain their health status.

Methods:

A descriptive cross-sectional study was conducted at The University of Lahore, Defence road campus, Lahore over a period of nine months. A total of 384 participants including students, teaching and administrative staff members along with lower staff of university, were selected for study by using convenient sampling technique. Students and staff members from all departments were included in the study, while non-cooperative subjects and students from other universities were excluded. Data were collected using a pre-tested, structured questionnaire, it was developed by considering preventive measures identified by WHO "Five keys to safer food"¹⁶ same questionnaires used in previous studies; Mohammed Almansour., *et al* 2014, Andrej Ovca., *et al* 2014.^{11,17} The questionnaire was also translated into Urdu for lower staff for their better understanding; an interview technique was used for lower staff who were unable to read the questionnaire. Questionnaire was

divided into five categories in order to have detailed analysis of food safety awareness i.e. washing hands, personal hygiene, consumption of food, storage, food hygiene. Data were analyzed using statistical packages for social sciences (SPSS) version 22.0. Frequencies were calculated. Results were concluded on the basis of p-value being greater or lesser than α (level of significance).

Results:

There were total 384 participants in study which include 40% males and 60% females. 51.7% study subjects aged 21-30 year, 37.5% were 20 years or below, 9.1% were 31-40 years and only 2.1% of participants were of 41 years and above.

Table.1 showed that there were 73.2% students, 12.8% teaching staff, 7.3% lower staff and 6.8% non-teaching staff among total population.

Profession	Frequency	Percentage%
Student	281	73.2%
Lower staff	28	7.3%
Administrative staff	26	6.8%
Teaching staff	49	12.8%
Total	384	100.0%

Table 1: Profession of Participants

Figure 1 described that 98.4% respondents were aware about advantages of hand washing with soap and water; only 1.6% subjects did not have knowledge. 90.9% of them were washing their hands with water and soap before and after meal, while only 9.1% were not doing so.

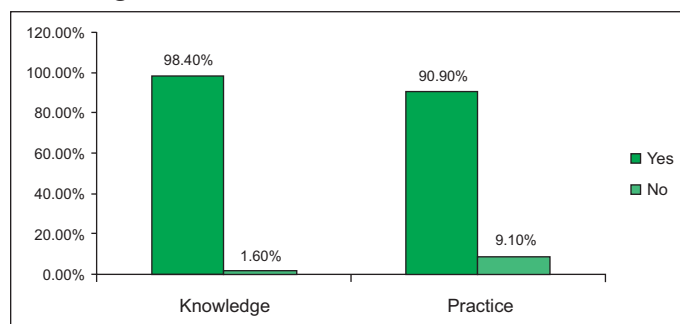


Figure 1: Awareness regarding washing hands with water and soap

Figure.2 illustrated that 94.5% of total respondents were avoiding coughing and sneezing near food while only 5.5% were not doing so and almost 89.8% of total population knew that food handlers should cover themselves properly while cooking, where 10.2% of

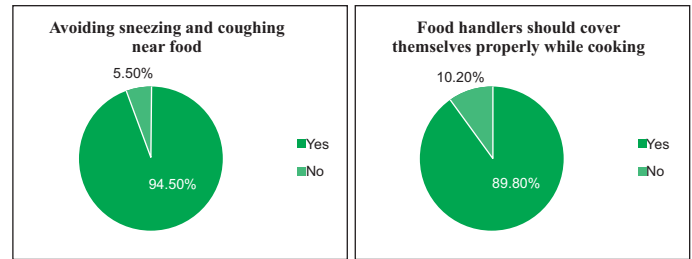


Table 2: Knowledge about personal hygiene

Figure 3 illustrated that according to 88% subjects cooked food should be refrigerated for its safety, only 12% of them do not know about that. 57.8% thought that it is right to leave food at room temperature for >2 hours, while 42.2% of them think it is not safe to leave food >2 hours, and almost

