



Perception of Food Hygiene and Nutritive Value of the Food

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Abstract

Food hygiene and nutrition is a serious public health concern. It is the responsibility of providers and duty of consumers to ensure that hygienic and nutritious food is being served and consumed respectively. A cross-sectional study was conducted among 384 students to assess the perception of hygiene and nutrition of food in the restaurant of Pokhara Valley, Nepal. Data were collected by a self-administered questionnaire. Two-third of the respondents were female in this study. The taste was the most common reason for the consumption of food in the restaurant. In the same way, more than two-thirds of the respondents considered restaurants' food for not having a balanced diet. Around one-third of the respondents consumed food high in vitamins and minerals, protein, carbohydrate, and calories in restaurants. Around two-thirds of the respondents considered hygiene of food in restaurants as slightly hygienic. More than two-thirds of the respondents considered unhealthy to eat food in the restaurant. The study found the association between education status, family type with a taste of the food. Proper awareness, promotion activities for the healthy nutrition lifestyle & food safety education is highly recommended at the local level.

Keywords: Food Hygiene, Perception, Nutrition, Food Consumption, Adolescents

Major classifications: Health Science

1. Introduction

Hygiene is one of the most important risk factors in transferring pathogens to food. Nutrition is another factor that consumers ought to look for while consuming the food outside. In developing countries, most of the human infectious diseases are caused by eating contaminated food (Acharya et al., 2017; Okugn & Woldeyohannes, 2018). Limited research has been conducted in public health care services focusing on young populations (Acharya & Poudel, 2020; Bhattarai et al., 2018). When eating outside, consumers expect to obtain quality food with an acceptable food hygiene level, which reduces the risk of food-borne illness. Also, the consumers often rely on local authorities and inspection services to regulate and

inspect restaurants to assure that hygiene requirements are met (Djekic et al., 2014). Both food producers and consumers need to have a sound knowledge about food hygiene, safety, and issues related to nutrition. Without proper knowledge of hygiene practices and the nutritive value of food served to the consumers, the problem related to disease outbreaks may arise (Djekic et al., 2014; Tomas, 2018). Food handlers should have excellent hygiene practice to ensure cross-contamination can be reduced, thus protecting the consumers from foodborne diseases.

To ensure food handlers practice the correct way of handling food, knowledge and training are essential as part of their job (Abdul-Mutalib et al., 2012). There is therefore a strong subjective component in the concept of quality that is linked to the consumer's perception and is influenced by the various characteristics of the product. Perception of the product's attributes has important repercussions on consumer expectations and conversely, the values sought and expected by consumers have an impact on the most desired dimensions of quality and how the various attributes are perceived and assessed. The process which starts from the product's attributes and via expected quality eventually leads to purchase motives bring into play increasingly abstract cognitive categories (Tomas, 2018).

On a daily basis, people purchase groceries to prepare their own meals, or they purchase prepared food. This means each person has several opportunities to make dietary decisions that affect their nutritional habits. An individual's food choices may be influenced by learned behavior acquired and developed in daily life experiences and is influenced by a combination of economic factors, social factors, and an awareness of health risks, benefits of healthy eating, personal pleasure, and general freedom to be spontaneous with the selection of places to eat (Acharya et al., 2017; Tomas, 2018).

2.1. Study Design & Population

Quantitative methods and Cross-sectional study design were used for this study to assess the perception of food hygiene and nutritive value of food in restaurants among 384 adolescent students in Pokhara, Nepal from June 2019 to October 2019. The study population was adolescent students studying in different schools of Pokhara, Nepal. Systematic sampling was adopted for the interview, with the interview schedule.

2.2. Data management & analysis

The data collection tool was made in simple & clear. The questionnaire was pretested and modifications were done if needed. The questionnaire was back-translated English to the Nepali language. Data entry, management and analysis was done with Epi Data and SPSS Software. Family type, education, sex and age were taken as independent variables whereas food consumption & perception on food hygiene were considered as dependent variables for this research study. Statistical significance was determined using Pearson's Chi-square test.

2.3. Ethical considerations & rationale of the study

Verbal consent was taken from each respondent and the confidentiality of the received information was maintained. Research ethics was maintained. Reliability and validity were maintained by applying different strategies carefully developing tools, pretesting, and validation. Ethical approval was taken from of Ethical Review Board of Pokhara University (Ref. No. 130/076/077). There is a still lack of adequate research focusing on nutritional hygiene and awareness in developing countries like Nepal. Our study will provide the initial roots to researchers to enable the more nationwide long-term studies for the promotion of healthy food consumption. The final expected result was the perception regarding food hygiene and the nutritive value of food in restaurants and factors associated with the consumption of food in restaurants among the study population. This will help to analyze the associated factors for proper implementation of food policies and public health nutrition programs at the primary level to the national level.

