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Food and kitchen hygiene practices and foodborne disease prevention

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Abstract
Foodborne diseases remain a significant public health challenge globally, particularly in low- and middle-income countries where inadequate food and kitchen hygiene practices persist. This systematic review examines existing literature on food and kitchen hygiene practices and their role in preventing foodborne diseases. The review synthesizes evidence on major types of food contaminants, including biological, chemical, and physical hazards, and highlights core principles of food safety essential for reducing contamination risks. Emphasis is placed on personal hygiene and its impact on food safety, alongside broader health and hygiene practices adopted by food handlers in domestic and food service settings. The review further explores kitchen hygiene practices, effective food storage techniques, and the application of the First In, First Out (FIFO) method as critical strategies for maintaining food quality and safety. Key stages of food preparation and cooking are examined to demonstrate how proper temperature control and handling practices contribute to pathogen reduction. In addition, the study reviews relevant food safety regulations and standards that guide hygiene practices and ensure compliance within food systems. Common challenges associated with food and kitchen hygiene are identified, and practical approaches for addressing these problems are discussed. The review underscores the importance of integrated food and kitchen hygiene practices in preventing foodborne illnesses and promoting public health. The findings highlight the need for continuous education, strict adherence to safety standards, and strengthened regulatory enforcement to reduce the burden of foodborne diseases.

1. Introduction

Food and kitchen hygiene is an essential aspect of the overall health of a population, as it comprises the number of practices and measures aimed at the safety and quality of food in its preparation and consumption. Food hygiene is the science and guidelines involved in food preparation, handling, and storage in order to prevent food-borne diseases and contamination. Chakma et al (2026) defined food hygiene as ensuring that all food chain activities are clean, including farms, storage, and transportation, to the final consumer, thus ensuring food is free of harmful microorganisms, chemicals, and physical contaminants. Kitchen hygiene on the other hand focuses on the maintenance of cleanliness and sanitation in the kitchen setting, as well as the hygienic cleaning of surfaces, utensils and equipment to prevent cross-contamination (Ongkasuwan et al, 2022). The intersection of the two areas aims at developing a safe food environment, thus protecting consumer health and food quality.

The significance of cuisine and kitchen cleanliness is undeniable. Lack of hygiene standards may trigger food-borne illnesses, which is a significant health issue globally. Cholera, typhoid, and gastroenteritis are some of the common foodborne illnesses in Nigeria, and inadequate food handling and substandard kitchen environments often act as major causes (Afifi et al, 2023). Food hygiene is essential in preventing the spread of pathogens like Salmonella, Escherichia coli and Listeria that may trigger serious health consequences, including hospitalization and death (Mantovam et al, 2025).

Kitchen hygiene is also imperative since it directly affects food safety. It has been shown that a hygienic kitchen environment reduces the chances of contamination and limits the growth of harmful microorganisms (Kashyap et al, 2026). Regular handwashing and conforming sanitation of food

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preparation tools, surfaces and storage areas reduce cross-contamination risks and maintain a hygienic food preparation area (Chauhan et al, 2026). Moreover, maintenance of high personal hygiene by food handlers, such as effective hand washing and wearing of protective attires, can be critical in minimising the risk of foodborne infections.

This research paper attempts to compile all the available literature on food and kitchen hygiene to provide an in-depth insight into these critical areas. The main goals are threefold: first, to describe and elaborate on the terms of food and kitchen hygiene, highlighting their breadth and applicability; second, to analyze the importance of the practices, underline the issues of food and kitchen hygiene, and structure its case; and third, to ensure the comprehensive coverage of modern practices, problems, and innovations in the sphere of food and kitchen hygiene.

A deep knowledge of the principles of food hygiene is a prerequisite to maintaining food safety and preventing any contamination. Food contamination refers to the inclusion of harmful substances or microorganisms in food that can pose a risk to the health of consumers. Awuchi (2023) indicate that contamination may occur at various food production phases, including initial handling and preparation, as well as storage and distribution. The contaminants can enter via improper handling of food, poor sanitation, and cross-contamination of raw and cooked food. Determining the sources and routes of contamination is thus important in the adoption of hygiene practices.

