OCCUPATIONAL HAZARDS ASSOCIATED WITH CATERING PROFESSION: A CASE STUDY OF NNEWI NORTH LOCAL GOVERNMENT AREA, ANAMBRA STATE, NIGERIA.

BY

CHUKWUMAH ONYINYE THERESA

REG NO: 20154942248

A THESIS SUBMITTED TO POSTGRADUATE SCHOOL

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI

JANUARY, 2026

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IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF PUBLIC HEALTH (MPH) DEGREE

JANUARY, 2026

CERTIFICATION

This thesis study on "**Occupational Hazards Associated with Catering Profession: "A Case Study of Nnewi North Local Government Area, Anambra State"** was written by **Chukwumah Onyinye Theresa**,(Reg No:**20154942248**) has been certified as meeting the requirement for Master's Degree Thesis in Public Health, in Post Graduate School, Federal University of Technology Owerri.

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DEDICATION

I dedicate this work to God Almighty to the memory of my late father Pa Maurice Chukwuma (my personal saint) who left this life on the 28th day of May, 2004 and my late mother Mrs Theresa Chukwuma (my Angel) who left this life on the 3rd day of December, 2017.

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ABSTRACT

The catering industry is associated with high levels of work-related injuries and diseases due to exposure to various occupational hazards. This study assessed the occupational hazards associated with caterers in Nnewi North Local Government Area of Anambra State, Nigeria. A total of one hundred and thirty-nine (139) caterers were sampled for the study. Most of the respondents were female 84 (60.4%), while 46% were between the ages of 13–24 years. Sixty-two percent had worked for one to five years in either hotels (65.4%) or fast-food restaurants (34.5%). Half of the respondents (50%) had secondary education, while 43.2% had tertiary education. A multistage sampling technique was employed for the study. Nnewi North is stratified into four zones namely: Otolo, Nnewichi, Uruagwu and Umudim. Hotels and restaurants were further stratified into three categories: three/four-star hotels (mid-range service), one/two-star hotels (budget/limited service), and fast-food restaurants. Systematic random sampling was used to select establishments from each category, while simple random sampling was used to select two participants (chefs/bakers and stewards/waiters) from each establishment. The findings revealed that caterers in Nnewi North Local Government Area had a significant level of knowledge about occupational hazards and safety practices. Eighty-two percent of the respondents reported having the required personal protective equipment, including protective clothing (41.3%), hand gloves (27.1%), and footwear (23.4%). However, some caterers did not adhere to specific work procedures due to pressure to complete tasks (50.0%) and lack of interest in using protective measures (35.4%). Additionally, 73% reported that work pressure affects their safety culture, while 78% were not satisfied with the health and safety practices in their workplaces. The study also revealed a significant ($p<0.05$) positive attitude of caterers toward occupational hazard prevention and adherence to safety practices. Further research is recommended to determine the major causes of work-related injuries and diseases in the catering industry in Nnewi North Local Government Area to support the development of effective occupational health and safety management system.

Keywords: Occupational hazards, Caterers, Safety practices, Food service workers, Personal Protective Equipment, Occupational Health.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Catering involves the preparation and service of food in locations such as hotels, restaurants, institutions, and event venues. Due to the physical and operational demands of food preparation, catering workers are exposed to numerous occupational hazards that may result in injury or illness (Moon, Yang, Do, Kim, Lee, Chae, Kim, & Song, 2019). Occupational hazards are workplace factors with the potential to cause harm and are commonly classified into physical, chemical, biological, ergonomic, and psychosocial hazards. Exposure to these risks can negatively affect workers' health and productivity (Assiut Scientific Nursing Journal, 2021).

Food service environments are particularly hazardous because of fast-paced activities, manual handling tasks, and exposure to heat and sharp equipment. A recent study reported that over 35% of food service workers experienced workplace injuries, while 53% reported musculoskeletal symptoms, with cuts, burns, and muscle strain being the most common injuries (Journal of Occupational Medicine and Toxicology, 2024). Slips, trips, and falls are also major safety concerns in commercial kitchens. Grease, water, and food debris on floors significantly increase the risk of accidents, and approximately 85% of workers 'compensation claims in restaurants are linked to slips and falls. (National Floor Safety Institute, 2026; OSHA, 2026). Poorly maintained floors, obstacles in walkways, and inadequate lighting further contribute to these risks, highlighting the importance of proper housekeeping and hazard management (OSHA, 2026). Preventive measures such as slip-resistant footwear and proper housekeeping have been shown to reduce these risks considerably. Personal health risks are another concern within the catering profession. Musculoskeletal disorders (MSDs), which affect muscles, joints, tendons, and nerves, are highly prevalent among food service workers due to repetitive

movements, prolonged standing, and manual lifting (Moon et al., 2019). Research also shows significantly elevated risks of upper limb disorders among catering employees, particularly affecting the shoulder, wrist, and hand (Giorgianni, Principato, & Spatari, 2023).

Similarly, studies indicate that workers involved in cooking and food preparation are more likely to sustain injuries compared to those not directly engaged in these tasks (Journal of Occupational Medicine and Toxicology, 2024). Kitchen workers frequently experience burns, cuts, and slips. One study found that 77.3% of kitchen workers reported work-related injuries, with over half experiencing burns and cut wound (Wassif et al., 2024). Another critical issue in food service settings is cross-contamination, which involves the transfer of harmful microorganisms from one surface or food item to another. Maintaining proper cleaning practices, separating raw and cooked foods, and ensuring adequate sanitation are essential for preventing foodborne illnesses (Assiut Scientific Nursing Journal, 2021). Given the wide range of hazards present in catering environments, implementing effective occupational health and safety practices is essential for protecting workers and improving organizational efficiency.

Other catering equipments such as industrial ovens are incredibly different to other ordinary ovens. They are bigger and use a higher temperature, most catering staffs have probably had their fair share burns during their careers. The most common types of burns are electrical, chemical and thermal burns, most staffs burns themselves very easily on oven doors, shelves, trays, steam and hot food in worst cases. Some burns can leave permanent scars so there is need to avoid these hazards by: Wearing shoes that cover the tops of toes of the feet, using serving trays when carrying hot plates, this way there will be no burnt and dropping of hot plate, using hand protection such as over mitts and cleaning gloves when using cleaning chemicals, using correct utensils when handling hot food items, been careful when putting food into hot oil because the oil may splash and come into contact with skin, standing to the side when opening ovens and steamers and to avoid getting burnt by steam of hot air when it is escapes.

However, germs and cross-contamination must be avoided because most foodborne pathogens cannot be seen or smelled. Proper cleaning of utensils, worktops, and hands, along with the four key principles of food safety; Cleaning, Cooking, Chilling, and avoiding Cross-contamination, are essential measures for reducing microbial hazards in food preparation areas (Food Standards Agency, 2024). Cross contamination means transferring of disease-causing organism from one food to another via unwashed cutting board, hands and kitchen tools, so there is need to separate raw foods from cooked and the ready to eat food at all times.

1.2 Statement of Problem

Catering profession has a lot of skilled and unskilled worker (caterers/personnel's) who lose their lives every year while many more are maimed and injured on duty (Lucy, 2016). Complexity of their work and increasing demand for higher productivity has become common features of their work; as a result, caterers operate in extreme competitive environment with tight budgets and time frame. All these have combined to make catering profession mentally and emotionally demanding and stressful (Matuson, 2017). Statistics have proven that bad management practices cause accidents and cost money, time and effort (Labour Force Survey, 2016). Despite growing awareness of workplace safety, catering workers continue to experience high rates of occupational injuries due to the demanding nature of their work.

Evidence shows that food service workers are at elevated risk because of exposure to sharp tools, hot surfaces, repetitive tasks, and physically strenuous activities (Journal of Occupational Medicine and Toxicology, 2024). Similarly, musculoskeletal disorders remain a major occupational health concern across the food and beverage industry, with significantly increased incidence rates reported among workers (Peng, Hsieh, Li, Liaw, Wang, Pan, & Wu, 2021).

Workplace stress is another contributing factor. Studies have identified psychological stress as a common hazard among restaurant workers, with many employees lacking adequate knowledge of occupational health risks (Assiut Scientific Nursing Journal, 2021). In addition,

slips and falls remain one of the leading causes of lost-workday injuries in kitchens and restaurants, often resulting in extended absence from work and reduced productivity (OSHA, 2026).

Nnewi is a major trading and manufacturing centre in Nigeria. Due to its commercial activities the city has attracted millions of migrants from other states and countries. Nnewi is prominent in catering industry with modern hotels and restaurants like King's Palace Hotel, Beverly Hills Hotel, Twin Towers Hotel, Kitchen De Royale etc. There is also a variety of local restaurants offering a variety of continental and Igbo dishes, indoor and outdoor catering services. Due to high demand in the industry both skilled and unskilled workers are employed with little or no knowledge of the hazards associated with the profession. Workers are employed based on the fact that they need a job to make ends meet without prior knowledge on the hazards and the proper procedure for the activities in the profession. The employers on the other hand employ unskilled workers or trained staffs including elderly women and children so as to save cost. Therefore, there is a need to undertake a study of this nature in order to generate empirical data on the consequences of the hazards in catering profession in Nnewi North Local Government; such data will be of value to policy and decision makers in their professional organization.

1.3 Research Objectives

1.3.1 General Objective

The overall objective of this study is to assess the occupational hazards associated with catering profession in Nnewi North Local Government, Anambra State.

1.3.2 Specific Objective

In order to achieve the study main objective, the following are the specific objectives;

i. To determine the sources of occupational hazards in the catering profession in Nnewi North Local Government.

ii. To determine the knowledge of caterers towards occupational hazard prevention and control in Nnewi North Local Government.

iii. To determine the attitude of caterers towards occupational safety in Nnewi North Local Government.

iv. To ascertain the perceived consequences of occupational hazards on the health of catering professionals in Nnewi North Local Government.

1.4 Research Question

i. What are the sources of occupational hazards in catering profession in Nnewi North Local Government?

ii. Do caterers in Nnewi North Local Government have adequate knowledge on occupational hazard prevention control practices?

iii. What is the attitude of caterers towards occupational safety in catering profession in Nnewi North Local Government?

iv. What are the perceived consequences of occupational hazards on the health and safety of personnel in catering profession in Nnewi North Local Government?

1.5 Research Hypothesis

Null Hypothesis: H_o

i. Determining the sources occupational hazards in catering profession is not significantly associated with its prevention in Nnewi North Local Government.

ii. There is no significant level of knowledge of caterers on occupational hazards prevention and control practices in Nnewi North Local Government.

iii. There is no significant attitude of caterers towards occupational hazards prevention and control practices in Nnewi North Local Government.

iv.

