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Original Research Article

Cross-sectional study to assess the awareness about personal hygiene and food borne diseases among food handlers in a tertiary care hospital in Puducherry

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ABSTRACT

Background: Food handlers play an important role in ensuring food safety throughout the chain of production, processing, storage and preparation. Mishandling and disregard of hygienic measures by food handlers may lead to food contamination and cause illness among the consumers. This study was undertaken to determine the knowledge, attitude and practice towards food-borne diseases and personal hygiene among food handlers in a tertiary care hospital and to assess their morbidity status.
Methods: A cross-sectional study was conducted among the food handlers working in the food establishments within the campus of Pondicherry Institute of Medical Sciences (PIMS), Puducherry. Total 51 food handlers consented and participated. Participants were explained about the purpose of study and written informed consent was obtained. Data was collected using a pre-tested pre-validated questionnaire. Data was analyzed using SPSS version 17.0. Institutional ethics committee approval was obtained for the study.
Results: Overall the average score for knowledge, attitude and practices was good among the food handlers. There was statistically significant association between the lesser attitude & practice scores and the history of gastrointestinal morbidity among the participants. There was positive correlation between the years of work experience and the mean knowledge, attitude and practice scores.
Conclusions: Although knowledge, attitude and practices of the food handlers working in the tertiary care hospital was good but periodic health education and awareness will contribute in maintaining and reinforcing the existing knowledge and practices so as to prevent any food contamination and potential outbreak of food borne illness.

Keywords: Personal hygiene, Food handlers, Food borne diseases, Health education

INTRODUCTION

Nutrition plays an important role in maintenance of health along with various other factors.[1] Food is a product that is rich in nutrients that may be exposed to contamination from major sources including the food handlers. There have been significant changes in food production, handling and preparation techniques as well as eating habits among people which has resulted in food becoming a potential source of infection that can cause illness.[2] Food safety is defined by the FAO/WHO as the assurance that when the food is consumed in the usual manner does not cause harm to human and wellbeing.[3] Food service establishments are sources of food borne illness and food handlers are major contributors to food borne illness outbreaks.[4,5]

Food borne diseases are major health problems in developed and developing countries. Every year, nearly

one in 10 people around the world fall ill after eating contaminated food, leading to over 420 000 deaths.[6] The World Health Organization (WHO) estimated that in developed countries upto 30% of the population suffer from food borne diseases each year, whereas in developing countries about 2 million deaths are estimated per year.[7] Unhygienic handling of food and disregard of hygienic measures by the food handlers may enable infective organisms to contaminate the food and cause the illness in the consumer.[8]

It is important to understand the prevailing food safety beliefs, knowledge and practice of food handlers in order to minimize food borne illness.[9] Although efforts have been made to train and educate food handlers as well as improve awareness among consumers, food-borne illness still remain a public health concern in many countries.[10] Poor sanitary practices in food storage, handling and preparation may provide ideal environment for growth of bacteria and other infectious agents.[11] Hospitals have many food establishments catering to the need of varied consumers including patients, attenders, doctors, students and staff. Hospital environment tends to be more infective due to visits by the suffering patients which also may lead to food contamination. However, poor hygienic practices among food handlers in any hospital could be the primary reason to affect large number of people and leading to potential outbreak of food borne disease. Therefore, the current study was done to determine the knowledge, attitude and practice towards food borne diseases and personal hygiene among food handlers in a tertiary care hospital. The main objective of this study was to determine the existing knowledge, attitude and practices and their association with the morbidity status among food handlers working in the food establishments in a tertiary care hospital.

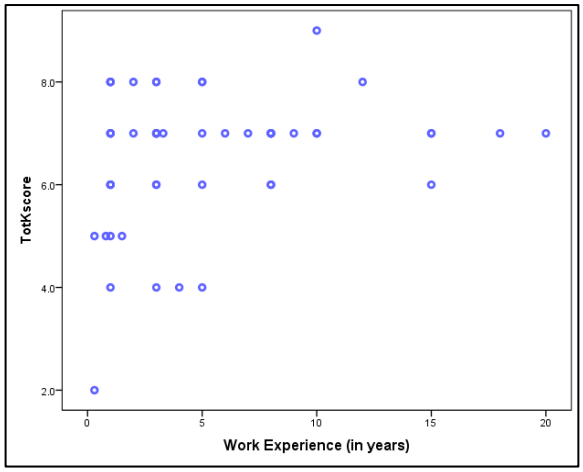
METHODS

The current study was a cross-sectional study conducted among the food handlers working in the five food establishments within the campus of Pondicherry Institute of Medical Sciences (PIMS), Puducherry between July to September 2015. These food establishments provide food to the visiting patients and their relatives, medical students, doctors and staff of the hospital. There are in all 110 food handlers working in the five food establishments in the campus of Pondicherry Institute of Medical Sciences. But many of the food handlers were on leave during the period of study. Hence, only 51 food handlers who were available during the study were interviewed and the necessary data collected.

