Salford Business School

An assessment of Food Safety Culture at Five ethnic Group Restaurants in Dubai

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Declaration

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Declaration on Conduct of Assessed Work

Program & Year : **Doctor of Business Administration -2021-24**

Module : **Applied Research Project**

Module Tutor : **Dr. Kevin Kane**

I declare that

- This work is my own.
- If this is a group project, each student has contributed to the work in accordance with the set criteria
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Abstract

Recent studies suggest that a deeper understanding of food safety culture within organizations is necessary for ensuring food safety. During the food inspection program, the Dubai Municipality Food Safety Department identified two categories of restaurants, with one responding to inspectors' food safety concerns while the other did not. The analysis of the data on food safety noncompliance from the Dubai Municipality's smart system revealed that the knowledge and attitude of food handlers play a significant role in food safety infractions. Moreover, the majority of these infractions are associated with specific food establishments and ethnic groups, including Pakistan, India, the Philippines, Arabs, and international. The purpose of this research was to determine how food safety culture influences food safety compliance in various ethnic groups (Indian, Pakistani, Philippine, Arab, and international). Five factors, including financial inadequacy, management's commitment, food safety risk perception, management and co-worker support, and knowledge and trust in the food safety management system in different cuisines, were perceived differently by food handlers. Thirty food handlers from various ethnic groups of restaurants were randomly selected. This research employs a qualitative research strategy, and the primary instrument was semi-structured interviews with ten food handlers from Indian cuisine, eight from Pakistani cuisine, and four from the Philippines, Arabic, and international cuisines, respectively. An analysis of the food safety cultures of Indian, Pakistani, Philippine, Arabic, and international cuisines revealed that international and Arabic cuisines have financial adequacy to manage food safety, while Indian, Pakistani, and Philippine cuisines were found to have inadequate financial resources to implement Food Safety Management Systems to support food safety. Positive management commitment was noted in Pakistani, Arabic, and international cuisines, despite negative management commitment in Indian and Philippine cuisines. Indian, Arabic, and international cuisines exhibit a positive impact in perceiving the risk, whereas both Pakistani and Philippine cuisines showed a negative impact in perceiving the food safety risk. It was determined that the management and coworker support were positive in the Indian, Pakistani, and Philippine cuisines, whereas they were negative in the Arabic and international cuisines. The research also revealed that all five cuisines lacked knowledge and trust in the Food Safety Management System, relying primarily on basic food safety practices to ensure food safety and hygiene. The findings revealed a strong relationship between food safety culture and food safety compliance among Indian, Pakistani, Philippine, Arabic, and international ethnic groups. This research provides distinct contributions to the current body of literature. It offers factual evidence that the food safety culture has a direct influence on food safety. Given the lack of previous exploration on this subject, this research proposes a novel approach to enhancing safety in food establishments. The research examined and emphasized the variables that influence the level of food safety compliance in Dubai's restaurants.

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1. Introduction

The world is in the midst of the Fourth Industrial Revolution, dominated by the influence of digital technologies. Governments, organizations, and individuals are all beneficiaries of this revolution that enabled the digital transformation of processes that impact every aspect of human life, including food, health, living, entertainment, and mobility. At the turn of the century, the city of Dubai, one of the seven independent city-states in the United Arab Emirates, embarked on a mission to technologically transform government services. Digitalization was one of the core components of this transformation process, and the change impacted every aspect of food safety governance in the city.

To provide a better perspective on the enormity and complexity of ensuring food safety in Dubai, it's useful to have some context on the complexity of the task and the important role Dubai plays in the 21st century food system. The Emirate of Dubai is a major regional trade gateway and re-export zone for food commodities, and it expects significant growth in this food supply chain in the coming years. In the last two decades, the city has succeeded in transforming itself into a global city and a regional business and tourism hub. Dubai imports food from over 160 countries, and a large part of this is reexported to other countries in the region. Over 25,165 food businesses operate in the city, and they employ over 300,000 food handlers (Dubai Municipality Smart Food Inspection System, 2022). With a population of around 2.5 million residents, over 13 million visitors each year, and as a gateway for food import and export throughout the Middle East, it's hard to overstate the importance that Dubai plays in today's global food system (Dubai Statistics Center 2024). In the last two decades, there have been tremendous changes and exponential growth in the food industry in Dubai. With such rapid modernization, there have been increased challenges. For example, the high volume of food that is handled at the ports and thousands of food establishments, the diversity in the type and nature of foods, and a diverse workforce employed in the food sector are just

some of the notable challenges(Dubai Municipality Smart Food Inspection System, 2022).

Dubai's food establishments safely cater to millions of residents and international visitors on an annual basis. There are more than 25,000 food establishments, and people from over 200 countries work in the food industry in Dubai (Dubai Municipality Smart Food Inspection System, 2022). The people who work in establishments are not always well trained in food safety, largely because we get our labour force from countries that do not always have a good food safety system. Most of the business owners really want to improve food safety, but they don't even know what the right thing to do is, and often they are difficult to reach for training, which is often the cause of poor implementation of food safety programs. Over 1 million products are registered in the system today, and it handles transactions for about 7 million tons of food each year (Dubai Municipality Smart Food Inspection System, 2022). Over 50000 food samples are tested at the ports as well as in the city, and close to 100000 inspections are carried out each year (Dubai Municipality Smart Food Inspection System, 2022).

Dubai Plan 2030 envisions a citywide digital experience that contributes to the improvement of the quality of life of people who live in or visit Dubai (Dubai Industrial Strategy 2030). Government authorities, as part of the plan, have to provide unified, consistent, and top-notch digital experiences to consumers as well as businesses. There is a lot of emphasis on partnerships between the government and private sector and on improving the efficiency of service provisions in a cost-effective way. The food safety department has set its digital strategy to achieve the objectives of the plan. There are four core missions, and these include data democratization, enhancing digital and data competency, and ensuring targeted technology use. On the service front, the department also aims to keep all services proactive and seamless. The future of food safety will be the large-scale utilization of data to forecast food safety problems and prevent them from happening.

This research distinguishes itself from other worldwide studies by concentrating on the convergence of cultural diversity, food safety practices, and the hospitality sector within a multicultural and high-demand urban setting such as Dubai. It addresses a fundamental element of food safety culture within a multicultural context. This research distinctly examines how ethnic diversity influences food safety within the context of Dubai's global tourist, immigrant workforce, and advanced regulatory system, unlike studies in other countries that may focus on more homogeneous or localized environments.

1.1 Background to Research

1.2 Dubai Municipality Food Safety Department: An Overview

For up to 90% of its food needs, the UAE is heavily dependent on imports. The UAE chose the integrated approach and built a national food safety committee made up of officials from several ministries and organizations, with its food safety system being centered around HACCP and risk analysis (The Official Portal of the UAE Government,2021). The entire part after that is covered by this reference. The Food Safety Federal Law No. 10 of 2015 was approved in January 2016. The law establishes criteria and rules to ensure the food's safety and quality while also protecting the general public's health and consumers. Those found to be jeopardizing food safety in the UAE face severe penalties under the law. The Ministry of Climate Change and Environment must first provide its clearance before any food may be imported into the UAE for the first time. Without authorization, those who deal in food or products that contain alcohol, pork, or any of their byproducts risk a prison sentence of at least one month and a fine of up to AED 500,000. (AED 1.5, USD 0.27). Under Middle Eastern Arab countries' food control laws, misleading consumers by publishing a false description of food or using General Standards for Food erroneous labels is punishable by a fine of AED 10,000 to AED 100,000. In accordance with the law, the MOE may impose fines of up to AED 100,000 for other infractions, provided that the Cabinet controls these infractions. The Ministry of

Climate Change & Environment collaborates with its partners on the implementation of the law on the safety of food and its executive regulations, which include stringent controls and standards to ensure food safety throughout the food chain. This is done through its National Food Safety Committee (U.A.E.Federal law No.10 of 2015 on Food Safety).

According to the National Food Accreditation and Registration System of 2018, all food, regardless of whether it is imported or locally produced or if its ingredients or composition have been changed, must be registered in the electronic system, which is a connected smart platform for food product data, before it is handled in the markets of the United Arab Emirates. When major food dangers are identified, the National Rapid Alert System for Food, which was implemented in 2017, ensures that appropriate response actions are taken. The system defines the procedures for managing food risk warnings and placing and removing restrictions on tainted and mislabeled goods. The system's components include defining roles and duties; categorizing food alerts; and specifying the requirements for reporting food events, including food that has been rejected at the border and tainted goods that have been sold. The system assigns the food occurrences a classification matrix of high, medium, or low. The public health risk classification includes the level of public health risk, the scope and size of an incident, and the population affected. Personal food may be imported via the nation's borders with restrictions on specified types and amounts, in accordance with Ministerial Decree No. 14 of 2016 on Controlling of Imported Food for Non-Trading Purposes. Labels on food packages should be visible and permanent. That, with the exception of the passengers' food, contains the names of the stakeholders. Documents provided by the producer or maker in the nation of origin should be included with imported foods. The documentation must include all relevant information about the imported foods (U.A.E.Federal law No.10 of 2015 on Food Safety).

The WTO SPS Agreement, which establishes guidelines for how states might implement food safety and animal and plant health safeguards, has the UAE

as a signatory. With assistance from regional administrations in each emirate, the Ministry of Food Security created a national food security policy in 2020. The coronavirus pandemic has further expedited efforts to improve food security by boosting regional production, enhancing commerce, investing in technology, and minimizing food waste. Today's risk management system has undergone significant modernization to reduce the hazards to local and imported foods' food safety. The UAE has made investments in modernizing food analysis laboratory procedures, introducing new methodologies, instruments, and equipment for quickly testing food pathogens, as well as new software to organize the food samples being analyzed and share the results. On the website of the Ministry of Climate Change and Environment, you can find updates on laws and regulations pertaining to food safety.

There are about 24000 restaurants in the city that are engaged in food production, trade, and service, and they are expanding quickly at a pace of roughly 7% annually (Dubai Municipality Smart Food Inspection System, 2022). The employees who work in Dubai's restaurants represent more than 200 different ethnicities and more than 160 different nations (Moghadam, 2021). Restaurants in Dubai offer a variety of international dishes prepared in the most authentic manner.

1.3 Food Safety Compliance and Food Inspection Program in Dubai

The Dubai Municipality's food safety department houses all of Dubai's regulatory programs under one roof, making it the city's sole agency for food safety. They are wholly and exclusively active in policymaking, inspection, testing, surveillance programs, and consumer education, unlike other food safety organizations. Additionally, we control food labeling, create and oversee training programs for those in charge of food enterprises and food handlers, and examine the internal design layout of food facilities. (Local Order No. (11) of 2003 Concerning Public Health and Safety of the Society in the Emirate of Dubai).

Food Safety Department of Dubai Municipality is the regulatory authority responsible for managing food safety in the food establishments located in Dubai while coordinating with food safety authorities in the other emirates under the Umbrella of the federal government. The Dubai Municipality, Food Safety Department, discovered two groups of food facilities during the course of the food inspection program, one of which was reacting to food safety concerns brought up by inspectors during their routine inspection program. (Dubai Municipality Smart Food Inspection System, 2022). Concerns about food safety in their food facilities were not being corrected by the second group. Here when an inspector often issues a red card, which can result in fines and closures, it was found that this strategy was not working. They were aware that training was ineffective and that sanctions would be more onerous. This analysis of the data on food safety noncompliance from the Dubai Municipality's smart system revealed that the knowledge and attitude of food handlers play a significant role in food safety infractions.

Additionally, in contrast to certain other cuisines/ethnic groups and in between the recognized ethnic groups, such infractions are mostly linked to some of the distinct food establishments/ethnic groups, such as Pakistan, India, the Philippines, Arab, and International. (Dubai Municipality Smart Food Inspection System, 2022). It stipulates that there must be a variety of deficiencies in such facilities. Therefore, there is a significant degree of ambiguity regarding the dependability of these establishments and their capacity to provide a perfect assurance of food safety in Dubai.

The majority of the food consumed in Dubai is sourced from a worldwide food supply chain and is prepared in sizable culinary facilities. The restaurants here supply a wide variety of difficult-to-make food items to tourists and locals who frequently eat out. Because we commonly hire labour from nations with weak food safety regulations, the employees in our establishments are frequently undertrained. Each year, the Dubai Municipality Food Safety Department conducts about 35754 inspections, of which 3705 are follow-up inspections to

make sure corrections were made after a red card was issued (Dubai Municipality Smart Food Inspection System, 2022).

