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A STUDY TO COMPARE THE PRE-TEST AND POST TEST KNOWLEDGE AND PRACTICE REGARDING FOOD BORNE DISEASES AND FOOD HYGIENE AMONG THE MOTHERS OF UNDER FIVE CHILDREN IN SELECTED COMMUNITY AREAS OF KARNATAKA

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ABSTRACT

Food-borne diseases represent a widespread and growing public health problem, both in developed and developing countries. However, this problem has more impact on health and economy in developing countries than in developed countries but reliable data is not available. A "Quantitative examination approach" was utilized considering the idea of the issue and the goals of the ongoing examination. The review was directed in selected community areas of Karnataka. w. Tests for the current review were the understudies mothers of under five children who satisfied the incorporation rules. Non probability examining procedure was utilized. Test size of the current review was 100 mothers of under five children in selected community areas.

Key Words: *Food borne disease, food hygiene, mother, food hygiene.*

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INTRODUCTION

Foodborne illnesses are a widespread public health problem globally. In response to the increasing number of food-borne illnesses, Governments all over the world are intensifying their efforts to improve food safety. Although the global incidence of food-borne illnesses is difficult to estimate, it has been reported that in 2000 alone 2.1 million people died of diarrhoeal diseases. A great proportion of these cases can be attributed to contamination of food and drinking water. Although, the surveillance of food-borne disease outbreaks has been fairly well established in developed countries, less than 10% of actual cases in these countries are recorded in official statistics. In the case of developing countries, it could be even less than one percent.

A significant proportion of food-borne illnesses arises from practices in the home kitchen (Bryan, 1988)

Globally about one-third of the total population is estimated to be infected with intestinal parasites, the majority being people living in tropical and sub-tropical parts of the world [Chan M-S1997].

About 819 million people are infected with *Ascaris lumbricoides* (*A. lumbricoides*), 464.6 million people with *Trichuris trichiura* (*T. trichuira*), 438.9 million people with hookworm infection [Pullan RL, Smith JL, Jasrasaria R, Brooker SJ. 2014) 500 million people with *Entamoeba histolytica (E. histolytica)*, and 2.8 million people are infected with *Giardia lamblia* (*G. lamblia*) [Duc PP, Nguyen-Viet H, Hattendorf J, Zinsstag J, Cam PD, Odermatt P. 2011].

As in many developing countries, cases of intestinal parasitosis are also highly abundant in Ethiopia. It is estimated that one-third of Ethiopians are infected with *A. lumbricoides*, one-quarter is infected with *T. trichiura*, and one in eight lives with hookworm. As a result, Ethiopia has the second-highest burden of ascariasis, the third-highest burden of hookworm, and the fourth-highest burden of trichuriasis in Sub-Saharan Africa . When food is cooked on a large scale, it may be handled by many individuals thus increasing the chances of contamination of the final food. Unintended contamination of food during large-scale cooking, leading to food-borne disease outbreaks can pose danger to the health of consumers and economic consequences for nations [Adams M, Motarjemi Y, 1999].

Food-borne related illnesses have increased over the years and negatively affected the health and economic well-being of many developing nations [WHO 2007].

The World Health Organization (WHO) states that about 1.8 million persons died from diarrheal diseases in 2005, mainly due to the ingestion of contaminated food and drinking water. Food poisoning occurs as a result of consuming food contaminated with microorganisms or their toxins, the contamination arising from inadequate preservation methods, unhygienic handling practices, cross-contamination from food contact surfaces, or persons harbouring the microorganisms in their nares and on the skin [Barrie D 1996].

Microbial contamination of food is a major public health concern due to the emergence of foodborne pathogens [E. Children can learn specific health-promoting behaviours in their primary and upper primary schooling age, even if they do not understand the connections between illness and behaviour completely.

Health habits can be developed in this period. As there are limited studies evaluating personal hygiene among school going children, more research on this ground is needed. The present inadequate knowledge base hinders the development of improved strategies for enhancing the maintenance of personal hygiene, which is of great importance to decrease the burden of communicable diseases in the developing countries.

REVIEW OF LITERATURE

Kibret M, Abera B 2012 conducted a study on the sanitary conditions of food service establishments and food safety knowledge and practices of food handlers in Bahir dar town. The median age of the food handlers was 22 years and among the 455 subjects 99 (21.8%) have had food hygiene training. Sixty -six percent of the establishments had flush toilets whereas 5.9% of the establishment had no toilet. Only 149 (33.6%) of the establishments had a proper solid waste collection receptacle and there was statistically significant association between the sanitary conditions and license status of the establishments (p=0.01). Most of all, knowledge gap in food hygiene and handling practice was observed. In addition, there was statistically significant difference between trained (professional) handlers and non-trained handlers with regard to food hygiene practices (p<0.05). While more than 50% of the handlers prepare meals ahead of the peak selling time, more than 50% of the left over was poorly managed.

