ORIGINAL ARTICLE

Effect of health education intervention on personal hygiene Knowledge, attitudes, and practices among food handlers in a tertiary care hospital in New Delhi

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ABSTRACT

Introduction: Food is critical determinant of health, nutritional status and longevity of population. Personal hygiene forms an important domain of food safety to prevent food-borne illnesses. Health education intervention is one of the most effective tools to improve personal hygiene practices to ensure that food is suitable for customers with food safety requirements**. Material and methods:** This before and after interventional study was conducted among 111 food handlers in food establishments in tertiary care hospital in Delhi. Data collection was done using an interview schedule and observational checklist on personal hygiene based on WHO 5 keys and FSSAI guidelines. Health education intervention included health talks using flipchart, audio-visual aids and demonstration. Endline assessment was done 2 months after intervention**. Results:** Mean scores regarding personal hygiene knowledge before and after the intervention were 2.69 ± 0.90 and 9.64 ± 0.47 (p=0.046), attitudes before and after the intervention were 2.80 ± 1.15 and 5.77 ± 0.41 (p=0.049) and practices before and after the intervention were 3.23 ± 0.74 and 7.21 ± 0.75 (p= 0.007) respectively with statistically significant changes. **Conclusions:** Personal hygiene practices of food handlers showed remarkable improvement after health education intervention. Thus, education on food safety in medical institutions needs to be meticulously planned and held at periodic intervals to achieve the desired change.

KEYWORDS

Food Handlers; Personal Hygiene; Health Education; Intervention

INTRODUCTION

Food safety is an increasing public health issue and continues to be a burden in both developed and developing nations. Personal hygiene is an important domain of food safety to prevent food-borne illnesses for food service establishments, particularly in a tertiary care health setting. It is of vital importance that good standards of personal hygiene are maintained by food handlers in food service establishments (1). Food handlers serve a major role in food safety as they

directly handle packed or unpacked food, food equipment, utensils, or surfaces, and are therefore supposed to comply with food hygiene standards. Food handlers have poor personal hygiene and a lack of awareness to prevent foodborne diseases, working in food service establishments could be a potential source of infections of many helminthic, protozoal, and pathogenic organisms (1,2). Food contamination can occur at any point right from procurement of raw material to it being served to the consumers. Unsafe food handling has been implicated with 97% of all food-borne illnesses (3,4). Inadequate knowledge, Indifferent attitude, and incorrect practices towards personal hygiene by food handlers can hamper food safety and cause cross-contamination. Hence, food handlers can be a source of infection directly or by cross-contamination (5). Food handlers are often unaware of good practices, making them key targets for education. Effective health education can bridge knowledge gaps, improve attitudes, and encourage better practices ensuring safer food environments and promoting public well-being through better hygiene standards in food service establishments.

Furthermore, it is more critical when food handling is related to patient care, where we require healthy workers (6). WHO (World Health Organisation) and FSSAI (Food Safety and Standards Authority of India) have laid down norms and guidelines (1,7) regarding personal hygiene. It is also compulsory for all food handlers to undergo compulsory medical examination and training with the advent of the FSSA (Food Safety and Standards) Act, 2006 (8). Health education can accomplish great achievements if human behavior is taken into account and factors contributing to the desired behaviors. Therefore, the present study was aimed at: a) to determine the change in personal hygiene knowledge, attitude, and practices among study participants following the implementation of the health education interventional package.

Material & Methods

Study type and design: This was a before and after interventional study conducted in the year 2021-22 among all food establishments within the premises of a tertiary care hospital in Delhi.

Study population and sample size: All food handlers working in all food establishments were included. Food handlers of both genders worked at the food establishment of LHMC for at least 3 months. Sample size was computed by $N = \{Z (1-\alpha/2) + Z(1-\beta)\}2 *(SD)^2 / d^2$. After replacing the values, N = 75. Assuming an attrition rate of 20%, N= 90. However, the sample size came out to be 90, and all food handlers working in food service establishments were enrolled which were 111 in number due to ethical concerns.