Alternative Hypothesis: H_A

i. Determining the sources of occupational hazards in catering profession is significantly associated with its prevention in Nnewi North Local Government.
ii. There is significant level of knowledge of caterers on occupational hazards and its prevention in Nnewi North Local Government.
iii. There is a significant attitude of caterers towards occupational harzards prevention and control practices in Nnewi North Local Government.

1.6 Significance of the Study

Occupational hazards have adverse effect on the victims, the organisation and indeed the country at large. The findings of this study will be a valuable input to occupational health and safety policy formation and implementation in the catering profession for occupational safety in Nigeria.

The findings will be vital to future researchers who will be interested in this area of study; it will also contribute immensely to the existing pool of knowledge in this area of study.

1.7 Scope of the Study

This study is limited to caterers in hotels and fast food restaurants in Nnewi North Local Government Area, Anambra State, so as to obtain an accurate result that will represent the population.

1.8 Operational Definition of Terms

Assessment: the action or an instance of making a judgment about occupational hazards among caterers.

Occupational hazards: an injury or ailment resulting from the work one does or from the environment in which one works.

Catering: is the business of providing food services at a remote site or a site such as a hotel, public house or other location.

NIOSH: National Institute for Occupational Health and Safety, the institute responsible for the establishment and maintenance of a safe and health working environment which will facilitate optimal physical and mental health in relation to work

OSHA-US: Occupational Safety and Health Administration United State, the institute responsible for the establishment and maintenance of a safe and health working environment which will facilitate optimal physical and mental health in relation to work in the United State.

REL: Recommended Exposure Limits, recommended preventative measures on specific chemicals in order to reduce or eliminate negative health effects from exposure to those chemicals

HIV: Human Immunodeficiency Virus is a virus that causes acquired immune deficiency diseases.

HBV: Hepatitis B Virus is a virus that causes liver disease.

EU-OSHA: European Union Occupational Safety and Health Administration, the union responsible for the establishment and maintenance of a safe and health working environment which will facilitate optimal physical and mental health in relation to work in Europe.

NISP: Nigerian Institute of Safety Professionals is the institute that train a personnel's that enforces safety.

S O P: Standard Operational Procedure is the required procedure in an organization to ensure safety or avoid hazards.

NAFDAC: National Agency for Food and Drug Administration Control is the agency that ensures that the standard operational procedure is adhered to in food and drug production and consumption in Nigeria.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Occupational Hazard

Occupational hazard is a working condition that can lead to illness or death. According to Collins English dictionary it is something unpleasant that one may suffer or experience as a result of one's job or hobby. Occupational Hazard can encompass many types of hazards including; chemical, biological (biohazards), psychosocial and physical hazards. In the United States, the National Institute for Occupational Safety and Health (NIOSH) and Occupational Safety and Health Administration (OSHA) provide standards and guidelines to ensure worker safety against hazard in a variety of occupations and in the European Union (EU) a similar role is taken by EU-OSHA. In Nigeria, the role is taken by Nigerian Institute of Safety Professional (NISP).

2.1.2 Occupational Hazards in Catering Profession

Occupational hazards in catering profession are those working conditions that can lead to illness or death. There are many sources of hazards in catering profession and they include:

Biological hazards: Biological hazards are among the most significant occupational risks encountered in the catering profession due to workers' continuous exposure to food, water, waste materials, and human contact. The International Labour Organization (ILO) defines biological hazards as microorganisms, cells, or other organic materials of plant, animal, or human origin that can cause harm to human health, including bacteria, viruses, parasites, fungi, and toxins (International Labour Organization, 2022). These hazards pose serious threats across many workplaces and can lead to work-related injuries, diseases, and deaths if not properly controlled (ILO, 2022). Workplace safety authorities emphasize that workers may be exposed

to infectious agents such as bacteria, viruses, and parasites, all of which can result in disease transmission when preventive measures are inadequate (SafeWork NSW, 2025). In food-service environments, the risk is particularly high because unsafe food containing harmful microorganisms can cause more than 200 diseases ranging from diarrhoea to cancer (World Health Organization, 2024). Globally, foodborne diseases remain a major public health concern. The World Health Organization estimates that approximately 600 million people nearly one in ten worldwide fall ill after consuming contaminated food, leading to about 420,000 deaths annually (WHO, 2024). This statistic highlights the importance of strict hygiene and food safety practices within catering operations to protect both workers and consumers. Some examples of biological hazards include:

Bacteria: (ex: *Salmonella*spp.*, Enterohaemorrhagic Escherichia coli, Campylobacter jejuni, Yersinia enterocolitica, Listeria monocytogenes, Bacillus anthracis, Bacillus cereus, Staphlococcusaureus, Clostridium botulinum, Clostridium perfringens, Vibrio vulnificus, Vibrio parahaemolyticus).*

Bacteria represent one of the most common biological hazards in catering settings because they multiply rapidly in warm and moist environments typical of kitchens. Contaminated food frequently contains harmful bacteria that can cause illnesses once ingested (WHO, 2024). Examples of such pathogens include Salmonella, Escherichia coli, and other microorganisms responsible for many foodborne infections. Foodborne illnesses occur when bacteria enter the body through contaminated food or water, often resulting in gastrointestinal symptoms such as diarrhoea and abdominal discomfort (Pan American Health Organization PAHO, 2019). Catering workers who fail to maintain proper hand hygiene or cross-contaminate raw and cooked foods significantly increase the risk of bacterial transmission. Because bacteria can survive on surfaces, utensils, and improperly stored food, maintaining cleanliness, cooking

food thoroughly, separating raw from cooked items, and keeping food at safe temperatures are essential preventive measures in food establishments (PAHO, 2019).

Virus: (ex: hepatitis A virus, Norwalk viruses, Rotavirus).

Viruses are another critical biological hazard in the catering profession due to their high transmissibility. Workers exposed to contagious diseases may unknowingly spread infections within the workplace, particularly in environments involving close human interaction (ILO, 2023). The WHO notes that unsafe food may contain viruses capable of causing widespread disease outbreaks (WHO, 2024). Viral infections are especially dangerous in catering settings because a single infected food handler can contaminate large quantities of food, thereby affecting many consumers simultaneously. The COVID-19 pandemic further demonstrated the devastating global impact that uncontrolled biological hazards, particularly viral pathogens can have on workplaces and public health (ILO, 2023). This underscores the necessity for infection-control strategies such as health surveillance, sanitation protocols, and worker education.

Parasites: (ex: *Toxoplasma gondii*, Cryptosporidia, *Giardia* spp., *Trichinellaspiralis*, *Taeniasolium, Anisakis* spp.)

Parasites also constitute a serious occupational hazard within the catering profession. According to the WHO, foodborne diseases may result from parasites entering the body through contaminated food or water (WHO, 2024). These organisms often originate from poor sanitation, unsafe water supplies, or improper food handling practices. The global burden of foodborne disease is caused by multiple agents, including bacteria, viruses, parasites, toxins, and chemicals, demonstrating the wide range of biological threats present in food environments (WHO 2024). Workers who lack adequate hygiene knowledge or fail to follow safety procedures may contribute to the spread of parasitic infections. Given that many parasitic

infections can remain undetected while still transmissible, routine health monitoring and proper food safety training are essential to reduce occupational exposure.

These organisms can affect human health, including infection, intoxication and even death. Infection occurs when organisms invade the host and multiply in the body. Intoxication occurs when bacteria produce toxins that affect the body. Bacteria must first grow in the food before producing toxins. These toxins are very difficult to eliminate. The major sources of biological contaminants in food are: animal guts: faecal contamination. Soil and water contaminated by non-treated manure.

Cross contamination: Cross-contamination of food products spread from processing environment due to poor/improper sanitation. Human contamination due to poor personal hygiene (skin, clothing, especially hands), faecal contamination (human guts), failure in infection control (illness not reported).

Chemical Hazards:

Chemical hazards are frequently overlooked in catering environments despite posing substantial occupational risks. Food service workers are routinely exposed to cleaning agents such as sanitizers, degreasers, oven cleaners, and detergents, which can cause adverse health effects when improperly handled. Exposure to these chemicals may result in skin irritation, chemical burns, respiratory problems, and eye damage. Mixing incompatible chemicals, particularly chlorine and ammonia, can generate toxic gases capable of causing severe lung injury or death (OSHA, 2024). Research further indicates that occupational exposure to cleaning chemicals is associated with increased risks of asthma and other respiratory conditions among service workers (Boggs, Camargo, Dumas, Henneberger, Le Moual, Quinot, Speizer, & Varraso, 2020). Therefore, proper labeling, ventilation, and employee training are essential preventive strategies.

Skin irritation: Soaps and detergents can cause skin irritation.

Infections: Broken skin can be infected or burned from hazardous chemicals.

Burns: Chemicals like oven cleaners, drain openers and grill cleaners can cause burns to the skin and eyes.

Respiratory harm: Chlorine and ammonia can cause respiratory, skin and eye irritation and death, especially if they are mixed together.

Electrical Hazards: An electrical hazard is a dangerous condition where a worker can or does make electrical contact with energized equipment or a conductor. From that contact, the person may sustain an injury from shock, and there is a potential for the worker to receive an arc flash (electrical explosion) burn, thermal burn or blast injury due to the following**:** faulty equipment, overloading of sockets, unsafe work practices and ingress of water into equipment. (OSHA, 2023). Risks of Electrical Hazards are: fire, electrocution and burns.

Ergonomic Hazards:

Ergonomic hazards arise from workplace designs that place excessive physical strain on workers. Catering employees often perform repetitive tasks such as chopping, stirring, lifting, and washing dishes while standing for prolonged periods. These activities are strongly associated with musculoskeletal disorders (MSDs), including chronic back pain, arm injuries, and fatigue (European Agency for Safety and Health at Work, 2020). Poor workstation design and awkward posture further elevate injury risks, reducing productivity and long-term worker wellbeing.

Fire Hazards: Fire hazards are prevalent in catering environments due to open flames, high cooking temperatures, grease accumulation, and flammable materials. Commercial kitchens are particularly vulnerable when housekeeping is poor or electrical systems are improperly

maintained. Grease fires and unattended cooking equipment remain leading causes of restaurant fires, often resulting in burns, smoke inhalation, property damage, and fatalities (National Fire Protection Association, 2024). Risks of Fire Hazards area: Smoke inhalation, burns and death.

Heat Stress: Heat stress occurs when the body cannot adequately regulate internal temperature due to prolonged exposure to high heat environments such as commercial kitchens. Symptoms range from heat cramps and exhaustion to life-threatening heat stroke (Centers for Disease Control and Prevention, 2024). Heat exposure can also increase the likelihood of workplace accidents by causing dizziness, reduced concentration, and sweaty palms that impair grip.

Machines and Equipment Hazards:

Kitchen equipment such as mixers, slicers, fryers, and dishwashers present serious mechanical risks when not properly maintained. Injuries often result from unguarded moving parts, defective electrical connections, or lack of personal protective equipment. Typical outcomes include cuts, burns, amputations, crush injuries, and entanglement, emphasizing the need for routine equipment inspection and safety training (HSE, 2023).

