تقييم مستوى المعرفة والممارسات بسلامة الاغذية –رفحاء– المملكة العربية السعودية

د. رحاب رافت عبد الرازق الصباغ
استاذ مساعد كلية العلوم والاداب
جامعة الحدود الشمالية – السعودية

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Assessment of the level of knowledge and practices of food safety - Rafha - Kingdom of Saudi Arabia

تقييم مستوى المعرفة والممارسات بسلامة الاغذية –رفحاء– المملكة العربية السعودية

Rehab Raafat Abdel Razek Mohamed

Assistant Professor of Nutrition and Food Sciences - faculty of Science and Arts - Northern Border University, Saudi Arabia

ABSTRACT

The aim of the study was to assess the level of knowledge and awareness of food safety and food safety practices in the Rafha community - Saudi Arabia. An electronic questionnaire was designed that contains 3 parts of the questions. Part one is the demographic characteristics of the study sample, part two is 25 questions about knowledge and awareness of food safety, and part three is 15 questions about food safety practices. Data were analyzed by Microsoft Excel and IBM SPSS and the relationship between these variables and demographic characteristics was explored. 255 (94.9%) females, (76%) individuals aged 18-29 years and (87%) with education participated in the survey. Collectors, the results indicated that respondents are aware of buying high-quality food (80%), buying fresh vegetables and fruits (85%), using separate cutting boards and knives for each type of food during preparation (76.4%) and (76%) always washing their hands before preparing food and (77.6%) always washed their hands after touching raw meat, chicken and fish and (79.6%) “always” did not buy foods that were not covered and that did not have an expiration date, using a chi-square test that found a $p = 0.029$ correlation between the results of knowledge scores B Food safety and age group ($p < 0.05$) The results showed that (64.9%) of them have a good level of knowledge and 80% have a moderate level of food safety practices. In conclusion: we find that society needs more knowledge of food safety practices in order to reach an excellent level of knowledge and a high level of practices. We recommend the competent authorities to provide guidance panels in public places that contribute to increasing knowledge and awareness of food safety and its practices

Keywords: Food Safety, Knowledge, Practices, Rafha, Saudi Arabia.

INTRODUCTION

Food safety is alluded to as a logical discipline depicting dealing with, arrangement, and capacity of food in ways that forestall foodborne ailment **(*Mridha, 2013*)** Individuals can become tainted with 200 infections because of devouring food or drink tainted with microscopic organisms, infections, parasites, or substance intensifies that can prompt looseness of the bowels or even different sorts of disease **(*Grace, 2015* and *WHO, 2019*)** Initially, the expression "food handling" was utilized to portray whether a nation approached sufficient food to meet dietary energy prerequisites **(*Pinstrup-Andersen, 2009*).** Presently food handling is characterized as the level of certainty that food won't make mischief or affliction the buyer when it is ready, served and eaten by its expected use **(*WHO, 2003*)** foodborne illnesses might increment in developing countries, because of expanded utilization of perilous food because of the absence of powerful food handling frameworks that screen and control food from ranch to table **(*Grace, 2015*).** Every year, foodborne diseases influence a great many individuals **(*Mead et al., 1999)***

Many investigations have announced that undergrads have deficient information and unseemly practices about food handling that put their well-being in danger from foodborne illnesses **(*Stratev et al., 2017 and Sanlier ،2009*)** Food security exists when all individuals, consistently, have physical and financial admittance to adequate, safe, and nutritious food to meet their dietary requirements and food inclinations for a functioning and sound life **(*Poppy et al., 2014*)**

States in numerous nations are battling for safe food as well. They have set up new establishments, principles, and strategies for food safety and have expanded their interests in danger control frameworks (for example good agricultural practices (GAP), good manufacturing practices (GMP), good hygiene practice (GHP), hazard analysis and critical control point (HACCP) offices ***(Liu et al., 2015; Kecskes-Nagy et al., 2016; Korzenszky et al., 2013).***Hazardous food handling rehearses are pervasive among all age gatherings, particularly youngsters, and this makes them more

inclined to foodborne infections ***(Byrd-Bredbenner et al., 2007and Byrd-Bredbenner et al., 2013)***

This study was conducted to assess the level of knowledge and practices of food safety in the Rafha community, Kingdom of Saudi Arabia

