Knowledge and Perception on Food Safety among Medical Students of Isra University, Al-Nafees Medical College: A Descriptive Cross-Sectional Study.

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ABSTRACT

OBJECTIVES: To assess the level of knowledge and perception of food safety among medical students of Isra university.

STUDY DESIGN: A descriptive cross-sectional study.

PLACE AND DURATION: At Isra University, Al- Nafees Medical College, Islamabad in a period of 2 months i.e. from 1st January 2017 to 28th February 2017.

METHODOLOGY: By using convenient sampling technique, 500 students of MBBS (1st to 5th year) of Al-Nafees Medical College were included in the study. A self-administered questionnaire for knowledge and perception of food safety was used.

RESULTS: Out of 476 respondents 31% correctly answered the meaning of term food safety. Most of the students (87%) could identify the food borne diseases. Few students (32%) responded that food adulteration is safe and 73% students perceived that food fortification is safe for health. The overall knowledge and perception of students on food safety was significantly different among males and females, and among students of different age groups (p-value<0.05), but not significantly different among students of different classes (p-value>0.05).

CONCLUSION: Most of the students had poor knowledge and perception about food safety, safe food handling, reasons of food contamination and food borne illnesses.

KEYWORDS: Knowledge, Perception, Food safety, Food handling, Food-borne diseases, Medical Students.

INTRODUCTION

Food safety is an important concern of global public health since long. The unhealthy food consumption has been increasing, particularly among school children despite of significant efforts made by the concerned authorities. Food safety is defined as the circumstances and measures essential to control hazards and to make sure the appropriateness for human utilization of food considering its intended use.¹ Food borne diseases are defined as illnesses, generally toxic or infectious in nature, which are caused by entry of agents through the intake of food.² Global statistics on food-borne illnesses have shown that the incidence of food-borne diseases has been increasing each year. The cases of food poisoning are mostly reported among students who frequently visit university canteens and hostel kitchens. The main causative factors behind those food poisoning outbreaks are inappropriate temperature for storage and holding and lack of personal hygiene.³ Therefore, it is essential to educate the food consumers about the proper food handling practices in order to prevent the food-borne diseases.⁴ Provision of education is necessary to enhance the knowledge of food consumers. Universities have been recognized as vital places for health promotion and to influence behaviors related to health, including those behaviors that are related to hygiene.⁵ The habits once developed in student life are liable to be long-lasting and hard to change later in life.⁶ Therefore students who are effectively educated may pursue good hygienic practices throughout their life. However, provision of knowledge does not mean that it will necessarily lead to change in behavior.

Numerous programs conducted for hygiene education have been failed to bring about expected changes in behavior of respondents.⁷ It has been observed that there are various unsafe food hygiene practices while preparing food at home and 95.4% of consumers are unable to execute many basic food hygiene practices because of insufficient knowledge or inability to observe standard food safety measures.⁸ A considerable proportion of the public is frequently implementing poor food handling practices.⁹
This study aimed to assess the level of knowledge and perception of food safety among medical students of Isra University, Al-Nafees Medical College, Islamabad.

**METHODOLOGY**

This was a descriptive, cross-sectional study conducted at Al-Nafees Medical College, Islamabad, within a period of two months i.e. from 1st January 2017 to 28th February 2017. By using convenient sampling technique, 500 students of MBBS (1st to 5th year) of Al-Nafees Medical College were included in the study. Students enrolled in MLT, DPT and Nursing programme were excluded from the study. A self-administered questionnaire adopted from a similar study conducted by Idasa Antony at the University of Nairobi, was used to collect data from participants.

Respondents were asked about different questions to assess their knowledge about food safety, food consumption, food handling, food-borne diseases, balanced nutrition, and reasons of food contamination. In the analysis of the respondent’s knowledge towards food safety, a format proposed by Likert was used indicating their agreement or disagreement with a 5-item scale. Respondents answered different items, by choosing one of five alternatives, from 5 (strongly agree) to 1 (strongly disagree). All the answers of respondents were scored and computed as index scores out of 100. The knowledge and perception of students was ranked as low, medium and high based on their knowledge index scores. The knowledge and perception index score from 0 to 50 was ranked as Low, from 51 to 70 was ranked as Medium and above 70 was ranked as High. (Figure I)

Data Analysis: Data was analyzed by using SPSS 23 software. Descriptive variables were presented as frequencies and percentages. An independent samples t-test was conducted to compare the knowledge and perception on food safety among males and females. One way ANOVA was used to compare the knowledge and perception on food safety among students of different age groups and different classes. The p-value <0.05 was considered as showing statistically significant results.