1.4Research Rationale

An inherent difficulty stemming from the circumstances in Dubai, as well as in several other Gulf regions, pertains to culture-specific issues, which are particularly prevalent in the food business sector(Cherian et al. 2021). Factors encompass the absence of a uniform labour force (due to the predominant presence of foreign workers), language variety, and the absence of common, standardized working customs and food safety protocols. Consequently, researchers and academics in the food safety domain must comprehend the determinants that affect persons' conduct in the workplace, and also examine the circumstances and scenarios that contribute to and trigger food safety problems (Anthonisz, 2018). It is crucial to take into account cultural diversity and distinctiveness among employees in any workplace. Failing to recognize or disregard these differences might result in misinterpretations and misunderstandings, which can ultimately lead to foodborne illnesses (Orsini and Watanabe, 2023). Reactions to actions, behaviors, and activities that lead to higher hazards vary among various ethnicities and cultures. People's customary behaviors are evident in their responses to actions and activities that involve potential risks. (Lin and Roberts 2020). Cultural backgrounds influence individuals' perceptions, responses, and management of situations involving risk or uncertainty. This attribute encompasses the cultural norms acquired by individuals within their social milieu (Jiang and Wang 2023).

Al-Bayati, Abudayyeh, and Ahmed (2016) argue that effective management of cultural diversity is crucial for preventing misinterpretation and enhancing workplace relationships, productivity, and safety performance. Researchers have increasingly recognized the significant influence of national culture on organizational dynamics. Hofstede et al. (2010) claimed that corporate cultures are inherently derived from national culture. Hofstede et al. (2010) determined

that the influence of national culture on organizational performance surpasses that of organizational culture or any other subculture. The correlation between safety and national culture has been acknowledged in recent years (Mearns & Yule, 2009), and organizations aiming to foster a favorable safety culture must analyze the interrelation between organizational safety and national culture.

As far as the author is aware, there is a lack of published research examining the impact of national culture on food safety practices in food outlets, specifically in Dubai. Previous studies have mostly concentrated on the influence of national culture on work-related attitudes, neglecting its effect on safety attitudes and actions (Mearns & Yule, 2009). However, the topic still holds significant importance, and it is crucial to determine the varying perspectives on safety issues across different cultures (Mearns & Yule, 2009; Starren et al., 2013). The entire examination of food safety behavior and its correlation with country culture remains incomplete. Given this circumstance, there is a scarcity of literature regarding this topic, and the literature review chapter aims to tackle this problem.

The demographic composition of Dubai consists of a mere 15% indigenous inhabitants, while the remaining 85% is comprised of expats. Approximately 85% of the expatriate community, or 71% of the entire population, consists of individuals of Asian descent, with the majority originating from India, making up 51% of the total. The remaining Asian population in Dubai comprises individuals who originate from Pakistan (17%), Bangladesh (9%), and the Philippines (3%). The city is characterized by a substantial Somali community, with British expatriates constituting the largest group of Western expats (Dubai Statistics Center 2024).

In Dubai, there is a dearth of research examining the impact of national culture on food safety, both directly and indirectly. Hence, the present research seeks to rectify this inadequacy by investigating the conduct of individuals involved in food handling, primarily focusing on five ethnic groups—Indian, Pakistani,

Filipino, Arab, and international. The research originates from my professional experience as the Director of the Food Safety Department in the Dubai Municipality. The primary objective of the research was to employ a behavior-centric approach to food safety inspections to enhance the food safety ratings in facilities that were deemed "unsatisfactory" by various ethnic groups. Upon analyzing the inspection results, we observed a deficiency in the food safety culture (Dubai Municipality Smart Food Inspection System, 2022). The majority of infractions observed in non-compliant facilities are related to particular ethnic groups, such as Indian, Pakistani, Filipino, Arab, and international. Following that, the research will examine the impact of these traits on food safety and pinpoint possible avenues for improving the food safety culture.

1.5 Research Aim

This research aimed to gain an understanding of the food safety culture among five ethnic group restaurants in Dubai (India, Pakistan, Philippino, Arab (Lebanese, Syrian, and Egyptian), and international (Italian and Mexican). To explore the influence of diverse food safety cultural elements on different nationalities and ascertain if these elements significantly vary among various ethnic groups, potentially influencing food safety practices and food safety incidents.

1.6 Research Questions

The objectives were realized through the following research questions:

- What are the unique attributes of food safety cultures, opinions, and perspectives of food handlers in Dubai that influence food safety?

- How do cultural factors impact the level of dedication to food safety in Dubai.

- What are the primary elements that influence repeated instances of low food safety ratings (D and F) in the five different categories of food establishments?

- What measures may Dubai Municipality adopt to improve the supervision of food safety in Dubai?

1.7 Research Objectives

- To explore the food safety culture, viewpoints, and perspectives of food handlers that influence the food safety in Dubai.
- Determine the connection between food safety and cultural factors in various ethnic restaurants to ascertain if they contribute to food poisoning in Dubai.
- Evaluate the underlying cause of recurrent low food safety ratings (D and F) in Dubai from distinct groups of food facilities and its relationship with the food safety culture.
- Make recommendations on how to enhance food safety culture in Dubai based on the findings.

1.8 Research Methodology Overview

The efficacy of research is heavily contingent upon the methodology employed. Theoretical and practical research procedures are the primary and widely employed scientific approaches (Savin-Baden, M. and Major., 2023). The chosen methodology serves to both define and elucidate the approach employed to collect primary data from the participants of the research. Various frameworks can be utilized to apply a technique, such as the Saunders, Lewis, and Thornhill (2015) framework, sometimes known as the 'research onion'. The framework categorizes the research methodology into five distinct sub-sections, providing a comprehensive description of each stage of the research process (Saunders et al., 2015). The current research used this research approach due to its capacity to incorporate multiple layers of analysis. To acquire valid results, a significant quantity of data is required. The data collection methods and applications described in the sub-sections of the Saunders Framework allow for the attainment of various research goals. The

success of a research project relies heavily on the careful selection of an appropriate methodology that aligns with the research issues being investigated. The method serves as a framework for developing a suitable strategy for gathering and assessing the data. The current research has chosen the qualitative approach as its foundation. Interviews were performed with representatives from five distinct cuisines: Indian, Pakistani, Filipino, Arab, and international. The inductive technique was employed. The research is conducted using the interpretivist model. It focuses on six cultural criteria that have been identified as influential factors in food safety performance: management's commitment, leadership, communication, risk awareness, perception, and risk-taking behavior (Griffith, Livesey, and Clayton, 2010). This approach is considered the most appropriate for the research.

The research program consists of five fundamental stages: literature review, pilot study, data collecting, qualitative analysis, validation and conclusion.

Phase One: Examination of existing literature

This stage is crucial in the research process as it allows for the clear identification of the problem and aids the researcher in formulating the research objectives and questions, as well as establishing the theoretical framework. This phase is dedicated to studying literature that analyzes the behaviors related to food safety and their connection to national culture.

Phase Two: Pilot Study

This stage primarily addresses both significant and minor issues, encompassing the formulation of the overall interview question and its language challenges. Pilot studies assess the practicability of techniques and protocols to be employed in more extensive investigations. Pilot studies are conducted to assess the feasibility of data gathering techniques, participant recruitment efforts, and potential problem areas. The citation provided is from the study conducted by Teresi et al. in 2022.

Phase Three: Gathering Data

In this stage, the interviews are sent to the chosen research sample. The selected interviews consist of thirty food handlers from five different cuisines: Indian, Pakistani, Philippine, Arab, and international. The interviews have been devised to investigate food safety conduct and its correlation with national culture.

Phase Four: Qualitative Analyses

This step entails employing a qualitative approach to gather data from a specific cohort of food handlers from five distinct ethnic groups: Indian, Pakistani, Philippine, Arab, and international. The Interview guide facilitates the gathering of empirical data regarding employees' perceptions of food safety culture. To do this, a comprehensive interview guide was devised and disseminated to food handlers representing five distinct ethnic groups.

The analysis of the data entailed a six-step approach, which included identifying the main element and encoding the observations. Code inception, Conducting a search for themes using initial coding, evaluating the identified themes, defining and naming the themes, and drafting the report.

Phase Five: Verification and Finalization

The initial step in this ultimate phase entails the validation procedure, which is conducted in collaboration with food safety specialists. The subsequent phase of this step involves deriving inferences and formulating suggestions. The overall suggestions incorporate the recommendations obtained from food safety experts, interviews, and the researcher's field observations.

1.9 Theoretical Framework

A crucial component of research entails the establishment of a theoretical framework (Calder et al.2023). A theoretical framework is a chosen theory that a researcher adopts to underpin their research. In essence, a theoretical framework involves the use of a theory or notion derived from that theory to

elucidate a research problem, an event, or a particular occurrence. Formulating thoughts and taking activities guided by theoretical principles are crucial when it comes to picking a subject, conceptualizing the literature review, formulating research questions, determining the design strategy, and selecting an analysis method for a dissertation (Stahl 2023). A theoretical framework serves as the foundation for the development of knowledge in a study, both literally and metaphorically. It offers assistance and organization for the justification, objective, issue statement, research inquiries, and importance of the study (Varpio et al.2020).

A theoretical framework serves as the basis for a literature review, as do its analysis and methodology. A theoretical framework serves as a comprehensive plan for conducting a study, guaranteeing that the study's objectives and organization are well-defined. Conversely, a research plan that incorporates a theoretical framework serves to guarantee that the dissertation is well-organized, strong, and has coherent chapters (Paul and Criado 2020).

This research will first construct a theoretical framework before conducting a literature review. The theoretical framework will serve as the conceptual underpinning for the research. This framework will enhance the comprehension of the observed phenomena. The interrelationships among the essential elements of the phenomena can be delineated within this theoretical framework, and its elucidation will serve as the foundation for the literature review chapter. Theoretical frameworks are comprehensive and all-encompassing explanations that can be applied to a diverse range of data. They enable us to formulate further hypotheses that can be tested and proven false. Consequently, a researcher has the ability to conduct their study within a theoretical framework, investigate research inquiries, make decisions on data collecting, and establish connections between research questions and data in the literature. Every research endeavor necessitates a distinct theoretical framework as a foundation, whereas the research framework and paradigm offer a broader perspective on the subject matter, as they are rooted in

fundamental assumptions. Illustrative instances encompass the essence of cognition, the essence of existence, and many study strategies and techniques. The theoretical component of a research framework is connected to its perspective on epistemology and ontology, whereas the practical component is concerned with the technique and procedures employed in a research project (Varpio et al.2020). The present thesis will elucidate the most suitable theory, or theories, about the research questions at hand.

The theoretical framework of the current research directs the methods of data collecting, fills in gaps in the existing literature, and considers the extent of the research. It primarily focuses on the behavior and performance related to food safety, as well as the influence of national culture, and explores the interconnections among these many factors. The rationale for utilizing this theoretical framework is to provide a structured foundation for this research and aid in the development of the research tools.

1.10 Structure of Thesis

Chapter 1: Introduction

This chapter provides an overview of the research backdrop and problem, offering reasons for the research goals and objectives, as well as the research technique. This research examines the existing knowledge on how national culture influences the food safety culture of individuals who handle food. Dubai offered a significant void in the worldwide literature, namely in terms of research on the influence of national culture on food safety carried out in Dubai.

Chapter Two: Literature Review on Food Safety and Culture

This chapter provides a thorough examination of various theoretical viewpoints on food safety through a comprehensive literature survey. The chapter additionally provides definitions and descriptions of food safety culture and behavior. Furthermore, the examination of the role of national culture is conducted. The literature review examines the correlation between food safety culture and country culture.

Chapter Three: Literature Review on Organizational National Cultural

This chapter provides a comprehensive analysis of different national culture models, highlighting their significant attributes and evaluating their advantages and constraints.

Chapter 4: Methodology of Research

Chapter Four delves into the research technique employed in this research, encompassing the research philosophy, data-collection process, data-analysis procedures, and research strategies. Furthermore, it addresses significant ethical concerns, while also taking into account issues of dependability and validity. A structured interview guide was created and the obtained replies were utilized to accomplish the stated objectives. During the "Welcome" segment, participants were provided with information pertaining to the research. Furthermore, it provided the members with knowledge about their entitlements concerning the research, as well as the process of obtaining informed permission. The socioeconomics section documented the demographic data of the participants, including their ages, tenure at the food office, and sexual orientations. The inclusion of semi-structured questions in the second phase of the interview aimed to enhance the understanding of food handlers' viewpoints toward food safety.

Chapter Five : Qualitative Analysis Results

This chapter presents the qualitative findings of the research and provides an analysis of them. The conducted interviews provided useful insights into the food safety viewpoints of the food handlers in the five ethnic group of restaurants, namely Indian, Pakistani, Philippino, Arab, and International.The interviews elucidated the main themes that impact the food safety culture among the five ethnic groups, encompassing six factors: leadership, communication, dedication to food safety, management system and style, support for the environment, and perception of risk.

