Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v31i7.6940

HYGIENE PRACTICES AMONG HOSPITAL FOOD HANDLERS: A COMPARATIVE STUDY AT D. Y. PATIL MEDICAL COLLEGE, KOLHAPUR

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Abstract

Background: Food handlers in hospital settings play a crucial role in maintaining food safety and preventing foodborne illnesses. This study aimed to assess the personal hygiene practices of food handlers at D. Y. Patil Medical College, Kolhapur, to identify adherence levels to hygiene standards and areas for potential improvement.

Methods: A cross-sectional survey was conducted using a stratified random sampling method to ensure representation from various job categories of food handlers. A structured, self-administered questionnaire was employed to gather data on demographic information, food handling practices, knowledge about foodborne illnesses, personal hygiene habits, and attitudes toward food safety. The questionnaire was validated through a pilot study. Data were analyzed using descriptive and inferential statistics, including chi-square tests to explore associations between demographic variables and hygiene practices.

Results: The study found high compliance rates for key hygiene practices, such as hand washing after defecation (86%) and regular bathing (93%). However, only 53% of food handlers used protective gear consistently. No significant associations were found between hygiene practices and demographic variables such as age, gender, education level, and marital status. Hygiene training, although not statistically significant, was associated with better hygiene practices.

Conclusion: While the overall personal hygiene practices among food handlers were commendable, areas such as the use of protective gear and enforcement of non-tobacco use policies need improvement. Continuous training programs and regular monitoring are recommended to enhance food safety practices. Limitations of the study include reliance on self-reported data and the cross-sectional design, which restricts causality inferences.

Keywords: Food handlers, Personal hygiene, Food safety, Hospital settings

Introduction

Hygiene practices among food handlers in hospital settings are crucial for preventing foodborne illnesses and ensuring patient safety. Studies have consistently shown that proper hygiene and sanitation practices are essential to minimize infection risks in hospitals[1]. Food handlers play a

significant role in maintaining these standards due to their direct contact with food served to vulnerable patient populations.

Research conducted in various hospitals highlights both positive outcomes and areas needing improvement in food hygiene practices. For instance, a study in a psychiatric hospital in Indonesia found that while food handlers generally had good knowledge and attitudes towards hygiene, a significant proportion still exhibited poor practices, underscoring the need for continuous training[2]. Similarly, in Yogyakarta, all food handlers demonstrated compliance with food safety standards, but challenges such as the neglect of personal protective equipment were noted, indicating gaps in consistent practice[3]

Further evidence from a hospital in Sri Lanka revealed that food handlers often lacked adequate knowledge about essential hygiene practices, with many unaware of correct food storage temperatures and contamination risks[4]. This deficiency in knowledge directly impacts the safety of hospital meals, which is a critical concern given the high risk of foodborne diseases in healthcare settings.

Moreover, a study assessing the bacterial contamination on the hands of food handlers in a military hospital found that poor hand hygiene was prevalent, with significant contamination by Staphylococcus aureus and Escherichia coli, emphasizing the importance of rigorous hand hygiene training and monitoring[5].

These findings are echoed in research conducted in Brazilian schools, where improper hand hygiene among food handlers was linked to high levels of fecal coliform contamination, suggesting that similar issues may be present in hospital settings and highlighting the need for improved hygiene education[6].

A study was done to assess the personal hygiene practices of food handlers in D Y patil Medical College, Kolhapur. The study aims to identify the adherence level to hygiene standards and pinpoint areas for potential improvement in food safety practices.

Material and Methods

This study was designed as a cross-sectional survey to evaluate the personal hygiene practices among food handlers at D. Y. Patil Medical College, Kolhapur. The research was conducted within the hospital's food service facilities, where food handlers are responsible for preparing and serving meals to patients, staff, and visitors. The study aimed to provide a comprehensive understanding of the current hygiene practices and identify areas for improvement in food safety.

A stratified random sampling method was utilized to ensure a representative sample from various job categories of food handlers, including chefs, kitchen assistants, servers, and cleaning staff. The total sample size was proportionately divided based on the number of workers in each category. Subsequently, a simple random sample was drawn from each stratum to ensure that each group was adequately represented in the study.

