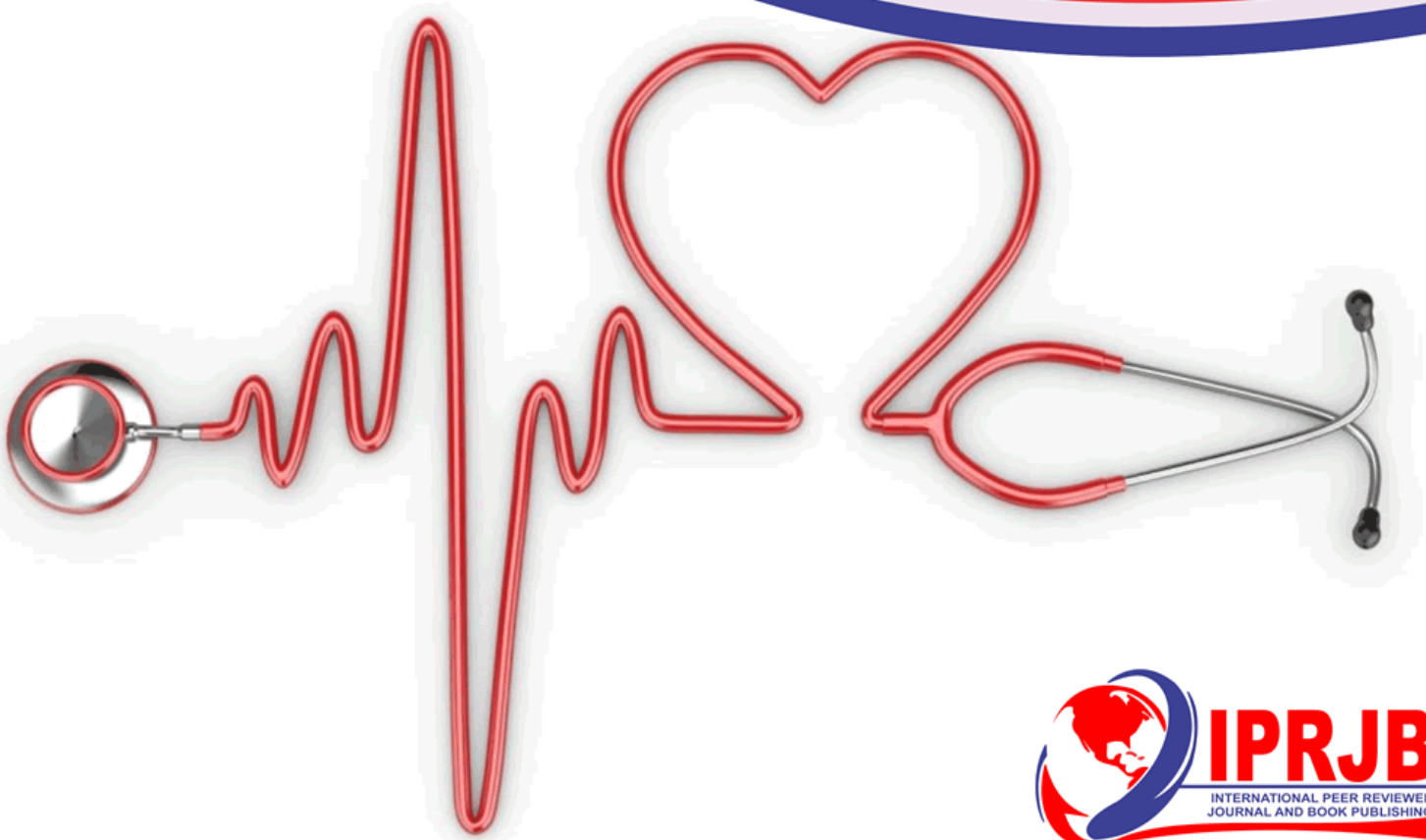


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AWARENESS OF FOODBORNE PATHOGENS AND FOOD POISONING AMONG CONSUMERS IN AL QURAYYAT - KINGDOM OF SAUDI ARABIA

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Abstract

Purpose: Microbial pathogens are the reason for millions of cases of foodborne disease in the world and the effect of deaths. This study was conducted in Al Qurayyat city, to measure the awareness of consumers of food poisoning and its signs, risky foods, practice and proper selection of ready food and main microbial pathogens as food safety complications.

Methods: a pretested self-managed questionnaire was applied namelessly between illustrative samples.

Results & discussion: 44% of the samples examined reflect that they have been affected by food poisoning. The awareness differs between pathogens, 29% of the samples have information about Clostridium as a foodborne pathogen however 13% only have cited Staphylococcus aureus as a foodborne pathogen. 57% of the sample checked the status of their meals from restaurants, while 43% don't. About canned food 46% of our sample checked expiry date and 54% don't checked it.