Chapter Six : Validation and Discussion of Research Findings

This research accurately assesses the influence of national culture on food safety in Dubai, specifically focusing on five major cuisine categories: Indian, Pakistani, Philippine, Arab, and International. The data collected and analyzed for this research are highly likely to be accurate and suitable, considering the suitability of the methodologies employed. The meticulous attention given to the research design, together with the researcher's deliberate actions to eliminate any bias, significantly enhance the research validity and strengthen its basis.

Chapter Seven - Conclusion and Recommendation

This chapter concisely presents the findings of the research, together with an elucidation of its contribution to the knowledge and practise. Additionally, it includes research recommendations and a conclusion.

Literature Review

2.0 Food Safety Literature Review

2.1 Introduction

Organizational culture encompasses the distinctive attributes of an organization that embody its underlying assumptions and convictions. These assumptions are upheld by ongoing interaction with employees and are evident in their attitudes and actions. Notwithstanding changes in the organization, the notion of organizational culture continues to be pertinent. It has an impact on internal operations and daily performance. Culture encompasses more than just procedural correctness; it is imperative for all individuals in the workforce to conform to a shared set of fundamental principles and goals. A uniform interpretation is utilized to establish a widespread agreement and acts as the basis for reporting within the organization.

2.2 Food Safety Culture

The principles of food safety that a firm adheres to and the priority it places on maintaining and meeting requirements are reflected in the food safety culture of that company. Although very little research has been done on food safety culture, recent articles in the academic literature of the field demonstrate how important it is to investigate this topic. According to Thatcher, Nayak and Waterson (2020), a company's food safety culture may drastically shift from one location to another across the country as a result of regional differences in the culture of the population as well as in the manner in which policies are enforced to govern that population.

When evaluating the culture of a company, it is essential to keep in mind that operational factors such as management, the size of the company, and the types of products it manufactures all have an effect on the company's attitude toward food safety. Food safety performance is influenced in various ways, including by the structure of the company's food safety management system,

the behavior of its employees, and the values held by the business. According to Nyarugwe et al. (2020), however, in order to contextualize the food safety culture, other aspects, such as national culture and food safety regulations, need to also be taken into consideration.

The majority of the literature on food safety culture has a definition of food safety culture, with many referencing definitions from previous studies. The prevailing definition of food safety culture, as referenced most frequently in the literature, is provided by Griffith, Livesey, and Clayton:

The term "food handling environment" refers to a specific context where pervasive, consistent, acquired, and commonly held attitudes, values, and beliefs influence the hygiene behaviors practiced (Griffith, Livesey, & Clayton, 2010).

In his 2009 publication "Food Safety Culture: Creating a Behavior-Based Food Safety Management System," Frank Yiannas distinguishes food safety culture from food safety management systems (FSMS) and employee understanding of food safety practices. According to Yiannas, although having an FSMS is crucial, food safety culture goes beyond mere procedures and focuses on human behavior. This differentiation is evident in several literary works, and deliberations on food safety culture center on the collective attitudes, values, and convictions on food safety that are shared by both the workforce and the management within an organization.

According to Griffith, Livesey, and Clayton (2010), food safety culture is defined as the way it interacts with an organization's management systems, style, and procedures to ultimately impact food safety performance. De Boeck et al. (2015) define food safety culture as the interaction between the Food Safety Management System and what they refer to as a "food safety climate." This definition closely aligns with Griffith, Livesey, and Clayton's definition of food safety culture. However, it is important to note that food safety culture and food safety climate are not necessarily synonymous. Sharman et al. (2020)

conducted a literature review in 2020 and discovered that food safety climate, although closely related, is typically linked to a short-term perspective. It is commonly defined as the attitudes and perceptions of individuals at a specific moment in time. Food safety culture, on the other hand, refers to a prolonged timeframe characterized by the dominant beliefs, behaviors, assumptions, and practices inside an organization. The literature mostly focuses on discussing the topic of food safety culture inside organizations, particularly in relation to firms involved in manufacturing, food processing, and retail. There is a scarcity of research examining food safety culture on a national scale, and none of the existing literature explores food safety culture among individual consumers. While the phrase food safety culture existed before him, Frank Yiannas is widely recognized for popularizing the concept of food safety culture in the field of food safety literature through his book published in 2009 (Yiannas, 2009). The majority of discourse in the scientific literature, however, has been instigated by scholarly investigators, such as Christopher Griffith, E. De Boeck, Lone Jespersen, and Shingai Nyarugwe. The Global Food Safety Initiative (GFSI) plays a crucial role in the food business by actively promoting and advocating for food safety culture. It offers valuable resources on this topic to its members.Organizations ought to communicate using the same terminology as their employees and explicitly establish the connection between their job goals and food safety (Ades et al., 2016).

2.3 Food Safety culture and government regulatory agency

Tomasvic et al. (2020) conducted a survey on food companies in Central and Eastern European countries using De Boeck et al.'s (2019) Food Safety Climate Self-Assessment Tool. They discovered that European Union (EU) countries with comprehensive food safety laws and strict enforcement had significantly better food safety climates compared to non-EU Central and Eastern European food companies with less consistent regulations. Similarly, Nyarugwe et al. (2020) examined the food safety culture of seventeen food companies from Tanzania, Zambia, Greece, and China. They found that

national values and food safety governance, such as public legislation, private standards, and enforcement practices, appeared to influence the prevailing food safety culture of these companies. However, there is a lack of research on the specific elements of food safety governance that contribute to a stronger food safety culture.

2.4 Food Safety Culture and Food Poisoning in Dubai

The presence of culture inside a food establishment is manifested through its organizational culture, wherein the collective values, beliefs, attitudes, and behaviors of both the organization and its employees are significantly shaped by the commitment to producing safe food and are actively practiced (GFSI, 2018). Upon careful analysis, it is vital to acknowledge that a culture is formed via the manifestation of behaviors and activities, which are inherently influenced by underlying values and beliefs. Consequently, the effect of the broader culture should extend to the influence of all underlying daily behaviors, and conversely. Dynamism appears to be a significant aspect of culture, as indicated by Olsen et al. (2023), suggesting that culture is inherently characterized by its lack of static nature. This interpretation suggests that employees possess a comprehensive understanding of how their actions and decisions influence food safety, hence emphasizing the fundamental role of food safety culture. In order to ensure effective communication and proactive engagement, it is imperative that open channels of communication are established within the organization. Additionally, it is crucial for employees to actively pursue ongoing enhancements in the realm of food safety, as highlighted by Sharman et al. (2020). The conduct of employees during their autonomous and unmonitored job holds significant importance from a pragmatic standpoint. The primary obstacle in achieving genuine behavioral consideration lies in effectively bridging the disparity between the comprehensive understanding of appropriate work practices and their frequently flawed execution in everyday activities. As the maturity of the Food Safety Culture (FSC) inside a company progresses, it is typically observed that

the expenses associated with poor quality tend to decrease (Jespersen et al., 2019). Consequently, there is an associated increase in the benefits to public health outcomes (Frankish et al., 2021). Employee engagement can be fostered by strategic initiatives and campaigns, comprehensive training programs that emphasize proper conduct and its significance in ensuring food safety, and soliciting input from employees. The implementation of thorough training programs for all personnel with regards to food safety is of paramount significance in order to augment consciousness and comprehension of potential hazards, as well as to foster the adoption of suitable practices. According to Sharman et al. (2020), the establishment of a robust food safety culture can be facilitated by the implementation of an efficient leadership role and the active participation of all employees within the food industry. The objective of training should be to augment individuals' awareness of the subject matter by facilitating a comprehensive understanding of the underlying rationales behind established regulations. It is imperative for all personnel to possess a comprehensive understanding of the significance of food safety and to acknowledge their corresponding obligation in upholding it. The implementation of training programs should aim to enhance individuals' knowledge of potential risks. By means of focused training and suitable measures, personnel have the capacity to enhance their comprehension of the potential hazards linked to food safety. This empowers individuals to implement suitable strategies to mitigate risks, effectively identify and manage potential risks, and actively participate in the promotion of food safety. The recognition of the significance of a robust food safety culture has led to the emergence of legal and normative obligations that are instrumental in compelling food industry enterprises to implement necessary procedures to ensure the safety of their products. Effective communication, a transparent distribution of tasks and responsibilities, and periodic evaluations are necessary components. The management team bears the responsibility of ensuring compliance with regulatory mandates, taking into account food hygiene considerations while implementing changes, and actively fostering the ongoing enhancement of the

Food Safety Management System. Due to the theoretical expectations placed on food safety culture within the food industry, the practical implementation of these criteria into actionable measures remains challenging due to the absence of comprehensive guidelines. Hence, in the absence of widely acknowledged interpretational methodologies, it is imperative for enterprises to proactively use risk-based measures in order to achieve successful interpretations and reasonably efficient strategies.

The authors of the study (Nyarugwe et al., 2020) devised a research framework for food safety culture, which facilitates the examination of an organization's food safety culture within the context of its own nation. The assessment of the current food safety culture was conducted with consideration of both internal and external firm factors. The findings of the study suggest that the external environment of a company may influence the existing food safety culture within an organization. However, the validity of this assumption could not be verified due to the limited scope of the investigation, which only encompassed enterprises inside a single country. Hence, the primary aim of this research was to assess the influence of food safety governance and national values on the existing food safety culture within organizations. This was achieved by examining the food safety culture of food companies in countries with varying national values and approaches to food safety governance. Consequently, we conducted an evaluation of companies operating in countries with varying national values and approaches to food safety governance. Our objective was to determine the presence of a correlation between these factors and the prevailing food safety culture within food establishments. Additionally, we aimed to ascertain the potential usefulness and relevance of national culture and the food safety governance approach in explaining this phenomenon.

2.5 Dubai Food Safety Culture Enhancement Strategy

To improve food safety in food operations, it is crucial to prioritize the development of a food safety culture (Frankish et al., 2021). Sharman et al. (2020) performed a comprehensive analysis of various food safety culture

definitions found in the existing literature. Following their examination, the researchers have released a complete and all-encompassing definition with the goal of harmonizing the concept of food safety culture. Food safety culture is a long-lasting idea within an organization that includes the deeply rooted attitudes, practices, and beliefs that are learned and collectively shared by all staff members. The collective mindset has a substantial impact on the business's performance in guaranteeing food safety. Developing and implementing well-designed plans is essential for food businesses that want to improve and establish a robust food safety culture (Nyarugwe et al., 2018). Nevertheless, it is crucial to acknowledge that the research on food safety culture is currently limited in terms of the precise measures needed to promote such enhancement. According to Ades et al. (2016), the process of implementing a planned culture change can be divided into three phases: (1) identifying and defining the problem area, (2) conducting a thorough analysis of the problem area, and (3) creating and executing interventions to resolve the identified issues. (Kussaga, 2015). Most published Food Safety Culture research mostly concentrates on the initial phase of the roadmap, which entails reviewing and assessing the Food Safety Culture. However, a number of recent studies have already included the second and third phases, as demonstrated by Zanin et al.'s (2021a; 2022) research on educational interventions. The current corpus of research on strengthening food safety culture is somewhat restricted, leaving a crucial question unresolved about the strategies for enhancing food safety culture within the food industry (Manning et al., 2019).

Various measures have been taken to enhance food safety and the corresponding management systems. The interventions encompass several actions, such as carrying out inspections of food establishments, offering training programs, conducting audits of food management systems, and undertaking government-led food analysis. Multiple research studies have employed training as a method to reduce the hazards linked to foodborne illnesses (Taha et al., 2020a; Yu, Sirsat, & Neal, 2019). Researchers utilize the Knowledge, Attitude, and Practice (KAP) model as a vital framework to acquire

a thorough comprehension of sanitary practices (Saeed, Osaili, & Taha, 2021). Nevertheless, other scholars have expressed doubts about the effectiveness of knowledge alone in promoting a positive attitude towards hygienic activities (Ahmed & Akbar, 2021; Hashanuzzaman et al., 2020; Ncube, Kanda, Chijokwe, Mabaya, & Nyamugure, 2020). Prior studies have shown that having adequate knowledge and a positive mindset may not always lead to the adoption of good sanitary practices (Kwol, Avci, Eluwole, & Dalhatu, 2020; Taylor, 2011; Zanin, da Cunha, de Rosso, Capriles, & Stedefeldt, 2017). Nevertheless, it is crucial to recognize that the Knowledge, Attitude and Practice technique does have some methodological constraints. More precisely, the model exclusively depends on knowledge and attitude as factors that can predict behavior and practices (Da Cunha et al., 2022). Moreover, it is important to acknowledge that the use of self-reported food-handling practices presents a potential bias, which could impact the results of these studies (Da Cunha et al., 2022). Da Cunha (2021) has investigated the complexities associated with choosing an appropriate strategy to improve food safety performance. The author focuses on behavior-based solutions and highlights the limitations of knowledge-based training techniques in improving food safety. The relationship between managers and food handlers has been considered a crucial element by multiple studies (Flynn et al., 2019; Zanin, Stedefeldt, & Luning, 2021).