Interview schedule and observation checklists: A Self-designed pretested interview schedule was used for assessing sociodemographic details, knowledge, attitude, and practices regarding personal hygiene [WHO and FSSAI food safety manual]. The interview schedule consisted of 3 sections: Section I: Sociodemographic details (age, sex, religion, education, native place, nature of job in establishment, etc.), Section II: General information regarding personal hygiene, and Section III: Knowledge, attitude and practices regarding personal [based on WHO and Food Safety and Standards Authority of India (FSSAI) food safety manual. Observational checklists were prepared based on standards and guidelines by WHO and FSSAI for assessing the practices among food handlers (5,7).

Health education intervention package: The food safety-based educational package included a combination of channels and strategies for effective modification of the behavioral components (knowledge, attitude, and practices). The content of the package included targeted messages based on their baseline knowledge attitude and practices (KAP) regarding personal hygiene in food handlers which included:

Health talk - An interactive health talk using a flipchart was given as a teaching aid based on WHO and FSSAI food safety manual in local language (Hindi) containing targeted messages

in local language based on the positive behavior of some food handlers and their common mistakes were delivered to enhance knowledge highlighting the importance of wearing aprons, trimming of nails, head cap, gloves, no ornaments or watches while working, wearing clean clothes, the importance of daily bathing and brushing teeth, use of separate footwear while entering the kitchen, keeping all cuts and wounds covered with waterproof bandages and wearing of safety shoes.

Audio-visual aids- A pre-recorded video was shown aimed at having more impact on the desire to use safe practices. A pre-recorded roleplay and a FSSAI video were shown in a narrative form to generate emotions and be cautious regarding the harmful effects of handling contaminated food without personal protective gear (head cap, gloves, clogs) which can pose a health hazard which further helped in shaping attitudes among participants regarding personal hygiene.

Demonstration of some key components of personal hygiene like handwashing steps and proper donning of personal protective gear (head cap, gloves, clogs) along with the practice of checking nails and keeping them clean and trimmed. They were also asked to demonstrate the key practices individually to inculcate hygienic practices among study participants.

Study procedure: The study was carried out in three (3) phases:

Phase I: A baseline assessment of KAP was done among the study participants and was collected using a self-designed, pre-tested interview schedule.

Phase II: Intervention phase by food safety based educational package. The package focused on the mistakes made by the study participants in baseline assessment and motivated them to change the adverse behavior and malpractices regarding food safety. The intervention was done in one food establishment at a time in small groups (10-12) using interactive health talk with the help of a flipchart, audio-visual aids in which a pre-recorded roleplay, and FSSAI video along with a demonstration on wearing the head cap, gloves, and clogs while working and handwashing practices. Reinforcement of the package was done by appreciating their positive practices and imparting key messages regarding personal hygiene at their workplace.

Phase III: End-line assessment was done two months after the intervention following the same order of delivering the intervention. The same interview schedule and observational checklist were used on the study participants to study the effect of the intervention on their KAP along with their analysis and interpretation.

Reinforcement of the package was done after 1 month using the same intervention package.

Data collection: Before the commencement of the study, the investigator underwent training regarding food safety from Food Safety and Standards Authority of India (FSSAI). Pilot testing of the interview schedule was done with food handlers and suitable modifications were made after pretesting it. Written informed consent from study participants was taken.

Baseline knowledge, attitudes, and practices of food handlers regarding personal hygiene based on WHO and FSSAI food safety manual (5,7). A scoring system was used for the participant's responses. The participants answering correctly were given one score and every wrong answer was a zero score. Then, the scores were converted into proportions by dividing the score for each study participant by the total obtainable score and multiplying the score by 100. The level of knowledge, attitude, and practices was then graded into poor (<50% of total score), fair (50% - <75% of total score), and good (≥ 75% of total score) scores. End-line assessment was done two months after the intervention following the same order of delivering the intervention.

Ethical consideration: The study is ethically cleared by the Institutional Ethics Committee (IEC) and is approved with CTRI no. CTRI/2021/09/036346.

Statistical Analysis: Data was appropriately coded and entry was updated in Statistical Package for Social Sciences (SPSS) version 16

for analysis. All quantitative observations were recorded in terms of mean scores and standard deviation, and qualitative data in proportions.

RESULTS

The mean age of study participants came out to be 38.64 ± 15.59. Table 1 describes the sociodemographic characteristics of participants where the majority (88.3%) were males and were performing jobs of multitasking nature. Majority of the participants (86.5%) did not attend any formal training regarding personal hygiene in the past year.

