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# Food Poisoning in East and West Libya and Healthy Foods

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Newly, food poisoning has increased internationally as community wellbeing is in a difficult situation because of poor food safety. The study aimed to evaluate the food safety opinion of Libyan people diagnosed with food poisoning shared similar circumstances from west and East Libya. A face-to-face cross-sectional study was randomly performed on

ABSTRACT

Libya. A face-to-face cross-sectional study was randomly performed on 164 individuals (97 males and 67 females) aged 20 to 45 years. The participants were from Tripoli and Derna. The study was conducted from 1st September 2024 to 30 January 2025. All participants were diagnosed with food poisoning. About 100 participants from Tripoli and 64 participants from Derna. The questionnaire included personal information and participants' opinions about food safety and hygiene. The approximate percentage of men and women were 59% and 41%, respectively. This explains that men were nearly 18.5% more likely than women to be susceptible to food poisoning. All participants had a university degree and a middle-income level. 123 (75%) participants had great awareness of food poisoning, while 41 (25%) participants did not have enough background about food hygiene. Also, participants mostly complained of abdominal cramps and diarrhea, 40% and 30%, respectively. However, there was a significant difference in the opinion about food poisoning (p values = 0.03) and a substantial correlation between educational level and understanding of food hygiene (p value = 0.022).

## **1. INTRODUCTION**

The World Health Organization (WHO) implied that there were about 2 million cases of food poisoning occur yearly in developing nations. This is because poor food safety and hygiene affected the health and economic well-being of developing countries (Ayed, 2021). Food poisoning defined as a diversity of diseases acquired by eating contaminated foods or water with organisms (bacteria and viruses), poisonous chemicals, radioactive substances and other unsafe substances leading to food-borne diseases. Also, food safety mentions to the processes of handling, preparing and storing of food to stop contamination by toxic materials or pathogenic microorganisms (Abuhlega and Greesh, 2021; Almansour, 2016).

Moreover, food poisoning may happen as a result of unhygienic practices during food preparation, handling and storage creates the situations that permits transmission of disease-causing organisms including bacteria, viruses, parasites and other food-borne pathogens (Aziz and Dahan, 2013; Grace 2015). In Libya and other developing countries, poor opinion about food safety leads to food-borne diseases. For example, diarrhea is the most common infection resulting from eating of contaminated food, resulting 550 million infections and 230.000 mortality each year. According to World Health Organization (WHO) every 1 out of 10 of people fall sick yearly due to consuming contaminated food (Havelaar, 2015). Many previous research about food poisoning among educated people were performed. For example, one study on student at University of Missouri, USA, showed that more than 60% of the students had opinion about food poisoning (Mohd, 2018). In Turkey, a large-scale survey on students of Gazi University in Ankara, showed that approximately 37.3 % of the students had opinion on food poisoning. In comparison to other communities, the food safety opinion of Jordan University students was as low as 33.9%. While, a study from Taif University, Saudi Arabia found that 50% of the students lacked the opinion on food poisoning. (Patil et al., 2005; Quinlan, 2013). This study aimed to evaluate the opinion of food safety and hygiene among public Libyan population from east and west Libya.

### 2. MATERIALS AND METHODS

#### **Data Collection and Analysis**

A face-to-face cross-sectional study was conducted on 164 Libyan individuals (97 males and 67 females). 131 participants were males and 33 participants were females. The individuals were 100 participants from Tripoli [ the capital city located in west Libya] and 64 participants from Derna [located in east Libya]. The participants were aged (22-45) years.

The study was performed from 1<sup>st</sup> September 2024 to 30 January 2025. The survey was randomly carried out using a face-to-face questionnaire in the Arabic language. This survey assists the researcher to know the opinion of public people in Derna and Tripoli toward food safety and hygiene. Data was collected on a form (questionnaire) during the interview. Participants were asked to detail their nutritional habits before getting hurt food poisoning Also, the questions were focused on life style factors including eating raw foods, un washed foods, fast foods from restaurants, source of drinking water and if they wash hands before meal, as well as types of foods they mostly consumed.

## **Statistical Analysis**

Descriptive statistics were performed using SPSS Statistics Software Program (version 24, Inc., Chicago, Illinois, USA) to determine percentages. The Pearson Chi-square test ( $X_2$ ) was used to assess the significance of the association between males and females being diagnosed with food poisoning according to their sex, place of residence and their opinion toward food safety and hygiene. In all tests,  $\alpha < 0.05$  was regarded statistically significant. All confidence intervals (CIs) were calculated at the 95% level of statistical significance.