Taha, Wilkins, Juusola, and Osaili (2020b) suggested examining management strategies to better understand the psychological components of behavior and get insight into employees' conduct. Furthermore, the researchers focused on the elements that drive food handlers to display dedication, ultimately resulting in the creation of a food safety management system that revolves around commitment. Implementing such a system would lead to the conversion of knowledge and attitude into practical application, hence improving food safety performance (Taha et al., 2020 b c). Several recent research have explored several facets of risk management that surpass conventional methods. The studies have primarily examined aspects such as organizational culture, the interactions between managers and employees, and their attitudes and

behaviors concerning food safety (De Andrade, Stedefeldt, Zanin, Zanetta, & Da Cunha, 2021; Jespersen et al., 2019; Sharman, Wallace, & Jespersen, 2020; Zanin, Stedefeldt, da Silva, da Cunha, & Luning, 2021). Research has shown that implementing management methods positively influences employees' behavior, leading to increased commitment to their work and company (Taha et al., 2021; Wilkins, Butt, & Annabi, 2017). The aforementioned methods consist of several elements that enhance their efficiency. These components encompass various well-established processes, including as training, communication, promotion, social events, assessment, and employees' participation (Griffith, 2014; Yiannas, 2009). Furthermore, the active participation of employees, their training, effective communication, and support from management have been recognized as essential elements in guaranteeing the effectiveness of these practices (Taha et al., 2020b). Effective implementation of management strategies is essential for improving the results of food safety management systems (Vashisht, 2018). The establishment of a proactive food safety culture requires the participation of leaders (Griffith, Livesey, & Clayton, 2010; Yiannas, 2009). The development of organizational culture inside the FS is greatly impacted by the attitudes and values demonstrated by management. Da Cunha (2021) states that food firm managers possess the capacity to cultivate a proactive food safety culture and establish an enhanced environment that encourages the implementation of behavior-based initiatives.

Several empirical studies have established a substantial association between the transactional leadership style and job satisfaction (Natarajan, 2022). Ko and Kang (2019) found a strong and meaningful association between transactional leadership and organizational climate. Moreover, there is a positive correlation between the organizational climate and the food safety behavior of food handlers.

The assessment of the current FS culture was conducted using eight specific elements: leadership, communication, knowledge, commitment, risk

perception, work pressure and normative beliefs, work environment, and management systems, style, and process. These components were previously identified and described in a study conducted by Zanin et al. (2021, part 1). Zanin et al. (2021) found that implementing educational interventions that target the individual educational needs of food handlers, promote self-confidence, and utilize effective methodologies has been effective in promoting the creation of a food safety culture.

2.6 Determinants of Food Safety Culture

Researchers have identified multiple critical determinants that contribute to an organization's food safety culture. These determinants, also known as aspects or components, play a crucial role in building and maintaining a positive food safety culture. (GFSI, 2018). The literature on the factors of food safety culture generally agrees, however there is variation in the nomenclature used to characterize them. The primary determinants that have been consistently recognized can be described as follows: A) leadership; B) communication; C) commitment to food safety; D) risk awareness; E) environment; F) accountability; and G) staff knowledge, attitudes, behaviors, and values.

2.6.1 Leadership is commonly recognized as the primary element of food safety culture. The establishment of a food safety culture commences with leaders and permeates through the organization in a top-down manner. Leaders has the authority to determine the priorities of the organizational system. Employees may only adopt the fundamental behaviors of food safety culture if leaders construct and promote a learning and practicing environment. The sources used are Yiannas (2009) and Griffith, Livesey, and Clayton (2010). Leaders play a crucial role in shaping an organization's food safety culture. They do this by endorsing, coordinating, and actively participating in the organization's overarching goals and objectives. Additionally, leaders inspire and assist employees in addressing food safety concerns (GFSI, 2018). According to Beaumont, Helferich, and Mortimore (2018), leaders should actively engage and promote food safety excellence both within and beyond

the organization, while being easily approachable and prominently present. According to Griffith et al. (2010), it is crucial for top management to understand their own role and responsibilities in shaping the culture of an organization. They should also equip their managers with the necessary skills to establish and sustain a favorable food safety culture at all levels, with a special emphasis on middle management.

2.6.2 Communication pertains to the caliber of conveying food safety messaging and exchanging information throughout the firm. Organizations that possess a favorable food safety culture use a clearly defined food safety communication plan, which includes consistent reinforcement of the significance of food safety by employees at all hierarchical levels. The references cited are DiPietro, Harris, and Jin (2020) and Griffith, Jackson, and Lues (2017). In order to effectively convey food safety information, firms should employ several mediums and communication channels to enhance the probability of reaching employees and to showcase the significance of food safety within the organization's culture (Yiannas, 2009). In addition to basic communication regarding food safety, it is important for leaders to engage in food safety discussions with employees, allowing them to provide feedback and encouraging them to question and examine current procedures. .The references cited are Yiannas (2009), Griffith, Livesey, and Clayton (2010), and Bjelajac and Filipovic (2020). Regular assessment of communication effectiveness, such as through online surveys and employee focus groups, is necessary to verify the successful transmission and impact of food safety messaging on employees (GFSI, 2018).

2.6.3 Commitment to food safety refers to the degree to which an organization constantly places importance on and prioritizes the safety of food. Ades et al. (2016) defined commitment as a crucial element in establishing a workplace where all employees, regardless of their position, are fully dedicated to taking every possible measure to guarantee that food is grown, processed, prepared, handled, merchandized, and distributed in a manner that minimizes

the risk of illness for customers and consumers. Powell (2011) additionally observed that organizations with strong food safety cultures are devoted to daily risk reduction practices. In order to showcase their dedication, firms should prioritize food safety as a prominent business goal that is evident in the organization's vision, mission, and values, and consistently kept up-to-date. (Yiannas, 2009; Griffith, Livesey, and Clayton, 2010).

2.6.4 Risk awareness refers to the recognition and comprehension, across all levels and functions, of both existing and potential dangers and risks related to food safety. (GFSI, 2018; Bjelajac and Filipovic, 2020). Studies conducted by Griffith, Livesey, and Clayton (2010) and Griffith and Redmond (2009) have demonstrated that an individual's perception of the likelihood of being affected by a risk significantly influences their subsequent actions to reduce that risk. Therefore, it is crucial for all employees to be aware of the risks associated with the products they produce, understand the importance of risk management, and possess the skills to effectively manage those risks (Powell, Jacob, and Chapman, 2011). Consequently, training and education programs should be tailored to address the specific topics, tasks, and behaviors that are most commonly linked to foodborne diseases (Yiannas, 2009). Furthermore, organizations should adopt a proactive approach to meeting food safety requirements, which involves a mindset focused on prevention and collaboration both within the organization and throughout the supply chain (Dupont, Fratilla, and Keiner, 2014; Wright, Leach, and Palmer, 2012).

2.6.5 Environment The environment is the visible or evident organizational structures, processes, and activities (e.g., resources, equipment, buildings, staff, and training) available within an organization that enable proper food safety (Griffith, Livesey, and Clayton, 2010). This also includes the management systems and procedures in place to control food safety and remove barriers. (Griffith, Livesey, and Clayton, 2010; Abidin, Arendt, and Strohbehn, 2014; Wu et al., 2020; Griffith, 2010). The food safety environment has a large effect on behavior. For example, if there are adequate facilities,

food safety is perceived to be supported; conversely, a lack of adequate facilities communicates that food safety is not important. .” (Wright, Leach, and Palmer, 2012) To foster a sustainable food safety culture, it is also important for organizations to keep current on the latest industry intelligence, including market incidents, emerging food safety risks, changes to food safety legislation, and significant new technology. (GFSI, 2018; Powell, Jacob, and Chapman, 2011).

2.6.6 Accountability is the ability to hold employees at all levels responsible for food safety performance. This includes developing and documenting specific food safety performance expectations that are simple, clear, risk-based, and relevant. (Yiannas, 2009; GFSI, 2018). Feedback on performance should be timely, regular, balanced, and consistent (Beaumont, Helferich, and Mortimore, 2018). Some researchers (Ades and Leith, 2016; Wallace, Bogart, and Mike Bartikoski, 2018; Powell, Jacob, and Chapman, 2011; Griffith CJ, Jackson LM, and Lues,2017) recommend using positive and negative consequences for noncompliance, with Yiannas (2009) describing consequences as “one of the most important ways to shape or reinforce proper food safety behaviors.” Meanwhile, others caution that overwhelming negative consequences can result in negative reactions, a disengaged workforce, and a “culture of punishment.” 34. (Wallace, Bogart, and Mike, 2018; Lopp, Goebelbecker, and Ruff, 2021). Research suggests using positive reinforcement such as incentives or rewards that fairly recognize individual and collective contributions (Lopp, Goebelbecker, and Ruff, 2023; Manning, 2017) or a combination of both consequences and incentives. (Yiannas, 2009; Powell, Jacob, and Chapman, 2011)

2.6.7 Employee characteristics such as knowledge, attitude, behavior, and values can have an impact on the food safety culture. For instance, studies have shown that individuals with higher levels of conscientiousness tend to exhibit better food safety behavior and have a stronger perception of the organization's food safety climate (Nickell and Hinsz, 2011). Furthermore,

the way food safety is socially constructed among peers in the workplace can greatly influence an individual's value placed on it. Employees who prioritize food safety and teamwork have a positive influence on their colleagues' food safety behaviors (Abidin, Arendt, and Strohbehn, 2014; Lone and Huffman, 2014). Therefore, it is crucial to have engaged, empowered, and committed employees who believe they contribute to a safe food environment in order to foster a positive food safety culture (Beaumont, Helferich, and Mortimore, 2018; Lone and Huffman, 2014; Manning, 2017).

2.7 Food safety Culture categorization

Various food safety culture models acknowledge that an organization's food safety culture can exert either a beneficial or detrimental impact on food safety. Within the literature research, three distinct methodologies were identified for categorizing the food safety culture exhibited by an organization:

According to Griffith et al. (2010), an organization's food safety culture can be categorized along a spectrum ranging from favorable to bad. A positive food safety culture prioritizes food safety as a crucial corporate aim and demonstrates adherence to food safety regulations. Conversely, a detrimental food safety culture is characterized by prioritizing corporate goals over food safety, leading to inadequate adherence to food safety regulations.

Nyarugwe et al. (2018) categorize food safety culture into three distinct classifications: reactive, active, and proactive. A responsive food safety culture only takes action when necessary, in reaction to a problem or a finding from an inspection. An active food safety culture partially complies with food safety criteria but lacks a comprehensive comprehension and dedication to food safety. In contrast, a proactive food safety culture emphasizes the anticipation and prevention of problems.

Jespersen et al. (2017) define the maturity of food safety culture based on five stages: (1) doubt, (2) react to, (3) know about, (4) predict, and (5) internalize. Food safety cultures that are less developed question the necessity of

prioritizing food safety and tend to respond to specific conditions. Individuals that possess greater maturity prioritize food safety, proactively anticipate potential issues, and ultimately embrace the significance of maintaining food safety.

2.8 Aspects of Food safety culture

According to Griffith et al. (2010), culture gives meaning to the underlying values and beliefs of members of formal and informal social groupings and has implications for their shared presumptions. In addition, culture has implications for the shared presumptions of its members. According to Griffith (2014), the term "organizational culture" is a catch-all term that can refer to a number of different cultures. This is especially true in situations in which there is a conflict between food safety and profitability, as well as between the costs involved with undertaking food safety operations and the benefits that accrue to the organization as a result of those operations. According to Griffiths et al. (2010), a firm's food safety culture needs to take precedence over other company cultures, such as the need for profit, in order to protect the health and safety of its customers. In spite of the fact that many cultures are able to not only exist but also flourish, there is always the possibility of a clash occurring between the regulatory aims and objectives of specific operations or between senior management and management levels (Manning, 2018). According to Nyarugwe et al. (2016), it is critical to acknowledge the variability as well as the complexity of the culture of a specific organization. According to DeBoeck et al. (2015), food safety culture is the overall organizational framework related to food safety as a result of the interplay of food safety. This distinguishes it from the food safety environment, which is a relative priority or "meaningful." parties within the company, whereas the environment's food security is a relative priority or "meaningful." It is possible to measure it at the individual, work unit, or group level because employees in an organization or work unit can express their ideas regarding food safety either individually or collectively. This makes it possible to measure it at all three levels. The purpose of the food safety

environmental assessment, which is essentially an evaluation of the highest level of a food safety culture as defined by Griffiths (2014)., is to attempt to capture major aspects of the underlying culture of food safety.