Table 1: Sociodemographic and work profile of study participants (N=111)

Characteristics	Total (N=111) [n (%)]
Age (in completed years):	
18-38	56 (50.4)
39-58	48 (43.3)
≥ 59	7 (6.3)
Gender:	
Male	98 (88.3)
Female	13 (11.7)
Religion:	
Hindu	109 (98.2)
Others	2 (1.8)
Marital status:	
Married	72 (64.9)
Unmarried	33 (29.7)
Widow	6 (5.4)
Nature of job:	
Multitasking	51 (45.9)
Cook	21 (18.9)
Helper	21 (18.9)
Server	18 (16.3)
Training regarding food safety received in the past one year:	
No	96 (86.5)
Yes	15 (13.5)

A paired t-test showed the change in mean scores of personal hygiene KAP based on the interview schedule and observational checklists by WHO and FSAAI before and after intervention (Table 2). The mean differences in Personal hygiene Knowledge, Attitude, and practices scores of food handlers were statistically significant ($p< 0.05$) after the intervention with maximum change seen in the mean score of knowledge (6.95 ± 0.93) and minimum change in the mean score of attitudes (2.97 ± 1.29) regarding personal hygiene among food handlers.

Table 2: Change in mean scores of personal hygiene knowledge, attitude and practices after the intervention among study participants (N=111)*:

Domain	Before intervention	After intervention	Difference#	df	P value
Personal hygiene knowledge	2.69 ± 0.90	9.64 ± 0.47	6.95 ± 0.93	110	0.046
Personal hygiene attitude	2.80 ± 1.15	5.77 ± 0.41	2.97 ± 1.29	110	0.049
Personal hygiene practices	3.23 ± 0.74	7.21 ± 0.75	3.98 ± 0.91	110	0.007

**Maximum obtainable scores of personal hygiene knowledge, attitude and practices were 10, 6 and 10 respectively. #Paired t test*

Table 3 shows the distribution of domains of practices regarding personal hygiene before and after intervention among study participants. Maximum change was seen in practices of keeping nails trimmed (11.7% to 94.6%) and use of head cover/cap (11.7% to 93.7%) while minimum change was seen in the use of safety shoes/clogs (6.3% to 9%).

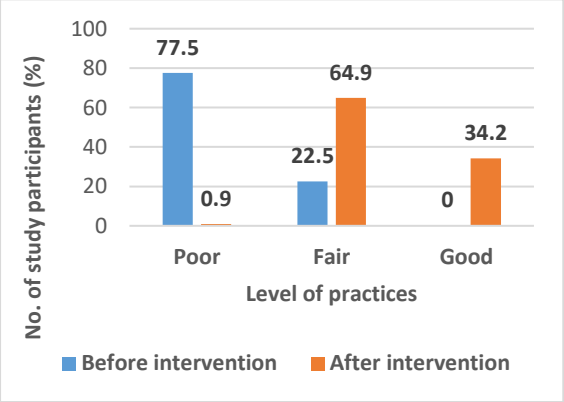
Table 3: Domains of practices regarding personal hygiene before and after intervention among study participants (N=111):**

S.no	Domain	Before intervention n (%)	After intervention n (%)
1	Dandruff/lice in hair	7 (6.3)	3 (2.7)*
2	Hair tucked inside the cap	13 (11.7)	104 (93.7)*
3	No earrings/ necklace/ chains	59 (53.2)	87 (78.4)*
4	No outer pockets	61 (55)	69 (62.2)
5	No Wearing of clean and neat clothes	50 (45)	83 (74.8)*
6	No Wrist watch/rings	26 (23.4)	85 (76.6)*
7	Covering of all wounds	22 (19.8)	78 (70.3)*
8	Nails trimmed/clean	13 (11.7)	105 (94.6)*
9	Torn clothes replaced or repaired	64 (57.7)	76 (68.5)*
10	Wearing of clogs or safety shoes	8 (6.3)	10 (9)