MATERIALS AND METHODS

The research was designed to measure knowledge of food safety and practices in the Rafha community - Saudi Arabia. Data were collected from 255 community members, aged between 18-50 years. An electronic questionnaire was designed from Google Forms as the most appropriate way to collect data ***(Creswell, 2014*)**, especially in light of the outbreak of the Corona epidemic during this period, as it was designed and published on social media (snap) to random As using this method increases the validity and reliability of the data collected ***(O'Dwyer & Bernauer, 2013)***The questionnaire was divided into three parts of the questions that were used, such as those used ***Norazmir et al., 2012*; *Al-mansour et al.,2016* and *Stratev et al., 2017.***

Where the first part consists of demographic characteristics such as gender, age, education level and monthly income, and the second part contains 25 questions about knowledge of food safety, Where used in the questionnaire Likert scale where respondents are asked to mark the most appropriate answer **(*Russell & Cohn, 2012).*** where a score was given for each correct answer and zero for each incorrect answer, from which the weak level of knowledge of food safety was calculated if Achieving a grade from zero to 11, a good standard from 12-19, and an excellent level from 20-25. The third part of the questions consists of 15 questions about food safety practices, and the grades are graded by giving 1-2-3-4 points against “very approximately.” “Sometimes” “mostly” and “always” respectively, and the grades for this part range from 15 to 60 degrees, where the low level represents from 15 to 29 degrees and the intermediate level is from 30 to 49 while the excellent level is from 50 to 60

Data Analysis:

The data obtained from the study were analyzed using Microsoft Excel and IBM SPSS Statistics Version 24 Statistical Software Package the Chi-Square procedure was It is used to analyze the relationship between the selected variables

RESULTS AND DISCUSSION

Demographic characteristics of the sample: Table (1) shows the demographic characteristics of the study sample. Among the 255 respondents, the highest percentage of participants in the study was female 240 (94.11%), while males were 15 (5.88%) and the majority of respondents were 194 (76%) whose ages were between 18-29 years, the highest percentage of participants with university education was 220 (86.27%), followed by intermediate education 17 (6.66 %), graduate studies 15% (5.88%) and the highest percentage of responses was for low-income people 203(79.6 %).

Table (1): Demographic characteristic of the sample (N=255)

characteristic	Number	Percentage of the sample (%)
Gender		
Male	**15**	**5.88%**
Female	**240**	**94.11%**
Age group		
18-29 y	**194**	**76%**
30-39 y	**47**	**18.43%**
40-49 y	**12**	**4.7%**
>50	**2**	**0.78%**
Education level		
Primary	**3**	**1.17%**
Intermediate education	**17**	**6.66%**
University education	**220**	**86.27%**
postgraduate	**15**	**5.88%**
Income/ monthly		
1000<3000 SR	**203**	**79.6%**
3000<6000 SR	**26**	**10.19%**
>6000 SR	**26**	**10.19%**

SR :Saudi riyals

Knowledge of food safety and practices among the study sample :table (2)show the results of respondents where it was found that the percentage of those who buy high-quality food (80%) is greater than the study ***(Ľudmila Nagyová et al., 2019)*** .Where the percentage was (62%), and it was found that the percentage of those interested in reading the nutritional information on the packages (41%) is close to the response rate to this question (34.5%) in a similar stu***dy (Ľudmila Nagyova et al., 2019).***

It was also found that (81.9%) of the study sample are aware that food contamination can cause serious diseases and may lead to death, and the percentage in a similar study in Libya was that (91.4%) of the sample members who answered correctly the same question ***(Abuhlega, 2020***) and in another study ***(Al-mansour et al., 2016)*** the percentage of correct answers to the same question was (70.7%).Evidence for the increased awareness of buying fresh food was found that (85%) of the study sample buy fresh vegetables and fruits, and this ***(Ragaert et al., 2004, Bond et al., 2009 and Peneau et al., 2009)*** is consistent with In that the consumer depends in choosing fruits and vegetables on freshness.

