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Original Research Article

Assessing Personal Hygiene Practices of Food Handlers in a Tertiary Care Hospital: A Cross-sectional Study in Western Maharashtra

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ABSTRACT

Background: Mishandling and disregard of hygienic measures by food handlers may lead to food contamination and cause illness among the consumers. Highlighting the important role that food handlers play in ensuring food safety; this study was undertaken to assess the personal hygiene practices among food handlers in a tertiary care hospital.

Methods: A cross-sectional study was conducted among the food handlers working in the food establishments within the campus of a tertiary care hospital in Western Maharashtra. Data was collected using a pre-tested, pre-validated questionnaire and analyzed using SPSS version 16.0.

Results: Total 58 food handlers consented and participated. Overall personal hygiene practices were found to be satisfactory among majority (77.6%) of the participants. No statistically significant association was observed between age, gender, level of education, marital status, and receipt of hygiene training with personal hygiene practices among the participants.

Conclusions: Although the personal hygiene practices of the food handlers working in the tertiary care hospital were good, periodic health education and awareness will contribute to maintaining hygienic practices. This will help prevent any food contamination and potential outbreak of foodborne illness.

Keywords: Personal hygiene practices, Food handlers, Hand washing, Training

INTRODUCTION

Along with various other factors, nutrition plays an important role in the maintenance of health.[1] Food, as a product that is rich in nutrients, may be exposed to contamination from major sources including the food handlers. Significant changes in food production, handling, and preparation techniques, as well as eating habits among people, have resulted in food becoming a potential source of infection that can cause illness.[2] The safety of food is of extreme importance and is a matter of human concern. It would be challenging to find a person who has never experienced a foodborne illness in the past.[3]

Food handlers are major contributors to foodborne illness outbreaks, and food service establishments are sources of foodborne illness.[4] The World Health Organization (WHO) estimated that in developed countries up to 30% of the population suffers from food borne diseases each year, whereas in developing countries about 2 million deaths are estimated per year.[5] The unhygienic handling of food and disregard of hygienic measures by the food handlers may

enable infective organisms to contaminate the food and cause illness in the consumer.[6] Although efforts have been made to train and educate food handlers, as well as improve awareness among consumers, foodborne illness still remains a public health concern in many countries.[7]

In any hospital, there are many food establishments catering to the needs of varied consumers, including patients, visitors, doctors, students, and staff. Poor hygienic practices among food handlers in a hospital could be the primary reason for affecting a large number of people and potentially leading to an outbreak of foodborne diseases. Therefore, the current study was done to evaluate the personal hygiene practices among food handlers in a tertiary care hospital.

METHODS

Study Design: A descriptive cross-sectional study.

Study Area, Study Population, and Study Period: The study was conducted among the food handlers working in five food establishments within the campus of a tertiary care hospital in Western Maharashtra from August to September 2021. These food establishments provide food to the patients, visitors, medical students, doctors, and staff of the hospital.

Sampling Technique: A purposive sampling method was adopted for the selection of study participants.

Inclusion Criteria: All categories of food handlers working in food establishments who gave consent to participate in the study, including cooks or chefs, helpers, waiters, cleaning staff, and dishwashers, were enrolled in the study.

Exclusion Criteria: Food handlers who were unavailable despite two visits at fortnightly intervals were excluded from the study.

Data Collection Tool and Technique: A pre-tested, pre-validated structured questionnaire was used to obtain data related to the socio-demographic profile and personal hygiene practices. There were 10 questions to assess personal hygiene practices. A score of "1" (one) was given for a positive response, and "0" (zero) score was given for a negative response. The personal hygiene practices score was arbitrarily classified as satisfactory (>6/10) and unsatisfactory (≤6/10). After conducting the interview, health education was given to each food handler to improve their personal hygiene and ensure food safety.

Data Analysis: The collected data was entered into a Microsoft Excel sheet and analyzed using the Statistical Package for Social Sciences (SPSS) version 16.0. Frequencies and percentages were calculated. Chi-square and Mid-P exact tests were used to study the association between different variables and personal hygiene practices. A p-value less than 0.05 was considered significant.

RESULTS

In total, there were 70 food handlers working in the five food establishments on the campus. However, some of the food handlers were on leave during the study period. Therefore, 58 available food handlers were interviewed.

The majority (87.9%) of the participants were less than 60 years of age, with 70.6% being males, 79.3% being literate, and 72.4% being married. Only 13 (27.6%) participants had undergone some sort of training related to personal hygiene or food hygiene (Table-1).

Most of the participants responded affirmatively when asked about their personal hygiene practices (Table-2), and the overall personal hygiene practices score was found to be satisfactory for the majority (77.6%) of them (Table-3).

No statistically significant association was observed between age, gender, level of education, marital status, and receipt of hygiene training with personal hygiene practices, although the personal hygiene practices score of literate and trained participants was found to be higher (Table-4).