3. Results & Discussion

Most of the respondents regarded hygiene of food in restaurants as slightly hygienic, 15.9% regarded hygiene of food as hygienic while the rest of the respondents regarded hygiene of food as not hygienic at all. 66.9% of the respondents regarded hygiene of food handlers in a restaurant as slightly hygienic, 17.7% regarded hygiene of food as hygienic while the rest of the respondents regarded hygiene of food as not hygienic at all.

Table 1: Socio-demographic characteristics of respondents

Variables	Frequency (n=384)	Percentage (%)
Age		
11 to 13	14	3.6
14 to 17	307	79.9
18+	63	16.4
Sex		
Male	170	44.3
Female	214	55.7
Religion		
Hindu	322	83.9
Buddhist	40	10.4
Muslim	7	1.8
Christian	14	3.6
Others	1	0.3
Caste		
Brahmin	97	25.3
Chhetri	81	21.1
Janajati	131	34.1
Dalit	39	10.2
Others	36	9.4

Table 2: Perception of the hygiene of food in the restaurant & hygiene of food handlers

Hygiene of food in the restaurant	Frequency(n=384)	Percentage (%)
Hygienic	61	15.9
Slightly hygienic	267	69.5
Not hygienic at all	56	14.6
Hygiene of food handlers		
Hygienic	68	17.7
Slightly hygienic	257	66.9
Not hygienic at all	59	15.4

The majority of the respondents took a balanced diet in restaurants' food with 62.3%. 22.65% took food high in calorie followed by 14.3% ate food that was high in vitamins and minerals followed by 6 percent of respondents who ate food high in protein. Table 4 shows that sex, age, family type, school attendance, a grade was not found to be associated with consumption food in the restaurants.

Table 3: Type of food consumed

Types of food consumed*	Frequency (n=384)	Percentage (%)
Food high in vitamins and minerals	55	14.3
Food high in protein	23	6.0
Food high in carbohydrate and calories	87	22.65
Vegetables	44	11.5
Non-veg	39	10.2
All of the above	238	62.3

*multiple responses

Table 4: Association of different factors with the consumption of food

Variable	Consumption of food		Total	Chi-square	p-value
	Yes	No			
Sex					
Male	158(92.7%)	12(7.3%)	170 (100%)	0.999	0.379
Female	204(95.3%)	10(4.7%)	214(100%)		
Age					
<18	332(94.3%)	20(5.7%)	352(100%)	1.080	0.583
18+	30(93.8%)	2(6.2%)	32(100%)		
Family Type					
Nuclear	257(93.1%)	19(6.9%)	276(100%)	2.423	0.146
Joint	105(97.2%)	3(2.8%)	108(100%)		
Daily school attendance					
Yes	320(93.8%)	42(97.7%)	362(100%)	1.039	0.491
No	42(97.7%)	1(2.3%)	43(100%)		
Education Level					
School	295(93.7%)	20(6.3%)	315(100%)	1.248	0.393
College	67(97.1%)	2(2.9%)	69(100%)		

Study shows that one's family type is significantly associated with whether or not one consumes food in a restaurant because he or she has no idea to cook at home with p-value 0.03. Table 6 shows that one's family type, with whom one is living and one's father's education is significantly associated with whether or not one goes to a restaurant for a taste of food with p-values 0.008, 0.041 and 0.047.

Table 5: Association between family type & no idea to cook at home

Variable	No idea to cook at home		Total	Chi-square	p-value
	Yes	No			
Family Type					
Nuclear	21(7.6%)	255(92.4%)	276(100%)	4.56	0.03*
Joint	2(1.9%)	106(98.1%)	108(100%)		

* statistically significant

Table 6: Association between living with, family type, education status & taste

Variable	Taste		Total	Chi-square	p-value
	Yes	No			
Family Type					
Nuclear	173(62.7%)	103(37.3%)	276(100%)	7.01	0.008*
Joint	83(76.9%)	25(23.1%)	108(100%)		
Living With					
Family	32(8.6%)	340(91.4%)	372(100%)	8.139	0.041*
Friends	0(0%)	3(100%)	3(100%)		
Alone	3(50%)	3(50%)	6(100%)		
Fathers education					
No education	16(76.2%)	5(23.8%)	21(100%)	7.935	0.047*
Basic	67(59.8%)	45(40.2%)	112(100%)		
Secondary	131(65.8%)	68(34.2%)	119(100%)		
Bachelors	42(80.8%)	10(19.2%)	52(100%)		

* statistically significant

In this study majority of the respondents took a balanced diet in restaurants' food with 62.3%. 22.65% took food high in calorie followed by 14.3% ate food that was high in vitamins and minerals followed by 6 percent of respondents who ate food high in protein which is consistent with the study from Riyadh. Most of the participants had an adequate intake of protein, riboflavin, iron, and sodium, but exhibited low intake for several other nutrients (Alfaris et al., 2015).