2. Method

The study utilized a systematic review research design to integrate available scholarly data on food and kitchen hygiene practices and their influence on preventing foodborne diseases. To achieve rigor, consistency, and reproducibility of the literature identification, selection and analysis used in the study, the review was conducted in a systematic and transparent approach.

The related literature has been accessed in the existing electronic databases, such as PubMed, Google Scholar, Scopus, Web of Science, and African Journals Online. These databases have been selected as they offer comprehensive coverage of international and topical studies in the area of public health, and especially the relevance to food safety practices in low- and middle-income environments. Key terms to food hygiene, kitchen hygiene, food handling practices, kitchen sanitation, foodborne diseases, food contamination and food safety were used in a systematic search. The search was narrowed using the operators of Boolean, and the search was limited to articles published in English to ensure uniformity in interpretation.

Peer reviewed journal articles and official review papers that investigated food and kitchen hygiene practices relative to foodborne disease prevention and food safety outcomes were included in the review. Only the studies published in the period between 2020 and 2026 were included to draw the recent evidence and current public health practices. The studies, which did not discuss food or kitchen hygiene directly, those, which only discussed industrial food processing without any reference to household or food service environments were eliminated. Non-scholarly articles like editorials and opinion pieces were eliminated too.

The process of article selection was carried out in two stages: title and abstract screening to assess relevance and full-text screening of potentially viable studies. Duplicated records were eliminated and the articles were examined to match the review objectives. The data extraction process was focused on the main features of the study, such as authorship, publication date, study setting, research methodology, hygiene practices measured, and the results of the research concerning foodborne disease prevention. Included studies were synthesised through a narrative approach, which allowed evidence integration (thematic) across different study designs. This model helped reveal food and kitchen hygiene practices recurrence patterns, gaps, and interrelations in preventing foodborne illnesses. Since the review was only based on secondary sources that were all published materials, no ethical approval was necessary; however, proper reference was accorded to all sources to preserve academic integrity.

3. Results and Discussion

3.1. Types of Food Contaminants

The common classifications of food contaminants are biological, chemical, and physical. The risks that each type presents and the control measures required are different.

Biological Contaminants: Biological contaminants include microorganisms like bacteria, viruses, fungi, and parasites. Most foodborne illnesses are caused by these pathogens. Mantovam et al, (2025) underline that the major culprits of foodborne outbreaks are bacteria, such as Salmonella, Escherichia coli, and Listeria monocytogenes. Food can also be contaminated by viruses, including norovirus and hepatitis A, as well as parasites, including Toxoplasma and Giardia. To manage biological contaminants effectively, it is important to observe good hygiene such as thorough cooking, good food handling, or cleaning food preparation space regularly (Tuglo et al, 2021).

Chemical Contaminants: Chemical pollutants can be of different origins such as agricultural chemicals, food additives and industrial pollutants. Fruits and vegetables contain pesticide residues, heavy metals like lead and mercury, and chemicals used in food processing, which are a serious health risk (Scutaraşu & Trincă, 2023). Chemical contaminant management includes the use of food grade-approved chemicals, observance of regulatory limits and adoption of proper food handling and storage procedures to reduce chemical exposure.

Physical Contaminants: Physical contaminants refer to foreign substances that accidently find their way into food products. These could be pieces of glass, metal, plastic or wood. As remarked by Vincent-orugbo and Bemgba (2025), physical contamination may result in injuries and food quality losses. Prevention involves ensuring that the food processing equipment is frequently checked, that they use proper storage methods, and that they educate the staff to identify and deal with the physical sources of the contaminant.

3.2. Principles of Food Safety

A number of principles form the basis of effective food hygiene practices that are designed to avoid contamination and maintain the safety of food.

Cleanliness: It is basic to food safety to maintain cleanliness. As noted by Odjegba et al, (2024), cleanliness includes frequent washing and disinfection of hands, utensils, surfaces, and equipment. Hygienic methods of handwashing with soap and water should also be applied to remove harmful microorganisms and eliminate their transmission to food. Clean surroundings decrease the possibility of contamination and help in the general safety of foods.

Raw and Cooked Foods Separation: It is very important to avoid cross-contamination of foods by keeping the raw foods apart and the cooked foods apart. According to Hamaideh et al, (2024), raw foods, especially meats, should be stored and prepared differently than cooked foods to prevent the passage of pathogens. This principle is also applicable in the use of distinct cutting boards, utensils and storage containers between raw and cooked food products. These practices will help reduce the risk of cross-contamination and make the final product of food safe.