All the food handlers working in the five food establishments within the PIMS hospital and who were willing to participate were included in the study. Those food handlers who were not willing to participate were excluded from the study. The participants were explained about the purpose of the study and ensured about the confidentiality of the data. Institutional ethics committee approval was obtained for the study. After obtaining their written informed consent, data was collected using a pre-tested pre-validated questionnaire. The questionnaire was divided into sections to collect the sociodemographic details, knowledge, attitude and practice towards personal hygiene and food handling, and the morbidity profile of study participants. There were 10 items under Knowledge, 8 items under Attitude and 9 items under Practices. For knowledge, score of 0 and 1 was allotted as per the binary response. The responses for Attitude and Practice was recorded based upon the Likert's scale with five points. For items under Attitude section, highest score (5) was given to response "Strongly Agree" and lowest score (1) was given to "Strongly disagree". Similarly, for section under Practices, highest score (5) was given to response "Always" and lowest score (1) was given to "Never". The final score for Knowledge, Attitude and Practice was computed by adding up the scores designated for each response of the questions. The association of mean scores of knowledge, attitude and practice with sociodemographic variables like gender, age and educational status was found out in statistical analysis. Student's t-test, one way ANOVA and Spearman correlation were used for data analysis. Data was analyzed using SPSS version 17.0.

RESULTS

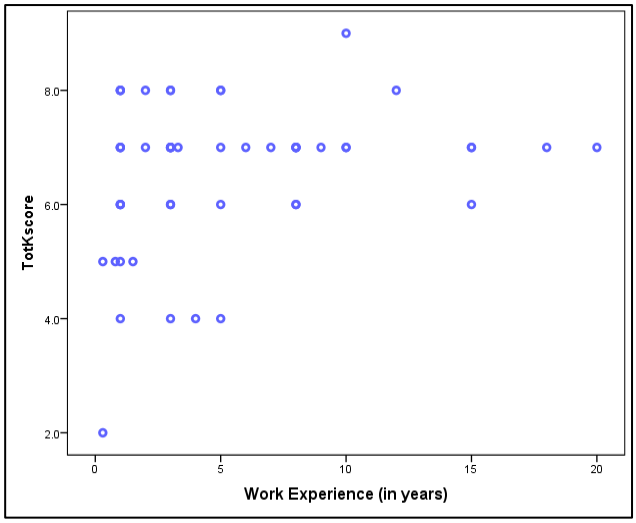
Among the 51 food handlers who were interviewed, 31 were male and 20 were female (Table 1).



Spearman's rho value = 0.25

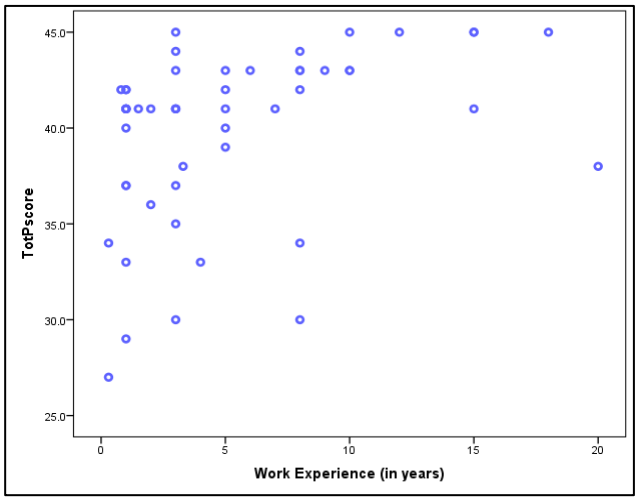
Figure 1: Correlation between knowledge score and years of work experience (n=51).

Majority of the study participants (72.6%) were between the age group 15 to 35 years. As per educational qualification, about 30% of the food handlers had studied up to Higher school while others were illiterate (17%) or studied graduation (17%). The work experience among the food handlers ranged from few months up to 20 years of experience in this profession. However, most of the food handlers had work experience of less than 5 years (64%).



Spearman's rho value = 0.25

Figure 1: Correlation between knowledge score and years of work experience (n=51).



Spearman's rho value = 0.49

Figure 3: Correlation between practice score and years of work experience (n=51).

