Research Article

Knowledge, attitude, and practices of food safety among women of Khaza bazar, the urban field practice area of KBN Institute of Medical Sciences, Kalaburagi, Karnataka

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Abstract

Background: Food hygiene encompasses all conditions and measures necessary to ensure safety and suitability of food at all stages of the chain of food production as food has direct influence on health. Food handlers have been found to play prominent roles in the transmission of foodborne diseases and can pose a significant public health problem.

Objective: To know the knowledge, attitude, and practices (KAP) of food safety among women of Khaza bazar, the urban field practice area of the KBN Institute of Medical Sciences, Kalaburagi, Karnataka, India.

Materials and Methods: A cross-sectional study was conducted among the women of Khaza bazar for 3 months from April to June 2015. By using simple random sampling techniques, a convenient sample of 300 respondents was selected for the study. A predesigned and pretested pro forma was used to collect the demographic information and the World Health Organization questionnaire was used to collect information of KAP of food safety. Statistical analysis was done in terms of mean scores, factor analysis, analysis of variance, and Pearson correlation test.

Result: In this study, the positive association was reported between attitude and literacy ($p < 0.5$). The mean (standard deviation) scores of KAP were 8.65 (1.24), 16.03 (1.75), and 30.87 (4.22), respectively. All the respondents had consistently good knowledge (58.3%), attitude (81.7%), and practice (79.0%). Pearson correlation test showed that there were correlations between the mean scores of knowledge and attitude ($r = 0.176$; $p = 0.002$) and knowledge and practice ($r = 0.608$; $p = 0.000$) and between the mean scores of attitude and practice ($r = 0.190$; $p = 0.001$). The findings suggested that there were positive relationships between knowledge and attitude, knowledge and practice, and also attitude and practice ($p < 0.01$).

Conclusion: KAP of food safety among women in Khaza bazar area was found good and also a positive association between the individual KAP variables suggests that the knowledge regarding food safety is increased by training on measures of safety and its importance in the transmission of the disease, which increases attitude and practice.

KEY WORDS: Food safety, knowledge, attitude, practices, women

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Introduction

Food is an important basic necessity and it is a substance that supplies nutrient and energy for growth and development of humans. Food is also rich in nutrients required by microorganisms and may be exposed to contamination with major sources from water, air, dust, equipment, sewage, insects, rodents, and food handlers. Because of changes in food production, handling, and preparation techniques as well as

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eating habits, the fact remains that they all have direct influence on health. Hence, it is pertinent to keep food free from contamination.[1]

Food hygiene or safety encompasses all conditions and measures necessary to ensure safety and suitability of food at all stages of the chain of food production, that is, the process of handling, preparation, and storage of food, to prevent foodborne illness. Food handlers have been found to play prominent roles in the transmission of foodborne diseases and can pose a significant public health problem because of their poor knowledge of safe food handling.[2]

Food handlers may also carry some human-specific foodborne pathogens such as Hepatitis A, Norovirus, typhoidal *Salmonella*, *Staphylococcus aureus*, and *Shigella* species in their hands, cuts or sores, mouth, skin, and hair. Food handlers may also shed foodborne pathogens, such as *Escherichia coli* and non-typhoidal *Salmonella* during the infectious period or during the less important recovery period of a gastrointestinal sickness. Foodborne outbreaks were analyzed, where the food worker error factors, bacterial proliferation factors, and important survival factors have been the contributing factors in transmitting foodborne diseases. Food worker errors were handling of food by a person either actively infected by or carrying a pathogen, contact with food with bare hands, failure to properly wash hands when necessary, and insufficient cleaning of processing or preparation equipment or kitchen tools.[3]

At household levels, women form the majority of group to handle the kitchens. In spite of comprising 50% population, women are considered lower than that of men. Such disadvantageous groups suffer not only because of poverty but also because of cultural beliefs, taboos, prejudices, and superstitions. All these have a strong bearing on attitude formation which in turn affects health and nutritional care of children in which women plays the primary and active role.[4] Therefore, this study was undertaken to know the prevailing knowledge, attitude, and practices (KAP) of food safety among food-handling women in the community, to minimize foodborne infections and outbreaks in the community.

Materials and Methods

A cross-sectional study was conducted among the women of Khaza bazar, the urban field practice area of the KBN Institute of Medical Sciences, Kalaburagi, Karnataka, India, for 3 months from April to June 2015. There are four wards in the area. Each ward with 500 houses having a population of around 3,000 in each. A total of 75 houses from each ward were selected for the study using simple random sampling technique. One eligible woman from each house was included in the study to attain a convenient sample of 300 respondents. The women were food-handling persons in the kitchens of the selected houses. Inclusion criteria for study subjects were: permanent resident of the colony, that is, a house with members residing in the same place since 5 years or more and woman handling the kitchen of the respective selected houses. The individuals who are not willing to participate, who did not give consent, and who were not present at their house even after three visits or if the door was locked were excluded from the study.