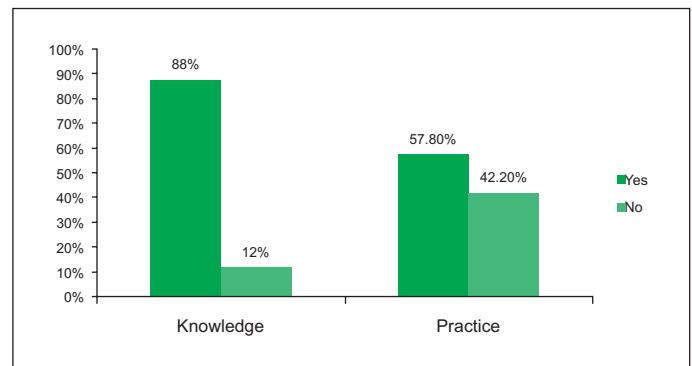


Figure 3: Knowledge about Food Storage

Discussion:

About (90%) of respondents knew that food handlers should cover themselves properly and (94.5%) of them avoid sneezing and coughing near food, (66%) of them knew that a cook cannot continue cooking with an injury on his hand, this is in contrast with previous study in Greek conducted by Lazou T *et al*, (2012), study depicted that subjects had (38%) knowledge about food handling measures.¹⁰ Another study in Jordan by Osaili TM *et al*, (2011) explained that there was less knowledge about food handling among students.¹² Almost (98%) subjects of current study were aware of importance of washing hands, and (91%) of them wash their hands with soap and water before and after every meal, this was similar to study in Greek by Lazou T *et al*, (2012), in which students had good hand washing practices and they knew about prevention of cross-contamination.¹⁰ This is almost similar to a study by Abbot JM *et al*, (2007) in Ethiopia which indicated that (99%) of respondents wash their hand before every meal, but only (36%) use soap for washing,¹⁴ in contrast from this study, another

research survey done by Mead PS *et al*, (1999) in Seoul and Ulsan described that only (33%) of participants knew about proper hand washing.¹⁵ Current study suggested that about (88%) of respondents know that food should be refrigerated for its safety which is also similar with Greek study by Lazou T *et al*, (2012).¹⁰ In current study, results depicted that about (92%) of total respondents knew that kitchen must be free from all organisms and all kitchen surfaces must be properly cleaned and sanitized, this is similar to a study in Saudi Arabia done by a group of researchers Al-Shabib NA *et al*, (2017), in which subjects had good knowledge related to cleanliness of kitchen and cooking utensils.¹¹ Study by Osaili TM *et al*, (2011) in Jordan also stated that students had good knowledge about practices to prevent contamination and sanitizing measures.¹² The study conducted by Al-Shabib NA *et al*, (2017) in Saudi Arabia also indicated that respondents were aware about personal hygiene,¹¹ in current study results revealed that almost (98%) of subjects wash hands after using washrooms, (36.5%) of them grow their finger nails and (91%) of them were aware of role of trimmed nails in prevention of food borne illnesses. Current study illustrate that awareness about food hygiene among subjects was about (60-70%), this is in contrast to results of study in Jordan by Osaili TM *et al*, (2011) which showed that only (40%) of individuals had awareness,¹² whereas study from Greek conducted by Lazaou T *et al*, (2012) described that only (37%) study participants were aware of food safety,¹⁰ another study in America conducted by Eric J G *et al*, (2013) depicted that about (43%) of respondents had awareness,¹⁸ the study done by Abbot JM *et al*, (2007) in Ethiopia described that (52%) of total respondents have awareness about accurate hygiene.¹⁴ This is in contrast to previous study in Seoul and Ulsan by Mead PS *et al*, (1999) illustrated that about (92%) of population had no knowledge about unhygienic foods.¹⁵

Conclusions:

Current study concluded that overall knowledge related food safety among all participants was about 60-70%, but there was no considerable difference regarding gender and lower staff. A good amount of awareness exists among all related to advantages of hand washing before and after meal and after using

washrooms. Almost all subjects were aware about the measures of personal hygiene and food consumption, males were less aware of food preparation than females. Subjects also lack in knowledge of ideal temperature for food storage and hazards of poor storing techniques.

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