**RESULTS**

Out of 500 students, 476 students responded, therefore the response rate came out to be 95.2%. Few of them, 148 (31%) correctly answered the meaning of term food safety. Many of the students 414 (87%) could identify the food borne diseases. Few students, 152 (32%) responded that food adulteration is safe and 347 (73%) students replied that food fortification is safe for health. The knowledge and perception of students regarding food safety (Table I) and food borne diseases (Table II) is given below:

**Table I: Frequency of Knowledge and Perception of students regarding food safety (N = 476)**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Don’t Know</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food available in college cafe</td>
<td>56 (11.8%)</td>
<td>109 (22.9%)</td>
<td>140 (29.4%)</td>
<td>116 (24.4%)</td>
<td>55 (11.6%)</td>
</tr>
<tr>
<td>is safe for consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food at college cafe is not</td>
<td>19 (4%)</td>
<td>90 (18.9%)</td>
<td>139 (29.2%)</td>
<td>197 (41.4%)</td>
<td>31 (6.5%)</td>
</tr>
<tr>
<td>as safe as it should be</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available information on food</td>
<td>33 (6.9%)</td>
<td>93 (19.5%)</td>
<td>116 (24.4%)</td>
<td>145 (30.5%)</td>
<td>89 (18.7%)</td>
</tr>
<tr>
<td>packages is not enough to judge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>food safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food handling in cafeteria</td>
<td>38 (8%)</td>
<td>72 (15.1%)</td>
<td>122 (25.6%)</td>
<td>165 (34.7%)</td>
<td>79 (16.6%)</td>
</tr>
<tr>
<td>is not as safe as expected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food handling along the streets/</td>
<td>29 (6.1%)</td>
<td>74 (15.5%)</td>
<td>105 (22.1%)</td>
<td>125 (26.3%)</td>
<td>143 (30%)</td>
</tr>
<tr>
<td>roads is unsafe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsafe food can cause diseases</td>
<td>30 (6.3%)</td>
<td>52 (10.9%)</td>
<td>82 (17.2%)</td>
<td>128 (26.9%)</td>
<td>184 (38.7%)</td>
</tr>
<tr>
<td>In general high food nutritional</td>
<td>65 (13.7%)</td>
<td>89 (18.7%)</td>
<td>134 (28.2%)</td>
<td>150 (31.5%)</td>
<td>38 (8%)</td>
</tr>
<tr>
<td>level is related to safe food</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In general higher prices mean</td>
<td>90 (18.9%)</td>
<td>144 (30.3%)</td>
<td>113 (23.7%)</td>
<td>85 (17.9%)</td>
<td>44 (9.2%)</td>
</tr>
<tr>
<td>that the food is safe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is difficult to get safe</td>
<td>33 (6.9%)</td>
<td>108 (22.7%)</td>
<td>133 (27.9%)</td>
<td>128 (26.9%)</td>
<td>74 (15.5%)</td>
</tr>
<tr>
<td>food that has well balanced</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>nutrient</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table II: Frequency of Knowledge and Perception of Students regarding food borne diseases (N = 476)**

<table>
<thead>
<tr>
<th>Diseases caused by unsafe food</th>
<th>Yes</th>
<th>No</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhoid</td>
<td>268 (56.3%)</td>
<td>91 (19.1%)</td>
<td>117 (24.6%)</td>
</tr>
<tr>
<td>Cholera</td>
<td>279 (58.6%)</td>
<td>94 (19.7%)</td>
<td>103 (21.6%)</td>
</tr>
<tr>
<td>Gastritis / Food Poisoning</td>
<td>353 (74.1%)</td>
<td>40 (14.5%)</td>
<td>54 (11.3%)</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>365 (76.6%)</td>
<td>53 (11.1%)</td>
<td>58 (12.2%)</td>
</tr>
<tr>
<td>Dysentery</td>
<td>303 (63.7%)</td>
<td>57 (12%)</td>
<td>116 (24.4%)</td>
</tr>
</tbody>
</table>
An Independent Samples t-test was conducted to compare the knowledge and perception scores among male and female students. A statistically significant difference was found between male students (M=48.11) and female students (M=44.96); t (df) = 2.04 (473), p = 0.04.