Food Temperatures: Temperatures used in cooking are very crucial in the process of killing of dangerous microorganisms. As emphasized by Jadhav and Choudhary (2024), various foods need certain temperatures of cooking in order to be safe. To illustrate, internal poultry temperature must reach 75 0C (165 0F) to ensure that the pathogens are destroyed. Food thermometer will assist in ensuring that foods are cooked to proper temperatures to minimize the chances of foodborne diseases.

Safe Food storage: Food storage is necessary to ensure food safety and prevent food contamination. Somaly et al, (2026) lists the following guidelines of food storage: storage at the appropriate temperatures to prevent the development of microorganisms. Refrigeration inhibits the growth of bacteria, whereas freezing preserves food over a long duration. Also, food must be kept in airtight containers to avoid contamination and spoilage. Food storage guidelines assist in preserving food quality and safety.

3.3. Personal Hygiene and its influence on food safety

Personal hygiene is a critical factor in food safety and foodborne illnesses. Proper hand washing techniques, appropriate dressing and personal cleanliness and overall health and hygiene practices are all important ingredients of high food safety standards.

Hand Washing Techniques: Hand washing is one of the essential measures in the prevention of contamination spread and food safety. Bungawati (2024) emphasize that proper hand washing includes several important steps, namely, the use of clean, running water, soap, rubbing every section of the hands at least 20 seconds, and thorough rinsing. Alcohol-based hand sanitizers are also suggested in the absence of soap and water, but they are less efficient in the removal of some pathogens. Washing hands prior to and post contact with food, particularly with raw material foods like meat and vegetables, is paramount in avoiding cross-contamination and food safety.

Good Dressing and Hygiene: Dressing and hygiene matter a lot in ensuring that the contaminants are not transferred onto food. Kassaw et al, (2025) state that food handlers are to wear clean and appropriate clothing like aprons, hairnets, and gloves to avoid direct contact between their bodies and the food. Personal debris and hair can be kept away of food with aprons and hairnets, and gloves need to be changed frequently and worn in addition to hand washing (S-Chiang et al, (2025). By keeping personal attire in good cleanliness, and by keeping food handlers in good personal hygiene, including regular bathing and grooming, we also decrease the risk of food contamination through pathogens or foreign body.

3.4. Health and Hygiene Practices

Illness and Food Safety: Health and hygiene practices play a key role in ensuring food safety especially when food handlers are sick. As Chen et al, (2024) emphasize, sick food handlers, particularly those with gastrointestinal diseases, are a major threat to food safety. It is transmitted by vomiting, diarrhea, and fever, which cause foodborne disease outbreaks. Consequently, the food handlers must report illness to their supervisors and avoid working when they are sick. There must be proper protocols regarding this, where food handlers have fallen ill; they should be excluded temporarily until they recover before being allowed to handle food.

Training and Education of Food Handlers: Education and training are important elements in the process of ensuring that food handlers know and implement the appropriate hygienic practices. Hand washing methods, personal hygiene, management of illnesses, and general food safety need to be addressed during regular trainings. Good training would make food handlers understand the significance of personal hygiene and they would have the knowledge to apply best practices at all times (Zhao et al, 2024).

3.5. Kitchen Hygiene Practices

The maintenance of food safety and contamination prevention of food are inseparable with the maintenance of effective kitchen hygiene. In kitchen hygiene, important ingredients would include the cleaning and sanitizing of surfaces, the prudent utilization and maintenance of kitchen equipment, the systematic handling of kitchen waste, and the strict control of pests.

Cleaning and Sanitizing Surfaces: Cleaning and sanitizing are some of the crucial practices in maintaining a hygienic kitchen environment. Cleaning is the physical process of removing the visible dirt and food residues by applying detergent and water, whereas sanitizing is a process of reducing the number of microbes to the acceptable safety levels using chemicals. Strong cleaning and sanitizing standards are the most important ones in preventing cross-contamination and ensuring food safety (Sharif et al, 2024). The routine decontamination of high-touch surfaces is necessary before and after food preparation, especially during the transition of raw to cooked foods: this is on benchtops, cutting boards, and kitchen utensils. Almeida et al, 2022) emphasizes the need to use separate cloths or sponges to perform different tasks and change them often to reduce the risks of contamination further. Use of food safe sanitizers, combined with following the correct cleaning schedules, is the key to a clean and safe kitchen environment.

