

“An Epidemiological Survey to Assess the Level of Knowledge on Food Hygiene During Selected Practices of Food Processing Among the Employees of Selected Canteen at Puducherry”

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Abstract

Food hygiene, also referred to as food safety, includes all conditions and practices required during food production, processing, storage, distribution, and preparation to ensure food is safe and fit for human consumption. Food handlers play a crucial role in preventing foodborne illnesses, especially in institutional settings such as canteens. This study aimed to assess the level of knowledge regarding food hygiene during selected food processing practices among employees of selected canteens in Puducherry. A quantitative approach with a descriptive research design was adopted. Thirty canteen employees were selected using a simple random sampling technique. Data were collected over one week using a structured questionnaire that included demographic variables and knowledge-based questions on food hygiene. The collected data were analyzed using descriptive and inferential statistics. The results revealed that 60% of employees had adequate knowledge of food hygiene, 36.7% had a moderate level of knowledge, and 3.3% had inadequate knowledge. A statistically significant association was found between age and educational status with the level of knowledge regarding food hygiene. The study concluded that although the majority of canteen employees possessed adequate knowledge, a notable proportion had only moderate knowledge, highlighting the need for regular education and training programs to strengthen food hygiene practices and ensure food safety.

Keywords: Food hygiene, Food safety, Knowledge, Food handlers, Canteen employees

I. INTRODUCTION

“Let your food be your medicine, and your medicine be your food”

-Hippocrates.

Food hygiene or food safety is defined as all conditions and measures that are necessary during production, processing, storage, distribution and preparation of food to ensure that it is safe, sound and wholesome and fit for human consumption.

Food safety, also known as food hygiene, is a scientific discipline that focuses on the handling, preparation, storage, and distribution of food to prevent foodborne illnesses. It includes a set of practices and management systems aimed at controlling biological, chemical, and physical hazards throughout the food supply chain. Effective food hygiene requires proper monitoring, corrective actions, and strict adherence to established standards. Adequate training and supervision of food handlers are essential to ensure safe food operations and to protect public health, particularly in institutional food service settings.

Foodborne diseases continue to pose a major global public health challenge. The World Health Organization estimates that nearly 600 million people fall ill each year due to contaminated food, resulting in approximately 420,000 deaths, with children under five years being the most affected. A large proportion of foodborne disease outbreaks originate in food service establishments due to improper food handling and poor hygiene practices. Food handlers play a crucial role in preventing contamination, as unsafe practices such as cross-contamination, improper cooking, and inadequate storage significantly increase health risks. Therefore, assessing and improving food hygiene knowledge among food handlers is vital to reduce foodborne illnesses and ensure consumer safety.

II. NEED FOR THE STUDY

Food hygiene practices among food handlers play a vital role in preventing foodborne illnesses, especially in institutional settings such as hospitals. Evidence shows that 51.2% of food handlers exhibit poor food hygiene practices, influenced by factors such as inadequate personal protective equipment, lack of supervision, poor water supply, and improper facilities. Globally, foodborne illnesses account for millions of cases annually, leading to significant morbidity and mortality, particularly in developing countries. In India, foodborne diseases remain a major public health concern, with one in forty individuals affected each year and thousands of deaths reported.

The Food Safety and Standards Authority of India’s State Food Safety Index (2022–2023) indicates a decline in food safety performance across many states, highlighting gaps in implementation of food safety measures. During clinical postings, the investigator observed that hospital employees are actively involved in food preparation and serving for patients, often without adequate training in food hygiene. Therefore, assessing the knowledge of food hygiene and food processing practices among canteen employees in selected hospitals of Puducherry is essential to improve food safety, protect patient health, and enhance quality of care.

STATEMENT OF THE PROBLEM

An epidemiological survey to assess the level of knowledge on food hygiene during selected practices of food processing among the employees of selected canteen at Puducherry

OBJECTIVES

- To assess the level of knowledge regarding food hygiene among the employees
- To associate the level of knowledge on food hygiene among employees with their selected demographic variables.

III. METHODOLOGY

RESEARCH APPROACH

A Quantitative research approach was adopted for this present study.

RESEARCH DESIGN

A descriptive research design was adopted for this study.

POPULATION

The target population for the study comprises of the people who are working in SMVMCH canteen Puducherry.

SETTING

The study was conducted at SMVMCH canteen Kalitheerthalkuppam, Puducherry. .

SAMPLE

The sample for the study comprises of people who are working in SMVMCH canteen Puducherry.

