Personal Hygiene and Self-Reported Handwashing Practices among Food Handlers of a Medical College in Delhi

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Abstract

Introduction: **Food handlers play a major role in ensuring food safety as mishandling and disregard for personal hygiene on their part may result in food borne- illness outbreaks.**

Methodology: **Cross sectional observational study involving about 44 food handlers presently working were included. With structured proforma, details of socio- demographic data and self reported personal hygiene and handwashing practices were carried out.**

Results: **Majority of the study subjects had satisfactory or good personal hygiene. Significantly greater number of study subjects working as servers or helpers had a better status of hygiene as compared to the cooks. Personal income was significantly associated with the status of personal hygiene of the study subjects. Although majority of them were using soap for handwashing after defecation and micturition but only few were using it at the workplace. Although all of them were brushing/ cleaning their teeth, 50% were doing it only once in a day. Majority of them were taking bath in summers while 9% were not taking bath in winters. Majority of them were trimming their nails on a regular basis while 2.3% didn't cut their nails at all. Majority of them used to take medicine during diarrhea while only 2.3% used to take leave from work during illness. Most of them reported using towel to wipe the sweat. Most of them either covered their mouth or turned their face away from food while coughing/ sneezing. While 56.8% reported that they chased the stray animal, 20.4% said that animals never entered the premises, 2.3% had the habit of offering food to them.**

Conclusion: **There is a lot of scope for improving the standards of personal hygiene practices of food handlers. Important personal hygiene habits that help in prevention of contamination of food should be included in the content of health education sessions.**

Keywords: **Food handlers, personal hygiene, food- borne illness, health education etc.**

Introduction

Food- borne illnesses have an impact in both developing and developed countries. Although food is essential for life and growth, paradoxically it can be a source of food borne diseases which have been defined as "Diseases, usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food".[1]

Major risk of food contamination lies with the food handlers. Pathogenic organisms present in or on food handlers' body multiply to an infective dose when come in contact with food and could be a potential source of food poisoning to its clients. Indeed, the review by Guzewich and Ross of 81 foodborne illness outbreaks attributed to food contaminated by food workers found that 89% of these outbreaks involved the transmission of pathogens to food by workers' hands.[2]

For decreasing the burden of food borne diseases, the maintenance of food hygiene is important and is gaining both national and international

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importance. In India, the Bureau of Indian Standards (BIS) has formulated guidelines for maintaining hygiene of food, food handlers and food establishments that form as the basis for issuing the guidelines by various licensing agencies and regulatory bodies.[3-7]

In Delhi, the Municipal Corporation of Delhi (MCD) [8-9] and the New Delhi Municipal Corporation (NDMC) [10] have spelt out the conditions necessary for running food service establishments. World Health Organization (WHO) has also provided guidelines, strategies and recommendations for maintenance of hygiene of food, food handlers and food establishments. [1,11-14,]

Since the transmission of pathogens from food worker hands to food is a significant contributor to food- borne illness outbreaks, improvement of food worker handwashing practices is critical. Such improvement is dependent upon a clear understanding of current hand washing practices.

Few studies were conducted in past focusing the hygienic aspect of food handlers and eating environment. Therefore, this study was aimed at assessing personal hygiene and self- reported handwashing practices among food handlers of a medical college in Delhi.

Materials and Methods

The present cross sectional observational study was conducted between February to April 2014 amongst 44 food handlers working in 6 food service establishments located within the premises of a medical college in central Delhi. Our study included the food handlers who were presently employed. Data regarding socio- demographic profile, and general and clinical examination for personal hygiene was collected by using pre-tested and pre- designed proforma.

The status of personal hygiene of the food handlers was scored on the basis of twelve items (on the basis of criteria for 'employee hygiene' given by BIS[4,5] and WHO[11-13]) based on observations made during examination and self-reported practices as told during the interview. The classification of status of personal hygiene of the study subjects was done as follows:

Category	Score
Poor	0-6
Satisfactory	7-9
Good	10-12

The data was entered using MS Excel and analysis was done with the help of SPSS 16 version. Results were expressed as frequencies and percentages.