Kitchen Equipment Use and Maintenance: The proper operation and routine maintenance of kitchen equipments are key in avoiding contamination and food safety. Kitchenware like knives,

cutting boards, and cooking devices require continuous checking and cleaning to avoid the growth of dangerous microorganisms. As an example, cutting boards ought to be discarded when they are worn or cracked because these factors may support bacteria. Fridges and ovens should be kept according to the instructions provided by the company to be used effectively. Refrigerators must not exceed 40 o C (40 o F) to discourage bacterial growth, whereas cooking materials must reach the necessary temperatures to cook food safely (Cui et al, 2024). It is essential to provide routine maintenance and calibration to guarantee the correct work of the equipment and to reduce the threat of foodborne diseases.

Kitchen Waste management: Kitchen waste management is a central aspect of hygiene control. Food waste must be disposed of properly to avoid contamination and minimize chances of attracting pests. Nasution et al, (2025) advise that organic and non-organic waste must not be mixed in one bin, and should be emptied and washed regularly. Organic waste (like food scraps) must be closed in containers to reduce odours and discourage pest invasion. Moreover, the adoption of waste-cutting measures, such as portioning and effective stock control, can significantly help to reduce the garbage production. Waste-management practices must be checked and maintained through regular inspection and maintenance of waste disposal systems to ensure their effectiveness (Alnanih et al, 2025).

Pest Control in the Kitchen: Pest control is another important aspect of kitchen hygiene since rodents and insects may contaminate food and carry diseases. An efficient pest-controlling plan is one that includes ensuring the kitchen is kept clean, closing off openings, and using suitable control mechanisms (Lai et al, 2023; Orajekwe, 2025). Periodic checks of the indicators of pest activity, i.e. droppings or nesting, will help to detect the infestation at an early stage and eliminate it. Sarker et al, (2025) recommends pest-control measures as part of standard cleaning routine, such as timely cleaning of food spills and crumbs and keeping storage spaces orderly and free of clutter. The utilization of pest-management professionals to carry out regular inspections and the sensible use of approved pesticides can also improve the management of the pest-population.

3.6. Food Storage Techniques

Proper storage of food is needed to maintain food quality and safety, hence avoiding spoilage and contamination. The main methods include refrigeration and freezing, proper use of food containers, the principle of the FIFO (First In, First Out), and knowledge of best-before and expiry dates.

Refrigeration and Freezing: The two most important ways of food preservation and extending shelf-life are refrigeration and freezing. Refrigeration is the inhibition of the growth of bacteria and other pathogens at temperatures between 0oC and 4oC (32 oF and 40oF), making it applicable in short-term storage of perishable products like dairy products, meat, and vegetables. Good refrigeration involves avoiding overcrowding in order to maintain proper air circulation and continuously monitoring temperatures with a thermometer to check that they are within safe limits (Duarte et al, 2022). On the contrary, freezing conserves foods by lowering the temperatures to below -18 oC (0oF) or even lower, thus halting the growth of microbes and preventing spoilage (Karanth et al, 2023). Freezing is the best when foods have to be stored over time; different foodstuffs such as meats, fruits, and cooked foods are preserved. Foods must be airtightly packaged to avoid freezer burn and contamination, and labeled with dates to ensure foods have a proper time of storage.

Proper Food Containers: The use of an appropriate food container is essential in the maintenance of food quality and the avoidance of contamination. Food containers are supposed to be clean, durable, and food-safe, and be made of substances that do not release harmful chemicals into food. Food storage should use glass, food grade plastic, and stainless steel. The containers should be air tight to prevent exposure to air that is likely to cause spoilage and dehydration (Alnanih et al, 2025). Moreover, containers must be sizable enough to hold the amount of food they hold to ensure minimal air exposure and possible contamination. Labeling containers properly with the contents and storage dates helps in monitoring the freshness of the goods and proper use of the stored food. Food safety requires regular cleaning and sanitization of containers to prevent any microbial growth.