## **3. RESULTS**

#### **Personal Features**

All the participants in the survey were young people between the ages of 22 and 45 years. Men were more responsive to the food poisoning survey. The majority of survey responds were males (59 % [n=97]) while the percentage of females reached (41% [n = 67]). All participants were university graduates and had medium income levels, which makes the study conducted on people with similar circumstances.

#### **Opinion of Participants toward Food Poisoning**

About 123 (75%) participants had great awareness toward food poisoning, while 41 (25%) participants were not had enough background about food safety and hygiene. It was Also shown from this study that 66 participants (40%) had abdominal cramps which was the highest percentage, while 49 participants (30%) had diarrhea, while 25 participants (15%) had vomiting, 16 participants (10%) had nausea and 8 participants (5%) had fever (Table1).

Table 1. The Main Symptoms of Food Poisoning.

Symptom	Participants		
	Number	Percentage	
Fever	8	5	
Nausea	16	10	
Vomiting	25	15	
Diarrhea	49	30	
Abdominal Cramps	66	40	
Total	164	100	

Table 2. The Opinion Toward Food Poisoning and its Danger among Participants.

	Agree	123
Agree Attitude Food Poisoning	Disagree	41
	Total	164

## 4. DISCUSSION

#### **Participants with Similar Circumstances**

The main health matter facing the biosphere that threatens of the health of people is food-borne infections and their accompanying cases of food poisoning. So as to recover university education and lessen the risk of foodborne diseases, it is essential to study the opinion and understanding of university students about food safety and hygiene (WHO, 2024; Saeed, 2019; Sharif and Al-Malki, 2010, Thompson, 2010). According to our results, all participants in the questionnaire shared similar circumstances, as they were all in the youth stage, their financial level was average, and they had a university education. Also, 131 (80%) participants were men and 33 (20%) participants were women. However, a previous study accomplished in Saudi Arabia and Palestine among young individuals indicated that women participated more in the questionnaire, at a rate of 82% and 92.7%, respectively (Almansour et al., 2016). This differs from what we found in this study, as most of the participants were males, at a rate of 59 %. This implies that men were more willing to participate than women by 18%.

#### **Understanding of Participants toward Food Poisoning**

Most participants had clear awareness to food poisoning, while some participants had not enough understood about food safety and hygiene. Although all participants had a university education, some of them (25%) had no opinion about food poisoning and its health risks. This explains that the necessity of educating university students about food safety and the danger of food-borne diseases to health of individuals and society (Abuhlega and Greesh, 2021; Sharif and Al-Malki, 2010). Despite this, we found that the majority of participants (75%) had a clear idea and substantial understanding about the dangers of food poisoning and the importance of food hygiene (Table 2). Approximately 41 participants (25%) had a negative opinion that there is no danger of disease from consuming raw milk, raw cheese, unwashed vegetables and herbs picked directly from the farms. Also, they did not wash their hands with soap and water before eating meal. In comparison, a preceding study documented that 88% of the participants had a negative belief that there is no risk of disease from eating unwashed vegetables and herbs and do not wash their hands with soap and water before eating their diet (Saeed, 2019; Sharif and Al-Malki, 2010). However, an earlier study on students from Tripoli, Libya found that 55% of participants had a good level of food safety but only 17.3% had washed their hands before eating in school (Abuhlega and Greesh, 2021).

All participants confirmed that they experienced some symptoms when exposed to food poisoning, including abdominal cramps, diarrhea, vomiting, nausea, and fever. Abdominal cramps accounted for the largest percentage (40%), and then diarrhea, which was accounted for 30%, which makes abdominal pain and diarrhea among the most common signs of food poisoning. However, World Health Organization[WHO] documented that diarrhea is the main symptom resulting from eating of contaminated food (Havelaar, 2015; Saeed, 2019) Moreover, there was a significant difference in the opinion about food poisoning (p values = 0.03), as well as a substantial correlation between educational level and understanding of food hygiene (p value = 0.022) across similar genders, age, education, and income levels but different geographical places among food handler in Libya.