Data Collection

After obtaining the informed consent, a predesigned and pretested pro forma was used to collect the demographic information (e.g., name, age, literacy status, occupation, religion, and socioeconomic status of the family). The World Health Organization (WHO) questionnaire was used to collect information of KAP of food safety.[5] There were 11 items to assess the respondents' knowledge of food safety. Response to each item was "True" or "False." One mark (1) was given for true answer and zero mark (0) was given for false response. The total knowledge scores were obtained by summing up the marks gained for each item. There were 10 items to assess the respondents' attitude toward food safety. Each item was assessed using agree, not sure, and disagree, and marks given for each response were two, one, and zero, respectively. Similarly, 11 items were included to assess the respondents' practice. Each item was assessed using always, most times, sometimes, not often, and never, giving the highest score of four for always and the lowest being zero.

The statistical analysis was done in terms of proportion, mean, and standard deviation (SD), wherever applicable. SPSS version 18 was used for all analyses. Independent sample *t*-test and analysis of variance (confidence interval 95%) were used to compare selected test parameters such as age, religion, marital status, education level, occupation, and socioeconomic status. All the individual variables of KAP were ranked using factor analysis and the relationship between the variables was established by Pearson correlation coefficient.

Result

Sociodemographic Characteristics

This study reported that almost 60% of the respondents were in the age group of 20–40 years followed by 40–60 years (31.7%). Among all the respondents, 47.6% were married and 52.4% were single including unmarried, separated, or widowed. Maximum numbers of respondents were Muslims (80.7%) as compared with Hindus (19.3%). Majority of the respondents were from nuclear (69%) families followed by joint families (31%). A total of 68% of the women were literate, out of which 51% were having secondary level of education. By occupation, majority of the women were housewives (88.7%) followed by women doing own business (4.7%). Majority of the families belonged to social class V (42.7%) and about only 1% belonged to class I according to modified BG Prasad classification [Table 1].

In this study, the attitude of food handlers was found to be significantly different among literate and illiterates ($p < 0.5$), but knowledge and practices were same among both the groups ($p > 0.5$) [Table 2]. However, age, marital status, religion, type of family, level of literacy, occupation, and socioeconomic status

Table 1: Sociodemographic characteristics of the study populations

Sociodemographic variables	*N* = 300	Percentage
Age in years		
<20	08	2.7
20–29	84	28.0
30–39	96	32.0
40–49	74	24.7
50–59	21	7.0
60–69	12	4.0
70+	05	1.7
Marital status		
Married	172	47.6
Single	189	52.4
Religion		
Hindu	58	19.3
Muslim	242	80.7
Type of family		
Nuclear	207	69.0
Joint	93	31.0
Education status		
Illiterate	96	32.0
Literate	204	68.0
Level of literacy		
Primary	85	41.7
Secondary	104	51.0
Graduate	12	5.9
Professional	03	1.5
Occupation		
Housewife	266	88.7
Labor	12	4.0
Own business	14	4.7
Employed	08	2.7
Socioeconomic class		
Class I	03	1.0
Class II	11	3.7
Class III	32	10.7
Class IV	126	42.0
Class V	128	42.7

Table 2: Mean score on KAP based on educational status (*n* = 300)

Particulars	Illiterate (*n* = 96)	Literate (*n* = 204)	Sig (*p*)
Knowledge	8.5[a] ± 1.2[b]	8.7 ± 1.3	0.162
Attitude	15.7 ± 2.2	16.2 ± 1.5	0.046
Practice	31.1 ± 4.2	30.8 ± 4.2	0.468

KAP, knowledge, attitudes, and practices.
[a]Mean, [b]Standard deviation.
*$p < 0.05$.

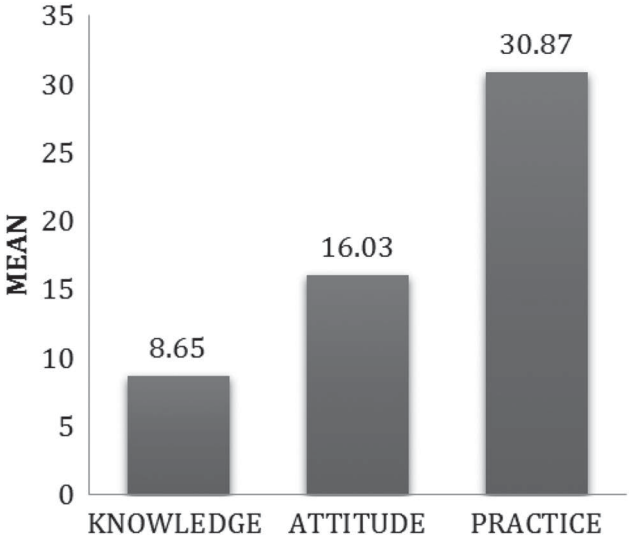

Figure 1: Mean and standard deviation (SD) of knowledge, attitude, and practice score on food safety.