Overall, the knowledge, attitude and practices of the food handlers was good with mean knowledge score of 6.5 (out of 10), mean attitude score of 36.9 (out of 40) and mean practice score of 39.8 (out of 45).

Out of the 51 food handlers, 94% of them were aware that long, untrimmed nails could be possible source of food contamination.

Also 88% of the study participants strongly agreed that wearing hand gloves and clean clothes are necessary hygienic measures for food handlers. Among the food handlers, 88% of them practiced washing hands with soap before handling food items. Also 92% of the study participants practice wearing hand gloves while handling food items. However, for certain specific aspects, the participants had poor knowledge and attitude. Among the study participants, 77% of them were not aware that food handlers could be potential source for food contamination. Also 82% of the study participants opined that apparently healthy person may not spread food borne infections.

Table 1: Distribution of participants based upon socio demographic factors (n=51).

Variables	Number (%)
Age (years)	
15-25	19 (37.2)
25-35	18 (35.3)
35 and above	14 (27.5)
Gender	
Male	31 (60.8)
Female	20 (39.2)
Religion	
Hindu	44 (86.3)
Christian	7 (13.7)
Marital status	
Single	20 (39.2)
Married	31 (60.8)
Educational status	
Illiterate	9 (17.6)
Primary	3 (5.9)
Middle	8 (15.7)
Higher	15 (29.4)
Higher secondary	7 (13.7)
Graduate and above	9 (17.6)
Years of work experience	
0-5	33 (64.7)
5-10	12 (23.5)
10 and above	6 (11.8)

Table 2: Association of the knowledge, attitude and practice scores with socio demographic factors (n=51).

Variables	Mean knowledge score	Mean attitude score	Mean practice score
Gender*			
Male	6.7	37	40.3
Female	6.3	36.8	39.1
Educational status*			
Illiterate	7.0	36.5	39.2
Primary	6.6	38	42.3
Middle	6.8	36.8	42
Higher	5.8	37.1	40
Higher secondary	6.4	35.4	36.8
Graduate and above	7.0	38.1	39.5
Morbidity history of stomach pain/bloody stools/fever#			
Yes	6.0	34.8#	35.6#
No	6.6	37.2	40.2

*Statistically not significant. #Statistically significant (p=0.03 for Attitude score, p=0.02 for Practice score)

Table 3: Distribution of study participants based upon history of morbidity (n=51).

Morbidity history	Number (%)
History of vomiting in past 3 months	3 (5.9)
History of any medical consultations in past 3 months	8 (15.7)
Practice of taking self-medication	17 (33.3)
History of recent fever, stomach pain and blood in stools	5 (9.8)

Out of the 51 food handlers, only 60% agreed upon the need of active participation of food handlers in control of an outbreak of food borne illnesses. The association between the mean scores of knowledge, attitude and practice did not show any statistical significance with gender and educational qualification of study participants (Table 2). However, there was statistically significant association between the lower attitude and practice scores and the gastrointestinal morbidity history of food handlers. Also, there was positive correlation between years of work experience and the mean knowledge, attitude and practice scores of the food handlers (Figure 1, 2, 3).

DISCUSSION

The food establishments in any hospital provide important source of nutrition for the visiting patients, their relatives, doctors and staff. Food handlers working in these establishments have important responsibility of maintaining adequate level of personal as well as food hygiene. The present study was conducted in a tertiary care hospital with five food establishments with 110 food handlers working in different roles. The study aims to understand the level of awareness among the food handlers about personal hygiene and safe food handling practices. There was total 51 food handlers who gave consent and participated in the study. The overall knowledge score (65%) was less compared to attitude (92%) and practice scores (88%) of the participants indicating better hygienic practices even without knowledge. There was no statistical significant association between the educational status and the hygienic practices of the food handlers. Almale et al reported that there was no association between the level of education and the practice scores as well as hygiene assessment scores of the food handlers.[13] This indicates healthy personal hygiene practices even though level of awareness is low among food handlers.

Most of the food handlers (88%) reported practice of cutting their nails on a regular basis i.e. once or twice a week. Mudey et al found out that only 74% of the participants cut their finger nails on a regular basis.[12] The regular monitoring of the food handlers working in the tertiary care hospital ensures better personal hygiene practices as compared to the food handlers working among the outside food establishments as reported by Mudey et al.[12] We found out that correlation between the years of work experience of food handlers and their knowledge, attitude and practice score was positive, thus the mean score improving with increase in work experience. It indicates that practical skills learnt by doing is better retained and implemented than information learnt as knowledge. Lee HK et al found out that the food handlers with more work experience had better food safety knowledge.[9]

Limitations of the study

During the conduct of the study, many food handlers were on leave as most of the food handlers are from other states, as a result of which the total sample of study population was less. The morbidity status of the food handlers was evaluated based upon history only rather than physical examination or laboratory investigations.