SAMPLE SIZE

Sample size consist of 30 samples.

SAMPLING TECHNIQUE:

Simple random technique is used for the present study.

DESCRIPTION OF TOOL

Section A: The section consist of demographic variables such as age, sex, etc.

Section B: This section consists of knowledge questionnaires on practice of food hygiene and food processing.

SCORING INTERPRETATION:

| Level of knowledge | Scoring |
|---------------------------|----------------|
| Adequate knowledge | 15-25 |
| Moderate knowledge | 6-14 |
| Inadequate knowledge | 1-5 |

STUDY FINDINGS

SECTION A: Description of demographic variables of the employees.

SECTION B: Assessment of the level of knowledge regarding food hygiene among the employees.

SECTION C: Association of the level of knowledge regarding food hygiene among the employees with selected demographic variables

SECTION A: Description of demographic variables of the employees

Table 1: Frequency and percentage wise distribution of demographic variables like age, Gender and religion of the employees.

(N=30)

| S. No | Demographic variables | Frequency[n] | Percentage% |
|-----------|-----------------------|--------------|-------------|
| 1. | Age | | |
| | a) 20-30 years | 6 | 20% |
| | b) 31-40 years | 9 | 30% |
| | c) 41- 50 years | 12 | 40% |
| | d) 51-60 years | 3 | 10% |
| 2. | Gender: | | |
| | a) Male | 12 | 40% |
| | b) Female | 18 | 60% |
| 3. | Religion | | |
| | a) Hindu | 24 | 80% |
| | b) Christian | 2 | 6.7% |
| | c) Muslim | 4 | 13.3% |
| | d) Others | 0 | 0% |

Table 2: Frequency and percentage wise distribution of demographic variables like Education and idea about food hygiene of the employees.

(N=30)

| 4. | Education: | Frequency {n} | Percentage % |
|-----------|--|---------------|--------------|
| | a) Illiterate | 10 | 33.3% |
| | b) primary school | 8 | 26.7% |
| | c) secondary school | 10 | 33.3% |
| | d) graduate | 2 | 6.7% |
| 5. | Do you have any idea about food hygiene | | |
| | a) Yes | 22 | 73.3% |
| | b) No | 8 | 26.7% |

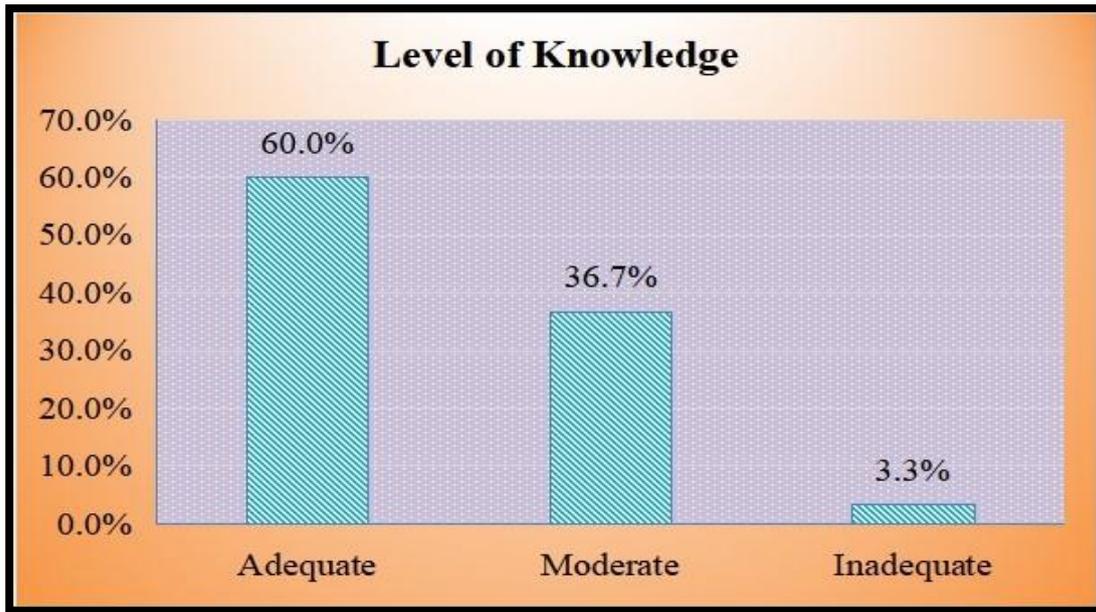
The demographic analysis of the employees (N = 30) highlights a diverse range of characteristics. In terms of age, the majority (40%) fall within the 41-50 years category, followed by 31-40 years (30%), 20-30 years (20%), and the remaining 10% are aged 51-60 years. The gender distribution shows a higher representation of females (60%) compared to males (40%). Regarding religion, most employees (80%) identify as Hindu, while 13.3% are Muslim, and 6.7% are Christian. In terms of years of experience, nearly half of the employees (46.7%) have 1-2 years of experience, while 23.3% have 0-1 year of experience. A smaller proportion (20%) have 2-3 years, and only 10% have more than three years of experience.