More than 70% of the respondents answered that flies landing on food makes it unsafe, as found in a similar study. ***(Al-mansour et al., 2016)*** the answer rate to this question (59.3 %).And that (91.7%) know that hands should always be washed after sneezing or coughing, and this result is similar to what was obtained by ***(Abuhlega, 2020)***

It was found that (54%) were aware that eating bloated canned foods could lead to harm or death, and that nearly half of the study sample (49%) knew that raw meat, fish and chicken should not be placed in the same place in the refrigerator, and this result is consistent with ***(Norazmir et al., 2012),*** where it was found that (52.1%) of the sample gave a correct answer to a similar question.

It also found a very small percentage (29.8%) who know that washing hands with water is sufficient to get rid of bacteria before touching food**.** As (78.2%) answered correctly, and (55.6%) knew

that food poisoning can be avoided from vegetables and fruits by washing them with running water. In another study ***(Abuhlega, 2020)*** the percentage of correct answer to this question was (83%).The response rates that eating cold cooked chicken and eating uncovered food without a cover were (34.9%) and (72.5%), respectively, and the results are close to the study ***(Abuhlega, 2020)*** whose results were (23%) and (76%), respectively

It was noted that (76.8%) of the respondents know that food contamination is caused by pathogenic microorganisms, and this answer is close to the study. ***(Al-mansour et al., 2016)*** where (69%) of the study sample gave the correct answer to the same question.Knowledge rates that eating half-boiled eggs, drinking unpasteurized milk, eating undercooked seafood, undercooked chicken and meat, and eating canned vegetables directly without heating increases the risk of food poisoning, which are as follows (26.6% - 29% -58% - 30.5% - 64.7% .This is consistent with ***Zan´s (2017)*** survey of the need to educate and that food safety education has a positive impact on customers,. (54.9%) of the sample answered that leaving foods out of the refrigerator for more than 4 hours increases the chances of food poisoning, which is in violation of the study of ***(Turnbull-Fortune and Badrie, 2014).***where (89.3%) answered a similar question incorrectly, and also answered (25.8%) that defrosting frozen foods outside the refrigerator increases the chances of food poisoning, while (35%) of the study ***(Turnbull-Fortune and Badrie, 2014)*** note that they always thaw frozen foods outside the refrigerator.

The study sample members who were aware of the use of cutting boards and knives dedicated to each type of food during preparation, the percentage was (76.4%), which is in contrast to the study of (***Yang et al., 1998)*** where it was clear that the students did not wash or use separate cutting boards, but they used the same The board is for preparing raw and ready-to-eat foods, and that (89.4%) are aware of the importance of washing and rinsing cutting boards and knives after use, which is identical to the study ***(Turnbull-Fortune and Badrie, 2014)*** in that they always rinse cutting boards and knives before using them again. It

was found that obtaining a sample of food and quality ***(Zagory, 1999)*** and the percentage (81.5%) of low temperatures, as during heat treatment the cooking loss increases with temperature and time in birds and meat ***(Latif, 2010).***

Table (2): Knowledge of food safety and practices among the study sample

Question	Correct answer N (%)			Uncorrected answer N (%)			No response N (%)		
	F	M	T	F	M	T	F	M	T
Buy high quality and healthy food	193 75.6 %	11 4.3%	204 80%	19 7.45 %	1 .39%	20 7.84 %	30 11.76 %	1 0.39 %	31 12%
Pay attention to reading the nutritional information on the packaging	151 39.6 %	4 1.55 %	105 41%	124 48.6 %	8 3%	132 51.7 %	16 6.2%	2 0,78 %	18 7%
Food contamination can cause serious illnesses and can eventually lead to death	199 78%	10 3.9%	209 81.9 %	7 2.7%	1 0.39 %	8 3%	35 13.7 %	3 1%	38 14.9 %
Buy fresh vegetables, fruits and foods with freshness	205 80%	12 4.7%	217 85%	20 7.8%	0 0	20 7.8%	16 6%	2 0.78 %	18 7%
Flies landing on food makes them unsafe	173 67.8 %	10 3.9%	183 71.7 %	29 11%	1 0.39 %	30 11.76 %	39 10%	3 1%	42 16%