Manual Handling Hazards: These poses some risks in catering profession due to; lifting heavy items such as oil drums or bag of flour, moving heavy food carts, pushing wheeled racks, poorly maintained or badly designed carts and pouring heavy liquids out of heavy pots or containers. (Safe Work Australia, 2023). Risk of Manual Handling Hazards includes: back injury, musculoskeletal disorders (MSDs) and falls.

Non ionizing Radiation Hazards: Non-ionizing radiation refers to electromagnetic fields generated by equipment such as microwave ovens and heat sealers. Excessive exposure may cause tissue heating and other biological effects if equipment is poorly maintained or safety

interlocks are overridden (International Commission on Non-Ionizing Radiation Protection [ICNIRP], 2020). The risk is induced tissue heating.

Racking Hazard: Improper storage practices such as exceeding safe load limits, using damaged shelving, or placing heavy items on elevated racks can lead to structural collapse and falling objects. These incidents pose serious risks of traumatic injury within food storage areas (OSHA, 2023). Risk that result from Racking Hazards includes: collapse of racking and falling items or objects.

Sharps Hazards: There is regular use of knives and blades in catering profession and the hazards can occur due to the following: broken glass or crockery, inappropriate storage or use of sharp knives and poor equipment design (WorkSafe Queensland, 2019). The risk is cuts.

Slips, Trips and Falls Hazard: According to the Health and Safety Executive (2024), Slips and falls remain leading causes of occupational injuries worldwide. Wet floors, grease spills, poor lighting, uneven surfaces, and obstructed walkways are major contributing factors. Injuries range from minor cuts to fractures, concussions, and fatalities.

Walk in Fridges or Freezers Hazards:

Cold storage areas pose risks such as slips from ice buildup and potential cold-related injuries. Poor equipment maintenance and unsafe storage practices can further increase accident risks within kitchen environments (OSHA 2024).

2.1.3 Types of Occupational Hazards

Occupational hazards refer to workplace conditions that pose risks to employees' health and safety. Workers across industries may encounter chemical, biological, psychosocial, and physical hazards that contribute to occupational diseases, injuries, and long-term health complications. Exposure to hazardous substances remains a significant global public health

concern, emphasizing the need for preventive strategies and effective occupational health management systems (Akpan, Okon, Eda, Agbiji, Akpan, and Akpabio, 2025).

A) Chemical hazards

Chemical hazards are a major category of occupational risks involving exposure to harmful substances capable of causing acute or chronic health effects. There are different types of hazardous chemicals namely neurotoxins, immune agents, dermatologic agents, carcinogens, asthmagens, pneumoconiotic agents and sensitizers.

These chemicals may exist in gaseous, liquid, or solid forms and can enter the body through inhalation, ingestion, skin absorption, or injection (Salvi, 2024). Short-term exposure may result in skin irritation and respiratory problems, whereas prolonged exposure has been associated with neurological disorders, cancers, and other chronic illnesses (Palmer et al., 2024). Globally, occupational exposure to toxic chemicals continues to cause preventable deaths, disabilities, and long-term diseases, highlighting the importance of regulatory control and workplace safety measures (International Labour Organization [ILO], 2021). Studies further indicate that workers exposed to cleaning agents, solvents, and pharmaceutical chemicals frequently experience dermal, ocular, and respiratory symptoms, reinforcing the need for personal protective equipment (PPE), training, and policy interventions (Betancur, Bryant, Conklin, & Walton, 2024). To minimize risk, organizations are encouraged to adopt the hierarchy of controls which are: elimination, substitution, engineering controls, administrative controls, and PPE, to reduce exposure and protect worker health (Salvi, 2024). There is recommended exposure limits (REL's) as well as recommended preventative measures on specific chemicals in order to reduce or eliminate negative health effects from exposure to those chemicals.

B) **Biological hazards**

Biological hazards involve exposure to microorganisms, toxins, and other biological agents capable of causing infections and diseases. Examples influenza, bites and stings from insects, spiders, snakes and scorpions, contact dermatitis, allergens, imbalance, tetanus etc.

Workers in sectors such as healthcare, agriculture, and manufacturing are particularly vulnerable due to frequent contact with infectious materials and contaminated environments (Akpan et al., 2025). Occupational exposure to hazardous substances often includes biological agents that contribute to respiratory disorders, neurological impairments, skin conditions, and other diseases when preventive measures are inadequate. Laboratory and healthcare workers, for example, face elevated risks when protective equipment or safety procedures are insufficient, underscoring the importance of workplace risk management and adherence to safety guidelines (Alwsaidi, Alhelio, Alhussain, Aldhafiri, Aljabr, & Almazrua, 2024). Effective biological hazard control requires surveillance systems, vaccination programs where applicable, proper hygiene practices, and continuous worker education to reduce infection risks.

C) Psychosocial hazards

Psychosocial hazards refer to workplace factors that negatively affect employees' psychological wellbeing, social functioning, and overall mental health. These hazards include excessive workload, job insecurity, poor organizational support, and stressful working conditions. Occupational exposures whether chemical, biological, or physical, can also contribute to psychological strain and reduced mental wellbeing, particularly when workplace safety systems are inadequate (Akpan et al., 2025). Additionally, hazardous work environments lacking proper protective structures may heighten stress levels and compromise worker health, reinforcing the need for comprehensive occupational safety programs (Alwsaidi et al., 2024).

Addressing psychosocial risks involves promoting supportive work environments, implementing stress-reduction policies, and ensuring adequate staffing and organizational support.

D) Physical hazards

Physical hazards arise from environmental conditions within the workplace that can harm workers without necessarily requiring direct contact. Common examples include noise, extreme temperatures, poor lighting, and ergonomic strain.

Noise: This is widely recognized as a prevalent occupational hazard that threatens hearing acuity and overall worker safety (CDC 2024). High workplace noise levels interfere with communication, increase accident risk, and impair cognitive performance. Research shows that occupational noise exposure above 85 dB is associated with reduced wellbeing and diminished work efficiency (Abaya, Bråtveit, Deressa, Kumie, & Moen, 2025).

Heat and Environmental Conditions: Workers exposed to hazardous substances often operate in environments characterized by extreme heat or other physical stressors, which are linked to higher rates of occupational disease across industries.

Ergonomic and Environmental Factors: Physical hazards frequently coexist with ergonomic risks such as manual lifting, repetitive movements, and awkward postures, all of which contribute to musculoskeletal disorders affecting muscles, ligaments, and joints.

Collectively, these findings highlight the necessity of engineering controls, environmental monitoring, and workplace design improvements to reduce physical hazard exposure.

2.1.4 Impact of Occupational Hazards

Occupational hazards have far-reaching consequences that extend beyond the workplace, affecting workers' physical health, psychological wellbeing, social functioning, and economic

stability. The International Labour Organization (ILO, 2023) estimates that millions of workers globally experience occupational injuries and diseases annually, many of which lead to long-term disability, reduced productivity, and diminished quality of life. These outcomes often disrupt family structures and increase dependency, thereby creating broader societal burdens. Research shows that workers exposed to hazardous conditions frequently experience limitations in their ability to perform job tasks, sometimes requiring role modifications or complete career changes (Ervasti, Pietiläinen, Rahkonen, Lahelma, Kouvonen, Lallukka, & Mänty, 2019). In severe cases, occupational illnesses result in chronic health problems that demand ongoing medical care and rehabilitation (Teufer et al., 2019). Beyond the health implications, financial strain may arise from income loss, medical expenses, and reduced employability, further emphasizing the need for effective occupational safety policies (EU-OSHA, 2023).

A) Psychological consequences

Exposure to occupational hazards is strongly associated with adverse mental health outcomes, including anxiety, depression, emotional exhaustion, and psychological distress. According to the World Health Organization (WHO, 2022), unhealthy work environments, characterized by safety risks, excessive demands, or inadequate organizational support can significantly increase the likelihood of mental disorders among employees.

Anxiety commonly emerges when workers perceive threats to their safety or job security. Persistent workplace risks may heighten fear, tension, and physiological stress responses, ultimately impairing concentration and decision-making (Harvey et al., 2017). Similarly, depression has been identified as a major contributor to reduced work performance and absenteeism, often interfering with daily functioning such as sleeping, eating, and maintaining interpersonal relationships (WHO, 2022).

Furthermore, prolonged exposure to unsafe conditions may lead to burnout, a syndrome marked by emotional exhaustion, cynicism, and reduced professional efficacy (WHO, 2019). These findings highlight the importance of integrating mental health protection into occupational safety frameworks.

B) Social consequences/ Behavioral Consequences

Occupational injuries and illnesses frequently disrupt workers' social lives by limiting participation in routine activities and altering family roles. EU-OSHA (2022) notes that long-term health conditions resulting from workplace hazards can reduce mobility and independence, thereby increasing reliance on family members for care and support. Social isolation is another common outcome, particularly when injured workers withdraw from community engagement due to physical limitations or psychological distress. Studies also suggest that occupational stress may contribute to maladaptive coping behaviors such as substance misuse, poor sleep patterns, and unhealthy dietary habits, all of which can further compromise wellbeing (ILO, 2023). Strong social support systems, however, have been shown to buffer the negative effects of workplace injuries by enhancing recovery and improving psychological resilience (Harvey et al., 2017).

C) Economic consequences

The economic burden of occupational hazards is substantial for workers, employers, and national economies. Costs typically arise from medical treatment, compensation claims, rehabilitation, and productivity losses. The International Labour Organization (2023) reports that workplace injuries and diseases account for an estimated 4% of global GDP in annual losses. At the household level, reduced earning capacity following injury or illness may lead to financial instability, especially when workers are forced to accept lower-paying roles or prematurely exit the workforce (EU-OSHA, 2022). Employers also incur indirect costs through

staff replacement, training, and decreased organizational efficiency. Investing in preventive occupational health measures has therefore been identified as both a moral responsibility and an economically sound strategy, as safer workplaces are linked to higher productivity and reduced long-term expenditures (ILO, 2023).

2.1.5 Practical Approach to Occupational Health and Safety

There is need for the establishment and maintenance of a safe and health working environment which will facilitate optimal physical and mental health in relation to work through these ways: identification and assessment of the risk from health hazards in the workplace. This involves surveillance of the factors in the working environment and working practices which may affect workers health. It also requires a systematic approach to the analysis of occupational "accidents" and occupational "diseases." Establishing and maintaining a safe working environment is fundamental to protecting employees' physical and mental health. The World Health Organization (WHO, 2022) emphasizes that effective occupational health systems rely on proactive risk identification, continuous monitoring of workplace conditions, and implementation of evidence-based safety interventions.