Results

A total of 6 food service establishments functioning within the premises were included in the study. 44 food handlers were taken including 9 cooks, 22 servers and 13 helpers. Mean age of the study subjects was 30.64 years with S.D. ± 10.6. All the study subjects were male. Majority of the study subjects (97.7%) were Hindu. 52.3% of the study subjects were married. 12.2% of the study subjects were illiterate and only 19.5% had received formal education only from primary to middle school level. Only 13.6% of the study subjects were getting income above Rs.10,000/- per month.

Characteristic	**Cook n=9 (%)**	**Server n=22 (%)**	**Helper n=13 (%)**	**Total N=44 (%)**
Age Mean±S.D.	37.11±6.85	29.82±12.3	27.54±7.9	30.64±10.6
Sex -Male -Female	9 (100.0) 0	22 (100.0) 0	13 (100.0) 0	44 (100.0) 0
Religion -Hindu -Others	9 (20.5) 0	21 (47.7) 1 (2.3)	13(29.5) 0	43 (97.7) 1 (2.3)
Marital Status -Married -Unmarried	7 (77.8) 2 (22.2)	10 (45.5) 12 (54.5)	6 (46.2) 7 (53.8)	23 (52.3) 21(47.7)
Education Status -Illiterate -Primary to middle -10th and above	1 (12.5) 1 (12.5) 6 (75.0)	3 (14.3) 5 (23.8) 13 (61.9)	1 (8.3) 2 (16.7) 9 (75.0)	4 (12.2) 8 (19.5) 28 (68.3)

Personal Income per month*				
<5000	1 (11.1)	10 (45.5)	6 (46.2)	17 (38.6)
5000-10,000	4 (44.4)	11 (50.0)	6 (46.2)	21 (47.7)
>10000	4 (44.4)	1 (4.5)	1 (7.7)	6 (13.6)

* p-value = 0.037

Table 1.Demographic profile of study subjects (N=44)

Personal Hygiene		**Cook n=9 (%)**	**Server n=22 (%)**	**Helper n=13 (%)**	**Total N=44 (%)**
Clothes	Clean	4 (44.4)	3 (13.6)	3 (23.1)	10 (22.7)
	Dirty	5 (55.6)	19 (86.4)	10 (76.9)	34 (77.3)
Cap	Yes	1 (11.1)	6 (27.3)	4 (30.8)	11 (25.0)
	No	8 (88.9)	16 (72.7)	9 (69.2)	33 (75.0)
Hair	Healthy/ Well combed	3 (33.3)	5 (22.7)	1 (7.7)	9 (20.5)
	Dandruff/ Not well combed	2 (22.2)	5 (22.7)	6 (46.2)	13 (29.5)
	Both Healthy & Well combed	4 (44.4)	12 (54.5)	6 (46.2)	22 (50.0)
Nails	Trimmed	5 (55.6)	19 (86.4)	9 (69.2)	34 (75.0)
	Not trimmed	4 (44.4)	3 (13.6)	4 (30.8)	10 (25.0)
Ornaments on hand	Yes	4 (44.4)	4 (18.2)	4 (30.8)	12 (27.3)
	No	5 (55.6)	18 (81.8)	9 (69.2)	32 (72.7)
Daily brushing teeth	Yes	9 (100.0)	21 (95.5)	13 (100.0)	43 (97.7)
	No	0	1 (4.5)	0	1 (2.3)
Daily Bathing	Yes	9 (100.0)	22 (100.0)	13 (100.0)	0
	No	0	0	0	0

Table 2.Personal Hygiene

Majority of the study subjects 77.3% wore dirty clothes. Although half of the study subjects had both healthy and well combed hair, but 29.5% had dandruff or not well combed hair. 75.0% of the study subjects were found with trimmed nails but still one fourth of them were found with the nails not trimmed. Majority of the study subjects in the present study reported that they were taking a bath and cleaning their teeth daily.