**p<0.05; **Multiple response table; #Mc Nemar test*

The level of knowledge, attitude, and practices was assessed and graded as good, fair, and poor based on obtained scores. Apart from knowledge and attitudes that translated significantly into good knowledge and attitudes after the intervention (99.1% and 96.4% respectively), practices related to personal hygiene also improved markedly after the intervention among study participants. The majority (77.5%) had poor personal hygiene practices before intervention while after the intervention only 0.9% had poor personal hygiene practices and an overwhelming majority (99.1%) could achieve fair and good personal hygiene practices. (Figure 1)

Figure 1: Distribution of personal hygiene practices scores before and after intervention (N=111)*:



**For Personal hygiene practices, Good score > 7, Fair score 5-7, Poor score < 5, and Total score: 10*

DISCUSSION

The current study evaluated the effect of a health education intervention on the behavioral components (knowledge, attitude, and practices) among food handlers in a tertiary care hospital in New Delhi. The mean age of participants was 38.64 ± 15.59 years. Favourable findings were reported in studies conducted by Wahdan et al (9) and Dudeja P et al (10) respectively. The majority of study participants were Hindus (98.2%). Prabhu PM et al (11) reported similar findings where Hindus were 92%. Around two-thirds (65%) of the participants were found to be married. The findings were in line reported by Aguomo et al (12) where 61.5% of participants were married. In the current study, nearly forty-six percent (45.9%) of the study participants were performing jobs of multitasking nature. This could be explained on the basis that the nature of the work of the employees is not fixed and could be changed as per requirements. The findings were found consistent in studies conducted by Wong SY et al (13) where a majority (47%) of workers working in public canteens were multitasking in nature and were responsible for cooking meals, checking raw materials, and maintaining the cleanliness of the kitchen and equipment making sure food is cooked throughout and hygienically served to consumers in food establishments.

The findings in the current study showed earlier are strikingly in contrast to findings in studies done by Nee SO et al (14) where cooks were in the majority rendering them the most important part of a food establishment. This could be attributed to the customer load and variety of menus and cuisines in the establishments.

The majority (86.5%) of the total study participants also did not receive any formal

education regarding food safety in the past year. The possible explanation for this could be due to a lack of awareness regarding the guidelines laid down by FSSAI regarding training and refresher sessions for food handlers regarding food safety. Similar findings were reported in studies carried out by Ababio PF et al (15) and Bhattacharya et al (16) where all of the study participants did not receive any training regarding food safety.

The personal hygiene knowledge scores of study participants improved significantly after the intervention. The findings were consistent with those done by Anila HL et al (17) and Rezae et al (18) having favourable personal hygiene knowledge scores and favourable food handling knowledge scores. The current study observed that none of the participants had a good score of knowledge before intervention, while after intervention almost all could achieve a good score. The findings were in line observed by Adesokan HK et al (19) where good knowledge scores increased by more than twofold after food safety training of the study participants. This proves that knowledge and spreading awareness regarding personal hygiene is a prerequisite for forming hygienic behaviors.

Positive attitudes towards personal hygiene were seen after the intervention and the majority of participants improved their attitudes after health education. Similar results were seen in studies done by Lee et al (20) and Marzban et al (21). However, these findings were in contrast with another pre and post-intervention study conducted by Has S et al (22) where attitudes showed no change after the intervention. The possible explanation for this difference could be due to variations in study settings, methodology, or different study populations to which the package was implemented. Thus, the current study emphasizes that appropriate attitudes towards personal hygiene are important to bring it into hygienic practices.

Practices scores towards personal hygiene among food handlers also showed a significant change after intervention which was consistent with findings of studies by Ghaffari et al (23), Zan et al (24) and Medeiros et al (25). In the present study, none of the participants had good personal hygiene practices before the intervention. This could be due to the lack of awareness about the importance of personal hygiene in cross-contamination through infected food. Good Personal hygiene scores improved by 34.2% while fair personal hygiene practices scores also improved by 64.9% among the study participants thereby showing a significant improvement in personal hygiene practices. The findings were consistent as reported by Ansari MA et al (26) where marked improvement in the personal hygienic status of food handlers as good hygienic status scores was found and gone up from 33.6% to 62.2% with maximum change seen in practices like keeping nails trimmed (11.7% to 94.6%) and use of head cover/cap (11.7% to 93.7%) while minimum change seen in the use of safety shoes/clogs (6.3% to 9%). The findings were also in agreement with the studies done by Malavi D et al (27) and Ababio PF et al (28). Hence, a good level of practice towards personal hygiene is essential for improving food hygiene and thereby reducing food-borne illnesses contributing to the health of food handlers and consumers.