A systematic approach involves assessing potential hazards, analyzing workplace accidents, and designing work processes that align with workers' capabilities. This includes ergonomic workplace design, safe equipment usage, and proper management of hazardous substances (ILO, 2023).

Education and training are equally critical components of occupational safety. Workers who receive regular instruction on hazard recognition, protective equipment, and emergency procedures are significantly less likely to experience workplace injuries (EU-OSHA, 2022). Additionally, health surveillance programs help detect early signs of occupational illness, enabling timely intervention and rehabilitation.

Comprehensive occupational health practices also support injured employees in returning to work through structured rehabilitation programs, thereby preserving workforce participation and reducing disability-related unemployment (WHO, 2022). Collectively, these strategies foster safer workplaces while promoting organizational productivity and employee wellbeing.

2.1.6 Personal Protective Equipment (PPE) Used in Catering Profession

Clothing: - Wear snug fitting clothing with all buttons fastened. If sleeves are not close fitting roll them up. Billowing sleeves could get caught in machinery or catch fire. Health reputations require that all food handlers wear hair nets or other approved hair restraints.

Aprons: - Aprons should be made from non-combustible and flame-resistant materials which do not melt under heat. Aprons for washing jobs should be made from waterproof boots to prevent water from entering the boots.

Footwear: - Use slip resistant shoes. Slip resistant qualities are lost when shoes are dirty or worn out. Work shoes should preferably be left at work and not used to commute to and from work. Footwear with internal steel toecap is recommended for persons involved in lifting and carrying heavy loads.

Hand Protection: - Use appropriate gloves as hand protection. Ensure all exposed skin is covered by gloves. Gloves should be long enough so that there is no gap between the glove and sleeve.

Eye Protection: - Use safety glasses that fit properly.

Respirators: - Respirators may be needed for protection from inhaling harmful dusts, aerosols or vapour and chemicals. Ensure the use of appropriate respirators; either particulate or chemical cartridge air-purifying respirators.

2.1.7 Guidelines for Establishment of Cottage/Kitchen Scale Food

A. General

These guidelines are for the general public and in particular individual that wants to engage in manufacturing of cottage/kitchen scale food products.

These guidelines prescribe the minimum good hygienic practice requirements for the facilities, controls to be used in the manufacture, processing and packing of cottage/kitchen food products to ensure that they meet quality

A cottage food operation still has to comply with the labeling, adulteration and other provision found in the Agency regulations, as well as other applicable state or federal laws.

It is necessary to emphasize that no food product should be manufactured, imported, exported, advertised, sold or distributed in Nigeria unless it has been registered in accordance with the provisions of Act Cap F33 LFN 2004. Consequently, a food product shall not be manufactured in Nigeria unless the factory is inspected and certificate of recognition is issued by NAFDAC.

The following products listed below Potentially Hazardous Foods/Temperature Controlled for Safety Foods (PHF/TCS) are exempted from registration under cottage/kitchen scale Industry. Except if otherwise, if the intending applicant(s) has the adequate equipment, facilities and personnel with adequate education/training, experience in the manufacturing, processing and packaging of the product(s): meat and meat products, poultry (chicken, eggs, turkey, and duck), fish and fish products, milk and dairy products, cooked rice, bean or vegetable, baked potatoes and vii Beverages.

B. Personnel

There should be an adequate number of qualified personnel to perform assigned duties. Each personnel engaged in food manufacturing should have basic education /adequate training and experience. Personnel should wear protective apparel/gears, such as head, face, hand, and arm

coverings to protect products from contamination. Personnel should practice good sanitation and hygienic habits.

C. Building/Facilities:

Production Area.

i. The apartment provided for production can either be a purpose – built structure or an existing standard kitchen.

ii. The apartment must be minimum of 12×12 feet two rooms or a kitchen (12 × 12 Feet) with standard store and must be adequate for the orderly placement of equipment and materials to prevent mix-ups between different materials.

iii. Windows and entrance doors should be screened with insect-proof netting and the doors should be self-closing to prevent contamination.

iv. Adequate ventilation, cooling, lighting should be provided in all areas to facilitate easy identification of materials, cleaning, maintenance and proper operations.

Finished Product Store*:*

All finished products must be stored in a cool dry place following safe, good handling guidelines to prevent adulteration caused by insect, household chemicals, water damage and insanitary condition.

D. Equipment:

The design of equipment should be such as to make it adequate and suitable for its Intended use. Its layout and design must aim to minimize the risk of mix-ups and permit effective Cleaning and maintenance in order to avoid cross contamination, build-up of dust, dirt, food particle or any other contaminant that can affect the quality of the product.

The parts of the equipment that make contact with products should be made of non-Toxic/non-reactive materials such as food grade stainless steel etc.

E. Environmental Sanitation and Personnel Hygiene:

Appropriate sanitation measures should be taken to avoid contamination risks of all kinds. The entire production area(s) should be cleaned frequently and thoroughly in accordance with the standard operational procedure (S.O.P) for cleaning. Equipment should be thoroughly cleaned in strict compliance to the S.O.P. Water system toilets and washing facilities should be appropriately located, designed, equipped and the sanitation shall be maintained satisfactory in strict compliance to the S.O.P

Eating, Drinking and Smoking should not be permitted when production is on-going in the production area and storage.

All operators should wear appropriate protective garments/gowning.

Production staff should undergo food handler's test/medical examination at least once a year. Persons known to be suffering from communicable diseases or with wounds should be excluded from duty until they are certified medically fit again. Wastes should be adequately disposed of in strict compliance to the S.O.P. (NAFDAC, 2017).

2.2 Theoretical Framework

2.2.1 Health Belief Model

The Health Belief Model (HBM) explains why individuals adopt or fail to adopt preventive health behaviours. The model proposes that people take protective actions when they believe they are susceptible to a health problem and when they perceive the consequences as serious (Rosenstock, 1974; Rosenstock, Strecher, & Becker, 1988).

The key components of the Health Belief Model include:

Perceived Susceptibility: An individual's belief about the likelihood of experiencing occupational hazards.

Perceived Severity: The belief about the seriousness of the consequences of exposure to workplace hazards.

Perceived Benefits: The belief that adopting safety measures will reduce the risk of harm.

Perceived Barriers: Obstacles that prevent individuals from adopting protective practices.

Cues to action: Factors that motivate individuals to take preventive actions.

Self-efficacy: Confidence in one's ability to perform preventive behavior.

In the catering profession, workers are often exposed to various occupational hazards such as burns, cuts, slips, falls, heat exposure, and musculoskeletal disorders due to repetitive activities and prolonged standing. Studies have shown that food service workers experience significant workplace injuries including cuts, burns, and muscle strain during food preparation and cooking activities. Leong et al., (2024). The Health Belief Model explains that caterers who perceive these hazards as serious and believe that protective measures such as using personal protective equipment (PPE), proper training, and safe cooking practices are beneficial are more likely to adopt preventive safety behaviors.

However, factors such as lack of training, inadequate workplace safety regulations, or absence of protective equipment may act as barriers that discourage workers from practicing occupational safety measures.

Therefore, the Health Belief Model helps explain how risk perception and awareness influence safety practices among caterers in preventing occupational injuries.

The Health Belief Model is relevant to this study because it explains how caterers perceive occupational risks and how these perceptions influence their safety practices. Caterers who perceive themselves as susceptible to hazards such as burns, cuts, slips, and exposure to heat are more likely to adopt preventive measures such as using protective equipment, maintaining hygiene, and following safe cooking procedures. However, if workers perceive fewer risks or encounter barriers such as lack of safety training, poor workplace policies, or absence of protective equipment, they may be less likely to engage in safety behaviors. Therefore, the Health Belief Model helps this study understand how knowledge, awareness, and perceptions influence caterers' responses to occupational hazards in Nnewi North Local Government Area

2.2.2 Heinrich's Domino Theory of Accident Causation

The Domino Theory of Accident Causation was developed by Heinrich (1931) to explain how workplace accidents occur. The theory states that accidents result from a sequence of events similar to falling dominoes, where the removal of one domino can prevent the accident from occurring. According to Heinrich, five factors contribute to workplace accidents:

i. Social environment and ancestry

ii. Fault of the worker

iii. Unsafe acts or unsafe conditions

iv. Accident

v. Injury

In the catering profession, unsafe acts such as improper handling of knives, exposure to hot cooking equipment, poor housekeeping practices, and slippery kitchen floors can lead to workplace accidents. Research shows that cuts, burns, slips, and lacerations are among the

most common occupational injuries experienced by kitchen workers and restaurant employees. (Kini et al., 2025).

Similarly, studies have reported a high prevalence of work-related injuries among food service workers, with common hazards including cuts, burns, musculoskeletal disorders, and exposure to hot surfaces during cooking and food preparation. (Leong et al., 2024).

The Domino Theory suggests that preventing accidents requires removing unsafe conditions or unsafe behaviors in the workplace. In catering establishments, this may include:

i. Provision of protective equipment
ii. Adequate staff training
iii. Proper kitchen design
iv. Enforcement of occupational safety regulations

Thus, the Domino Theory emphasizes that occupational hazards among caterers are preventable when workplace safety measures are implemented effectively.

Similarly, Heinrich's Domino Theory of Accident Causation is relevant to this study because it explains how workplace accidents occur as a result of a sequence of unsafe conditions and unsafe acts. In catering environments, accidents may occur due to slippery kitchen floors, poor kitchen layout, lack of protective equipment, or improper handling of cooking tools and hot equipment. The theory suggests that removing unsafe conditions or correcting unsafe practices can prevent accidents and injuries. This theory therefore helps to explain how environmental factors and workplace conditions contribute to occupational hazards among caterers.

2.3 Empirical Studies

A study conducted by Leong et al. (2024) in a tertiary hospital in Singapore which describes the epidemiology of work-related injuries and occupational diseases among hospital food

service workers (FSWs). A total population sampling approach was used, a cross-sectional self-administered questionnaire was distributed to all FSWs employed at a major tertiary hospital in Singapore. The results revealed that the response rate was 98.4% ($n = 125$). The overall prevalence of workplace injuries and musculoskeletal symptoms was 35% ($n = 43$) and 53% ($n = 65$) respectively. The most common workplace injuries were cuts/lacerations (35.8%), muscle strain (25.4%) and burns (19.4%). The prevalence of workplace injuries among staff performing food preparation duties was higher at 56.3% as compared to 21.6% among staff with no food preparation duties ($p < 0.01$). The prevalence of workplace injuries among staff performing cooking duties was also higher at 47.5%, compared to 29.3% among staff with no cooking duties ($p = 0.05$). Staff performing food preparation duties had a higher prevalence of musculoskeletal symptoms at 66.7% as compared to 44.6% among staff with no food preparation duties ($p = 0.02$). Obese staff had a higher prevalence of musculoskeletal symptoms at 78.9%, compared to overweight staff at 53.8% and staff with normal weight at 43.1% ($p = 0.03$). This means that food service workers (FSWs) with jobs involving cooking and preparation of food, and those with obesity, are at higher risk of sustaining workplace injuries or musculoskeletal symptoms. Targeted interventions should be implemented for injury prevention and to mitigate these risks.