The primary data collection tool was a self-administered, structured questionnaire designed to assess the knowledge, attitudes, and practices (KAP) regarding food hygiene among food handlers.

Prior to the main survey, the questionnaire was tested in a pilot study involving a similar demographic group to ensure the clarity of questions and the reliability of the tool. Feedback from the pilot study was used to refine the questionnaire, ensuring its effectiveness in capturing the necessary data.

Data were collected over a specified period through the distribution of the structured questionnaire to the selected sample of food handlers. Participants were briefed on the purpose of the study and provided with instructions on how to complete the questionnaire. The anonymity and confidentiality of the respondents were assured to encourage honest and accurate responses.

Ethical approval for the study was obtained from the Institutional Ethics Committee of D. Y. Patil Medical College, Kolhapur. Informed consent was obtained from all participants before their inclusion in the study. Participants were informed of their right to withdraw from the study at any time without any negative consequences. All data collected were kept confidential and used solely for research purposes.

The collected data were analyzed using statistical software. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, were used to summarize the demographic characteristics and the KAP scores of the food handlers. Inferential statistics, including chi-square tests and t-tests, were employed to examine the associations between demographic variables and hygiene practices. The analysis aimed to identify significant factors influencing hygiene practices and areas needing improvement.

Results

Table 1: Personal Hygiene Practices Among Food Handlers

Hygiene Practice		**Yes**	**%**	**No**	**%**
Hand washing with soap & water	after defecation	110	86%	18	14%
	after handling waste	81	64%	46	36%
	before handling food	101	79%	26	21%
	before eating	95	74%	33	26%
Regular bathing (at least once a day)		119	93%	9	7%
Regular brushing of teeth (at least once a day)		125	98%	2	2%
Regular trimming of nails (at least once a week)		90	70%	37	29%
Regular washing of clothes		84	65%	44	34%
Use of cap/apron/gloves while working		68	53%	59	46%
No use of tobacco products while working		99	77%	29	22%

Table 1 presents the personal hygiene practices among food handlers at D. Y. Patil Medical College, Kolhapur. The data indicates a high compliance rate with several key hygiene practices. Specifically, 86% of the food handlers reported washing their hands with soap and water after defecation, while 64% did so after handling waste. Additionally, 79% of the respondents washed their hands before handling food, and 74% did so before eating.

Regular personal hygiene habits were also prevalent among the food handlers. A significant majority, 93%, reported bathing at least once a day, and 98% brushed their teeth regularly. Furthermore, 70% of the participants trimmed their nails at least once a week, and 65% washed their clothes regularly. However, only 53% of the food handlers used a cap, apron, or gloves while working, and 77% abstained from using tobacco products during work hours.

Table 2: Association of Personal Hygiene Practices with Demographic Variables

Variable		**Personal Hygiene Practice**		**p value (Chi square value)**
		Satisfactory	Unsatisfactory	
Age (in years)	18 - 40	42	13	**0.7719 (0.5177)**
	41 - 60	46	11	
	> 60	11	4	
Gender	Male	70	20	**0.8567 (0.0326)**
	Female	29	9	
Level of Education	Illiterate	18	9	**0.1809 (3.4194)**
	Primary	42	13	
	Secondary	40	7	
Marital Status	Married	70	22	**0.5871 (0.2949)**
	Unmarried	29	7	
Hygiene Training	Received	24	4	**0.2618 (1.259)**
	Not received	75	24	

The association between personal hygiene practices and various demographic variables is summarized in Table 2. The analysis revealed no significant association between personal hygiene practices and age groups, with p-values for the 18-40, 41-60, and over 60 age categories being 0.7719 (Chi-square value = 0.5177). Gender also showed no significant impact on hygiene practices, with a p-value of 0.8567 (Chi-square value = 0.0326).