2.9 Current Understanding of Food Safety Culture and its significance

According to Emond and Taylor (2018), a devoted business is one that has ingrained into its culture a high priority on food quality and safety.That food safety is a scientific discipline that defines how to handle, prepare, and store food in ways that prevent foodborne illness is communicated in a way that is both clear and effective by the definition of food safety, which states that it is a scientific discipline that specifies how to handle, prepare, and store food in ways that prevent foodborne illness. This involves a variety of processes that need to be adhered to in order to prevent the potential for the raw components to offer major health hazards. Observance of these activities is required in order to prevent these risks.

Methods and materials relating to the safe handling, preparation, serving, transportation, or packing of food. This includes all aspects of food safety. As a result, there is always the possibility that a product will be contaminated by biological, chemical, radiological, or physical hazards. When proper handling procedures and food safety rules are adhered to, the risk of food contamination and the chance of causing harm to customers is significantly reduced. As a result of this, there is also a significantly reduced risk of harm being caused to consumers..

The number of instances of foodborne infections that have been formally documented in the Arab world is quite low. The only occurrences that are regularly documented in the national monitoring system and emerge in the headlines of local news outlets are the more severe ones. Some hospitals' poor communication and lack of collaboration, as well as a lack of technical and investigative abilities, are occasionally blamed for gaps in the surveillance data

on national foodborne disease outbreaks and source investigations (Abd-Elhaleem & Abd-Elkarim, 2011; Al-Kandari et al., 2019; Fadlallah et al., 2017; Malaeb, Bizri, Ghosn, Berry, & Musharrafieh, 2016; Rebgui et al., 2013). As a consequence of this, attempts to advance toward risk assessment along the food chain and to comprehend the sources of hazards and risk factors within the context of the locale are frustrated as a result.

The Middle East, and more specifically, the region comprising Arab countries, is a warm location during the spring and summer months. Because of this, ensuring the safety of food is of the utmost importance. In addition, temperature control has turned into a necessity in order to halt the growth of microorganisms in foods and, as a result, reduce the number of illnesses that are caused by food. This fact takes on a peculiar significance in eateries that are proliferating in an unplanned manner, similar to street vendors. According to Loukieh et al. (2018), and Omar (2020), vendors of street food present a significant risk to the health of their clients as a result of insufficient (unhygienic) water quality and the failure to comply with fundamental food safety and hygiene protocols.

Researchers have established an interest in using the knowledge, attitudes, and practice (KAP) studies on food handlers working in retail food service operations in order to better understand the attitudes and practices that food handlers have regarding the safety of food. There are variable degrees of knowledge gaps among food handlers, as indicated by a number of studies (Ovca, Jevsnik, & Raspor, 2018; Rebouc et al., 2017; Zanin, da Cunha, de Rosso, Capriles, & Stedefeldt, 2017). These knowledge gaps pertain to cross-contamination, disease transmission, and temperature management.

The knowledge, attitudes, and practice (KAP) studies have been carried out in Arab countries extremely infrequently—mostly in the last ten years—but their frequency is gradually growing as researchers' interest in the subject develops in response to the frequent reports of food poisoning and other foodborne illnesses.

2.10 Developing an Understanding of Food Safety Culture

During the late 1990s, various research studies revealed that providing workers with training in safe food handling procedures was important, but not enough, to effectively decrease the incidence of foodborne disease. A frequently cited study in the current literature, conducted by Ehiri et al. (1997), assessed the effectiveness of a food hygiene training course and discovered that participants' knowledge did not improve following the completion of the program. Their conclusion was that fostering food-safe behaviors and attitudes necessitates altering the organizational infrastructure, rather than only imparting information to individuals.

Clayton et al. (2002) conducted a survey among food handlers working in small to medium-sized food enterprises in Wales. The survey revealed that the majority of food handlers had a good understanding of the necessary safety practices. Nevertheless, approximately two-thirds acknowledged that they do not consistently implement optimal methods. The survey found that 85% of participants reported obstacles to practicing safe food handling. Many of these obstacles were related to insufficient resources, such as having a workspace that was too tiny to avoid cross-contamination or inconveniently positioned sinks. The authors contended that leadership's inability to eliminate the obstacles to proper food handling techniques resulted in a work environment where food safety was not considered a top concern.

Later studies on food safety started to redirect attention from the actions of employees in handling food to the organizational environment in which those actions occur. Researchers have constructed a conceptual framework for food safety culture by utilizing previous studies on organizational and safety culture (Clark, Crandall, and Reynolds, 2019; Tomei and Russo, 2019). The concept of safety culture originates from organizational culture, which is defined by Edgar Schein, a prominent researcher in the field, as a set of fundamental beliefs that are commonly held by members of a group (Schein, 2010). Safety culture refers to the implementation of organizational culture in the context of

safety. Food safety culture emerged as a result of the application of safety culture principles to the domain of food (Griffith, Livesey, and Clayton, 2010).

Frank Yiannas authored the book "Food Safety Culture: Creating a Behavior-Based Food Safety Management System" in 2009. The content of his book was derived from his personal encounters while employed by multinational corporations in the field of food safety. Yiannas (2009) contends that food safety should be an inherent part of an organization's culture, surpassing conventional methods such as training, testing, and inspections in order to effectively manage hazards. Yiannas distinguishes food safety culture from a food safety management system by stating that a food safety management system (FSMS) is a set of procedures that encompasses good manufacturing practices, a Hazard Analysis and Critical Control Point (HACCP) system, and a strategy for recalling unsafe foods. According to Yiannas (2009), although having a food safety management system is important, food safety culture goes beyond processes and focuses on human behavior. In simple terms, a food safety culture refers to how an organization or group approaches food safety.

The emphasis on food safety culture as more than a mere food safety management system is reiterated in a 2018 white paper published by the Global Food Safety Initiative (GFSI), a private organization that offers advise to businesses on food safety. The paper notes:

Unlike the rule of law, culture derives its influence from implicit and intuitive sources, such as direct observation and deeply ingrained views like "This is the morally correct action" and "We would never engage in such behavior." While rules are based on objective facts, culture is shaped by the collective human experience. (GFSI, 2018).

According to Griffith, Livesey, and Clayton (2010), food safety culture is influenced by an organization's management systems, style, and processes, which ultimately determine its food safety performance. The authors presented a model that demonstrates how these concepts interact in the context of food

safety. In this model, leadership plays a crucial role in connecting the food safety management system and the food safety culture, both of which fall under the broader category of "food safety management." The food safety culture itself is shaped by various factors, including leadership, communication, commitment, environment, and the perception and behavior related to risk awareness and risk-taking.

2.11 Dissemination of food safety culture

Some of the evaluated articles went beyond analyzing the fundamental factors that influence food safety culture and provided detailed insights into effective strategies and exemplary approaches for fostering food safety culture in the food business. However, none of the studies addressed the current methods employed to promote food safety culture among consumers.

2.12 Food Safety Culture and Food Processing

The development of a food safety culture incorporates elements from multiple fields of study, including social science, food science, and organizational culture. When evaluating the food safety culture of an organization, it is necessary to take into account both the HACCP system utilized by the organization and, as a direct result of this, the risks that are connected to the products. This is tied to the field of food science, which enables the organization to make informed decisions concerning relevant food safety risks in order to guarantee the production of food that is both safe and wholesome. When defining or anticipating employee behaviors that affect food safety, social science must be taken into account. It can also be utilized to carry out the managers' and employees' intentions to behave in accordance with the organization's food safety goals and values (Jespersen et al., 2016).

Food safety must be institutionalized and acknowledged as an essential element in the production process; furthermore, it must be incorporated into the organization's long-term strategic objectives. After food safety has been

included in the objectives of the company, there must be discussion around food safety in order to develop a robust food safety culture. After that, the personnel will start taking an interest in food safety and will wonder why it is so important for the organization. After doing so, the organization is in a position to devise and implement a strategic plan to further its objectives in the realm of food safety and guarantee the development of its Food Safety Management Systems. This process requires assessing and analyzing the organization's current situation in order to identify and promote changes that are acceptable to the organization. These adjustments need to be expressed in an appropriate manner in order to secure support from all relevant parties. Employees need to understand why these changes are necessary as well as how to carry out their typical production responsibilities while keeping the safety of food in mind at all times. After the modifications have been made, it is extremely important for leaders to recognize and hold accountable those individuals who demonstrate positive behaviors (Ades et al., 2016).

2.13 Food handlers and Food Safety Culture

According to Clayton et al. (2002), employees, particularly those who are designated as food handlers, have a substantial impact on the food safety culture of an organization. This is due to the fact that employees' actions and ideas on food safety assist in defining the food safety culture of an organization.

Developing a robust food safety culture requires the establishment of stringent food safety measures. It is essential to cultivate a culture that places a high value on food safety, and research on methods that can enhance the food safety behaviors of staff members is ongoing. According to Clayton et al. (2002), organizations that deal in food may soon be forced to provide food safety training to employees in an effort to improve said employees' understanding of the subject.

2.14 Effects of Teamwork and Resources and Food Safety Culture

According to De Boeck et al. (2016), one of the most significant aspects of a culture devoted to food safety is the emphasis placed on working together to maintain cleanliness and ensure the safety of food. The ability to work together effectively could be considered a resource. According to Griffith et al. (2010), resources consist of the time, people, and training—both real and intangible—needed to deliver food in a sanitary and safe manner. Resources may be broken down into three categories: time, people, and training.

2.15 Importance of Management in Food Safety culture

A food safety culture is characterized as a state that, once established in a company, is practiced consistently and taught to new hires (Neal, 2018; Yiannas, 2009). The support and engagement of management are essential to developing a culture of food safety. Employees want to see that the organization's values are upheld and that leadership is active (Neal, 2018; Yiannas, 2009). The effectiveness of a company's personnel affects its profitability. When all employees in the organization are in sync with the business goals and objectives of the company, there is a noticeable improvement in worker and company performance. Employees must be aware of expectations and how they relate to the objectives of the firm (SAP, 2019).

According to Griffith (2014), providing leadership for food security entails establishing a course of action, convincing others to support that course of action, and then inspiring and motivating those individuals to achieve the desired outcome. In their study, Guchait et al. (2016) investigated one aspect of leadership, specifically the behavioral integrity of food safety leaders. This refers to the degree to which leaders and supervisors consistently apply, use, or enforce food safety rules. The researchers came to a conclusion that managers who engage in high-integrity behaviors as leaders influence food safety performance and lower the risk of foodborne illness. Manufacturing

Characteristics also referred to as the External Conditions Used During Preparation, Storage, Cooking, and Customer Service; and Environmental Factors, also referred to as the Environmental Conditions Used During Preparation, Storage, Cooking, and Customer Service, are two features of the company that are exclusive to them. They can be divided into the following three categories: organizational structure, group characteristics associated with food safety culture, and individual characteristics (people) (a division of roles, responsibilities, rules, procedures, and systems). Each of these can be further subdivided into further categories. External elements in the supply chain can also have an effect on human decision-making behavior (Kirezieva, 2013). Some examples of these external factors include supply situations and relationships with other firms and organizations in the supply chain. The Food Safety Management system functions within a shared framework that is given by both the organizational culture (which is found within) and the larger operational environment (which is found externally). Standard operating procedures, training courses, and evaluations are some of the necessary programs that are included in the Food Safety Management system, in addition to the policies, procedures, and protocols that are necessary to ensure regulatory compliance.

According to Baser et al. (2017), there is a medium link between the attitudes of hotel employees and their knowledge of food safety, but there is a high correlation between these views and their behavior. This indicates that knowledge of food safety alone does not necessarily result in a behavioral response. Food handlers at restaurants and hotels have attitudes that influence the link between their knowledge and how they put that knowledge into practice (Ko, 2013; Baser et al.,2017).

Only a few of the studies that were chosen had the survey questionnaire divided into sections according to the following topics: personal hygiene, prevention of cross-contamination, sanitation, temperature control, awareness of foodborne illnesses, and foodborne pathogens (Al-Kandari et al., 2019;

Elobeid et al., 2019; Faour-Klingbeil et al., 2015; Osaili et al., 2018; Taha et al.,2017). Others either did not include all of the aforementioned themes or did not use the same methodology (Alqurashi et al., 2019). Others did not include all of the aforementioned themes. (Al-Shabib et al.,2016;Hamed & Mohammed, 2020).