Chukwukasi et al. (2024) examined food safety practices among public food handlers in Enugu Metropolis, Nigeria using a cross-sectional design involving 400 respondents. This study aimed to ascertain the food safety hygiene practices, and associated factors among public food handlers in Enugu Metropolis, Nigeria. Samples were selected using a multistage sampling technique. Data was collected using a pretested structured interviewer-administered questionnaire and analyzed using percentage, mean and multiple regression. Statistical significance was set at $p< 0.05$. The findings showed that the mean age of respondents were 31.16 ± 8.242 years. About two – thirds, 66.5% of respondents were found to have good

knowledge of food hygiene safety practices. The overall food safety hygiene practice mean score was 80.10 ± 10.25 with 70.5% showing good practice. Environmental safety hygiene had good practice of 35.0% and a mean score of 24.17 ± 2.29. The factors which statistically significantly predicted overall food safety practices, F (11, 388) = 42.957, P < 0.0001, R2 = 0.536 were educational level (β = 0.148, C.I = 0.860 – 3.082), knowledge level (β = 8.594, C.I = 5.635 – 8.979) and safety training (β = 0.517, C.I = 4.102 – 5.474). This means that there were good safety hygiene practices except for the environmental safety hygiene practices component. Safety training, knowledge level and educational level were the predictors of good practices. Frequent training is most needed to prevent or control food contamination and consequent food-borne diseases.

Another study conducted by Matthew et al. (2018) investigated food safety knowledge, attitudes, and practices among food handlers in a tertiary hospital in Ilorin, Nigeria. The purpose of this study was to assess knowledge about food safety, attitudes and practices among food handlers in tertiary hospitals in Nigeria. This cross-sectional study was conducted in a 650-bed tertiary care hospital in Ilorin, the capital of Kwara state, which is located in North Central Nigeria between May and June 2018. The study was conducted among food handlers (FHs) which include; the hospital kitchen staffs and the FHs in the various food outlets within hospital premises. Majority of the respondents were females (85.2%) and the age group with the highest frequency of 18 (22.2%) was 41–50 years. In the study, food handlers were knowledgeable about hygiene cleaning and hygiene procedures. Almost all food handlers knew this critical role of general workplace hygiene practices such as hand washing (96.3% correct responses), however, their knowledge of proper method of hand washing was poor with only 3.7% of respondents using water and detergent for hand washing. On disease spread, the results show that 95.1% of food handlers are aware that cockroaches and flies transmit food borne pathogens. Majority of the respondents (87.7%) agreed that pathogenic microbes are the

causation of food poisoning. A logistic regression analysis test showed two models statistically significant differences ($p < 0.05$) for model 2 with explanatory variables such as, proper hand hygiene can prevent food borne illness, food handlers should wear aprons and headgear cover while cooking and so on. As a whole, institutional food handler have adequate knowledge of food safety but not associated with certain socio-demographics characteristics such as level of education.

Odetokun, Ghali-Mohammed, Alhaji, Nuhu, Oyedele, and Ameen, (2020) assessed occupational health and food safety risks among slaughterhouse workers in Ilorin, North-Central Nigeria. Workers (n = 203) were sampled randomly from five slaughterhouses and assessed with use of a structured questionnaire. On the basis of a numeric scoring method, data on occupational health and food safety risks were evaluated, using descriptive statistics, univariate tests, and a multivariate logistic regression model. The majority (87.7%) reported work-associated injuries, affecting predominantly workers' hands. About 17% of workers reported injuries on >3 body parts. About 25% of respondents had inadequate knowledge about zoonosis and pathogen spread. Respondents had not been exposed to training on safety at work or enrolled in occupational health services. Scores on a test of knowledge of food safety risk ranged from 0 to 10, with 87.2% of participants obtaining unsatisfactory scores. The use of PPE (OR = 9.0; 95% CI: 3.5–22.9; $P < 0.001$) among workers tends to have a positive influence on practices that reduce food safety risks. Slaughterhouse workers in the Ilorin metropolis have a low risk perception with regard to occupational health and food safety issues. These findings could stimulate the development of policies and interventions to mitigate occupational health and food safety risks in Nigerian slaughterhouses.

Another study by Rahman, Hossain, and Pulok, (2025) assessed food safety knowledge and practices among restaurant food handlers in Dhaka, Bangladesh. A cross-sectional study involving 300 street food vendors and restaurant workers was conducted through in-person

interviews using a structured questionnaire. Descriptive and inferential statistical methods were employed to analyze the data. The study revealed that while most workers understood basic hygiene practices, critical knowledge gaps persisted. Male workers demonstrated lower food safety knowledge than females ($p \leq 0.01$), and higher knowledge scores were associated with both greater education ($p \leq 0.001$) and experience ($p \leq 0.05$). Workers in fast food establishments showed higher knowledge levels ($p \leq 0.001$), and knowledge was more strongly linked to job responsibilities than to training ($p \leq 0.001$). In terms of practices, women adhered more closely to food safety guidelines than men ($p \leq 0.05$). Age, education, and experience had no significant effects on practice adherence, though fast-food workers exhibited higher compliance ($p \leq 0.05$). Training and job responsibilities showed no significant effects on food safety practices. The results demonstrate that there are disparities in food handlers' understanding of food safety, with gaps primarily in the areas of cross-contamination avoidance, personal hygiene, and temperature control. Furthermore, observed practices suggest suboptimal adherence to advised food safety protocols.

A study conducted by Tagurum, Miner, Daboer, Eze, John, Luka, Chingle, and Chirdan, (2017) assessed occupational safety risks among food handlers in Lamingo, Jos North Local Government Area of Plateau State, Nigeria. A cross sectional study was conducted in February 2017 among 73 food handlers. Quantitative data was collected on knowledge, risk assessment and occupational safety practices among the food handlers. Data was analysed using Epi Info 3.5.4. The results showed that only 13.7% of the respondents were found to have good level of knowledge of occupational safety and health, while more than half (60.3%) of the respondents were found to work in high risk environment, with 16.4% in low risk environment. There was a poor level of practice of occupational safety among 60.3% of the respondents. Respondents agreed that efforts towards occupational safety such as resource commitment, continuous safety training, availability of safety materials in different languages, comfortable work environment

and facilities with regular maintenance as well as safety policy enforcement would improve occupational safety practices This means that majority of food handlers in Lamingo, Jos worked in high risk environment and in spite of this; there was a low level of knowledge and practice of occupational safety among them. Therefore, there is the need to improve work place safety and knowledge of occupational safety among food handlers. This can be achieved by conducting regular educational programmes and workshops about the importance of safety at work, and teaching the food handlers that occupational safety is also their responsibility, not just their employers alone.

CHAPTER THREE

MATERIALS AND METHOD

3.1 Materials

3.1.1 Study Design

The study is a cross-sectional research in Nnewi North Local Government in Anambra State. Questionnaire was employed to gather information on the occupational hazards in catering profession in Nnewi North Local Government.

3.2 Methods

3.2.1 Study Area

Nnewi North is a Local Government Area in Anambra State and one of the largest cities in Anambra State. Nnewi is the only town in Nnewi North Local Government Area with four villages (sub-towns) which include: Otolo, Uruagu, Umudim and Nnewichi.

The present traditional ruler of Nnewi (Igwe of Nnewi), presently is Igwe Kenneth Orizu III, of which this royal family is from OtoloNnewi and for this reason is regarded as first among the four equals. Other traditional rulers exist in other villages and oversee the affairs of their respective villages. Nnewi has the population of about 391, 227 (Census, 2006). The city spans over 1,076.9 square miles (2,789km^2) in Anambra state. The city is located east of the Niger River and about 22 kilometres South East of Onitsha in Anambra State. Nnewi is a major trading and manufacturing center in Nigeria, (Onwutalobi, 2015).

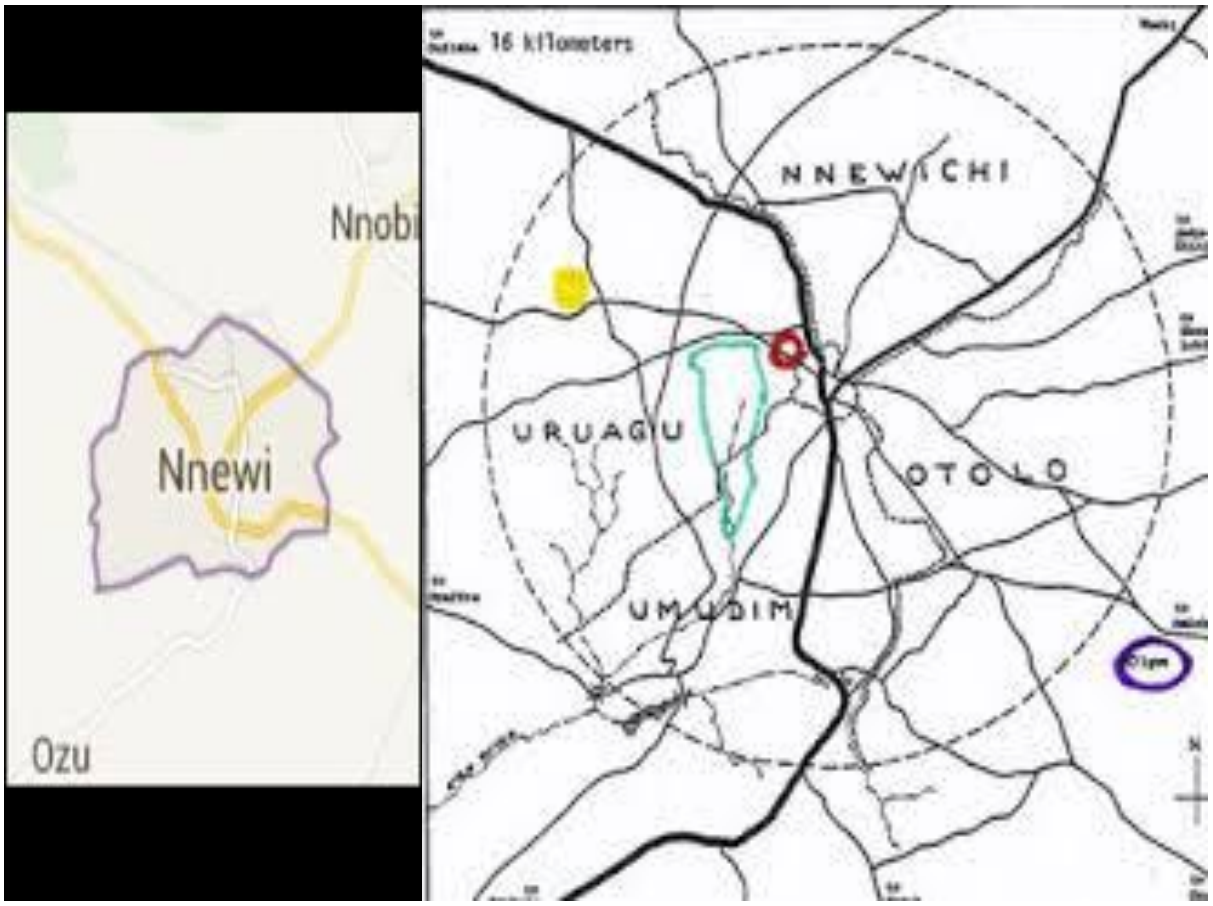


Fig 3.1: Map of Nnewi North Local Government

3.3 Study Population

The number of hotels in Nnewi North Local Government is forty-one (41) and in different categories namely:

Luxury/Five Star hotels (World Class service):	Non
Three/Four Star hotels (Mid-Range service):	Twenty-one (21)
One/Two Star hotels (Budget/Limited service):	Twenty (20)

The fast food restaurants are twelve (12) in number (Revenue office NNLG, 2017). The study population of the hotels and fast food restaurant employees (chefs/bakers and stewards/waiters) in Nnewi North Local Government is two hundred and twelve (212).