Table 1: Distribution of study participants as per socio-demographic characteristics (n=58)

Variable		Frequency	Percentage
Age (in years)	18 - 40	**25**	**43.1**
	41 - 60	**26**	**44.8**
	> 60	**7**	**12.1**
Gender	Male	**41**	**70.6**
	Female	**17**	**29.4**
Level of Education	Illiterate	**12**	**20.7**
	Primary	**25**	**43.1**
	Secondary	**21**	**36.2**
Marital Status	Married	**42**	**72.4**
	Unmarried	**16**	**27.6**
Hygiene Training	Received	**13**	**22.4**
	Not received	**45**	**77.6**

Table 2: Personal hygiene practices among study participants (n=58)

Hygiene Practice		Yes	No
Hand washing with soap & water	after defecation	**56 (96.6)**	**2 (3.4)**
	after handling waste	**37 (63.8)**	**21 (36.2)**
	before handling food	**46 (79.3)**	**12 (20.7)**
	before eating	**43 (74.1)**	**15 (25.9)**
Regular bathing (at least once a day)		**54 (93.1)**	**4 (6.9)**
Regular brushing of teeth (at least once a day)		**57 (98.3)**	**1 (1.7)**
Regular trimming of nails (at least once a week)		**41 (70.6)**	**17 (29.4)**
Regular washing of clothes		**38 (65.5)**	**20 (34.5)**
Use of cap/apron/gloves while working		**31 (53.4)**	**27 (46.6)**
No use of tobacco products while working		**45 (77.6)**	**13 (22.4)**

*Figures in parenthesis indicate percentages

Table 3: Overall Personal Hygiene among participants (n=58)

Personal Hygiene	Frequency	Percentage
Satisfactory	**45**	**77.6**
Unsatisfactory	**13**	**22.4**
Total	**58**	**100**

Table 4: Association of Personal Hygiene Practices with study variables (n=58)

Variable		Personal Hygiene Practice		p value (Test)
		Satisfactory	Unsatisfactory	
Age (in years)	18 - 40	**19**	**6**	**0.8435 (Chi-square)**
	41 - 60	**21**	**5**	
	> 60	**5**	**2**	
Gender	Male	**32**	**9**	**0.8840 (Mid-P exact)**
	Female	**13**	**4**	
Level of Education	Illiterate	**8**	**4**	**0.4368 (Chi-square)**
	Primary	**19**	**6**	
	Secondary	**18**	**3**	
Marital Status	Married	**32**	**10**	**0.7150 (Mid-P exact)**
	Unmarried	**13**	**3**	
Hygiene Training	Received	**11**	**2**	**0.5341 (Mid-P exact)**
	Not received	**34**	**11**	

DISCUSSION

In any hospital, the food establishments play a vital role in providing nourishment to the visiting patients, their relatives, doctors, and staff. The food handlers employed in these establishments bear the crucial responsibility of ensuring both personal and food hygiene is maintained at an adequate level. Improper food handling, as stated by the Codex Alimentarius Commission (2003), is identified as one of the primary causes of food contamination. Particularly, poor hand hygiene emerges as a significant risk factor.[8] The present study was conducted in a tertiary care hospital that houses five food establishments. A total of 58 food handlers, employed in various roles, were interviewed as part of the study.

In our study, the majority (79.3%) of the participants were found to be literate, which contrasts with the study conducted by Al Mamun et al in Bangladesh, where approximately half (49.6%) of the respondents were illiterate.[9] However, other socio-demographic findings were comparable between the two studies. Similar observations were also reported in the study conducted by Takalkar et al in the Solapur district of Maharashtra.[10]

During the assessment of personal hygiene practices, it was noted that the majority of the participants in our study were using soap and water for hand washing. In contrast, Mudey et al, in their study conducted in the Wardha district of Maharashtra, reported that only 49.38% of participants washed their hands with soap and water after going to toilet.[11] Similarly, Deshpande et al, in their study conducted in Western Maharashtra, observed that 58.33% of respondents practiced hand washing with soap.[12] This higher adherence to hand hygiene practices observed in our study could potentially be attributed to the increased public awareness regarding the importance of hand hygiene during the COVID-19 pandemic.

In our study, the majority of participants (70.6%) reported regular nail trimming, which aligns with the findings of studies conducted by Mohammed SPM et al in Puducherry and Mudey et al in Wardha.[13, 11] On the other hand, in our study, 53.4% of participants reported regular use of caps, aprons, and gloves while working, which differs from the findings of the study conducted by Singh et al in North India, where only 34.8% of participants used gloves while handling food.[14]

In our study, we found that the personal hygiene practices score was satisfactory among the majority of participants (77.6%). Comparable results were seen in the study conducted by Takalkar et al, where 32.5% had poor personal hygiene.[10] However, our findings contrasted with those of the study conducted by Kulkarni et al in Bangalore, Karnataka. According to their report, only 16.8% of participants had a good personal hygiene status based on a 10-point scoring system.[15]

In our study, we did not observe any statistically significant association between age, gender, level of education, marital status, and receipt of hygiene training with personal hygiene practices. Similar findings were also reported by Almale et al in their study conducted in the Nashik district of Maharashtra.[16] However, in the study conducted by Al Mamun et al in Bangladesh, they found a significant association between personal hygiene practices and age and education of the food handlers.[9] In another study conducted by Pradhan SS et al in Panaji city, Goa, a significant association was observed between the personal hygiene of the participants and the training they received in food safety.[17] However, in our study, we did not observe the same association.

Limitations of the study

These findings are based on a limited number of food handlers who participated in the study, and therefore, they cannot be generalized. Additionally, it should be noted that while some participants received training in personal hygiene, our study did not ascertain the source or quality of their training.

CONCLUSIONS

The majority of food handlers in the tertiary care hospital were observed to follow necessary practices, including handwashing with soap and water, regular nail trimming, and other personal hygiene measures, which contribute to the provision of safe and hygienic food. Overall, the personal hygiene practices of the food handlers were found to be satisfactory.

Recommendations

Conducting periodic hands-on workshops and training sessions on healthy and hygienic food handling methods for food handlers can play a crucial role in maintaining and promoting hygienic practices. Such initiatives have the potential to prevent potential food contamination incidents in the long run.

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