Unique contribution to theory, practice and policy: The study recommends that an effective education programs should be encouraged for food handling practices and other safety performances can rise the precipitations awareness of microbial pathogens.

Key words: *Food poisoning, Awareness, Staphylococcus aureus, Clostridium.*

1.0 INTRODUCTION

Foodborne diseases (FBD) are infection initiated by consumption contaminated food or drink (Grace, 2017). The contamination can happen anywhere from farm to the plate and can produce a variety of avoidable diseases such as viral hepatitis and acute gastroenteritis. Rendering to the Food and Agriculture Organization, admission to safe and healthy food is one between the essential rights of a human being. While this correct to safety food is frequently negotiated (Food, 2017). Foodborne diseases still the main public health of over all the world. In addition, numerous studies have described that common foodborne illness affect the developing countries over all the world (Grace, 2017).

Food-borne pathogens are the principal reason for infection and death in developing countries, murder about 1.8 million people yearly (Hayajneh, 2015). Every year, microbial pathogens cause as numerous as 76 million situations of foodborne infection, 324,000 hospitalizations and 5200 deaths in the USA (Chung-Tung *et al.*, 2005).

For reducing the morbidity and mortality concerning to FBD, Food and Agriculture Organization (FAO) and World Health Organization (WHO) delivers severe guidelines and regulations, for food treating, handling, and consumption. To highlight the significance of food safety, the motif for World Health Day in 2015 was “From farm to plate, make food safe”. The topic set out to edify the masses on food safety, new impendence to food safety, food tendencies and preventive methods in order to strengthen food safety systems worldwide (WHO, 2015).

As detected in other countries, a huge percentage of food poisoning plagues are certainly not described to the health system in the Kingdom of Saudi Arabia (KSA). Conversely, on the base of notified plagues, it can be reported that the number of described food poisoning plagues has enlarged steadily through the period 1411-1422 Hijra from 186-482 accidents (Yagob, 2004).

A previous study by Qassim province, KSA, studied the foodborne infection surveillance data for the year 2006. Through the study period, 31 foodborne illness plagues including of 251 cases, were informed. The furthermost public etiologic agent was *Salmonella* spp, followed by *Staphylococcus aureus*. Commercially intended foods were used by the popularity of the cases (68.9%). The meat and Middle Eastern meat sandwich were the generally concerned food vehicles (Al-Goblan & Jahan, 2010).

Moreover, another paper about the awareness of customers of food poisoning and its medical signs, risky foods, practice and proper selection of prepared food and foremost microbial pathogens as food safety complications in Taif region was examined. About 71% of the samples established, reflect they have been affected by food poisoning, 49% of the samples have information about salmonella as a foodborne pathogen although 16% only have cited *Campylobacter* such as a foodborne pathogen. The awareness differs between pathogens and the difference perform to be linked to modifications in the number and severity of infections related to these pathogens (Hayajneh, 2015). So that the community awareness during efficient teaching concerning basic food safety guiding principle is essential to avert numerous foodborne infectious diseases.

2.0 MATERIALS AND METHODS

2.1 Study area:

The study was conducted in Al Qurayyat city which covers about 50 km², in Al Jouf region at North of the Kingdom Saudi Arabia. Its geographical location is located on the international road linking the Arabian Gulf to the Levant and Europe.

2.2 Sampling method:

The sample random sampling technique was employed to select the respondents from Al Qurayyat city. Respondents were selected during questionnaire administration in diverse parts of the town and represent different levels of education from males and females. Through the questionnaire running, any participant of the households who was prepared to contribute in the interview was acceptable as a sampling unit.

2.3 Questionnaire:

The questionnaire covered awareness of some pathogens as problems in food, information's about food safety, food handling and consumption practices, awareness and consumption of actually perilous foods, food allergies, foodborne infection experience, in this study we concentrated on the analysis of awareness of some pathogens (namely Staphylococcus, Campylobacter, Escherichia coli, and Listeria). Definitely, the survey tested (Have you ever heard of (a pathogen) as a problem in food? & the conceivable responses were (yes) and (no).

2.4 Methods:

A self-administered questionnaire was designed to be used anonymously, validated and pretested, then reviewed by staff members in from the Faculty of Applied Medical Sciences, Jouf University, KSA.

The questionnaire was initially enlisted in Arabic, then translated to English language, and was tested for consistency. The survey was developed to elicit the general awareness, attitude about food poisoning, causes of food poisoning in Al Qurayyat city, Kingdom of Saudi Arabia during the period from October to December 2018.

A total of 100 persons were randomly selected from different areas in Al Qurayyat city. Data collection was carried out during day under the supervision of the investigator. The questionnaire was organized in such a method that questions and answers were direct and simple. The descriptive samples (persons) full up the questionnaire, with aid from the investigators. The descriptive samples took about 5– 10 min to full the questionnaire completely.

3.0 RESULTS & DISCUSSION

Totally 100 participants were studied. Majorities (70%) of the study participants were females and (30%) were males (Table 1).