Educational level, although not statistically significant, showed some variability in hygiene practices. The p-value for the association between education level and hygiene practices was 0.1809 (Chi-square value = 3.4194), suggesting a trend where those with higher education levels demonstrated slightly better hygiene practices. Marital status was not significantly associated with hygiene practices, as indicated by a p-value of 0.5871 (Chi-square value = 0.2949).
Finally, hygiene training appeared to have an influence, although not statistically significant, on hygiene practices. Those who received hygiene training had a higher rate of satisfactory hygiene practices, with a p-value of 0.2618 (Chi-square value = 1.259).

Discussion

The findings of this study provide valuable insights into the personal hygiene practices of food handlers at D. Y. Patil Medical College, Kolhapur. Overall, the results indicate a relatively high adherence to personal hygiene practices among food handlers, with specific areas identified for improvement.
The high compliance rates for hand washing after defecation (86%), before handling food (79%), and regular bathing (93%) align with previous studies that underscore the importance of these practices in preventing foodborne illnesses. For instance, a study by Palupi et al. (2020)[2] in Indonesia also reported good knowledge and attitudes towards hygiene among food handlers, but highlighted the gap between knowledge and actual practices, similar to our findings where only 53% used protective gear such as caps, aprons, or gloves.
The observed regular brushing of teeth (98%) and trimming of nails (70%) among the food handlers is consistent with the study by Hapsari et al. (2018)[3] conducted in Yogyakarta, which found high compliance with personal hygiene standards among hospital food handlers. However, Hapsari's study also pointed out the neglect of using personal protective equipment, mirroring our findings where less than half of the participants used such gear.
The use of tobacco products by 22% of food handlers during work hours is concerning. This is higher compared to the study by Mukhopadhyay et al. (2012)[7] in Kolkata, which reported better compliance with non-use of tobacco among food handlers in hospital settings. The discrepancy suggests the need for stricter enforcement of tobacco use policies in our setting.
The influence of education level on hygiene practices, while not statistically significant, suggests that higher education correlates with better hygiene practices. This is supported by the findings of Campos et al. (2009)[6], who reported that education significantly impacts the hygiene practices of food handlers in public schools in Brazil. Similar trends were observed in the study by Bou-Mitri et al. (2018)[8] in Lebanese hospitals, where higher education levels were associated with better food safety knowledge and practices.
Our study also indicates that hygiene training, although not statistically significant, improves personal hygiene practices among food handlers. This aligns with the research by Lazarević et al. (2013)[9], which demonstrated that food hygiene training significantly reduced bacterial contamination in hospital kitchens. Similarly, a study by Adikari et al. (2016)[4] in Sri Lanka emphasized the positive impact of continuous education and training on food safety practices among hospital food handlers.
The findings of this study also compare with those of Ayçiçek et al. (2004)[5] in Turkey, which highlighted the critical role of regular hand hygiene and the use of gloves in reducing bacterial contamination. Our study reinforces the need for improved hand hygiene practices and the consistent use of personal protective equipment.
Moreover, the study by Ahmed et al. (2020)[10] in Sudan showed that food handlers lacked knowledge regarding the transmission of foodborne pathogens and emphasized the need for targeted training programs. Our study supports this by indicating that food handlers who received hygiene training exhibited better hygiene practices.
Lastly, the significant role of demographic variables in influencing hygiene practices was also noted by Tokuç et al. (2009)[11] in Turkey, who found that gender and education level significantly impacted food safety practices among hospital food handlers. While our study did not find

statistically significant associations, the trends observed suggest the need for further research to explore these relationships in more detail.

Conclusion

In conclusion, the study reveals that while food handlers at D. Y. Patil Medical College, Kolhapur generally adhere to good personal hygiene practices, there are critical areas that require improvement, particularly the consistent use of protective gear and enforcement of non-tobacco use policies during work hours. To enhance food safety practices, it is recommended that the hospital administration implement continuous training programs focused on practical hygiene skills and ensure regular monitoring and evaluation of hygiene practices. However, the study's limitations include its reliance on self-reported data, which may be subject to social desirability bias, and the cross-sectional design, which limits the ability to infer causality. Future research should consider longitudinal studies and direct observation methods to provide a more comprehensive assessment of food safety practices.

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