Hand Washing Practices		**Cook n=9 (%)**	**Server n=22 (%)**	**Helper n=13 (%)**	**Total N=44 (%)**
Wash Hands after defecation	Plain water/ either two	0	0	0	0
	Soap	9 (100.0)	22 (100.0)	13 (100.0)	44 (100.0)
Wash Hands after micturition	Plain water/ either two	4 (44.4)	7 (31.8)	3 (23.1)	14 (31.8)
	Soap	5 (55.5)	15 (68.2)	10 (76.9)	30 (68.2)
Wash Hands in kitchen	Plain water/ either two	0	1 (4.5)	0	1 (2.3)
	Soap	9 (100.0)	21 (95.5)	13 (100.0)	43 (97.7)
Dry hand after washing hands	Common towel, hair, clothes, newspaper, nothing	4 (44.4)	8 (36.4)	5 (38.5)	17 (38.6)
	Personal towel, heat from oven, disposable napkin	5 (55.6)	14 (63.6)	8 (61.5)	27 (61.4)

Table 3.Hand washing Practices

A high proportion of the study subjects in the present study reported about the practice of washing hands after defecation and micturition and in kitchen. Although many of them reported using personal towel for drying hands but still many were using common towel (38.6%).

Category	Scoring	Cook n=9 (%)	Server n=22 (%)	Helper n=13 (%)	Total N=44 (%)
Poor	0-6	4 (44.4)	1 (4.5)	1 (7.7)	6 (13.6)
Satisfactory	7-9	2 (22.2)	9 (40.9)	7 (53.8)	18 (40.9)
Good	10-12	3 (33.3)	12 (54.5)	5 (38.5)	20 (45.5)

Table 4.Scoring of Personal Hygiene and Hand washing Practices

Majority of the study subjects had satisfactory (40.9%) or good (45.5%) personal hygiene.

Discussion

Demographic Profile

The age of the study subjects in the current study was similar to that reported by other researchers from India.

All of the study subjects were males. Male dominance in food preparation occupation is possibly due to the cultural effect as mostly women are engaged in household work and the males have to go outside and work for meeting the financial needs of the family.

The level of education was low. Other findings of our study were same as the findings reported in India and other developing countries. [15]

Work Profile

Depending on the type of work the study subjects were engaged in during major part of their duty hours, they have been categorized as cooks, servers and helpers. Similar classification has also been reported in other studies. [15-17]

Only 13.6% of the study subjects were getting income above Rs.10,000/- per month. The low wages of the study subjects employed in the private establishments could be due to the lack of any fixed pay scales for them, which the government or co- operative society employees were having.

Personal Hygiene Status

Similar to other Indian studies [18-19], majority of the study subjects had satisfactory or good personal hygiene. However, the personal hygiene of cooks, who could be a potential source of infection due to direct handling of food, was observed to be significantly inferior in comparison to servers or helpers. This could be improved through health education.

Hand washing Practices

A high proportion of the study subjects in the present study reported about the practice of washing hands after defecation and micturition and in kitchen, which was similar to that reported in the study carried out by Oteri [19] The use of soap for washing hands by food handlers has been reported to be higher by Oteri [19]and Sangole [20] as compared to the present study. The lesser use of soap (31.8%) for washing hands could be due to ignorance and not being aware about the possibility of contamination of hand after micturition.

Although many of them reported using personal towel for drying hands but still many were using common towel (38.6%) which could also be a possible source of contamination of hands as pointed out by Dumavibhat. [21]

Majority of the study subjects in the present study reported that they were taking a bath and cleaning their teeth daily possibly due to their positive attitudes for these practices. However, the actual practice could not be observed.

Conclusion

- There is a lot of scope for improving the standards of personal hygiene practices of food handlers.
- The important personal hygiene habits that help in prevention of contamination of food should be included in the content of health education sessions.

Recommendations

- Proper hand washing can significantly reduce the transmission of pathogens from hands to food and other objects. [2]
- These findings suggest that the hand washing practices of food workers need to be improved, glove use may reduce hand washing, and restaurants should consider

reorganizing their food preparation activities to reduce the frequency with which hand washing is needed.

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