In our study 69.5% of the respondents regarded hygiene of food in restaurants as slightly hygienic, 15.9% regarded hygiene of food as hygienic while rest of the respondents regarded hygiene of food as not hygienic at all. Restaurants' hygiene and safety standards were the main concern regarding fast food for 62.2% of the respondents (Alfaris et al., 2015).

The mean practice level of food hygiene in a study among multicultural students showed that mean practice level of food hygiene in primary school students was $61.075 \pm 8.42\%$, for intermediate school students it was $60.075 \pm 10.10\%$, and for high school students it was $62.5 \pm 10.79\%$ ($p=0.152$) (Mohammad et al., 2005). In our study one's family type, with whom one is living and one's father's education is significantly associated with whether or not one goes to a restaurant for a taste of food with p-values 0.008, 0.041 and 0.047 respectively. Similarly, a family type is significantly associated with whether or not one consumes food in a restaurant because he or she has no idea to cook at home with a p-value 0.03.

4. Conclusion

Consumption of unhealthy food is becoming more severe, especially among school and college adolescents. Around one-third of the respondents consumed food high in vitamins and minerals, protein, carbohydrates and calories in restaurants. Around two-thirds of the respondents considered hygiene of food in restaurant as slightly hygienic. In the same way, two-thirds of the respondents considered hygiene of food handlers as slightly hygienic. More than two-thirds of the respondents considered hygiene of food handlers in restaurants as slightly hygienic. The taste was the most common reason for the consumption of food in a restaurant. Gastritis was the most common ailment observed in respondents after consuming food in restaurants.

More than two-thirds of the respondents considered unhealthy to eat food in the restaurant. In the same way, more than two-thirds of the respondents considered restaurants' food for not having a balanced diet. Most of the respondents supported the statement that restaurants need to provide nutritional information on the menu of the restaurant. Our study concludes that food safety education & promotion programs are highly recommended at the local level for a healthy lifestyle.

5. Funding and Conflict of Interest

This research study work was conducted without any funding. We declare that we don't have any conflicting interests.

References

- Abdul-Mutalib, N. A., Abdul-Rashid, M. F., Mustafa, S., Amin-Nordin, S., Hamat, R. A., & Osman, M. (2012). Knowledge, attitude and practices regarding food hygiene and sanitation of food handlers in Kuala Pilah, Malaysia. *Food Control*, 27(2), 289–293.
- Acharya, S. R., Bhatta, J., & Timilsina, D. P. (2017). Factors associated with nutritional status of women of reproductive age group in rural, Nepal. *Asian Pacific Journal of Health Sciences*, 4(4), 19–24.
- Acharya, S. R., & Poudel, S. (2020). Factors Associated with Maternal and Neonatal Health Care Practices : A Study from Nepal. *Journal of Biomedical Sciences*, 10, 186–192.
- Alfaris, N. A., Altamimi, J. Z., Al-Jobair, M. O., & Al-Shwaiyat, N. M. (2015). Trends of fast food consumption among adolescent and young adult Saudi girls living in Riyadh. *Food and Nutrition Research*, 59.
- Bhattarai, S., Subedi, S., & Acharya, S. R. (2018). Factors Associated With Early Menarche among Adolescents Girls : A Study from Nepal. *SM Journal Of Community Medicine*, 4(1), 2–12.
- Djekic, I., Smigic, N., Kalogianni, E. P., Rocha, A., Zamioudi, L., & Pacheco, R. (2014). Food hygiene practices in different food establishments. *Food Control*, 39(1), 34–40.
- Mohammad, T., Barker, S., & Kandampully, J. (2005). Multicultural student perceptions of fast food restaurant brands: An australian study. *Journal of Hospitality and Leisure Marketing*, 12(4), 93–117.
- Okugn, A., & Woldeyohannes, D. (2018). Food hygiene practices and its associated factors among model and non model households in Abobo district, southwestern Ethiopia: Comparative cross-sectional study. *PLoS ONE*, 13(4).
- Tomas, S. (2018). Perception of food quality by Czech consumers - Literature review. *Proceedings of the 31st International Business Information Management Association Conference, IBIMA 2018: Innovation Management and Education Excellence through Vision 2020*, XXII(1), 6183–6191.