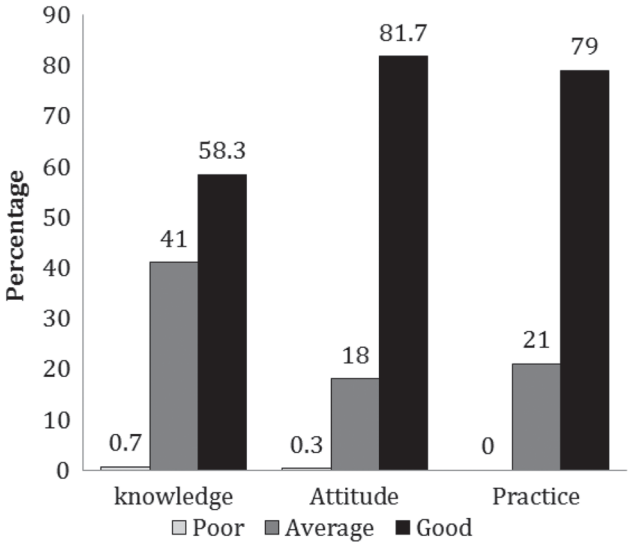

Figure 2: Distribution of score of knowledge, attitude, and practice.

have not shown any statistical difference between knowledge, attitude, and food safety practices of food handlers ($p > 0.5$).

Knowledge, Attitude, and Practice of Food Safety

The mean (SD) score of knowledge was 8.65 (1.24) with minimum 4.0 and maximum 11.0. The mean (SD) attitude score of the respondents was 16.03 (1.75) with a minimum score of 6.0 and maximum 19.0. The mean (SD) score of practice was 30.87 (4.22) with minimum of 19.0 and maximum of 38.0 [Figure 1 and Table 3]. All the individual items of KAP were analyzed using factor analysis and ranked into three categories namely poor, average, and good by Bloom's formula.[6]

Table 3: The correlations of mean score of KAP of food safety among respondents

		Mean ± SD	Knowledge	Attitude	Practice
Knowledge	Pearson correlation	8.65 ± 1.25	1	0.176	0.608
	Sig. (2-tailed)			0.002*	0.000*
Attitude	Pearson correlation	16.03 ± 1.75	0.176	1	0.190
	Sig. (2-tailed)		0.002*		0.001*
Practice	Pearson correlation	30.87 ± 4.24	0.608	0.190	1
	Sig. (2-tailed)		0.000*	0.001*	

KAP, knowledge, attitudes, and practices; SD, standard deviation.
*Correlation is significant at the 0.01 level (2-tailed).

It revealed that all the respondents had consistently good knowledge (58.3%), attitude (81.7%), and practice (79.0%). However, average knowledge (41.0%) was high compared with attitude (18.0%) and food safety practice (21.0%), and very few had poor knowledge (0.7%) and attitude (0.3%) [Figure 2].

The Correlations of Mean Score of KAP of Food Safety Among Respondents

As shown in Table 3, analysis using Pearson correlation test showed that there were correlations between the mean scores of knowledge and attitude ($r = 0.176$; $p = 0.002$) and knowledge and practice ($r = 0.608$; $p = 0.000$). The correlation between the mean scores of attitude and practice was ($r = 0.190$; $p = 0.001$). The findings suggested that there were positive relationships between both knowledge and attitude and knowledge and practice, and also attitude and practice. It can be anticipated that as knowledge will increase, attitude and practice will improve accordingly.

Discussion

This study provides information about the knowledge, attitude, and food safety practices of food handlers in Khaza bazar, the urban field practice area of KBN Institute of Medical Sciences, Kalaburagi. Based on preliminary search, there was a clear gap in the literature as no study was done on KAP among the women at household level. It is difficult to compare the results of other earlier epidemiological studies with the present one owing to heterogeneity of population (food handlers at house, restaurants, mess of different campuses, street vendors, etc.) and different sociocultural patterns in cooking practices existing in our country; different criteria used in defining KAP of food handling; need of large sample size to study; the time difference between the various studies; and the predominance of lower socioeconomic status.