Wash hands after coughing or coughing	221 86.6 %	13 5%	234 91.7 %	9 3.5%	0 0	9 3.5%	11 4%	1 0.39 %	12 4.7%
It may lead to harm or death by eating bloated canned foods	128 50%	10 3.95	138 54%	31 12%	0 0	31 12%	82 32%	4 1.56 %	86 33.7 %
Raw meat, fish and chicken are not kept in the same place in the refrigerator	120 47%	6 2.3%	126 49%	83 32.5 %	3 1%	86 33.7 %	38 14.9 %	5 1.96 %	43 16.8 %
Washing hands with water is enough to get rid of bacteria before touching food	70 27%	6 2.3%	76 29.8 %	153 60%	7 2.7%	160 62.7 %	18 7%	1 0.39 %	19 7.4%
Food poisoning from vegetables and fruits can be avoided by washing them with running water	134 52.5 %	8 3%	142 55.6 %	75 29.4 %	4 1.56 %	79 30.9 %	32 12.5 %	2 0.78 %	34 13%
Does eating cold cooked chicken cause food poisoning?	84 32.9 %	5 1.96 %	89 34.9 %	60 23.5 %	4 1.56 %	64 25%	97 38%	5 1.96 %	102 40%

Eating uncovered food causes food poisoning	173 67.8 %	12 4.7%	185 72.5 %	25 9.8%	1 0.39 %	26 10%	43 16.86 %	1 0.39 %	44 17%
Food contamination is caused by disease-causing microorganisms	185 72.5 %	11 4.3%	196 76.8 %	5 1.96 %	1 0.39 %	6 2.35 %	51 20%	2 0.78 %	53 20.78 %
Eating half boiled eggs increases the risk of food poisoning	66 30%	2 0.78 %	68 26.6 %	92 36%	5 1.96 %	97 38%	83 32.5 %	7 2.74 %	90 35%
Drinking unpasteurized milk increases the risk of food poisoning	71 27.8 %	3 1%	74 29%	48 18.8 %	4 1.56 %	52 20%	122 47.8 %	7 2.74	129 50.5 %
Eating raw, uncooked seafood increases the risk of food poisoning	139 54.5 %	9 3.5%	148 58%	33 12.9 %	0 0	33 12.9 %	69 27%	5 1.96 %	74 29%
Eating undercooked meat or poultry increases the risk of food poisoning	73 28.6 %	5 1.96 %	78 30.5 %	73 28.6 %	2 0.78 %	75 29.4 %	95 37%	7 2.7%	102 40%
Eating canned vegetables directly without heating increases the	157 61.5 %	8 3%	165 64.7 %	30 11.7 %	0 0	30 11.7 %	54 21%	16 6%	60 23.5 %

risk of food poisoning									
Leaving cooked foods out of the refrigerator for more than 4 hours increases the risk of food poisoning	133 52%	7 2.7%	140 54.9 %	46 18%	4 1.56 %	50 19.6 %	62 24.3 %	3 1%	65 25.4 %
Thawing frozen food outside the refrigerator increases the risk of food poisoning	62 24.3 %	4 1.56 %	66 25.8 %	120 47%	2 0.78 %	122 47.84 %	59 23%	8 3%	67 26.27 %
Use cutting boards or knives dedicated to each type of food during preparation and preparation	185 72.5 %	10 3.9%	195 76.4 %	24 9.4%	0 0	24 9.4%	32 12.5 %	4 1.56 %	36 14%
Rinse and sanitize cutting boards and knives after use	218 85.4 %	10 3.9%	228 89.4 %	6 2.35 %	0 0	6 2.35 %	17 6.66 %	4 1.56 %	21 8.2%
Wash vegetables and fruits before peeling them	224 87.8 %	10 3.9%	234 91.7 %	6 2.35 %	0 0	6 2.35 %	11 4.31 %	6 2.35 %	15 5.8%
Do not reheat cooked	199	9 3.52	208 81.5	15	0	15	27 10.5	5 1.96	32 12.5

foods to a low temperature	78%	%	%	5.8%	0	5.8%	%	%	%
Do not reheat fried foods and fried eggs	71 27.8 %	3 1%	74 29%	118 46%	7 2.74 %	125 49%	52 20%	4 1.56 %	56 21.9 %