CONCLUSION

The present study concludes and provides support for the hypothesis that a food safety-based educational package focussing on personal hygiene using a combination of strategies and channels that target the knowledge, and normative beliefs that form attitudes and perceived practices of food handlers results in an improvement in personal hygiene knowledge, attitudes and practices among food handlers. The study findings highlight the role of implementation of health education regarding personal hygiene among food handlers. The study also emphasizes the need to ensure the implementation of the existing guidelines and norms related to personal hygiene laid down by WHO and FSSAI for food establishments sternly in medical institutions. Thus, there is an immediate need to use focused food safety interventions with an emphasis on KAP regarding personal hygiene using a combination of channels and strategies to improve the hygiene status of

food establishments in educational institutions.

Recommendation

The present study concludes and provides support for the hypothesis that a food safety-based educational package focussing on personal hygiene using a combination of strategies and channels that target the knowledge, and normative beliefs that form attitudes and perceived practices of food handlers results in an improvement in personal hygiene knowledge, attitudes and practices among food handlers. The study findings highlight the role of implementation of health education regarding personal hygiene among food handlers emphasizing the need to ensure the implementation of the existing guidelines and norms related to personal hygiene laid down by WHO and FSSAI for food establishments sternly in medical institutions. Thus, there is an immediate need to use focused food safety interventions with an emphasis on KAP regarding personal hygiene using a combination of channels and strategies to improve the hygiene status of food establishments in educational institutions.

Limitation of the Study

The limitations of the study design include lack of temporality in pre post study designs and lack of enabling environment that could not be ensured due to administrative limitations such as lack of continuous supply of logistics (gloves, cap, soap, apron etc) and lack of adequate infrastructure in the various food establishments.

Relevance of the Study

It is crucial to understand the role of health education interventions in food hygiene and bridge gaps between knowledge and practices among stakeholders. The findings suggest that the use of a combination of channels and strategies used targeting all the domains of learning can improve hygiene practices among food handlers reducing the incidence of food borne illnesses.

Authors Contribution

All authors have contributed equally.

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Conflict of Interest:

There are no conflicts of interest

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Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

References

1. World Health Organization. Five Keys to Safer Food Manual Safer Food Manual. Int J Environ Res Public Health.2009;6:2833–42.
2. Food and Agricultural Organization (FAO). Food handlers (Manual and Instructor). 2017. Available from: https://www.fao.org/3/i5896e/i5896e.pdf (Last accessed on 10/10/2024).
3. Sharma VK, Savalia CV, Darekar SD. Management of food borne illness. Vet World.2008;1(2):55–8.
4. National Centre for Disease Control (NCDC). CD Alert Food Borne Diseases and Food Safety in India.2017. Available from: https://ncdc.gov.in/WriteReadData/ link images/CD Alert4053017156.pdf (Last accessed on 10/10/2024).
5. World Health Organization.WHO_EHE_FOS_88.7.pdf. Health Education in Food Safety. 1988. Available from: https://apps.who.int/iris/bitstream /handle/10665/ 61692 /WHO_EHE_FOS_88.7. (Last accessed on 10/10/2024).
6. African WHO, Regions SA. WHO's first ever global estimates of foodborne diseases find children under 5 account for almost one third of deaths. Saudi Med J. 2016;37(1):108–9.
7. Food Safety and Standards Authority of India. The Pink Book - Safe and Nutritious Food at Home.2017. Available from: https://foodsmart.fssai.gov.in/PinkBook.pdf (Last accessed on 10/10/2024).
8. Food Safety and Standards Authority of India (FSSAI). Food safety and standards act 2006.Available from: https://fssai.gov.in/cms/food-safety-and-standards-act-2006.php. (Last accessed on 10/10/2024).
9. Wahdan IH, Gad ZM, Habib IM, Elshabasy OA. Effect of an Educational Program on Food Safety Practices in Food Preparation and Handling Procedures in Governmental Hospitals of an Egyptian Governorate. Journal of High Institute of Public Health.2019;49(2):90-6.