3.3.1 Sample Size Calculation

Using Taro Yamane method of sample size determination, the sample size of hotels and fast food restaurants in Nnewi North Local Government was calculated as shown in appendix D, out of the two hundred and twelve (212), one hundred and thirty nine (139) was obtained as the sample size which will adequately represent the population.

The formula is:

$$n = \frac{Nh}{1 + Nh\,(e^2)}$$

In the formula above

n is the required sample size from the population under study

Nh is the whole population under study

e is the precision error and 0.05 was used.

1 is constant

Therefore n= 212/ 1+ 212(0.05)2

n = 212/ 1+0.53

n = 212/1.53

n = 138.5 approximately. 139

The sample size is 139 staffs.

3.4 Sampling Method

A multi stage sampling method was employed for the study.

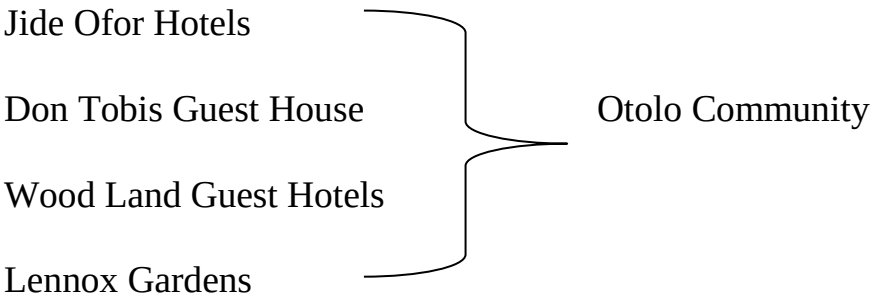
Stage one: Selection of towns in Nnewi north LGA

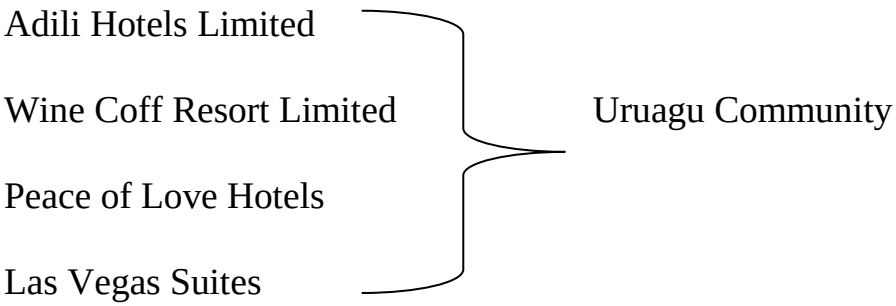
Nnewi north is stratified into four zones namely; Otolo, Nnewichi, Uruagwu and Umudim.

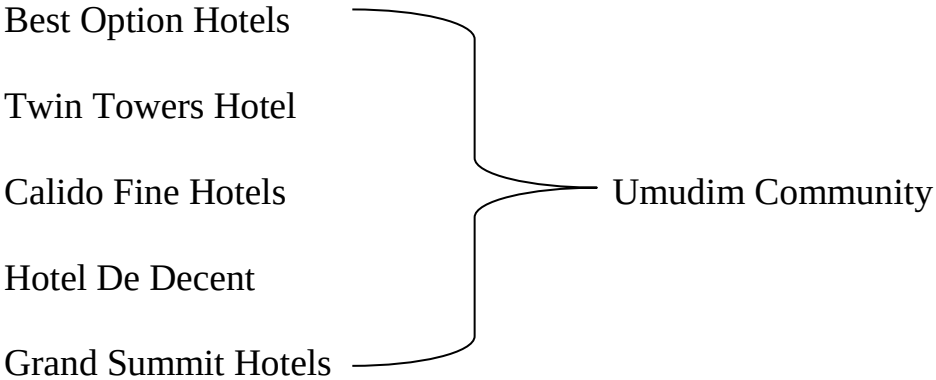
Stage two: Selection of hotels and restaurants within the towns in Nnewi North LGA.

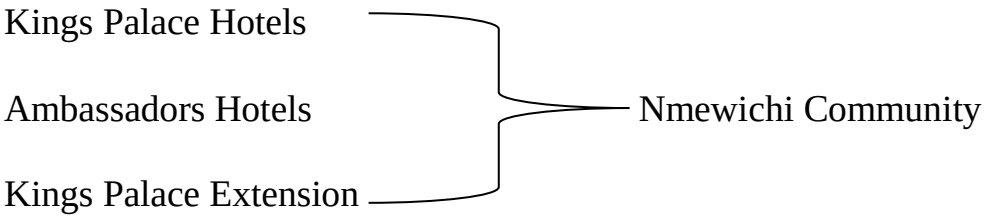
First the hotels and restaurants were stratified into three categories as three/four star hotels (mid-range service), one/two star hotels (Budget/limited) and fast food restaurants. Systematic random sample was used to select one third from each category as follows:

For the three/Four Star hotels (Mid-range services); Sixteen out of the twenty one were selected.

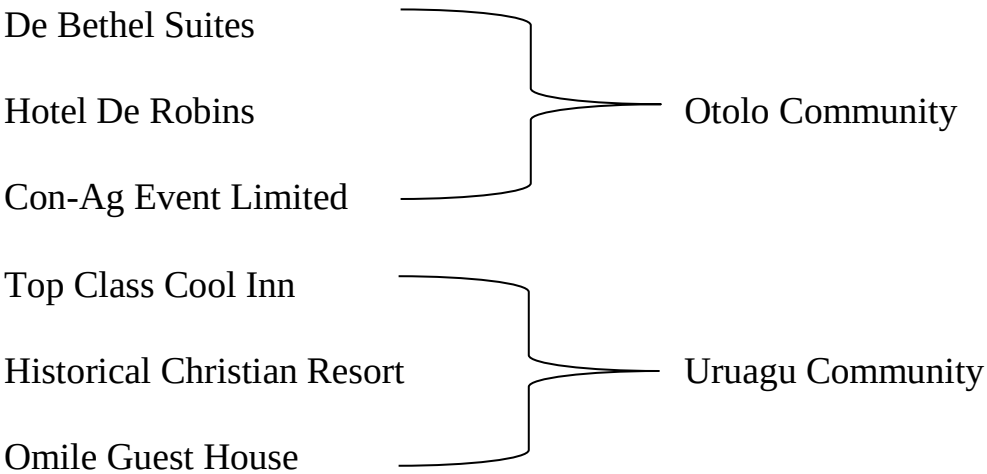








For the one/two-star hotels (Budget/ Limited services); eleven out of twenty were selected.



Hill Top Guest House

Orange Motel Ochendo — Umudim Community

Ochendo Hotels

Hotel De Universe

Dallas Guest House — Nnewichi Community

For the Fast food restaurants; eight out of the twelve were selected.

Kitchen De Royale

Mr Biggs — Otolo Community

Nobel Cusine

Milky Chunky Foods — Uruagu Community

Chicken Legacy

Gracia Salad — Umudim Community

Kitchen De Royale

Genesis Eatery — Nnewichi Community

Stage three: Selection of participants

A simple random sampling was used to select two participants each (chefs/bakers and stewards/waiters) across the hotels and restaurants.

3.5 Instrument for Data Collection

The questionnaire for the study is a semi – structured and self-administered questionnaire which consists of five sections. Section A is bio data; comprising information such as gender, age, education, organizational position, mode of employment, length/years of employment.

Section B consists of questions on sources of occupational hazards. Section C consist of questions on the knowledge of occupational hazard prevention and control practices Section D is for the attitude of caterers towards occupational hazards and safety and Section E is the effect of hazards.

3.6 Validity of Instrument

In this study, the study questionnaire which consists of about thirty-three (33) items which was adopted from a study in HSE 2010, on occupational hazards associated with catering profession and the researcher's supervisor made a few corrections.

3.7 Reliability of instrument

The instrument used is considered reliable as the instrument used gave the different respondent the opportunity to give consistent answers about the research (Inter- Rater / observer Reliability method). The measure of stability (reliability) of the instrument was established by a retest study. The retest was done in Agulu LGA in Anambra state. The researcher selected retest sample of sixty (60) caterers of Agulu town. The test-retest method was used in re-establishing the reliability of the questionnaire. The instrument has Cronbach's Alpha reliability of 0.703 which made it adequate and valid for the study. (Refer to appendix B).

3.8 Method of Data Collection:

The questionnaires were administered to the respondents with the help of trained field assistants. Informed consents were first gotten from the respondents before giving them the questionnaires to fill. English language was mainly used; however, Igbo language was also

used to explain verbally for subjects that do not understand English language. The information from the respondents was obtained face to face with them as a means for easy explanation and apprehension. The literate respondents were allowed to fill the questionnaire themselves while the non-literate respondents were asked in local languages and responses were filled by the researchers.

3.9 Method of Data Analysis

All data were tabulated and statistically analyzed using SPSS version 17.0. Descriptive statistics (frequency and percentage) were used to answer the research questions while, the hypotheses were tested using t-test performed at 0.05 level of significance.

3.10 Ethical Consideration

Ethical clearance was sought and obtained from the Department of Public Health, School of Health Technology, Federal University of Technology Owerri. Informed consent was obtained from the participants, prior to the administration of the questionnaire.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Results

4.1.1 Demographic Characteristics of Caterers in Nnewi North Local Government

Table 1 below revealed the description of the study population. The total sample size (n) is 139(100%). Most of the respondents were female 84(60.40%). 46% of the respondents are between the age's brackets of 13 – 24 years. 62% of the caterers have worked for one to five years either in the hotel (65.40%) and fast food restaurant (34.50%). 50% of the caterers had secondary education and 43.20% had tertiary education.