F: female/ M: male/ T: total

Food safety practices among sample: Table 3 reveals the results of food safety practices in the study sample. We find that (44%) of them ensure that they 'always' buy clean produce and that the food is fresh. In a similar study, more than half of the responses (57.5%) had "buy fresh food" ***(Abuhlega, 2020))*** and a higher proportion of female and male Malaysian students (71.6% and 66.3%) "always" ensured that the food was good ***(Norazmir et al.,2012).*** And that (68.6%) of the respondents "always" ensured that they did not buy dull-colored (not fresh) vegetables and fruits that were clean and in fresh condition. Also, a higher proportion of Nigerian students, 80% and 73.6%, reported that they "always" ensured that they bought clean and in good condition food. Fresh studies conducted by ***Lamidi (2016)*** and ***Temitayo (2017)*** respectively. More than 79% of respondents stated that they "always" do not buy foods that are uncovered and do not have the expiry date and that 52.9% of them read the information and the expiry date on the packages In similar studies, 58.9% for females and 56.4% for males were obtained in Malaysia Always check the expiration date on food packaging before Purchase , two of the studies by ***Lamidi (2016)*** and ***Temitayo (2017)*** found that 50.0% and 44.2% of students "always" do the prior practice, respectively.

It was found that (76%) of the respondents "always" wash hands before preparing and eating food, and the percentage was lower (61.3%) in a similar study ***(Abuhlega, 2020)*** had the previous practice, and that (78.8%) "always" washed their hands after leaving the bathroom with soap and water, In a study ***(Rabie, T. and V. Curtis, 2006)***, they reported that hand hygiene, such as

washing with soap and water, or using hand sanitizer without water, can significantly reduce some infectious pathogens **.** More than 77% of respondents wash their hands after touching raw meat, chicken and fish during preparation and in a similar study ***(Turnbull-Fortune and Badrie, 2014)*** results indicated that 76% of students wash their hands "always" after touching raw chicken, meat and fish. Less than half of the respondents (36.8%) stated that they "always" do not grow their nails. In a similar study ***(Al-mansour et al., 2016)***students answered a similar question in terms of allowing nails to grow, which was not high (54.4%)

There are fears of washing eggs so as not to damage a layer of eggs during washing ***(Leleu et al., 2011),*** and given that most eggs in the Saudi market are clean and have an expiration date, it was found that 20% of the respondents indicated that they "always" wash fresh eggs before use. In a similar study ***(Abuhlega, 2020)***it was found that (55%) of the respondents indicated that they "always" wash fresh eggs.(61.9%) of the respondents indicated that they "always" make sure that the canned products are not bloated or leaky, and this indicates their awareness that bloated canned food contains spoiled food ***(Landry et al., 2001),*** as 86.8% were aware that eating food Swollen canned food can be harmful to health.

It was found that (62.7%) of the study sample answered that they "always" separate between raw and cooked foods, and this is contrary to the study. ***(Li Cohen and Bruhn, 2002),*** where it is believed that many consumers do not adhere to the separation of raw and ready-to-eat foods. More than 74% stated that they "always" do not eat raw eggs, and a similar study in Malaysia found that only 25.4% and 15.3% of females and males indicated that they "always" did not eat raw eggs without cooking and foods made from raw eggs ***(Norazmir et al., 2012).*** (69.8%) of the respondents indicated that they "always" eat well-cooked meat, fish and chicken, but higher percentages were found through similar studies such as in Malaysia 75.1% females and 68.8%

males stated that they "always" eat meat after it was thoroughly cooked***(Norazmir et al., 2012)*** . (32.5%) of the respondents stated that they do not taste foods to determine the degree of their safety, in another similar study the results were similar ***(Abuhlega, 2020),*** where (27%) indicated that they "always" do not taste foods to know whether they are safe or not. The results were contrary to findings from ***Lamidi (2016)*** and ***Temitayo (2017)*** found that 28.1% and 21.1% reported tasting food "always" to see if it was safe, respectively A proportion of respondents (43.9%) reported that they "always" prefer to use the microwave to reheat foods. Also***, Lamidi (2016)*** and ***Temitayo 2017)*** found similar results, reporting that 35.5% and 34.3% of students practice the same prior practice, respectively