2.16 The significance of job satisfaction and commitment in ensuring food safety

Various measures, such as conducting inspections of food establishments, providing training, auditing food management systems, and conducting government food analysis, have been implemented to improve food safety and the management of food safety systems. The prevalence of foodborne illnesses remains significant, as evidenced by studies conducted by Osaili, Al-Nabulsi, and Krasneh (2018) and Taha et al. (2020a). According to the World Health Organization (WHO, 2015), approximately one in every ten individuals globally becomes ill annually due to the consumption of contaminated food. In 2017, the Centers for Disease Control and Prevention (CDC) reported that 64% of foodborne disease outbreaks in the United States took place in restaurants (CDC, 2019). Foodborne diseases have a negative influence on international commerce, the economy, and tourism, both directly and indirectly. This includes increased medical treatment costs and market effects. (Focker & van der Fels-Klerx, 2020; Taylor, Garat, Simreen, & Sarieddine, 2015). The primary factor contributing to foodborne disease is the inadequate implementation of hygienic measures during food handling (Da Cunha, Cipullo, Stedefeldt, & de Rosso, 2015; Sabbithi et al., 2017). Thus, it is essential for scholars, governmental health authorities, and food enterprises to adopt inventive strategies to tackle the hazards linked to foodborne illness (De Andrade, Stedefeldt, Zanin, & da Cunha, 2020) . Several research studies have utilized training methods to reduce the risks associated with foodborne illnesses (Taha et al., 2020a; Yu, Sirsat, & Neal, 2019). In their study, Bas, Ersun, and Kıvanç (2006) emphasized that a comprehensive understanding of food safety, together with the corresponding mindset and actions, is crucial for fostering

favorable attitudes and behaviors among individuals responsible for handling food. The Knowledge, attitude and practice model (Saeed, Osaili, & Taha, 2021) is employed to gain a comprehensive understanding of hygienic practices. However, certain researchers have raised doubts regarding the efficacy of knowledge alone in fostering a favorable attitude towards hygienic practices (Ahmed & Akbar, 2021; Hashanuzzaman et al., 2020; Ncube, Kanda, Chijokwe, Mabaya, & Nyamugure, 2020). Additional research has demonstrated that possessing sufficient knowledge and maintaining a favorable mindset does not automatically result in the adoption of proper sanitary behaviors (Kwol, Avci, Eluwole, & Dalhatu, 2020; Taylor, 2011; Zanin, da Cunha, de Rosso, Capriles, & Stedefeldt, 2017). However, the Knowledge, attitude and practice methodology has certain methodological limitations, as it relies solely on knowledge and attitude to forecast behavior and practices (Da Cunha et al., 2022). Furthermore, the utilization of self-reported food-handling behaviors introduces a biased input that can have an influence on these research (Da Cunha et al., 2022). The primary issue is not that food handlers lack knowledge of proper food hygiene practices, but rather their reluctance to apply the acquired knowledge in practical situations (Mitchell, Fraser, & Bearon, 2007; Sabbithi et al., 2017). Da Cunha (2021) outlined the challenges involved in choosing an effective technique to improve food safety performance. Specifically, the author discussed the benefits of behavior-based strategies and highlighted the drawbacks of knowledge-based training strategies. The contact between managers and food handlers is regarded as a dynamic component by other researchers (Flynn et al., 2019; Zanin, Stedefeldt, & Luning, 2021). According to Griffith (2006), in order to improve food safety performance, it is crucial to establish a food safety culture (FS-culture) that is built upon a reliable food safety management system. Yiannas (2007; 2009) emphasized the significance of utilizing behavioral strategies and developing a food safety culture to improve the performance of food handlers. Taha, Wilkins, Juusola, and Osaili (2020b) proposed focusing on management methods to analyze and interpret employees' behavior from a psychological perspective.

In addition, they prioritized the factors that motivate food handlers and developed a food safety management system based on commitment. Implementing such a system would result in the transformation of knowledge combined with attitude into practical application, leading to improved food safety performance (Taha et al., 2020 b c). The most recent studies have examined various aspects of risk management, such as organizational culture, the interaction between managers and employees, and their attitudes and behaviors regarding food safety (De Andrade, Stedefeldt, Zanin, Zanetta, & Da Cunha, 2021; Jespersen et al., 2019; Sharman, Wallace, & Jespersen, 2020; Zanin, Stedefeldt, da Silva, da Cunha, & Luning, 2021). Effective management methods have a beneficial impact on employees' behavior and contribute to their increased dedication to their job and organization (Taha et al., 2021; Wilkins, Butt, & Annabi, 2017). These practices encompass effective systems like as training, communication, promotion, social events, assessment, and employees' participation (Griffith, 2014; Yiannas, 2009). They also incorporate employees' involvement, training, communication, and management assistance (Taha et al., 2020b). Effective implementation of management practices is crucial for enhancing the outcomes of the food safety management system (Vashisht, 2018; Fatimah, Strobbehn, & Arendt, 2014). The establishment of a proactive Food Safety Culture must be launched by leaders (Griffith, Livesey, & Clayton, 2010; Yiannas, 2009). The attitude and values of management play a crucial role in defining the Food Safety Culture of the organization. Food business managers can promote a proactive food safety culture and create an improved atmosphere that fosters behavioral changes by implementing behavior-based methods (Da Cunha, 2021). Leadership plays a crucial role in determining the success or failure of a company's development in a fiercely competitive business environment (Thite, 2000). Leaders have a crucial role in inspiring employees to accomplish specific objectives. Transactional and transformational leadership are two separate styles characterized by contrasting tactics and outcomes (Andersen, 2016). Transactional leadership emphasizes the provision of clear instructions and

training, while also involving food handlers in the decision-making process. The concept entails a purpose-driven procedure of mutually sharing advantages between leaders and subordinates (Ko & Kang, 2019; Masa'deh et al., 2016). Transformational leadership emphasizes the communal interests of employees over personal interests by motivating them to exceed their potential. The cited sources suggest that it motivates and encourages individuals through internal drive, enhancing their ability to envision goals, fostering creativity, empowering those who follow, and facilitating personal development for long-term transformation (Purwanto, Wijayanti, Hyun, & Asbari, 2019; Wang, Kim, & Milne, 2017). Organizations consist of personnel with diverse origins and nationalities who are influenced by different leadership philosophies (Megheirkouni, Amaugo, & Jallo, 2018). In this context, leaders can exhibit varying degrees of both transformational and transactional leadership styles, since both styles complement each other.

The impact of leaders on organizational commitment and employees' attitudes towards implementing sanitary procedures is substantial (Lee et al., 2013). Various research have demonstrated a significant correlation between the transactional leadership style and job satisfaction (Natarajan, 2022). The study conducted by Ko and Kang (2019) found a strong and positive relationship between transactional leadership and organizational climate. Furthermore, the research also revealed that organizational climate has a beneficial impact on the food safety behavior of food handlers. Conversely, other research has demonstrated a notable positive correlation between transformative leadership and job satisfaction, organizational commitment, and job performance (Al-Amin, 2017; Almutairi, 2016; Eliyana, Ma'arif, & Muzakki, 2019; Oyewobi, 2022). Additionally, it is linked to staff attitudes and their intentions to carry out proper hygiene measures (Islam, Tariq, & Usman, 2018; Ko & Kang, 2019; Lee et al., 2013).

2.17 The contributions of food handlers in managing food safety at the retail level

The World Health Organization stresses the significance of having sufficient access to healthy food that is devoid of the biological, chemical, and physical pollutants that, if consumed, might result in foodborne illness (World Health Organization,2020). Food retail staff members are crucial in reducing foodborne illness (US Department of Health and Human Services, 2017). Sales and ordering personnel made up approximately 12.5% of the workforce in the grocery business category in 2017. This job has a low median pay because it is compensated at less than half the national average (Mason, 2020b). Although a high school diploma is often necessary for this profession, there may be some individuals who lack this qualification. Stocking shelves, bins, and display items are only a few of their specialized responsibilities. Others include receiving and reporting problems, taking undesired items off of the display, and handling food properly and responsibly. Create traffic and point customers in the direction of the product's location in the store. Additionally, grocery stores have a high voluntary turnover rate for retail staff (Lewis, 2019).

2.18 Educating food handlers in retail

The use of food processing techniques Food security training is necessary for safety employees, and it should be reinforced in this way, which calls for actual food handling and full (Reynold & Dolasinski, 2019). Numerous studies have addressed the issue of understanding food security and receiving the proper skills in food processing (Reynold & Dolasinski, 2019). Eight incentives and six hurdles to handling food correctly were identified in a study on food safety and barriers conducted by Arendt, Strohben, and Jun (2015) . According to reports, employees are encouraged to process food in a manner that prevents the growth of bacteria and cross-contamination, does not endanger clients, is done with appropriate knowledge and training, and is compliant with the law, regulations, and procedures. Have a good routine or habit, which is

encouraged by internal rewards, responding to the workplace culture, and the reader to please clients. The following factors have been identified as the key barriers to safe food handling behavior: forgetfulness and/or a lack of habit; being too busy; a lack of information; and the unfavorable effects of actual handling practice. Products for safety, resources that are accessible and used, norms, or workplace culture (Arendt, Strohbehn, and Jun 2015). By receiving regular training, employees can learn more about food safety and develop the necessary food processing abilities. Literature has demonstrated that knowledge acquisition may not always translate into useful food processing techniques and may be influenced by additional factors (Arendt et al., 2015).

The Food Marketing Fund asserts that the instruction of traditional retail foods has been founded on the acquisition of proper food handling activities, the avoidance of food diseases, and accurate food practices. Their fields and the effects of food management on people and society all involve the preparation, manipulation, and conservation of food. There is no real method to make it effective because training sessions are quite theoretical and concentrate on overviews of food security, giving managers a lot of information to work with their staff (Neal, 2018). Despite the fact that training on food security is acknowledged as a useful way to impart knowledge, training techniques have not yet become standard.

Retail employees at American grocery stores are typically 36 to 37 years old (Mason, 2020b). It might be challenging to impart knowledge to retailers. Food processors in the US come from a variety of racial, educational, and cultural backgrounds, which makes training them more difficult (Howton et al., 2016; Reynolds & Dolasinski, 2019). Differences in age and generation may also have an impact on what motivates people to use safe food-handling techniques (Ellis, Arendt, Strohbehn, Meyer, & Paez, 2010).

2.19 Food safety culture and food safety climate

De Boeck et al. (2015) redefine the concept of food safety culture by incorporating the notion of food safety climate. Food safety culture serves as the comprehensive framework that encompasses both the food safety management system and the food safety climate in this model. Food safety atmosphere is defined by the authors as the collective perception of employees about leadership, communication, commitment, resources, and risk awareness related to food safety and hygiene in their current workplace (De Boeck et al., 2015). De Boeck's concept defines food safety climate as the pathway via which the human aspect of food safety culture is expressed. The food safety management system is described as the "techno-managerial route" that encompasses the organization's larger context, process features, and accessible technology. An organization's food safety culture is the comprehensive framework that consists of these two complementing "routes."

The concept of food safety climate provided by De Boeck et al. (2015) closely resembles the definition of food safety culture proposed by Griffith, Livesey, and Clayton (2010). However, it is important to note that the two terms are not always interchangeable.

Sharman et al. (2020) conducted a literature analysis and discovered that although there were similarities between food safety culture and food safety climate, there were also significant distinctions. The concept of food safety climate typically refers to the prevailing attitudes and beliefs of persons at a specific moment, frequently within a limited span. On the other hand, food safety culture was linked to a prolonged duration, frequently described as the persistent attitudes, actions, assumptions, and procedures of the company.

Sharman et al. (2020) put out these concepts after examining the existing literature. Food safety culture refers to the enduring beliefs, attitudes, and assumptions that are learnt and shared by all personnel within an organization.

It exists at the organizational level and has a significant influence on the business's food safety performance.

Food safety climate refers to the temporary state of perception and attitudes of persons at the individual level. It encompasses how these individuals influence others within an organization to comply with food safety management systems and effectively implement them in their work environment. The citation (Sharman et al., 2020) is provided.

The term "food safety culture" is commonly used in literature that is mostly based on the Griffith, Livesey, and Clayton (2010) paradigm. Users of the De Boeck et al. (2015) model employ both phrases, but primarily emphasize the utilization of methods that measure the food safety climate when evaluating a food safety culture.

2.20 Systems for the Management of Food Safety and Culture

According to Ades et al. (2016) demonstrate which employee behaviors are rewarded and which ones are not rewarded.The food safety culture of an organization has a substantial impact on both its performance and efficacy as a food safety management system. Together, we will be able to create a robust culture of food safety, one in which food safety may be a top concern for all employees rather than just the normal Department. According to Ades et al. (2016), the safety of food is not put in jeopardy and is frequently taken into consideration when making decisions.

Because of this, competent management has a significant impact on both the effectiveness and the culture of the food safety program of a business. The creation of safe food requires that there be consistency in how the food is made. According to Griffith (2010), the only way to successfully accomplish food safety objectives is to have an efficient FSMS in place. This is because the FSMS is responsible for directing workers and managing resources.