3.7. FIFO Method (First In, First Out)

The FIFO method is a critical practice towards managing food inventory effectively and reducing waste. FIFO is the use of older stock before newer stock and in the process, the food products are used in the order they were received. This reduces the risk when consumed items go out of date or are spoilt and also increases the inventory turnover. When it comes to practical situations, the use of FIFO demands careful arrangement of food storage areas with older food at the front and newer food towards the back. This arrangement will encourage the utilization of senescent products and avoid the storage of food that is out of date. The effectiveness of the FIFO system and the need to ensure that the food is consumed within its safe consumption time necessitates routine checks and regular rotation of the stock (Wani et al, 2024).

Knowledge of Expiry Dates and Best Before Dates: The understanding of expiry dates and best-before dates cannot be neglected in considering food safety and preserving the quality of the products. Expiry dates refer to the last day that a food product can be considered safe to eat, whereas the best-before dates demonstrate the period within which the food is expected to be of the highest quality. Eating expired food is a serious health hazard, and the safe nature of the product cannot be guaranteed anymore. Best-before dates on the other hand are related to quality and not to safety; food can still be safe to eat after the best-before date but the food may be missing flavor, texture or nutritional value (Sielicka-Różyńska & Samotyja, 2023; Nwankwo, 2025). Understanding the differences between such time indicators can help make informed decisions on food consumption and waste management.

3.8. Food Preparation and Cooking

Preparation and cooking of food are crucial elements in maintenance of food safety and prevention of food-borne diseases.

Safe Food Preparation Techniques: Effective methods of food preparation are basic to avoid food-borne diseases and to guarantee food safety. Hand hygiene is extremely important; it is recommended to wash hands with soap and water at least 20 seconds before touching food. Also, raw and cooked food must be handled using separate cutting boards and utensils to prevent cross-contamination (Wani et al, 2024). Moreover, fruits and vegetables ought to be carefully washed with running water and removed of dirt, pesticides, and possible pathogens (WHO, 2022). Safe defrosting is another important part of the practice; foods are supposed to be thawed in the refrigerator or in cold water with a regular change of water or by using a microwave, but they must not be kept at room temperature because this may promote the growth of bacteria (FDA, 2022). Compliance with these practices significantly minimizes the chances of contamination and food borne disease.

Cooking Techniques and Safety Consequences: The choice of cooking techniques has a significant impact on food safety. Boiling, baking, and frying methods are also effective at destroying harmful microorganisms at the right temperature. As an example, boiled water is hot enough at 100 °C (212 °F), which is lethal to the vast majority of pathogens, and baking and frying even higher temperatures, which is effective against bacteria and viruses (Almeida et al, 2022).

On the other hand, approaches that are incapable of achieving sufficient temperatures or those that require long periods of low temperatures of cooking might not sufficiently eliminate pathogens. E.g., slow cooking at temperatures lower than 600C (140 0F) can insufficiently inactivate the pathogenic microorganisms, thus becoming a source of foodborne disease (Sultana et al, 2024). The choice of appropriate cooking techniques and the achievement of the required temperatures in food are essential to maintaining food safety.

Preventing Cross-Contamination: Prevention of cross-contamination is paramount to prevent infection of pathogens and support food safety. According to Centers for Disease Control and Prevention (CDC, 2021), cross-contamination refers to the process of transmitting pathogens between raw and ready-to-eat foods, usually through tools and cutting boards or surfaces. To mitigate this risk, one needs to work with different utensils and cutting boards when dealing with raw meats and vegetables, and wash and sanitize their surfaces and utensils between uses (Zhao et al, 2024). Moreover, food handlers are not supposed to touch their face or hair during food preparation, and they are expected to cover raw foods to avoid contamination (FDA, 2022). The

practices reduce the risk of cross-contamination and guarantee that food is kept safe during preparation and cooking.

Measuring Cooking Temperatures: Tracking cooking temperatures is an important aspect of food safety because it ensures that food is cooked to a certain temperature that can kill the fatally harmful microorganisms. According to the United States Department of Agriculture (USDA, 2021), different foods have certain internal temperatures that they consider to be safe. To illustrate, the internal temperature of poultry must reach 75 0C (165 0F), and the internal temperature of ground meat must reach 71 0C (160 0F). Accurate measurement of these temperatures and confirmation of thorough cooking is only possible through the use of a food thermometer.