In comparison, a previous study in Southeast Asia reported that educated participants had good understanding about food poisoning (Aziz and Dahan, 2013). Moreover, this study reported that 123 cases (75%) exposed to food poisoning had symptoms return again after recovery. This calls for the need for lectures and workshops concerned with food safety and developing a public health program for food safety and hygiene.

In addition, good nutrition plays an important role to recover from food poisoning. The dietary program for people diagnosed with food poisoning should contain a plenty of fresh fruits and vegetables without peel, whole grains such as oats, brown rice, and barley, lean protein including fish, skinless chicken, egg whites, and beans, low-fat or non-fat dairy products and healthy fats such as nuts, avocados, and olive oil. However, some foods may negatively affect health including high-calorie foods such as greasy, fatty, and sugary foods, saturated fats including butter, cream, fatty cuts of meat, and fried foods, cookies, cake, soda, packaged baked goods, salty foods, alcohol and smoked foods (Yasutake et al., 2015; Zyoud, 2019).

### **5-CONCLUSION**

This scientific study is considered the first of its kind to study the extent of awareness and understanding about food safety among a group of individuals with similar life circumstances but live in different places in Libya. Men were more willing to participate than women and they were nearly 18.5% more likely than women to be susceptible to food poisoning. This study may support the practical strategies for increasing public needs of food safety and enhancing a better understanding of it. The study may also work as a wake-up call for future studies for educating all Libyan society about food hygiene and protection from food-borne diseases and food poisoning.

## 6. REFERENCES

Ayed AS (2021) Knowledge, attitudes, and practices towards food poisoning among parents in Asser region. Healthcar., 9 (12): 1650.

Abuhlega TA and Greesh MI (2021) Knowledge and awareness of food safety among middle school students in Tripoli, Libya. J Patan Acad Health Sci, 8(1), 58–68.

Almansour M, Sami W, Al-Rashedy OS, Alsaab RS, Alfayez AS, Almarri NR (2016) Knowledge, attitude, and practice (KAP) of food hygiene among schools students' in Majmaah city, Saudi Arabia. J Pak Med Assoc., 66 (4):442-446.

Aziz SA, Dahan HM (2013) Food handlers' attitude towards safe food handling in school canteens. Procedia-Soc Behav Sci., 3(105): 220-228.

Grace D (2015) Food safety in low and middle income countries. Int J Environ Res Pub Health, 12(9):10490-10507.

Havelaar AH, Kirk MD, Torgerson PR, Gibb HJ, Hald T, Lake RJ, Praet N, Bellinger DC, de Silva NR, Gargouri N (2015) World health organization global estimates and regional comparisons of the burden of foodborne disease in 2010. PLoS Med., 12(12): e1001923.

Mohd Y (2018) Knowledge, attitude, and practice toward food poisoning among food handlers and dietetic students in a public university in Malaysia. J Pharm Bioallied Sci, 10(4): 232-239.

Patil SR, Cates S, Morales R (2005) Consumer food safety knowledge, practices, and demographic differences: findings from a meta-analysis. J Food Prot; 68: 1884- 1894.

Quinlan JJ (2013) Foodborne illness incidence rates and food safety risks for populations of low socioeconomic status and minority race/ethnicity: a review of the literature. Int J Environ Res Public Health, 10(8):3634–3652.

Saeed SB (2019) Food poisoning knowledge, attitudes, and practice of students in Majmaah University. Majmaah J Health Sci, 7(2): 1440.

Sharif L, Al-Malki T (2010) Knowledge, attitude and practice of Taif University students on food poisoning. Food Cont. 21(1): 55-60.

Thompson D (2010) Tips avoid liver damage from hepatitis. Available from: <u>https://www.everydayhealth.com/hepatitis/tips-to-avoid-liver-damage-from-hepatitis.aspx</u>. Accessed November 24, 2024.

World Health Organization [WHO] (2024) Food safety Available from: http://www.who.int/ mediacentre/factsheets/fs399/en/. Accessed 11 Nov 2024.

Yasutake K, Kohjima M, Nakashima M, Kotoh K, Nakamuta M, Enjoji M (2012) Nutrition therapy for liver diseases based on the status of nutritional intake. Gastroenterolog Res Prac, Doi: 10.112012/85969755.

Zyoud S (2019) Knowledge, attitude and practices among parents regarding food poisoning: a cross-sectional study from Palestine. BMC Public Health., 19: 586.