This study is carried out locally and it managed to reveal some pertinent points. In this study, majority of women were young belonging to nuclear family and many were Muslim as the study area was Muslim-predominant area. Literate women were high in number but almost half of them were having only secondary level of education. Many women were housewives by occupation and belonged to lower socioeconomic status. This may be owing to their educational status affecting marital status, occupation, and socioeconomic status. A positive association was found between attitude and literacy ($p < 0.5$). No statistically significant association was found between other sociodemographic factors. Sudershan et al.[7] reported significant association ($p < 0.05$) between literacy and food safety practices. Byrd-Bredbenner et al.[8] and Rahman et al.[6] reported significant association between knowledge and age, knowledge and marital status ($p < 0.05$).

This study has achieved its objective of assessing the level of KAP of food handlers, which was found to be consistently good on the level of knowledge, positive attitude, and practices toward food safety. Rahman et al.[6] revealed that average attitude and practice were high compared with knowledge. This study also showed that there were positive correlations between the KAP. Similar finding was recorded by Norrakiah and Siow[9], that is, a significant positive correlation was observed between knowledge and attitudes, knowledge and practices, and attitudes and practices ($p < 0.05$). These findings indicated that food safety knowledge level of food handlers will influence their attitudes and practices in handling food safely. However, Rosnani et al.[10] reported that there was no correlation between the mean score of attitude and the mean score of practice.

Limitations

Owing to limitation of time, we had to restrict ourselves to a convenient sampling. Food safety practices are more difficult to evaluate because of self-reported bias. A comparative study of existing KAP and after a course of training would have been better.

Recommendations

The awareness regarding maintenance of proper hygiene should be created among the people. Encourage them to take safe food at proper time. Educate them the importance of taking nutritious food for maintaining proper health. All food workers should be medically examined, they should undergo food handlers' training, those who suffer or are suspected to be suffering from food- and waterborne diseases should not be allowed to enter any food premise, and all food handlers

should maintain a high degree of personal hygiene and personal cleanliness. The WHO has developed five main keys to keep food safe, which include: keeping food clean, separating raw and cooked food, cooking thoroughly, keeping food at safe temperatures, and using safe water and raw materials. These five keys to safer food are of immense importance in developing countries, and equipping food handlers with such information could impact significantly on food safety.[5]

Conclusion

As a conclusion, this study can be used as an initiative for other researchers to embark on studies concerning food safety in this area. An exploratory study on influence of food safety training, food-handling experience, and influence of age on food-handling practices should be studied further.

References

1. Siow ON, Norrakiah AH. Assessment of knowledge, attitude and practices (KAP) among food handlers at residential colleges and canteen regarding food safety. J Food Control 2011;40(4):403–10.
2. Tolulope OA, Zuwaira IH, Danjuma AB, Yetunde OT, Chundung AM, Ayuba IZ, et al. Training: a vital tool for improving the knowledge and practice of food safety and hygiene among food handlers in boarding schools in Plateau state. J Med Trop 2014;16(2):87–92.
3. Sharif L, Obaidat MM, Al-Dalalah MR. Food hygiene knowledge, attitudes and practices of the food handlers in the military hospitals. Food Nutr Sci 2013;4(3):245–51.
4. Reshma SP. Impact of IEC activity on women's knowledge through health exhibition arranged on women's day. Nat J Community Med 2011;2(2):260–64.
5. World Health Organisation. *Five Keys to Safer Food Manual*. Department of Food Safety, Zoonoses and Food Borne Diseases: 24–26. Available at: www.who.int/entity/foodsafety/publications/5keysmanual/-31k (accessed on March 15, 2015 last accessed on August 21, 2015).
6. Rahman MM, Arif MT, Bakar K, Tambi ZB. Food safety knowledge, attitude and hygiene practices among the street food vendors in Northern Kuching city, Sarawak. Borneo Sci 2012;31:95–103.
7. Sudershan RV, Rao GMS, Rao P, Rao MVV, Polasa K. Food safety related perceptions and practices of mothers: a case study in Hyderabad, India. Food Control 2008;19(5):506–13.
8. Byrd-Bredbenner C, Maurer CJ, Wheatley V, Schaffner D, Bruhn C, Blalock L. Food safety self-reported behaviors and cognitions of young adults: results of a national study. J Food Prot 2007; 70(8):1917–26.
9. Norrakiah AS, Siow ON. Knowledge, attitudes and practices of food handlers on food safety in food service operations at the University Kebangsaan Malaysia. Food Control 2014;37(1): 210–217.
10. Rosnani AH, Son R, Mohhidin O, Toh PS, Chai LC. Assessment of knowledge, attitude and practices concerning food safety among restaurant workers in Putrajaya, Malaysia. Food Sci Qual Manage 2014;32:20–7.

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