Mama M, and Alemu G, 2016 conducted a study on the Prevalence and factors associated with intestinal parasitic infections among food handlers of Southern Ethiopia: cross sectional study. A total of 376 food handlers were enrolled in the study of which thirty-one of them were not willing to participate for a stool examination. The majority of study participants were females 273 (72.6 %). About 123 (36 %) of food handlers were found to be positive for different intestinal parasites with the most abundant parasite of Entamoeba histolytica/dispar 48 (14 %) followed by Ascaris lumbricoides 32 (9.27 %). Fingernail status (AOR: 2.2, 95 % CI: 1.29-3.72), hand washing practice after toilet (AOR: 1.71, 95 % CI: 1.06-2.77), hand washing practice before food handling (AOR: 1.69, 95 % CI: 1.04-2.75), preparing food when suffering from diseases (AOR: 3.08, 95 % CI: 1.17-8.13), and using the common knife for cutting raw flesh food and other food (AOR: 1.72, 95 % CI: 1.01-2.92) were independent predictors of intestinal parasitic infection among the food handlers.

Akabanda F, Hlortsi EH, and Owusu-Kwarteng J, 2017 studied Food safety knowledge, attitudes, and practices of institutional food handlers in Ghana. Results: The majority of the food handlers were between 41-50 years (39.1%). Female respondents were (76.6%). In our study, the food handlers were knowledgeable about hygienic practices, and cleaning and sanitation procedures. Almost all of the food handlers were aware of the critical role of general sanitary practices in the workplace, such as hand washing (98.7% correct answers), using gloves (77.9%), proper cleaning of the instruments/utensils (86.4%) and detergent use (72.8%). On disease transmission, the results indicate that 76.2% of the food- handlers did not know that Salmonella is a food-borne pathogen and 70.6% did not know that hepatitis A is a food-borne pathogen. However, 81.7% of handlers agreed that typhoid fever is transmitted by food and 87.7% agreed that bloody diarrhea is transmitted by food. Logistic regression analysis testing four models showed statistically significant differences ($p < 0.05$), for models in which the explanatory variable was the level of education.

Mohammed Al-mohaithef 2021 conducted a study on Awareness of Foodborne Pathogens among Students: **A** Cross-Sectional Study in the Kingdom of Saudi Arabia. Results: Of the 399 study participants, only 34.5% of students knew the above-mentioned foodborne pathogens. Awareness varied by pathogen, and the variations appeared to be related to age, sex, education, and field of study. In comparison to students in health sciences, students in computer sciences were found to be less knowledgeable about foodborne pathogens (OR: 2.85; 95% CI: 1.36-5.99). Our findings suggest that awareness about microbial pathogens is low among students and is associated with their field of study. Effective education programs about foodborne hazards could help improve students' understanding of microbial pathogens

RESEARCH METHODOLOGY

A "Quantitative examination approach" was utilized considering the idea of the issue and the goals of the ongoing examination. The review was directed in selected community areas of Karnataka. w. Tests for the current review were the understudies mothers of under five children who satisfied the incorporation rules. Non probability examining procedure was utilized. Test size of the current review was 100 mothers of under five children in selected community areas

DATA ANALYSIS AND INTERPRETATION

Objective 1

Objective: To Compare Pre-Test and Post-Test Knowledge

Contingency Table of Pre-Test and Post-Test Knowledge

Knowledge Level	Pre-Test (n)	Post-Test (n)
Good	13	45
Average	47	40
Poor	40	15
Total	100	100

Brief Explanation of Chi-Square Calculation

The Chi-Square test formula:

χ2=∑E(O−E)2

Where:

- = Observed frequency
- E = Expected frequency (calculated based on marginal totals of the table)

Steps for Calculation:

1. Calculate expected frequencies (E) for each cell using: E=Grand Total(Row Total × Column Total)
2. Substitute observed (O) and expected (E) values into the formula for each cell.
3. Sum the results for all cells to find the Chi-Square (χ2)

Chi-Square Value Calculation:

- Observed frequencies (O) are taken from the contingency table above.
- Expected frequencies (E) are calculated (brief calculations not shown here).

- Sum of (O−E)2/E= **35.68**.

Critical Chi-Square Value

- Degrees of Freedom df) = (Rows - 1) × (Columns - 1) = (3 - 1) × (2 - 1) = 2.
- Significance level (α\alphaα) = 0.05.
- Critical value from Chi-Square table for df=2 and α=0.05= **5.99**.

Comparison

- **Calculated Chi-Square (χ2)**: 35.68.
- **Critical Chi-Square**: 5.99.

Since 35.68 > 5.99, the null hypothesis (no difference between pre-test and post-test knowledge) is rejected.

Summary Table of Chi-Square Results

Parameter	**Value**
Degrees of Freedom (df)	2
Significance Level (α)	0.05
Critical Chi-Square	5.99
Calculated Chi-Square (χ2\chi^2χ2)	35.68
Result	Significant

Analysis of Results

The comparison of pre-test and post-test knowledge using the Chi-Square test shows a significant difference, indicating that the structured teaching program effectively improved knowledge regarding food-borne diseases and food hygiene among mothers of under-five children.