It is also essential to avoid storing food under the so-called danger zone, which is the temperature between 5 C and 60C (41 F and 140F), as this range of temperatures encourages the speed of bacterial growth (CDC, 2021). The risk of foodborne illness can be significantly reduced by closely observing cooking temperatures and making sure that the food attains the right internal temperatures.

3.9. Regulations and Standards

Food safety standards and regulations are a vital infrastructural component of food safety and quality assurance and of food safeguarding human health. These regulatory frameworks are implemented through a web of agencies and organizations which act not only at the local level but also internationally.

Food Safety Regulations: The food safety regulations are established to safeguard consumers against food borne diseases and to make sure that foodstuffs are safe, hygienic and of good quality. These regulations cover a wide range of activities, such as food production, processing, packaging, and distribution. Generally, these policies require a high standard of compliance with hygienic standards, proper labeling and handling processes (Chen et al, 2024).

Governmental bodies issue food safety regulations in many countries and they are implemented using a mix of legislation, standards and inspection programmes. As an illustration, food safety standards are implemented in the United States by the Food and Drug Administration (FDA) and the United States Department of Agriculture (USDA) (FDA, 2022). Likewise, in the European Union, the European Food Safety Authority (EFSA) becomes a key force in setting standards and carrying out risk analysis in food safety (EFSA, 2021).

Role of Food Safety Agencies: Food safety agencies cannot be eliminated to guarantee food safety regulations and standards. To avoid foodborne diseases and contamination, these agencies oversee food production, make inspections, and impose regulations (Kassaw et al, 2025). They also give advice and assistance to food businesses to enable them to know and comply with food safety requirements.

As one example, the safety of most food products in the United States, including labeling, manufacturing practices, and imports, is regulated by the FDA (FDA, 2022). Instead, the USDA regulates meat, poultry, and egg products, so that these products must comply with safety standards before being sent to consumers (USDA, 2021). Within the EU, EFSA provides scientific advice and shares risks associated with food safety, thus helping to develop policies and regulations (EFSA, 2021). Food safety agencies are also important in the response to foodborne outbreaks and emergencies. They are engaged in determining the contamination source, recall, and communication with the community to safeguard health (Somaly et al, 2026). Their work is critical to upholding consumer confidence in the food supply chain and consumer protection.

Adherence to Local and International Standards: Adherence to local and international food safety standards plays a crucial role in ensuring that food products are safe, and they meet their quality expectations. Local standards are often defined by national or regional authorities and are specific to local needs and conditions of the local food system. As an example, the Food Safety and Standards Authority of India (FSSAI) provides food safety regulations and standards in India (FSSAI, 2022). Global bodies, including the Codex Alimentarius Commission, which offers international food

standards, guidelines, and codes of practice, promulgate international standards (Odjegba et al, 2024). By complying with Codex standards, food safety practices become easier to harmonise internationally, thus allowing international trade and ensuring that food products meet the global safety standards (World Health Organization, 2021).

Both local and international requirements place food enterprises under the obligation to establish proper food safety management systems and be subject to periodic audits and inspections. This involves proper record keeping, routine staff training, and the adoption of the hazard analysis and critical control points (HACCP) systems to detect and manage possible food safety risks. In addition, companies should be aware of the new food safety regulations and standards. Ongoing education is inseparable to ensure compliance and prevent possible penalties or legal issues (Tuglo et al, 2021). Education and professional development are also important elements of food safety management and compliance.

3.10. Recognizing and Managing Routine Iss

Foodborne Illnesses: Foodborne diseases are a major global health problem. Chauhan et al, (2026) explains that such diseases occur following the ingestion of contaminated food or drinks and can be caused by various types of pathogens, such as bacteria, viruses, and parasites. African Salmonella, Escherichia coli, Listeria are among commonly found foodborne pathogens in Nigeria, which can be often linked to insufficient food handling, insufficient cooking, and insufficient hygiene practices. The prevention of foodborne illnesses is through the practices of good food safety all along the food supply chain. Afifi et al, (2023) underline the necessity of proper cooking temperatures in order to inactivate the dangerous pathogens. To give an example, poultry is to be cooked up to at least 75 0C (165 0F), whereas ground meat is to be cooked up to at least 70 0C (160 0F). Also, it is important to prevent cross-contamination by using different cutting boards and utensils when working with raw and cooked foods.