One-Way ANOVA was carried out to compare the knowledge and perception scores among students of different age groups (Gp1: 16 to 20 yrs, n=191; Gp2: 21 to 25 yrs, n=268; Gp3: 26 to 30 yrs, n=17). It was revealed that the knowledge and perception scores were significantly different among students of different age groups, F (df1, df2) = 3.62 (2, 473), p-value = 0.027. The highest knowledge and perception score was observed in Group 1 (M = 48.85).

One-Way ANOVA was also carried out to compare the knowledge and perception scores among students of different classes (Gp1: First year, n=103; Gp2: Second year, n=97; Gp3: Third year, n=103; Gp4: Fourth year, n=86; Gp5: Fifth year, n=87). The knowledge and perception scores were not found significantly different among students of different classes, F (df1, df2) = 2.28 (4, 471), p-value = 0.059.

**DISCUSSION**

Now-a-days there is an increased concern among public regarding the risks associated with food. The high incidence of food poisoning cases demonstrates that people are still making unhealthy decisions regarding the storage, consumption, and preparation of food. The food borne illnesses are strongly associated with inappropriate heating, storage and cross contamination. The lack of awareness about food hygiene is a major contributing factor towards it. These malpractices must be improved in order to reduce the incidence and risk of food poisoning. Food consumers should have knowledge and awareness of food preparation and handling skills. They should be motivated to practically apply that knowledge which can lead to behavior change.

The current study investigated the knowledge and perception of students regarding food safety, food handling, preparation and consumption. The results of this study revealed that most of the students (58.19%) had poor knowledge of food safety and handling. Only few of these (7.98%) students had good knowledge and perception regarding food safety.

A study was conducted in Rawalpindi to assess the knowledge and practices of food vendors regarding food safety, which revealed that majority of vendors, had poor knowledge and practices on food preparation and handling. About 80% vendors agreed that food could be contaminated with the insects, microbes, dust particles, spices and food coloring spices used in the preparation of food. A similar study was carried out in Ethiopia to evaluate knowledge, attitude and practices of school children regarding food hygiene. The study revealed that more than half (52%) of students were found as having good knowledge about food hygiene and handling. The main objective of this study was to assess the knowledge and perception of food safety among students in university. The university community is considered knowledgeable about food safety issues and related practices which enhance food safety. There had been various surveys conducted to assess people’s knowledge and perception about food safety and food handling practices, with variable results. In this study, male students were relatively more knowledgeable compared to female students. A study conducted in Turkey revealed that the knowledge and perception scores of respondents regarding food hygiene and safety were found higher in female respondents compared to male respondents. In this study, the students of age group 16 to 20 were found as having significantly higher knowledge and good perception regarding food safety compared to other age groups. In a similar study conducted in Turkey, the scores were found highest among respondents of age 45 and above.

According to the results of a survey conducted among students regarding food safety, the students does not trusted food handled in restaurants and they considered that there is less information available to judge correctly the safety level of products.
Nevertheless they considered food not safe as they should be; they needed more information as they didn’t find it on food label.\textsuperscript{16}

The improvement of knowledge and awareness of food consumers play an important role in reducing the risk of food borne illnesses which have become a serious public health issue throughout the world. In this study, the knowledge and perception of food safety among students of different classes was found almost similar with no significant difference between them. In a Turkish study, it was found that the knowledge and perception of respondents regarding food safety were strongly associated with higher education level and their socioeconomic status.\textsuperscript{15}

In a study conducted by Sharif et al, a significant correlation was found between knowledge of food hygiene, food handling practices and attitude towards food safety among food handlers in military hospitals in Jordan. The study strongly emphasized on the importance of food safety knowledge among food handlers and other medical staff who are involved in food handling and preparation for hospitals.\textsuperscript{16}

Medical students are the future health care professionals who can provide education of food safety and health food handling practices to their patients. They can play a vital role in reducing the incidence of food borne diseases by educating people and motivating them for behavior change.\textsuperscript{17}

In order to restore the food confidence lost in university students, an effort of truthful information is necessary throughout the food marketing chain to offer food safety products. The university should put food safety measures in place and also train the students on importance of observing personal hygiene.

CONCLUSION

Most of the students had poor knowledge and perception about food safety, safe food handling, reasons of food contamination and food borne illnesses.

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CONTRIBUTION OF AUTHORS

Pervez M: Conceived Idea, Data Collection, Data Analysis, Manuscript Writing.
Ahmed F: Statistical Analysis, Literature Review
Yasir I: Designed Research Methodology, Data Interpretation
Akbar A: Data Collection.

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REFERENCES