The Hazard Analysis and Critical Control Point (HACCP) system, maybe in conjunction with the Food Safety Management System (FSMS), is the best method for regulating food safety. On the other hand, FSMS such as HACCP run the risk of being compromised in a workplace that is home to a variety of subcultures. This is due to the fact that the focus placed on food safety is often balanced against that of reducing expenses. As a consequence of this, the business reduces its expenses, which has a detrimental impact on food safety because the top management regards food safety not as a priority but rather as an expense (Griffith et al., 2010). Therefore, a company's food safety culture is a crucial aspect that influences the efficacy of its food safety management system (FSMS).

2.21 Tools for Evaluating the Climate and Culture of food safety

The term "evaluation tool" is given a broad definition in this article, with the primary focus being placed on the instruments that are utilized in the hospitality industry. Topics of interest to governments, food safety authorities, sector organizations, and consumer interest groups include the efficiency of an FSMS and/or whether the expense of installing one is worthwhile in terms of improving food safety performance or reducing the total risk (Jacxsens et al. 2010; Luning et al. 2011). According to Jespersen et al. (2017), these types of instruments can be used to measure and evaluate five different components of a culture's approach to food safety: The concepts of compliance, level, and quality of formalization with regard to food safety; enforceability versus trade-offs; technology-enabled behaviors; access to infrastructure investment; values, and mission; people systems related to knowledge, quality, effectiveness, communication, autonomy, expectations, and risk; and adversity are all included in consistency. The Food Standards Agency (FSA) in the United Kingdom funded research to develop a tool that can evaluate the company culture of businesses operating in the food service industry.

The viewpoints of the inspectors on the diagnostic tool are the topic of discussion in the seventh and final paper of this themed journal edition. The diagnostic tool was designed for the purpose of being utilized by local government inspectors in the identification of features of good and bad safety cultures in food enterprises, with a particular emphasis placed on micro, small, and medium-sized (SME) businesses. As a consequence of this, diagnostic tools and toolkits for FSMS and food safety cultures typically take the form of questionnaires that are centered around either a binary or scale-based scoring system. Jespersen et al. (2016) established a five-stage maturity model to analyze the level of maturity of the food safety culture. The model is based on the previously described factors of attitude, perceived behavioral control, social norm, historical actions, and behavioral intention. The purpose of the study was to determine the level of maturity of the food safety culture. The first step is called "doubt," stage two is called "react," stage three is called "recognize," stage four is called "predict," and stage five is called "internalize." This provides a ranking process as well as a semi-quantitative approach in order to score by competency area at the level of the production unit and manufacturing site.

According to Nayak and Waterson (2016), despite the fact that food safety appears to be heading in the same general direction as the development of other industries, it has not yet achieved the same degree of excellence.

It is possible to quantitatively and qualitatively assess safety cultures with any one of a number of instruments; however, assessing food safety cultures is impossible with the majority of these instruments due to the fact that they are industry-specific. The study that is now accessible identifies the technique that is the simplest to evaluate safety culture; nevertheless, this does not suggest that there is a consensus regarding this technique. There is a dearth of actual evidence to support the relationship between the tools and the cultures that they are designed to serve, which is another argument that is made against the relationship. Therefore, there is a need for additional research into the culture of food safety. In spite of the fact that it is vital to take note of the lessons

learned from other sectors in order to prevent repeating them and to speed up development, specific studies that are targeted to the food company must also be undertaken because every industry has its own unique set of possible dangers. In addition to this, additional research into effective techniques of measuring and evaluating needs to be conducted.

2.22 Food safety culture evaluation systems

The following is a concise overview of the eight culture evaluation systems: focal domain, structure, overall compliance with the twelve criteria outlined in the National Research Council recommendations, validation methodologies, and references.

2.22.1 Ball model

The development of this system was undertaken by Brittany Ball in 2009 during her doctoral studies at the University of Guelph (Ball, Wilcock, Aung &, 2009; Wilcock, Ball, & Fajumo, 2011). The system's primary focus is on the food safety domain, particularly the assessment of the food safety climate. It underwent testing with five Canadian food manufacturers. A total of thirteen comprehensive interviews were carried out with five processing factories of small to medium size, in addition to two focus group sessions including interest groups. The model has six overarching themes and 20 sub-themes, which are assessed via a self-assessment survey, in-depth interviews, field observations, and a further self-assessment survey. The data analysis was performed using NVivo 7, a computer software developed by QSR International in Doncaster, Australia. The study followed verified content analysis techniques, employing both deductive and inductive approaches. Researchers employed various data collection techniques to facilitate triangulation. A model was constructed based on Fishbein and Ajzen's reasoned action model (Ajzen, 2011). The model demonstrated the substantial importance of unit commitment to food safety as a primary catalyst for the food safety actions of food handlers. The system research fulfills 11 out of the 12 National Research Council recommendations,

except for the lack of clarity regarding the exploration of alternative interpretations of the findings in publically available literature.

2.22.2 The DeBoeck model.

Elien DeBoeck established this method in 2015 as part of her PhD research at the University of Gent (DeBoeck, Jacxsens, Bollaerts, Uyttendaele, & Vlerick, 2016; DeBoeck et al., 2015). The researchers use the terms culture and climate interchangeably in their study. Food safety culture refers to the interaction between the food safety climate perceived by employees and managers (the human aspect) and the operational context of an organization. The existing FSMS comprises control and assurance activities, known as the 'techno-managerial route', which leads to an unpredictable (microbiological) outcome. On the other hand, the food safety climate refers to the employees' collective perception of leadership, communication, commitment, resources, and risk awareness regarding food safety and hygiene in their current workplace organization (DeBoecketal, 2015). Nevertheless, the authors explicitly acknowledge that the notions lack clear and precise definitions (DeBoeck et al., 2015). Consequently, in our research, no distinction is made between the terms while evaluating the DeBoeck model. The system is specifically targeted towards the food safety sector and is being tested by the subsidiaries of a major meat distribution company in Belgium, which operates under a centralized coordination. The model has five indicators, each consisting of 27 sub-indicators, which are evaluated by a self-assessment survey. An extensive investigation was conducted at eight butcher shops and butcheries in Belgium. Despite the limited size of the sample, certain statistical variances were observed in the food safety conditions of the organizations involved. The authors provide definitions for culture and climate, however it is unclear how closely these definitions align with existing research in the fields of culture and climate (C.J. Griffith et al., 2010a).

2.22.3 The Denison model

The system was devised by Dan Denison in 1989 and has since been widely used in global companies (D.R. Denison, 2003; D.R. Denison & Mishra, 1995; D.R. H.N. L. Denison & Colleen Lief, 2012). The system prioritizes the domain of people's safety within the context of organizational culture, making it more comprehensive than just focusing on food safety culture. It is evaluated using a self-assessment survey. Information on software searches has been extensively disseminated in books and peer-reviewed academic articles.

2.22.4 The Jespersen model

Lone Jespersen developed this system in 2010 as part of her master's and PhD study at the University of Guelph. The system was described in Jespersen and Huffman's 2014 publication and further discussed in Jespersen et al.'s 2016 publication. Jespersen et al. (2016) assert that the food safety culture in food manufacturing is based on the definition, dimensions, and attributes of organizational culture, as outlined by Schein (2010). The system is specifically oriented towards the domain of food safety and encompasses multiple areas of capabilities. The technology underwent testing with a multinational food production corporation based in North America. The evaluation incorporated three distinct data sources: a self-assessment survey, interviews and observations of behavior, and performance reviews. The evaluation included a combination of deductive and inductive content analysis, together with quantitative self-assessment data. The study employs a combination of quantitative and qualitative research methodologies, and the findings were assessed using a food safety maturity model. The authors acknowledge a validation gap as the system was only tested in one organization. In order to establish the validity principle of generalizability, it is necessary to test the model in other organizations. Nevertheless, the extent of the literature study conducted prior to the model's construction, the investigation of alternative explanations for the results, and the potential influence of systematic bias remain uncertain based on the material publicly accessible.

2.22.5 TSI model

TSI developed this system in 2015 and implemented it in Dubai's food service industry as well as small food businesses in the U.K. (Taylor et al. 2015). Food safety culture, as defined by the authors, encompasses the dominant attitudes, values, and practices about food safety that are imparted to new employees through both direct and indirect means. The system was developed based on research undertaken in the United Kingdom on the uses of Hazard Analysis and Critical Control Points (HACCP). The authors of the study, Taylor et al. (2015), focused on small and medium-sized firms as well as food service establishments. They also mentioned that their model was developed using research from several academic disciplines and industry sectors. The system is a specialized audit tool designed to evaluate food safety domain. It encompasses four distinct categories that are evaluated by a self-assessment survey. The four categories encompass a total of 16 parameters. The results obtained from the self-assessment survey were shared and analyzed with clients in a commercial setting. The process by which the exact 16 components were developed remains ambiguous in the publicly accessible literature, and there is a lack of published information regarding the research methods and validation strategies employed for this model.

2.22.6 Wright model

The development of this system was undertaken by the Wright, Leach, and Palmeron Commission on behalf of the United Kingdom. The information is provided by the Food Standards Agency (FSA) specifically for the agency's public health inspectors (Wright & Leach, 2013). The authors adopt the concept of food safety culture and system provided by Griffithet et al. (2010), which specifically pertains to the food safety field and comprises eight distinct components. The factors were evaluated utilizing a self-assessment scale and observations of behavior. The system research adheres to nine out of the 12 National Research Council guidelines. However, it remains unclear from the publicly available information how alternative hypotheses were investigated,

how potential systemic bias was evaluated, and whether the material underwent peer review.

2.22.7 CEB model

The CEB (CEB, 2016) established a framework that utilizes a five-level maturity model to assess quality culture in five categories: organizational scope, employee ownership, peer involvement, message credibility, and leadership emphasis (Srinivasan & Kurey, 2014). The evaluation is conducted via employee self-assessment and employs a social cognitive model that incorporates four key attributes: auditory perception, visual observation, knowledge transfer, and emotional experience, to inform subsequent actions derived from the assessment. No information regarding the validation procedures for this model was made publicly available.

2.22.8 NSF model

The NSF (NSF, 2016) collaborated with Cognisco Ltd., Cranfield, Bedford, U.K., to develop the system. It is founded on an NSF study of around 10,000 food handlers and incorporates the principles of social cognitive theory and behavioral science (Fone, 2012). The culture maturity system encompasses five distinct phases that extend beyond the assessment of culture and go into the realm of employing subtle strategies to modify behaviors. It also involves analyzing a company's effectiveness in implementing its food safety and quality management systems. The method assesses behavior based on six fundamental indicators: (1) regulatory governance, (2) management systems, (3) policies and standards, (4) evaluations, (5) talent enhancement, and (6) culture and conduct. The evaluation ratings are derived from a blend of employee self-assessment and on-site activities, and are categorized on a scale of four successive stages, spanning from reactive to core values. No information on the validation procedures for this model was made public (D.Fone, 2012).

2.23 Food Safety Culture Assessment

The majority of food safety culture assessment tools that have been developed are survey instruments. These surveys evaluate various aspects and constructs of food safety culture, such as leadership support, infrastructure and technology support, and individual attitudes and values. The main objective of these tools is to assist organizations in understanding the reasons behind employees' adherence or non-adherence to safe food handling practices. Consequently, these instruments typically gather feedback from personnel at different levels within the organization, including upper management, middle management, and food handlers. Other methods mentioned in the literature for assessing food safety culture in an organization include third-party audits, verification of specific data, focus groups, and observation of employee behavior.

Several instruments were developed and validated using a combination of methods, including literature reviews, focus groups with food safety experts, and psychometric analyses. Some survey development efforts employed a triangulation approach, combining surveys, interviews, and audits to develop and validate their food safety culture constructs (De Boeck et al., 2019). Certain literature sources did not specify the type of food organization or industry when discussing food safety culture tools (Tomasevic, Kovaevi, and Jambrak, 2020; Taylor and Rostron, 2018; Tomei and Russo, 2019; Samuel, Evans, and Redmond, 2019). Some articles acknowledged the need for further validation of their assessment tools within and between countries, as different laws and regulations may affect the use and reliability of food safety culture constructs (Tomasevic, Kovačević, and Jambrak, 2020; Tomei and Russo, 2019).

Several food safety culture assessment tools have incorporated concepts from traditional organizational culture assessment tools and adapted them to a food safety context and framework. Two of the earliest and most frequently referenced assessment tools that employed this approach were Ball et al.'s Food Safety Climate Tool (Ball, Wilcock, and Colwell, 2010) and De Boeck et

al.'s Food Safety Climate Self-Assessment Tool (De Boeck et al., 2015). Although the specific survey items and definitions for the constructs varied, these tools aimed to monitor similar themes, including leadership, communication, risk awareness, infrastructure or resources, and individual values or commitment.