Another mandatory activity in preventing foodborne diseases is regular handwashing. Before and after contact with food, particularly raw meats, hands are to be washed with soap and water at least 20 seconds (Didier et al, 2021). Moreover, food handlers are to be educated about the methods of proper food handling and the significance of personal hygiene to reduce the danger of contamination.

Allergens: Allergens in food are proteins in some foods that can cause the allergic reaction to an individual who is prone to allergens. Peanuts, tree nuts, dairy, and seafood are common allergens in Nigeria (Oladayo et al, 2022). Symptoms of allergic reactions may vary in severity, including mild (including hives or itch) and severe anaphylactic reactions, which require immediate medical attention. The management of food allergens requires labeling and communication to make consumers cognizant of food products allergens. Ongkasuwan et al, (2022) state that food labels ought to explicitly indicate any common allergens and give information on whether they might be subjected to cross-contact during processing. This is especially so with packaged foods and foods served in restaurants or other food establishments.

Individuals with food allergies are highly concerned with cross-contamination. Karanth et al, (2023) emphasizes the importance of strict measures related to avoiding cross-contact of allergenic and non-allergenic foods. This includes use of different utensils, cooking utensils and preparation areas on allergic foods. Food handlers are also expected to be trained in a way that they understand how seriously food allergies are serious and to adopt preventive measures in a way that is effective (Duarte et al, 2022).

Practical Solutions: To install practical solutions to food safety issues requires a complex approach. Strong compliance with recommended temperatures in cooking procedures, stringent cleanliness control and effective cross-contamination prevention are among the critical steps to be taken to mitigate foodborne diseases. World Health Organization. (2022) support the idea of regular training of food handlers to help reaffirm good practices and ensure that the staff is informed about new food-safety regulations. In dealing with food allergens, clear and precise labeling is needed. Food producers and food service operators will be expected to display allergen information in foreground and provide their personnel with the necessary training to manage allergenic substances with due diligence.

Additionally, cross-contamination can be reduced by developing and implementing all-encompassing allergen-management guidelines to protect people with food allergies against adverse reactions. Education and awareness programs form a key element in prevention of foodborne illnesses, as well as allergen exposure. The prevalence of foodborne diseases and allergic reactions can be significantly reduced through the use of public education programs that focus on food safety habits, including hand hygiene, proper food storage, and correct interpretation of food labels.

4. Conclusion

Food and kitchen hygiene are critical factors of food safety and health of people. This paper looked at various aspects of hygiene practice in food handling and kitchen management, which are critical in preventing foodborne illnesses and protecting the overall safety of food commodities. Areas that are paramount in maintaining high hygienic standards were identified. This study began by providing a general description of the core hygiene practices, including the detection and management of biological, chemical and physical contaminants. The basic tenets of food safety, such as environmental purity, proper separation between raw and cooked food, adherence to the suggested cooking temperatures, and food storage, were presented as the background practices that prevent contamination and support food safety. Personal hygiene was also highlighted with an explanation of how effective handwashing, proper clothing, health and training of food handlers are essential barriers to the spread of foodborne pathogens. Kitchen hygiene practices such as cleaning and sanitizing surfaces, proper equipment care, good waste management, and extensive pest control were all brought out as being essential towards creating a safe and hygienic food preparation setting.

Severe food and kitchen hygiene standards are invaluable to the safety of society. In addition to preventing foodborne diseases, strict hygiene prevents food product degradation and loss of integrity. The research proves that long-term and efficient hygiene measures reduce the risk of contamination, protect consumers against health risks, and increase trust in the food supply chain. The results found that continuous education and continuous adherence to set hygiene protocols are crucial to maintaining food safety. Food handlers and locations are required to be vigilant and proactive in taking and following hygiene regulations. It is promoted via continuous training, compliance with food safety laws and implementation of an extensive management system which includes Hazard Analysis and Critical Control Points (HACCP) to ensure compliance remains constant and to mitigate risks posed during food handling and preparation. In short, good food and kitchen hygiene management practices can never be ignored in protecting food safety and health of the people. With such practices and the creation of a culture that places a high value on hygiene, stakeholders would be able to significantly improve the safety and reliability of the food environment.

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All authors have equal contributions to the paper. All the authors have read and approved the final manuscript.

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