The salary distribution indicates that the highest proportion of employees (36.7%) earn Rs. 6000-7000, followed by 30% earning Rs. 5000-6000. A smaller group earns Rs. 7000-8000 (13.3%), and 20% have a salary above Rs. 8000. Regarding lifestyle diseases, more than half (53.3%) of employees reported having a lifestyle-related condition, while 46.7% did not report any such issues.

In terms of education, 33.3% of employees are illiterate, while another 33.3% have completed secondary education. Primary education is reported by 26.7%, and only 6.7% are graduates. Finally, awareness of food hygiene is relatively high, with 73.3% of employees reporting that they are aware of food hygiene practices, while the remaining 26.7% lack such awareness.

SECTION B: Assessment of the level of knowledge regarding food hygiene among the employees.

Table 3: Frequency and percentage wise distribution of level of knowledge regarding food Hygiene among the employees.



The distribution of the level of knowledge regarding food hygiene among the employees (N=30) revealed that the majority (60%) have adequate knowledge, followed by 36.7% who possess a moderate level of knowledge, and only 3.3% have an inadequate level of knowledge.

SECTION C: Association of the level of knowledge regarding food hygiene among the employees with selected demographic variables

Table 4: Association of the level of knowledge regarding food hygiene among the employees with selected demographic variables like age, gender and religion.

(N =30)

| S. No | Demographic variables | LEVEL OF KNOWLEDGE | | | | | | X ² value |
|-----------|-----------------------|--------------------|-----|------------|------|----------|------|--|
| | | Adequate | | Inadequate | | Moderate | | |
| 1 | Age | N | % | N | % | N | % | X ² = 13.418 Df= 6 p = 0.037 (S)* |
| | a) 20-30 years | 1 | 3.3 | 4 | 13.3 | 1 | 3.3 | |
| | b) 31-40 years | 0 | 0.0 | 4 | 13.3 | 5 | 16.7 | |
| | c) 41- 50 years | 0 | 0.0 | 10 | 33.3 | 2 | 6.7 | |
| | d) 51-60 years | 0 | 0.0 | 0 | 0.0 | 3 | 10.0 | |
| 2. | Gender: | | | | | | | X ² = 2.391 Df= 2 p = 0.303 (NS) |
| | a) Male | 1 | 3.3 | 8 | 26.7 | 3 | 10.0 | |
| | b) Female | 0 | 0.0 | 10 | 33.3 | 8 | 26.7 | |
| 3. | Religion | | | | | | | X ² = 5.000 Df= 4 p = 0.287 (NS) |
| | a) Hindu | 1 | 3.3 | 12 | 40.0 | 11 | 36.7 | |
| | b) Christian | 0 | 0.0 | 2 | 6.7 | 0 | 0.0 | |
| | c) Muslim | 0 | 0.0 | 4 | 13.3 | 0 | 0.0 | |
| | d) Others | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |

* Significant at P≤ 0.05 level

The above table shows that there is a significance association of age with the level of knowledge regarding food hygiene among the employees with selected demographic variables. On the other hand, there is no significance association of gender and religion with the selected demographic variables.

Table 4.1: Association of the level of knowledge regarding food hygiene among the employees with selected demographic variables like year of experience, salary and any life style disease.