CONCLUSION

Overall knowledge, attitude and practices of food handlers in the tertiary care hospital was found to be good. Although the knowledge regarding some aspects related to food borne illnesses is less, but still the food handlers have good attitude and practices. In our study, majority of food handlers were aware about need of personal hygiene and severity of food borne illnesses. Also, the food handlers had moderately good attitude towards their roles and responsibilities to prevent any potential outbreak of food borne infection. And finally, majority of the food handlers follow the necessary practices as washing hands with soap, trimming of nails, seeking medical help and personal hygiene measures to promote provision of safe and hygienic food. However, the frequency of periodic health check-up of the food handlers was not adequate. The study findings indicate that personal work experience contributes more to the awareness of personal hygiene and food safety practices compared to formal education. The years of work experience showed maximum correlation with the practice score, thus signifying the effect of repetitive actions in healthy hygienic practices.

The finding of the study indicates that practical work experience is a positive contributory factor in improving the personal and food hygiene followed by the food handlers. If periodic hands-on workshop and training regarding healthy and hygienic food handling methods are conducted for the food handlers, it will help in promoting hygienic practices and may eventually prevent potential food contamination. Thus, the finding of the current study provides valuable inputs for the policy makers and authorities of health care facilities in ensuring measures for providing hygienic and sanitary conditions at food establishments for the safety of their staff and the visiting patients.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Kasturwar NB, Mohd. Shafee. Knowledge, practices and prevalence of MRSA among food handlers. Int J Biol Med Res. 2011;2(4):889-894.
2. Nee SO, Sani NA. Assessment of Knowledge, Attitude and Practices (KAP) Among Food Handlers at Residential colleges and Canteen Regarding Food Safety. Sains Malaysiana. 2011;40(4):403-410.
3. WHO Food Safety Programme. (2002). WHO global strategy for food safety: safer food for better health. https://apps.who.int/iris/handle/10665/42559. Accessed on 0th December, 2020.
4. Olsen SJ, MacKinnon LC, Goulding JS, Bean NH, Slutsker L. Surveillance for foodborne disease outbreaks — United States, 1993–1997. MMWR CDC Surveill Summ. 2000;49(1):1-62.
5. Ross MP. Evaluation of risk related to microbiological contamination of ready-to-eat food by food preparation works and the effectiveness of interventions to minimize those risks. Environmental Science. 2005.
6. WHO Consultation on Health Surveillance and Management Procedures for Food-Handling Personnel (1989: Geneva) & World Health Organization. (1989). Health surveillance and management procedures for food-handling personnel: report of a WHO consultation [held in Geneva from 18 to 22 April 1988]. World Health Organization. Available at: https://apps.who.int/iris/handle/10665/39610. Accessed on 20th December, 2020.
7. Tessema AG, Gelaye KA, Chercos DH. Factors affecting food handling Practices among food handlers of Dangila town food and drink establishments, North West Ethiopia. BMC Public Health. 2014;14:571.
8. Kibret M and Abera B. The sanitary conditions of food service establishments and food safety knowledge and practices of food handlers in Bahir Dar Town. Ethiop J Health Sci. 2012;22(1):27-35.
9. Lee HK, Halim HA, Thong KL, Chai LC. Assessment of Food Safety Knowledge, Attitude, Self-Reported Practices, and Microbiological Hand Hygiene of Food Handlers. Int J Environ Res Public Health. 2017;14(55).
10. FAO Technical Meeting on Street Foods. Street foods: report of an FAO Technical Meeting on Street Foods, Calcutta, India. 1995.
11. Ehiri JE, Morris GP. Hygiene training and education of food handlers: Does it work? Ecol Food Nutr. 1996;35:243-251.
12. Mudey AB, Kesharwani N, Mudey GA, Goyal RC, Dawale AK, Wagh VV. Health status and personal hygiene among food handlers working at food establishment around a Rural Teaching Hospital in Wardha district of Maharashtra, India. Global Journal of Health Science. 2010;2(2):198-206.
13. Almale BD, Ayyar SG, Palwe SD, Patil RN. A Study on Food Handlers' Knowledge and Practices of Personal Hygiene during Kumbh Mela, 2015-16 at Nashik, India. Natl J Community Med. 2018;9(5):351-357.

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