Table 1: Demographic Characteristics of Caterers in Nnewi North Local Government

Variable	Frequency	Percent
Work place type		
Hotel	91	65.50
Fast food restaurant	48	34.50
Total	139	100
Gender		
Male	55	39.90
Female	84	60.40
Total	139	100
Age		
13 - 24	65	46.80
25 – 34	59	42.40
35 – 44	13	9.40
45 - 60	2	1.40
Total	139	100
Level of Education		
Primary	1	0.70
Secondary	70	50.00
Tertiary	60	43.20
Technical/Artisan	8	5.80
Total	139	100
Organizational position		
Chef/Baker	62	44.60
Steward/waiter	77	55.40
Total	139	100
Length/years in employment		
1 – 5 years	87	62.60
6 -10 years	37	26.60
11 – 20 years	8	5.80
31 & above	7	5.00
Total	139	100
Do you do you shift work		
Yes	87	62.60
No	52	37.40
Total	139	100

4.1.2 Sources of Occupational Hazards in the Catering Profession in Nnewi North Local Government

This reveals the sources of occupational hazards among caterers in Nnewi North Local Government Area. The major sources of occupational hazards include; stress and fatigue due to work overload (17.3%), human error (16.0%) and contact with hot surfaces (10.80%).

Table 2 Sources of Occupational Hazards in catering profession as indicated by respondents in Nnewi North Local Government.

Sources	Type of Hazard	Frequency	% Response
Stress and fatigue due to work overload	Psychological	91	17.3
Human error	Psychological	84	16.0
Faulty equipment	Electrical	44	8.40
Unsafe work practices	Electirical	13	2.50
Cuts due to poor equipment design	Physical	15	2.90
Infections from poorly perpared foods	Biological	30	5.70
Infections from food contaminants	Biological	11	2.10
Slip, trips and falls	Physical	41	7.80
Lifting and manual handling	Physical	25	4.80
Skin irritations	Chemical	15	2.90
Contact with hot surfaces	Physical	57	10.80
Contact with harmful substances	Chemical	46	8.70

4.1.3 Availability of Control practices in Nnewi North Local Government

The table below reveals that 82% of hotels and fast food restaurants in Nnewi north had provision for occupational health and safety training, 59% of the caterers have participated such trainings for once a year (57.60%) and every six months (42.40%).

Table 3: Availability of Control practices in Nnewi North Local Government

Variable	Frequency	Percentage
Do you understand the specific procedure for your work?		
a. Yes	127	91.40
b. No	12	8.60
Is there any provision for occupational health and safety training in your organization?	112	80.60
a. Yes	12	19.40
b. No		
If such training is available, have you participated in it?		
c. Yes	83	59.70
d. No	56	40.30
If yes, at what intervals do such trainings take place in your organization?		
a. Every six months	59	42.40
b. Once a year	80	57.60

4.1.4 Practices of Caterers on Occupational Hazards and Safety in Nnewi North Local Government

Table 4 has revealed that 82% of the caterers in Nnewi North LGA have the required PPE and these include; protective clothing (41.30%), hand gloves (27.10%), and foot wear (23.40%). However, 18% of the caterers don't adhere to specific work procedures and their reasons include; been under pressure to complete job (50.00%) and not interested in using them (35.40%). 73% feels that work pressure is affecting their safety culture while 78% are not satisfied with the health and safety practices in their work place.

Table 4: Practices of Caterers on Occupational Hazards and Safety in Nnewi North Local Government.

Variable	Frequency	Percentage
Do you have the required Personal Protective Equipment (PPE) for your work?		
Yes	115	82.70
No	24	17.30
Do you use the required PPE for your work?		
a. Protective clothing	111	41.30
b. Hand gloves	73	27.10
c. Foot wear	63	23.40
d. Respirator	22	8.20
Reasons for not using PPE		
a. Not provided with them	34	24.50
b. Not trained to use them	20	14.40
c. Not interested in using them	16	11.50
d. Under pressure to complete job	69	49.60
Do you adhere to the specific work procedure in the work place at all time?		
a. Yes	114	82.00
b. No	25	18.00
If no, what are your reasons?		
a. Do not understand them	7	14.60
b. Not interested in using them	17	35.40
c. Under pressure to complete job	24	50.00
Do you feel that work pressure is affecting your safety culture?		
a. Yes	81	73.00
b. No	59	27.00
Are you satisfied with the health and safety practices in your work place?		
a. Yes	109	78.40
b. No	30	21.60

4.1.5 Perceived Consequences/Effect of Hazards of Caterers in Nnewi North Local Government

Table 5 below shows that 36% of caterers in Nnewi north LGA perceived that hazard have a large effect on their health as a staff. 51% of the caterers have been involved in occupational hazards and has resulted to absenteeism from work for 1- 4 days (60.30%).

Table 5: Perceived Consequences/ Effect of Hazards on Caterers in Nnewi North Local Government

Variable	Frequency	Percentage
Have you been involved in any form of occupational hazard?		
a. Yes	72	51.80
b. No	67	48.20
To what extent do the hazards affect your health		
a. To a very little extent	11	7.90
b. To a fairly large extent	17	12.20
c. To a little large extent	29	20.90
d. To a very large extent	32	23.00
e. To a large extent	50	36.00
In your opinion, were you under some form of stress or pressure before the hazard?		
a. Yes	56	40.30
b. No	83	59.70
How many days were you absent from work as a result of hazard?		
a. 1- 4	35	60.30
b. 5 – 9	11	19.00
c. 10 – 14	7	12.10
d. More	5	8.60

4.2 Discussion

The major sources of occupational hazards include observed in this present study are stress and fatigue due to work overload, human error and contact with hot surfaces. This is consistent with global evidence showing that food service workers commonly experience injuries from thermal burns, cuts, slips, and ergonomic strain due to prolonged standing and repetitive tasks, which are major contributors to workplace accidents in food services worldwide (Cavalcante, 2023; Wassif et al., 2024). Longitudinal studies indicate that repeated exposure to physical hazards and psychosocial stressors such as long working hours increases the risk of chronic musculoskeletal disorders, burnout, and psychological distress (Lu et al., 2022). These outcomes not only affect workers' health but also compromise organizational efficiency, reinforcing the importance of preventive interventions. Recent integrative reviews confirm that hazards such as cuts, burns, falls, and incorrect posture are among the most frequently reported injury types within the food service industry (Cavalcante, 2023). Similarly, a study among hostel kitchen workers in Egypt reported alarmingly high injury and occupational illness prevalence (77–81%), demonstrating the extreme vulnerability of kitchen-based professions to occupational risk factors such as hot surfaces, slippery floors, and sharp instruments (Wassif et al., 2024). These findings support the observation in the present study that contact with hot surfaces and fatigue pose significant.

The present study also revealed that 81% of hotels and fast food restaurants in Nnewi north had provision for occupational health and safety training, 59% of the caterers have participated such trainings for once a year and every six months. It also revealed that caterers of Nnewi north LGA have a significant level of knowledge about occupational hazards and safety. This aligns with research indicating that knowledge and training significantly influence Occupational Health and Safety compliance and risk awareness among workers (Adzinyo et al., 2024). Training has been shown to be a key determinant in improving safety practices and

reducing exposure to hazards in foodservice environments, as improved knowledge directly impacts workers' ability to identify hazards and apply protective measures. Similarly, in Sokoto Metropolis, Nigeria, a quasi-experimental study demonstrated that food hygiene training significantly improved the knowledge of food handlers compared to those who did not receive training (Raji et al., 2021). Research in central Morocco also revealed moderate levels of food safety knowledge and practices among restaurant food handlers, showing that formal training significantly influenced safe food handling practices (Amaiach et al., 2024). This underscores that knowledge alone is necessary but not sufficient for safe behaviour, reinforcing the need for ongoing training and workplace reinforcement.

Moreover, a study of food vendors involved in Nigeria's school feeding program found that access to information and education positively impacted food safety knowledge and practices (Barnabas et al., 2024). In the study by Akabanda et al., (2017), the food-handlers were knowledgeable about hygiene practices, cleaning and sanitation procedures. Majority of food-handlers in the study knew the importance of general sanitary practices such as regular hand washing at the work place, wearing of gloves, proper cleaning and use of detergent. The awareness of such important hygienic procedures by majority of the institutional food-handlers is very appropriate. This is because the hands of food-handlers can serve as vectors in the spread of food borne diseases due to poor personal hygiene or cross contamination.

The present study showed that 82% of caterers reported having appropriate PPE, but 18% did not adhere to standard procedures, with reasons including work pressure and low perceived necessity. Studies of food handlers report similar barriers to consistent PPE use, including discomfort, inconvenience, and forgetfulness, which are also observed across various service sectors (Adzinyo et al., 2024). Training and positive safety culture strongly influence attitudes and PPE use. Research in Ghana identified that inadequate Occupational Health and Safety practices are linked to the absence of sufficient safety infrastructure and proper training

(Adzinyo et al., 2024). These insights echo the finding in this study that poor adherence to safety procedures and PPE use stems both from individual attitudes and structural gaps in workplace safety culture.

A similar study by Akabanda et al., (2017) showed the attitudes of the food-handlers toward the prevention and control of food-borne diseases. About 60% of respondents indicated that using caps, masks, protective gloves and proper clothing can minimize the risk of food contamination, which is a positive attitude reported by majority of the respondents. Similarly, majority of respondents (93.6%) agreed that knives and cutting boards should be properly sanitized to prevent cross contamination of foods. Respondents also agreed that individuals with abrasions or cuts on their fingers or hands should not touch unwrapped foods. The majority of food-handlers were aware that food should not be handled with long and painted fingernails. They were also mindful of the fact that dish towels could cross-contaminate foods and that well-cooked foods are free of contamination. Thus, the general attitudes of the food handlers toward food safety was satisfactory, except on issues relating to refrozen of defrosted food. Majority of the food-handlers had unsatisfactory attitude towards defrosted and refrozen foods. Respondents (86.4%) did not find it necessary to check the temperatures of refrigerators and freezers periodically. The present study reported that 36% of caterers perceived hazards as having significant health effects, and 51% had experienced hazards resulting in absenteeism. Internationally, workplace safety culture is widely acknowledged as a core determinant of occupational risk outcomes. Research from the food services sector emphasizes that enhancing safety culture, through leadership commitment, hazard communication, and worker participation, is critical to reducing injuries and illnesses (Cavalcante, 2023). Moreover, workers' risk perceptions directly influence their adoption of protective practices. A Brazilian study of school food service workers found that inadequate training was associated with high environmental risk exposure and poor hazard mitigation, highlighting the need for continuous education and improved infrastructure (Ferreira et al., 2022).