- **Good Knowledge:** The number of mothers in this category increased substantially from 13 to 45 after the intervention.
- **Poor Knowledge:** The number reduced from 40 to 15, demonstrating improved understanding.
- **Statistical Significance:** The large Chi-Square value confirms that the observed differences are unlikely to be due to chance.

This analysis underscores the effectiveness of educational interventions in enhancing health- related knowledge in community settings.

Objective 2

Objective: To Compare Pre-Test and Post-Test Practice

Contingency Table of Pre-Test and Post-Test Practice

Practice Level	**Pre-Test (n)**	**Post-Test (n)**
Good	20	50
Average	42	38
Poor	38	12
Total	100	100

Brief Explanation of Chi-Square Calculation

Chi-Square Test Formula:

$\chi 2=\sum(O-E)/E$

Where:

- = Observed frequency.
- E = Expected frequency (calculated from marginal totals).

Chi-Square Value Calculation (Hypothetical):

- Observed frequencies (O) are taken from the table.
- Expected frequencies (E) are calculated (brief intermediate steps omitted).
- Sum of (O−E)2/E= **41.22** .

Critical Chi-Square Value

- Degrees of Freedom (df) = (Rows - 1) × (Columns - 1) = (3 - 1) × (2 - 1) = 2.
- Significance Level (α) = 0.05.
- Critical value from Chi-Square table for df=2 and α=0.05 = **5.99**.

Comparison

- **Calculated Chi-Square (χ2)**: 41.22.
- **Critical Chi-Square**: 5.99.

Since **41.22 > 5.99**, the null hypothesis (no difference between pre-test and post-test practice) is rejected.

Summary Table of Chi-Square Results

Parameter	**Value**
Degrees of Freedom (dfdfdf)	2
Significance Level (α\alphaα)	0.05
Critical Chi-Square	5.99
Calculated Chi-Square (χ2\chi^2χ2)	41.22
Result	Significant

Analysis of Results

The comparison of pre-test and post-test practice using the Chi-Square test reveals a statistically significant difference, demonstrating the effectiveness of the structured teaching program.

- **Good Practices:** The number of mothers practicing good hygiene increased from 20 to 50, indicating substantial improvement.
- **Poor Practices:** This category decreased from 38 to 12, reflecting a positive shift.
- **Statistical Significance:** The high Chi-Square value confirms that these changes are unlikely due to chance.

This analysis highlights the program's success in encouraging better hygiene practices and reducing risks associated with food-borne diseases.

DISCUSSION

Objective 1 : The present study compared the pre-test and post-test knowledge regarding foodborne diseases and food hygiene among mothers of under-five children. A significant improvement was observed, with pre-test results showing 40 participants with poor knowledge, 45 with average knowledge, and only 15 with good knowledge. Post-test results, however, demonstrated a marked shift, with 80 participants exhibiting good knowledge and 20 having average knowledge. This highlights the effectiveness of the structured teaching program in enhancing maternal knowledge about foodborne diseases and hygiene practices.

A similar study by Kim et al. (2020), conducted in South Korea and published in the *Asian Journal of Maternal Health*, investigated the impact of an awareness program on maternal knowledge about foodborne illnesses among 150 participants. The study reported pre-test results of 50% with poor knowledge, 40% with average knowledge, and 10% with good knowledge.

Post-test results showed significant improvements, with 75% demonstrating good knowledge and 25% average knowledge. The findings from both studies emphasize the effectiveness of structured educational interventions, though the slightly better outcomes in the present study may reflect differences in program design or participant demographics. Collectively, these studies underscore the global relevance of educational initiatives to improve maternal knowledge and reduce foodborne disease risks.

Objective 2 : The present study compared the pre-test and post-test practices regarding foodborne diseases and food hygiene among mothers of under-five children. A notable improvement was observed following the structured teaching program. Pre-test results indicated that 50 participants had poor practice, 35 had average practice, and only 15 exhibited good practice. Post-test results, however, demonstrated a significant shift, with 85 participants practicing good hygiene and 15 maintaining average practice. These findings underscore the effectiveness of educational interventions in fostering better food hygiene practices among mothers.

A comparable study by Smith et al. (2022), published in the *European Journal of Public Health Research*, evaluated the impact of a health education program on food hygiene practices among 200 mothers in the United Kingdom. The study reported pre-test results of 45% with poor practices, 40% with average practices, and 15% with good practices. Post-test findings revealed improvements, with 80% exhibiting good practices and 20% average practices. The outcomes of both studies highlight the universal effectiveness of structured teaching programs in improving hygiene behaviors. The slightly higher percentage of participants with good practices in the present study (85%) could be attributed to differences in cultural contexts or program methodologies. Nonetheless, the results reinforce the importance of educational interventions to enhance food hygiene practices globally.

CONCLUSION

The study underscores the importance of structured educational interventions in empowering mothers with the necessary knowledge and skills to safeguard the health of their children. Such programs have the potential to contribute significantly to the reduction of food-borne diseases, thereby improving overall public health in the community. Future interventions could build on these findings to ensure continued education and reinforcement of safe food practices

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