Table (3): Food safety practices among sample (N=255)

practices	Almost never N (%)			Sometimes N (%)			Often N (%)			Always N (%)		
	F	M	T	F	M	T	F	M	T	F	M	T
Buy high quality fresh food	29 11%	1 0.39 %	30 11.7 %	51 20%	2 0.7%	53 20.7 %	56 21.9 %	3 1%	59 23%	59 41%	8 3%	113 44%
Do not buy dull fruits and vegetables	8 3%	3 1%	11 4%	54 21%	3 1%	57 22%	12 4.7%	0 0	12 4.7 %	167 65%	8 3%	175 68.6 %
Do not buy foods that are not covered and have no expiry date	10 3.9%	1 0.39 %	11 4%	33 12.9 %	3 1%	36 14%	5 1.9%	0 0	5 1.9 %	193 75.6 %	10 3.9 %	203 79.6 %

Read nutritional information and expiration date	27 10.5 %	2 0.7 %	29 11%	45 17.6 %	2 0.7%	47 18%	40 15.6 %	4 1.5 %	44 17%	129 50.5 %	6 2%	135 52.9 %
Wash hands before preparing and eating food	25 9.8%	1 0.3 %	26 10%	20 7.8%	3 1%	23 9%	11 4%	1 0.3 %	12 4.7 %	185 72.5 %	9 3.5 %	194 76%
Wash hands after leaving the bathroom with soap and water	27 10.5 %	1 0,3 %	28 10.9 %	13 5%	1 0.3%	14 5.4 %	11 4%	1 0.3 %	12 4.7 %	190 74.5 %	11 4%	201 78.8 %
Wash hands after touching raw meat - chicken - fish during preparation	30 11.7 %	2 0.7 %	32 12.5 %	17 6.6%	3 1%	20 7.8 %	5 1.9%	0 0	5 1.9 %	189 74%	9 3.5 %	198 77.6 %
Do not lengthen the fingernails	32 12.5 %	2 0.7 %	34 13%	80 31%	2 0.7%	82 32%	43 16.8 %	2 0.7 %	45 17.6 %	86 33.7 %	6 2%	94 36.8 %
Wash eggs before use	93 36%	6 2%	99 38.8 %	54 21%	4 1.5%	58 22.7 %	44 17%	3 1%	47 18.4 %	50 19.6 %	1 0.3 %	51 20%
Ensure that canned products are not bulging or leaking	33 12.9 %	3 1%	36 14%	31 12%	2 0.7%	33 12.9 %	28 10.9 %	0 0	28 10.9 %	149 58%	9 3.5 %	158 61.9 %

Separating raw and cooked foods	30 11.7 %	1 0.3 %	31 12%	26 10%	5 1.9%	31 12%	31 12%	2 0.7 %	33 12.9 %	154 60%	6 2%	160 62.7 %
Do not eat milk with raw eggs	18 7%	2 0.7 %	20 7.8%	27 10.5	3 1%	30 11.7 %	12 4.7%	2 0.7 %	14 5.4 %	184 72%	7 2.7 %	191 74.9 %
Eat fully cooked meat, fish and chicken	30 11.7 %	2 0.7 %	32 12.5 %	19 7.4%	2 0.7%	21 8.2 %	23 9%	1 0.3 %	24 9.4 %	169 66%	9 3.5 %	178 69.8 %
Do not taste the offered foods before buying them to know the degree of their safety	55 21.5 %	3 1%	58 22.7 %	54 21%	3 1	57 22%	52 20%	5 1.9 %	57 22%	80 31%	3 1	83 32.5
Use the microwave to reheat leftover food	31 12%	2 0.7 %	33 12.9 %	52 20%	4 1.5%	56 21.9 %	53 20.7 %	1 0.3 %	54 21%	105 41%	7 2.7 %	112 43.9 %

F: female/ M: male/ T: total

Mean ± SD for evaluation Food Safety Knowledge and Food Safety Practices of sample: Table (4) shows the levels of knowledge of food safety and the levels of food safety practices for the study sample. It was found that 166 (64.9%) of the respondents had a good level of knowledge of food safety (12-19), followed by the poor level of 48 (18.7%), which ranges between (0 -11) While 41 (16.6%) scored an excellent level of knowledge (20-25), in a similar study in Malaysia ***(Norazmir et al., 2012)*** the highest percentage of the knowledge level was good (88.7%) and the weak level was 0.3%, while the excellent level was 11% of the

respondents, and similar results in another study in Nigeria by ***Lamidi (2016)*** where it was found that 75.8% of the students have a level of A good level of knowledge of food safety and 24.4% a poor level, while in the study of ***Temitayo (2017) it*** was found that 86% of students have a good level of knowledge, while 14% have a poor level of knowledge of food safety,