Table 1: Profile of study participants.

Gender	Frequency	Percent
Male	30	30
Female	70	70
Total	100	100

Our study provides information and shows many critical features about the knowledge, attitudes, and practices of the people living in Al Qurayyat City, KSA about foodborne diseases (Table 2& 3).

Clostridium considered the main source of the problem is home canned foods which have not been properly processed (Reynolds *et al.*, 2003), in our study, 87 % of the samples think that improperly canned food can cause food poisoning (Table 2) while only 46% check the expiry date of canned foods.

Table 2: Awareness against canned food.

Education level	Does expired canned food cause food poisoning		Do you check expiry date	
	Yes	No	Yes	No
Primary	5	2	0	7
Secondary	6	0	1	5
High school	14	1	1	14
University level	62	10	44	28
Total	87	12	46	54

The survey reveals a lack of knowledge among people living in Al Qurayyat city especially males. For example, *S. aureus* which is dangerous to human health and one of the main challenges to the food. The occurrence of *Staphylococcal* food poisoning remnant high around the world (Fetsch & Johler, 2018). Also, table 3 shows that only 13% know about *S. aureus*, while 29% know something about *Clostridium*.

Consumption of foods of expired data might raise your risk for foodborne diseases. Hoffman et al. (2005) reported that Foodborne infections are prevalent, but the magnitude of infection and linked deaths are not accurately described in both developed and developing countries.

Table 3: Awareness of the most common causes of food poisoning.

Food poisoning organism	Gender	No idea	Yes	No	Total
Clostridium	Male	24	5	1	30
	Female	37	24	9	70
E. coli O157	Male	28	1	1	30
	Female	41	16	13	70
Campylobacter	Male	29	0	1	30
	Female	39	20	11	70
Bacillus	Male	27	1	2	30
	Female	41	19	10	70
Staphylococcus aureus	Male	28	1	1	30
	Female	46	12	12	70
Listeria	Male	28	1	1	30
	Female	40	18	12	70
Salmonella	Male	28	1	1	30
	Female	40	22	8	70

Table 4 shows that 44% of the sample think they have been influenced by food poisoning, and 55% of the sample think that contaminated food is the foremost cause of food poisoning cases, whereas (17%) think that carelessness is the reason for the food poisoning.

Table 4: What is the reason behind food poisoning?

Education level	C	No knowledge	Restaurants	Contaminated food	Carelessness	Bacteria	Total
Primary	3	0	2	4	1	0	7
Secondary	3	0	1	5	0	0	6
High school	9	1	2	8	1	3	15
University level	29	3	5	38	15	11	72
Total	44	4	10	55	17	14	100

C: people who think they have been affected by food poisoning.

The survey revealed very good awareness among people living in Al Qurayyat City about signs of food poisoning, 98% need to go to the doctor when having such signs/symptoms (Table 5). And (Table 6) shows other good results which represent 57% who check the status of their meals from restaurants.

Table 5: What are the clinical signs of food poisoning?

Do you need to go the doctor when having such signs/symptoms								
Gender	Yes	No	Fever	Bloody diarrhea	2 Signs	3 Signs	More than 3 signs	Total
Male	30	0	2	3	5	3	16	30
Female	68	2	12	6	17	7	28	70
Total	98	2	14	9	22	10	44	100

Table 6: How do you check the status of you meals from restaurants?

Variable	Do you check expiry date?	
	Yes	No
No idea	3	43
Smell and color	42	0
General look of the restaurant	10	0
Check instruments used	2	0
Total %	57	43

The World Health Organization (WHO) has taken action for assessment of the world burden of foodborne infections (Kuchenmüller *et al.*, 2009) and community awareness through efficient teaching concerning basic food safety rules is essential to evade numerous foodborne infectious diseases (Chellaiyan *et al.*, 2018).

4.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

4.1 Summary

Microbial pathogens are the reason for millions of cases of foodborne disease in the world. This study was conducted in Al Qurayyat city in Saudi, to measure the awareness of consumers of food poisoning. A pretested self-managed questionnaire was applied namelessly between illustrative samples. 44% of the samples examined reflect that they have been affected by food poisoning. In our study, we found that the awareness of foodborne pathogens is less frequent in male than the female.

4.2 Conclusion

Food safety starts from the farm to the plate. Food contamination can occur anywhere in the food cycle. Our study revealed very good awareness among people about signs of food poisoning, 98% need to go the doctor when having such signs/symptoms, but they lack knowledge about foodborne pathogens among people especially males.

The survey also shows that 44% of the sample think they have been affected by food poisoning, and 55% of the sample think that contaminated food is the main cause of food poisoning cases.

4.3 Recommendations

From our survey, we can be recommended that the people of Al Qurayyat need continuous food safety education and motivation is needed to raise awareness to evade much foodborne infectious disease.

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