| 4. | Year of experience | N | % | N | % | N | % | $X^2 = 4.376$ Df = 6 p = 0.626 (NS) |
|----|------------------------|---|-----|---|------|---|------|---|
| | a) 0-1 year | 0 | 0.0 | 6 | 20.0 | 1 | 3.3 | |
| | b) 1-2 years | 1 | 3.3 | 8 | 26.7 | 5 | 16.7 | |
| | c) 2- 3 years | 0 | 0.0 | 3 | 10.0 | 3 | 10.0 | |
| | d) Above 3 years | 0 | 0.0 | 1 | 3.3 | 2 | 6.7 | |
| 5. | Salary | | | | | | | $X^2 = 8.970$ df = 6 p = 0.175 (NS) |
| | a) Rs. 5000-6000 | 0 | 0.0 | 7 | 23.3 | 2 | 6.7 | |
| | b) Rs. 6000-7000 | 0 | 0.0 | 8 | 26.7 | 3 | 10.0 | |
| | c) Rs. 7000-8000 | 0 | 0.0 | 1 | 3.3 | 3 | 10.0 | |
| | d) Above 8000 | 1 | 3.3 | 2 | 6.7 | 3 | 10.0 | |
| 6. | Any lifestyle disease: | | | | | | | $X^2 = 1.692$ Df = 2 p = .429 (NS) |
| | a) Yes | 0 | 0.0 | 9 | 30.0 | 7 | 23.3 | |
| | b) No | 1 | 3.3 | 9 | 30.0 | 4 | 13.3 | |

The above table shows that there was no statistically significant association between the level of knowledge on food hygiene of demographic variables including year of experience, salary and any life style diseases.

Table 4.2: Association of the level of knowledge regarding food hygiene among the employees with selected demographic variables like education and any idea about food hygiene.

| 7 | Education: | N | % | N | % | N | % | $X^2 = 19.470$ Df = 6 p = 0.003 (S)* |
|---|---|---|-----|----|------|---|------|--|
| | a) Illiterate | 0 | 0.0 | 8 | 26.7 | 2 | 6.7 | |
| | b) primary school | 0 | 0.0 | 6 | 20.0 | 2 | 6.7 | |
| | c) secondary school | 0 | 0.0 | 4 | 13.3 | 6 | 20.0 | |
| | d) graduate | 1 | 3.3 | 0 | 0.0 | 1 | 3.3 | |
| 8 | Do you have any idea about food hygiene | | | | | | | $X^2 = 0.377$ Df = 2 p = 0.848 (NS) |
| | a) Yes | 1 | 3.3 | 13 | 43.3 | 8 | 26.7 | |
| | b) No | 0 | 0.0 | 5 | 16.7 | 3 | 10.0 | |

* Significant at $P \leq 0.05$ level

The above table shows that there is a significance association of education with the level of knowledge regarding food hygiene among the employees with selected demographic variables.

IV. DISCUSSION

The first objective to assess the level of knowledge regarding food hygiene among the employee of selected canteen.

The study finding revealed that the majority (60%) have adequate knowledge, followed by 36.7% who possess a moderate level of knowledge, and only 3.3% have an inadequate level of knowledge.

The second objectives to associate the knowledge on food hygiene among employee with their selected demographic variables.

The study finding revealed that there is a significance association of age and education with the level of knowledge regarding food hygiene among the employees with selected demographic variables.

V. CONCLUSION

The finding concluded that the majority have adequate knowledge and few has moderate level of knowledge. There is a significance association of age and education with the level of knowledge regarding food hygiene among the employees with selected demographic variables.

NURSING IMPLICATIONS

The findings of the study have important implications for nursing education, practice, administration, and research in promoting food hygiene among canteen employees in selected hospitals of Puducherry.

NURSING EDUCATION

- Nurse educators should emphasize food hygiene, safe food handling, storage, and personal hygiene as essential aspects of patient care.
- Nursing students should be trained through demonstrations and practical sessions to identify unsafe practices and educate patients, families, and food handlers.

NURSING PRACTICE

- Nurses can promote food hygiene by conducting health education programs, teaching hand hygiene, use of protective equipment, and maintaining cleanliness among canteen staff.
- Periodic health screening of food handlers can help prevent infections.

NURSING ADMINISTRATION

- Nursing administrators can formulate food hygiene policies, organize regular training programs, supervise kitchen hygiene, ensure adherence to infection control guidelines, and conduct periodic audits.

NURSING RESEARCH

- Nursing research can assess food hygiene knowledge and practices, evaluate the effectiveness of educational interventions, and study the impact of food hygiene on patient health outcomes in healthcare settings.

VI. RECOMMENDATIONS

- A similar study can conduct with a larger sample size across multiple canteens to enhance the generalizability of the results.
- Further studies can be conducted to evaluate the impact of food hygiene training programs on reducing foodborne illnesses and improving employee practices in food processing over the long term.
- Educate patients and caregivers about safe food handling, storage, and preparation techniques.
- Nurse may encourage regular hand hygiene before and after food preparation and meals.
- Nurse can recommend the use of clean utensils and surfaces for all food-related activities.

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