10. Dudeja P, Singh A, Sahni N, Kaur S, Goel S. Effectiveness of an intervention package on knowledge, attitude, and practices of food handlers in a tertiary care hospital of north India: A before and after comparison study. Med J Armed Forces India. 2017;73(1):49– 53.
11. Prabhu PM, Shah SA. Study of Food Handlers in Public Food Establishments in Maharashtra, India. International Journal of Science and Research (IJSR).2014;3(7):1485-9.
12. Agomuo IL, Akimboye DO. Effect of Educational Intervention on Knowledge Attitude and Practice of Food Handlers on Food Handling in Selected Local Government Areas in Abia State Nigeria. Journal of Functional Education.2021;2(3):41-61.
13. Wong SY, Mahyudin NA, Ann Ho J, Abidin UF. Evaluation of Self-Efficacy-Based Intervention: Improving School Food Handlers' Selected Food Safety Behaviour. Food Protection Trends.2022;42(1):8–21.
14. Nee SO, Sani NA. Assessment of Knowledge, Attitudes and Practices (KAP) Among Food Handlers at Residential Colleges and Canteen Regarding Food Safety. Sains Malaysiana J.2011;40(4):403-10.
15. Ababio P.F, Taylora KDA, Swainsona M, Daramolaa BA. Effect of Good Hygiene Practices Intervention on Food Safety in Senior Secondary Schools in Ghana.Food control J.2016;60 :18-24.
16. Bhattacharya S, Talati S, Gupta AK, Malhotra S, Singh A. Implementing a skill development program among food handlers in tertiary care hospital to improve their personal hygiene: A pilot study. J Educ Health Promot.2019;8:1-8.
17. Anila H.L, Kumari B.P. Impact of an intervention programme on food safety among women food business operators. Food Sci. Res. J.2015;6(2):341-6.
18. Rezaee H, Servat FL, Marzban H, Marzban A & Shirdeli M. The impact of education on knowledge, attitude and practice about Food Poisoning in students of Shahid Sadoughi University of Medical Sciences, Yazd. Iran. Toloo-e-behdasht.2018;17(3): 39-51.
19. Adesokan HK, Akinseye VO, Adesokan GA. Food safety training is associated with improved knowledge and behaviours among foodservice establishments workers. Int J Food Sci.2015;2015:1-8.
20. Lee H, Abdul Halim H, Thong K, Chai L. Assessment of food safety knowledge, attitude, self-reported practices, and microbiological hand hygiene of food handlers. International Journal of Environmental Research and Public Health.2017;14(1):55-60.
21. Marzban A, Rahmanian V, Shirdeli M, Jafari F, Barzegaran M. The Effect of Education on Knowledge, Attitude, and Practice of the Catering Staffs about Food Hygiene and Safety in Yazd City. Journal of Nutrition and Food Security.2020;5(3):266-73.
22. Has SMC, Jaafar SN, Chilek ZT. An assessment on pre-and post-food hygiene training on food safety's Kap level among food handlers in Kuala Terengganu and Kuala Nerus. Malays. Appl. Biol J.2018;47(4):61-9.
23. Ghaffari M, Mehrabi Y, Rakhshanderou S, Safari-Moradabadi A, Jafarian SZ. Effectiveness of a health intervention based on WHO food safety manual in Iran. BMC Public Health. 2020;20(1):1-9.
24. Zan H, Lambea M, McDowell J & Scharff RL. An Economic Evaluation of Food Safety Education Interventions: Estimates and Critical Data Gaps. Journal of Food Protection.2017;80(8):1355-63.
25. Medeiros LC, Hillers VN, Kendall PA, Mason A. Food safety education: What should we be teaching to consumers? Journal Nutr Education. 2001;33(2):108-13.
26. Ansari MA, Khan Z. An Evaluation of Health Education Intervention on Hygienic Status of Food Handlers in Aligarh - A Three Year Experience. J Community Med Health Educ.2012;2:142.
27. Malavi DN, Abong GO, Muzhingi G. Effect of food safety training onbehavior change of food handlers: A case of orange-fleshed sweet potato purée processing in Kenya. Food Control J.2021; 119(3):1-20.
28. Ababio P.F, Taylora KDA, Swainsona M, Daramolaa BA. Effect of Good Hygiene Practices Intervention on Food Safety in Senior Secondary Schools in Ghana. Food control J.2016;60 :18-24.