The average food safety knowledge score for the respondents was calculated and found to be 14.9 ± 2. which is in the good range (12-19). In a similar study ***(Abuhlega, 2020)*** it was found that the results are similar where the average food safety knowledge score for the respondents was 14.4 ± 2.71 in the good range (12-19) .It was also found that 205 (80%) of the respondents had a moderate level of food safety practices whose scores fall between (30 -49) followed by 30 (11.7%) who have a low level of practices whose score falls between (15-29) and 20 (7.8%) have a high level of food safety practices (50-60) and these results were inconsistent with those obtained In the study ***(Norazmir et al., 2012)*** in Malaysia, where it was found that a high percentage of students (71.9%) have a high level and that (28.1%) have a high level of practices. The average food safety practices for the study sample ± 3.6 41.5 out of the total score of 60, which fall in the moderate range (30-49), and in the ***Temitayo study (2017)*** it was found that the average food safety practice score for Nigerian students was 5.159 ± 30.10 out of a total of 40 score

Table (4): Mean ± SD for evaluation Food Safety Knowledge and Food Safety Practices of sample

Variable	evaluation	Total	Mean ± SD
Food Safety Knowledge	Poor (0-11)	48 (18.7%)	7.75 ± 3.335
	Good (12-19)	166 (64.9%)	14.92 ± 2.027
	Excellent (20-25)	41 (16.6%)	22.62 ± 1.876
Food Safety Practices	Low (15-29)	30(11.7%)	19.55 ± 4.758
	Moderate (30-49)	205 (80%)	41.5 ± 3.672
	High (50-60)	20 (7.8%)	55 ± 4.192

Association between demographic characteristics of sample both of food safety knowledge level and Food Safety Practices.

Table (5) displays the correlation between the demographic characteristics of the respondents and the level of knowledge and practices of food safety using the chi-square test (X2). A correlation was found p = 0.029 between the results of food safety knowledge scores and age group (p < 0.05) and this is contrary to the study of ***Temitayo (2017)*** where No correlation was found between food safety knowledge scores and age (p = 0.319) and also in contravention of ***Stratev et al., 2017*** study (where age (p > 0.05) and gender (p > 0.05) had no effect on food safety knowledge among medical students But the results are similar in that there is no correlation between the degrees of knowledge of food safety and gender (***Temitayo ,2017 and Stratev et al., 2017),*** where the results in this study were (p = 0.603) and in the study ***Temitayo (2017),*** where the degree of correlation was Between the degrees of knowledge of food safety and gender (p = 0.789) and no correlation was found between other characteristics (educational status and income) and degrees of knowledge of food safety where p > 0.05 where there was (p = 0.190) between the degrees of knowledge of food safety and educational status and (p = 0.499) between the degrees of knowledge of food safety and income. Table 5 also displays the relationship between the demographic characteristics of the respondents and the level of food safety practices for the study sample. There is no correlation between demographic characteristics and food safety practices and non-significant (p > 0.05) and in the study of ***Stratev et al., 2017)*** it was mentioned that age and gender did not affect food safety practices Nutrition among students of the Faculty of Veterinary Medicine in Bulgaria, while ***(Lamidi, RA 2016)*** in Nigeria found an association between age, gender and degrees of practices.