This signifies that occupational hazards in the catering profession are multifaceted, ranging from physical risks such as burns and cuts to psychosocial risks such as fatigue and stress. Effective control requires comprehensive strategies combining training, strong safety culture, adequate PPE provision, and reinforcement of safe practices across all workplace levels.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

In general, caterers in Nnewi North LGA had satisfactory knowledge in the areas of occupational hazards prevention, food safety, general and personal hygiene, cleaning and sanitation procedures. However, this did not translate into strict food hygiene practices. Their attitude towards occupational hazard practices was also significant.

Therefore continuous occupational hazards education and motivation for caterers of various demographic backgrounds with special attention paid to those with lower levels of education would complement other interventions that pursue the enhancement of occupational health and safety in Nigeria.

5.2 Recommendations

i. A system of hazard identification, risk assessment, control measures and ongoing surveillance should be in place in every catering workplace.

ii. Given high risk of cuts/lacerations and burns/scalds, it would be sensitive to offer chefs and caterers vaccinations against tetanus.

iii. There is need for proper education of the relevant hazards, their associated PPE, hygienic practices and consistent use of the different protective devices.

iv. The introduction and enforcement of safety health measures through training and regular inspection by the relevant agencies will help to further promote the adoption of safety and hygienic practices among caterers in order to safe-guard and maintain good health and wellbeing among the staff of hotels and restaurants.

5.3: Contributions to Knowledge

This study makes several scholarly contributions to the field of occupational health and safety, particularly within the catering profession in developing urban settings. The contributions are outlined as follows:

1. **Provision of Context-Specific Empirical Evidence:**

   The study provides empirical data on the sources, types, and effects of occupational hazards among caterers in Nnewi North Local Government Area, Anambra State. Prior to this research, there was limited documented evidence focusing specifically on occupational risks within the catering sector in this locality. This study therefore fills an important knowledge gap by presenting localized findings that reflect the real working conditions of catering personnel in a semi-urban Nigerian setting.

2. **Identification of Major Hazard Sources in the Catering Profession:** It systematically identified stress and fatigue due to work overload, human error, and contact with hot surfaces as the predominant sources of occupational hazards. This contributes to the body of knowledge by establishing the dominant risk factors affecting catering workers within the study area, thereby providing a basis for targeted intervention strategies.

3. **Establishment of the Knowledge–Practice Gap in Occupational Safety:** Although the majority of respondents demonstrated adequate knowledge of occupational hazards and reported the availability of personal protective equipment, the study revealed a significant gap between knowledge and actual safety practices. This finding contributes to theoretical and practical understanding by emphasizing that knowledge alone does not guarantee compliance, and that factors such as work pressure and safety culture play critical roles in influencing behavior.

4. **Evidence on the Health and Productivity Impact of Occupational Hazards:** The study provides data showing that a considerable proportion of caterers had experienced occupational hazards, resulting in absenteeism and perceived adverse health effects. This contributes to knowledge by highlighting the economic and productivity implications of occupational risks within the catering industry, especially in small- and medium-scale food service establishments.

5. **Foundation for Policy Formulation and Future Research:**

   The findings of this study offer evidence-based insights that can guide the development of occupational health policies, safety training programs, and workplace interventions tailored to the catering sector. Furthermore, the study establishes a baseline for future research on occupational hazards among food service workers in Nigeria and similar socio-economic environments.

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APPENDICES

APPENDIX A: RESEARCH QUESTIONNAIRE

A – PERSONAL PROFILE

1. Workplace Type

   Hotel ☐ Fast Food Restaurant ☐

2. Gender

   Male ☐ Female ☐

3. Age (In years)

   15 – 24 ☐ 25 – 34 ☐ 35 – 44 ☐ 45 – 60 ☐

4. Education

   Primary ☐ Secondary ☐ Tertiary ☐ Technical/Artisan ☐

5. Organizational Position

   Chef/Baker ☐ Stewards/waiter ☐

6. Mode of employment

   Permanent staff ☐ Contract staff ☐ Casual staff ☐

7. Length/years in employment

   1 – 5 yrs ☐ 6 – 10 yrs ☐ 10 – 20 yrs ☐ 21 – 30 yrs ☐

   31yrs and above ☐

8. What is your work cycle?

   5 – 7 ☐ 7 – 7 ☐ 14 – 14 ☐ 28 – 28 ☐

9. Do you do shift work?

   Yes ☐ No ☐

10. Do you travel to work?

    Yes ☐ No ☐

11. How many hours do you spend working in a week – weekends inclusive?

a. Less than 40 ☐

b. Between 40 – 60 ☐

c. Between 60 – 50 ☐

d. More than 50 ☐

B– SOURCES OF OCCUPATIONAL HAZARDS

12. Do you feel that the working environment in your organization is accident free?

Yes ☐ No ☐

13. Do you feel that the working environment is highly competitive?

Yes ☐ No ☐

14. What are the major causes of accidents in your workplace (Tick all that apply)

a. Stress and fatigue due to work overload ☐

b. Human error ☐

c. Faulty equipment ☐

d. Unsafe work practices ☐

e. Cuts due to poor equipments design ☐

f. Infections from poorly prepared foods ☐

g. Infections from food contaminants ☐

h. Slips, trips and falls ☐

i. Lifting and manual handling ☐

j. Skin irritations ☐

k. Contact with hot surfaces ☐

l. Contact with harmful substances ☐

15. Have you had sufficient training to do your work?

Yes ☐ No ☐

C – AVAILABILITY OF CONTROL PRACTICES

16. Do you understand the specific procedures for your work?

Yes ☐ No ☐

17. Is there any provision for occupational health and safety training in your organization?

Yes ☐ No ☐

18. If such training is available, have you participated in it?

Yes ☐ No ☐

19. If yes, at what intervals do such trainings take place in your organization?

Every six months ☐ once a year ☐

D– PRACTICES OF CATERERS ON OCCUPATIONAL HAZARDS AND SAFETY

20. Do you have the required Personal Protective Equipment (PPE)?

Yes ☐ No ☐

21. Do you use the required Personal Protective Equipment (PPE) for your work?

Yes ☐ No ☐

Protective Clothing	☐	☐
Hand Gloves	☐	☐
Foot Wear	☐	☐
Respirator	☐	☐

22. If No, why do you not use your Personal Protective Equipment (PPE)?

a. Not provided with them ☐
b. Not trained to use them ☐
c. Not interested in using them ☐
d. Under pressure to complete job ☐

23. Do you adhere to the specific work procedures in the workplace at all times?

Yes ☐ No ☐

24. If No, what are your reasons? ☐
    a. Do you understand them? ☐
    b. Not interested in using them ☐
    c. Under pressure to complete job ☐

25. Do you understand the hazards associated with your work? Like

    Slips and falls, smoke inhalation, burns, cuts, fire, infection, fatigue, illness, electrocution etc.

    Yes ☐ No ☐

26. Do you feel that your work pressure is affecting your safety culture at work considerably? Standing for a long period, lifting, poorly designed equipment's etc.

    Yes ☐ No ☐

27. Are you satisfied with the health and safety practices in your place of work?

    Yes ☐ No ☐

28. Does lack of time force you to compromise the quality of your work and make you ignore safety principles?

    Yes ☐ No ☐

E – PERCEIVED CONSEQUENCES/EFFECT OF HARZARDS ON CATERERS

29. Have you been involved in any form of occupational hazard?

    Yes ☐ No ☐

30. To what extent do hazards affect your health as a staff?

    a. To a very little extent ☐
    b. To a little large extent ☐
    c. To a fairly large extent ☐
    d. To a very large extent ☐
    e. To a large extent ☐

31. Have you been involved in any form of occupational hazard?

Yes ☐ No ☐

32. In your opinion, were you under some form of stress or pressure before the hazard?

Yes ☐ No ☐

33. Were you absent from work as a result of the hazard?

Yes ☐ No ☐

34. How many days were you absent from work as a result of the hazard?

1 – 4 ☐ 5 – 9 ☐ 10 – 14 ☐ More than 15 days ☐

APPENDIX B: TEST RETEST RELIABILITY STUDY

RELIABILITY /VARIABLES=Shift Travel Hours S12 S13 S14 S15 K16 K17 K18 A19 A20 A21 A22 A23 A24 A25 A26 A27 A28 E29 E30 E31 E32 E33 /SCALE ('ALL VARIABLES') ALL /MODEL=ALPHA.

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	48	9.1
	Excluded[a]	478	90.9
	Total	526	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.703	33

The instrument has a Cronbach's Alpha reliability of 0.703 which makes it adequate and valid for the study. Note that a reliability coefficient of 0.70 or higher is considered acceptable (www.ats.ucla.edu/stat/spss/faq/alpha.html)

APPENDIX C: HYPOTHESES TESTING

Hypothesis One

Ho:1 There is no significant cause of occupational hazards among caterers in Nnewi North Local Government.

Hi:1 There is a significant cause of occupational hazards among caterers in Nnewi North Local Government.

The Table below revealed significant causes of accident/occupational hazard among caterers in Nnewi North Local Government Area [t (525) = 32.901; P < .05]. Therefore, alternate hypothesis is accepted

Summary of one simple test analysis showing the cause of occupational hazards among caterers in Nnewi North Local Government

Variable	N	Mean	Sd	Df	T	P
Major causes of Accident in work place	526	6.14	4.28	525	32.901	<.05

Hypothesis Two

Ho:2 There is no significant level of knowledge of caterers on occupational hazards prevention and practices in Nnewi North Local Government.

Hi:2 There is a significant level of knowledge of caterers on occupational hazards prevention and practices in Nnewi North Local Government. It

Is revealed that caterers of Nnewi north LGA have a significant level of knowledge about occupational hazards and safety [t (139) = 41.723; P < .05]. Therefore alternate hypothesis is accepted

Summary of one simple test analysis showing the level of knowledge of caterers on occupational hazards prevention and practices in Nnewi North Local Government

Variable	N	Mean	Sd	Df	T	P
Level of knowledge	139	4.17	1.179	138	41.723	<.05

Hypothesis Three

Ho:3 There is no significant attitude of caterers towards occupational hazards prevention and practices in Nnewi North Local Government.

Hi:3 There is a significant attitude of caterers towards occupational hazards prevention and practices in Nnewi North Local Government.

There is a significant attitude of caterers towards occupational hazards prevention and practices in Nnewi North Local Government [t (139) = 80.614; P < .05]. Therefore alternate hypothesis is accepted

Summary of one simple test analysis showing the attitude of caterers

towards occupational hazards prevention and practices in Nnewi

North Local Government

Variable	N	Mean	Sd	Df	T	P
Attitude of caterers towards hazards	139	12.63	1.847	138	80.614	<.05