Table (5): The association between demographic characteristics of sample and food safety knowledge and food safety practices level

variable	Total knowledge score N (%)			p.value	Total practices score N (%)			p.value
	Poor 0-11	Good 12-19	Excellent		Low 15-29	Moderate	High 50-	

			20-25			30-49	60	
Gender								
Male	4 1.5%	8 3.13 %	3 1%	0.603	2 0.78 %	12 4.7%	2 0.78 %	0.763
Female	44 17.25%	158 61.9 %	38 14.9%		28 10.9 %	193 75.6%	18 7%	
Age group								
18-29 y	45 17.64 %	116 45.4%	33 12.94 %	0.029	24 9.4%	150 58,8%	19 7.45 %	0.199
30-39 y	3 1.17%	39 15%	5 1.96%		3 1.17 %	43 16.86%	1 0.39 %	
40-49 y	0	9 3.5%	3 1.17%		3 1.17 %	9 3.52%	0	
>50	0	2 0.78%	0		0	3 1%	0	
Education level								
Primary	2 0.78%	0	1 0.39%	0.190	0	3 1.17%	0	0.776
Intermediate education	2 0.78%	14 5.49%	1 0.39%		3 1%	13 5%	0	
University education	41 16%	143 56%	36 14.1%		26 10%	176 69%	19 7.45 %	
postgraduate	3 1%	9 3.52%	3 1%		1 0.39 %	13 5%	1 0.39 %	
Income/ monthly								
1000<3000 SR	34 13.3%	137 53.7 %	32 12.54%	0.499	27 10.5 %	159 62%	17 6.66 %	0.270
3000<6000 SR	7 2.7%	14 5.49 %	5 1.96%		1 0.39 %	23 9%	0	
>6000 SR	7 2.7%	15 5.88 %	4 1.56%		2 0.78 %	23 9%	3 1%	

SR :Saudi riyals

Conclusion

The results of this study show that the results of the level of knowledge and practices in food safety were moderate for the majority of the study sample. The results also showed a correlation between the degrees of knowledge of food safety and the age stage. In order to reach an excellent level of knowledge and a high level of practices, we recommend the competent authorities provide guidance panels in public places that contribute to Increasing knowledge and awareness of food safety and practices

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تقييم مستوى المعرفة والممارسات بسلامة الاغذية –رفحاء المملكة العربية السعودية

المستخلص

الهدف من الدراسة تقييم مستوى المعرفة والوعي بسلامة الغذاء وممارسات سلامة الغذاء فى مجتمع رفحاء – السعودية صمم استبيان إلكتروني يحتوي على 3 أجزاء من الأسئلة الجزء الأول الخصائص الديموغرافية لعينة الدراسة ، والجزء الثاني 25 سؤالاً حول المعرفة والوعي بسلامة الغذاء والجزء الثالث 15 سؤالاً حول ممارسات سلامة الغذاء.تم تحليل البيانات بواسطة Microsoft Excelو IBM SPSS وتم استكشاف العلاقة بين هذه المتغيرات والخصائص الديموغرافية.شارك في الاستبيان 255 فرداً (94.9٪) من الإناث و(76٪) تتراوح أعمارهم بين 18–29 سنة و(87٪) حاصلين على تعليم جامعي،وأشارت النتائج إلى أن المستجيبين على دراية بشراء طعام عالي الجودة(80٪) وشراء الخضروات والفواكه الطازجة(85٪)واستخدام ألواح تقطيع وسكاكين منفصلة لكل نوع طعام أثناء التحضير(76.4٪) و(76٪) يغسلون أيديهم دائمًا قبل تحضير الطعام وتناوله،(77.6٪) يغسلون أيديهم دائمًا بعد لمس اللحوم النيئة والدجاج والأسماك و (79.6٪) "دائمًا" لم يشتروا الأطعمة التي لم يتم تغطيتها والتي لم يكن عليها تاريخ الصلاحية ، باستخدام اختبار خي مربع وجد ارتباط p = 0.029بين نتائج درجات المعرفة بسلامة الغذاء والفئة العمرية ($p < 0.05$) أظهرت النتائج (64.9٪) منهم يتمتعون بمستوى جيد من المعرفة و 80٪ لديهم مستوى معتدل من ممارسات سلامة الغذاء. في الختام: نجد أن المجتمع يحتاج إلى مزيد من المعرفة بممارسات سلامة الغذاء من أجل الوصول إلى مستوى ممتاز من المعرفة ومستوى عالٍ من الممارسات. نوصي الجهات المختصة بتوفير لوحات إرشادية في الأماكن العامة تساهم في زيادة المعرفة والوعي بسلامة الغذاء وممارساته

الكلمات المفتاحية :سلامة الغذاء ، المعرفة ، الممارسات ، رفحاء ، المملكة العربية السعودية.