Many studies have expanded upon existing assessment tools by introducing new elements or subdomains. For instance, Tomasevic et al. (2020) incorporated knowledge, business priorities, and legislation into De Boeck et al.'s Food Safety Climate Self-Assessment Tool. Similarly, Zabukosek's Food Safety Measurement Scale redefined a previous construct by emphasizing employee collaboration instead of values and commitment, with a focus on employees working together to promote food hygiene (Zabukošek, Jevšnik, and Maletič, 2016).

The evaluation tools utilized the framework developed by Ball, Wilcock, and Colwell (2010) and De Boeck et al. (2015) to combine the survey responses of participants. This allowed for the calculation of an average score for each of the measuring constructs evaluated by the food safety culture tool.

Jespersen et al.'s Food Safety Maturity Models categorize survey responses based on levels of maturity in five capability areas (Jespersen and Wallace, 2017; Jespersen et al., 2016). Maturity models are commonly used to assess the condition of a particular culture, system, business, or process and to create plans for improvement based on a maturity scale. Jespersen's model evaluates the maturity of an organization's food safety culture in five capability areas: 1) Values and Mission; 2) People Systems; 3) Adaptability; 4) Consistency; and 5) Risk and Hazards. Although the complete Food Safety Maturity Model assessment tool is not publicly accessible, the authors provided descriptions for each stage of maturity.

Stage 1, known as "Doubt," is distinguished by inquiries such as "Who is responsible for the mistake?" and "Does the department of food safety handle quality assurance?"

Stage 2, known as "React," is distinguished by inquiries and assertions such as "What is the estimated duration?" and "We excel in crisis management and acknowledge it."

Stage 3, referred to as "know of," is marked by expressions like "I acknowledge its significance, but I am only capable of addressing one issue at a time."

Stage 4, known as "Predict," involves the formulation and implementation of strategies based on informed decision-making, data analysis, and careful deliberation.

Stage 5, "Internalize," involves circumstances where "Food safety is an essential component of our business."

Jespersen et al.'s Food Safety Culture Maturity Model takes into consideration the possibility of social desirability bias, which refers to an employee's inclination to give favorable responses to questions about food safety culture.

Food safety culture refers to the collective attitudes, values, and beliefs that influence the hygiene practices in a specific food handling setting. It encompasses employees' perception of leadership, communication, commitment, resources, and risk awareness regarding food safety and hygiene in their workplace. An inadequate food safety culture can result in the spoilage of food items and a higher likelihood of foodborne illnesses (Powell et al., 2011). However, the mere existence of a food safety management system is insufficient to foster a robust food safety culture (DeBoeck et al., 2016). Previous research in the food industry, which includes food manufacturing and food service, has examined evaluations of food safety culture using a range of quantitative and qualitative methods. These methods aim to assess factors such as individual knowledge, attitudes, risk perception, actual practice, training, commitment to work, communication, equipment, tools, and

management systems. (De Boeck et al., 2016; Jespersen et al., 2016; Jespersen and Wallace, 2017; Nyarugwe et al., 2018; Ungku Fatimah et al., 2014). The evaluation of food safety culture is valuable for assessing an organization's effectiveness in implementing food safety measures. This can be done through various methods such as observation, self-assessment, and interviews, which can be used to develop a comprehensive evaluation approach (Jespersen and Wallace, 2017; Nyarugweetal, 2018). Within the hospitality industry, which encompasses establishments like hotels and catering organizations, the assessment of food safety culture has been enhanced by the utilization of a combined approach using quantitative surveys and interviews. This method has been effective in promoting ongoing enhancements, as demonstrated in extensive case studies (Caccamo et al., 2018; Nouaime et al., 2018). The safety culture is influenced by the national culture (Noort et al., 2016). However, while analyzing the food safety culture, it is important to consider the impact of cultural differences in hazards, such as those related to industry, organization level, and regulation (Nyarugwe et al., 2016). A previous study conducted in Japan investigated cultural factors in food service by surveying the nutritional group in a Japanese hospital. The study found that various elements of organizational structure, such as employees' awareness and behavior, understanding of job responsibilities, allocation of personnel, and time dedicated to food preparation, are all significant factors contributing to the occurrence of foodborne diseases (Kubota and Kawai, 2015). In addition, a qualitative study conducted in Japan examined the elements associated with the food safety culture among school food handlers (Fujisaki et al., 2019). The study conducted by Fujisaki et al. (2019) utilized the social-ecological model proposed by Sallis et al. (2008), which was modified to fit the specific context of food safety culture. The hierarchical structure of this model facilitates our comprehension of the intricate dynamics between various components within a social system. The layers encompassed in this framework are the individual, interpersonal, organizational, community, and public policy levels (Sallis et al., 2008). The study conducted by Fujisaki et al. (2019)

identified various factors that contribute to the food safety culture among Japanese school food handlers. These factors can be classified into different levels, namely individual (e.g., commitment, work experience, risk perceptions), supervisor/co-workers (e.g., communication, teamwork, leadership), environmental (e.g., facilities, management, external), and policy-level factors (e.g., standards, documents). In this work, we also utilized the social-ecological model to develop an initial scale for assessing food safety culture. Food handlers' behavior is influenced by and can be elucidated by food safety culture, which encompasses various facets (Nyarugwe et al, 2016). Food safety culture is positively correlated with food safety practices, according to De Boeck et al. (2017). Additionally, it acts as a mediator between the knowledge and practices of food handlers, as found by De Boeck et al. (2017) and Manning (2018). Although understanding and beliefs on food safety are significant, they do not consistently correlate with or put into action food safety measures (Lee et al., 2017; Zanin et al., 2017). The presence of normative variables, such as subjective norms and descriptive norms, is positively correlated with food safety practices, as shown by Clayton and Griffith (2008) and Hinsz and Nickell (2015). However, the connection between normative factors and food safety culture remains uncertain. Group norms have been employed in several domains to assess the safety environment (Fogarty and Shaw, 2010). Additionally, the descriptive norms of co-workers and the injunctive norms of supervisors act as mediators in the association between the safety climate inside an organization and safety behaviors (Fugas et al, 2012; Jiang et al., 2010). Therefore, it is postulated that the findings of the current investigation will demonstrate a positive association between desirable behaviors, normative elements, and food safety culture, whereas there will be a tenuous link between food safety culture and knowledge.

2.24 The Gap in the Culture of Food Safety Assessment

According to Griffith et al. (2010) and Livesey and Clayton (2010), all food companies have a safety culture, some of which are positive and some of which

are not. Some of these cultures are favorable, while others are not. Food companies that have a negative food safety culture put more emphasis on their sales and profits, whereas food companies that have a positive food safety culture put more emphasis on the safety of their products. Food companies are unaware of how much more expensive it is to prevent outbreaks and recall items than it is to develop and successfully implement a food safety procedure and create a positive food safety culture in supermarkets. This ignorance contributes to a lack of awareness about the magnitude of the cost difference between the two. According to Griffith (2010), Bronkhorst et al. (2015), Jespren and Huffman (2014), and Zhang and Wang (2015), ineffective management contributes to the development of a culture that is unfavorable to food safety.

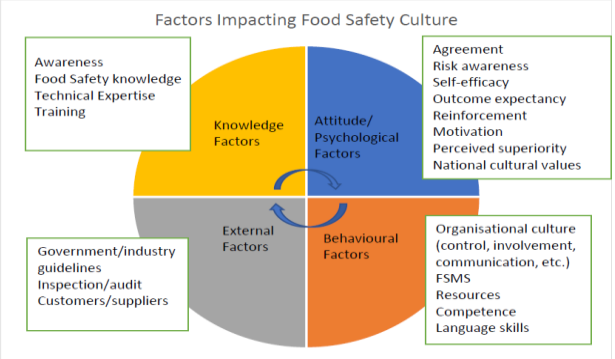

Figure 1. Theoretical Framework for food safety culture (Taylor, J., 2011.)

2.25 Impediments and challenges to a resilient and productive Food Safety Culture

Among the publications that examine major variables, some academics also identify obstacles and barriers to building and maintaining a strong and effective food safety culture. However, challenges and barriers are not discussed by industry authors.

2.25.1 Over-reliance on Food Safety Management Systems.

Food Safety Management Systems play a crucial role in ensuring food safety within an organization. However, it is important to note that these systems do not address the impact of human behavior on food safety, nor do they

guarantee the development of a positive food safety culture (Griffith, Livesey, and Clayton, 2010). In a case study conducted by De Boeck et al. (2016), the relationship between food safety climate and food safety management systems was examined. The researchers discovered that butcher shops were able to achieve better microbiological hygiene and safety standards by implementing well-developed food safety management systems and fostering a favorable food safety climate. However, it remains unclear whether the food safety climate, the food safety management systems, or their interaction were solely responsible for this achievement. Additionally, the study revealed that a positive food safety climate may not be enough to compensate for lower-performing food safety management systems (De Boeck et al., 2016).

2.25.2 Prioritization of cost-saving and money-earning The primary focus should be on prioritizing cost-saving and money-earning. Griffith emphasized that cost-saving poses a significant challenge to establishing a positive food safety culture (Griffith, 2010). In reality, a negative food safety culture can lead to a food safety incident, which can have severe economic consequences for an organization. For instance, John Tudor & Sons, a catering butcher business that prioritized profit over food safety, disregarded microbiological hazards, resulting in the largest E. coli outbreak in Wales and ultimately leading to the company's bankruptcy (Pennington, 2014). Therefore, it is crucial to prioritize a commitment to food safety over competing objectives and cultures within an organization, including the culture of saving money (Griffith, Livesey, and Clayton, 2010).

2.25.3 Organization size. The impact of an organization's size on food safety culture is not clearly understood in the literature. Some studies suggest that smaller organizations may face difficulties in improving food safety culture due to inherent environmental characteristics such as limited workspace or lack of resources (de Andrade et al., 2021). On the other hand, Nyarugwe et al. (2018) found that larger, centrally managed organizations generally exhibited better food safety culture. However, Griffith (2013) pointed out that larger companies

may face challenges due to the presence of diverse sub-cultures within the organization. In the case of multi-site organizations, food safety culture often relies on the beliefs and values of individual site managers (Griffith, 2013). Nevertheless, the size of the organization may not be a determining factor, as De Boeck et al. (2018) found no significant difference in food safety climate scores based on organization size.

2.25.4 Frequent staff turnover. High staff turnover is a common issue in the food industry, necessitating regular training and supervision of new employees. This constant turnover can negatively impact important aspects of food safety culture, such as risk awareness and accountability. Research by De Boeck et al. (2016) revealed that the food safety climate is positively influenced by employees with seniority or permanent contracts, but negatively affected by those with temporary contracts.

2.25.5 Optimistic bias. Optimistic bias, as described by Evans et al. (2021), refers to the tendency of certain organizations or employees to be skeptical or possess a "illusion of invulnerability." This mindset can impede the successful adoption of food safety practices. When individuals do not perceive themselves as susceptible to food contamination, they are less likely to prioritize it unless they recognize its importance, as noted by Ades and Leith (2016).

2.26 Initiatives

Only two initiatives specific to creating food safety culture in a regulated business were recognized in the assessment as being undertaken by regulatory authorities. This includes the Food and Drug Administration’s “New Era of Smarter Food Safety” and a new legislation from the European Union (EU).

In 2020, the U.S. Food and Drug Administration introduced its plan for the "New Era of Smarter Food Safety" initiative. This initiative aims to enhance food safety by utilizing technology and other resources to establish a safer and more digitally traceable food system. A key aspect of this initiative is the cultivation,

reinforcement, and support of food safety cultures in farms, food facilities, and households. This entails promoting a culture of food safety across the entire food system, including within the FDA, and encouraging consumers to adopt and prioritize food safety practices.

In 2021, the European Union Commission revised their food safety regulations to introduce food safety culture as a general principle and global standard requiring food business operators in the European Union to establish, maintain, and document an appropriate food safety culture (European Commission, 2020). The regulations require food business operators to provide evidence showing they meet the following requirements:

(a) Employee and management dedication to the production and distribution of food that is safe for consumption;

(b) Promoting leadership and fostering staff engagement in the implementation of safe food practices

(c) All staff are required to possess knowledge of food safety concerns and understand the significance of food safety.

(d) Ensuring transparent and effective communication among all staff members

(e) Adequate resources to guarantee food safety

The rule provides additional details regarding the various criteria for demonstrating management commitment, as mentioned in the basic standards. However, there is currently no further information available in the regulation regarding the specific methods that food enterprises should employ to ensure compliance.

2.27 Summary of Food Safety Literature Review

There is no single way to construct, develop, and sustain a food safety culture, but researchers have uncovered certain key variables (GFSI, 2018). Leadership, communication, food safety dedication, risk awareness,

environment, responsibility, and staff knowledge, attitudes, behaviors, and values are consistent determinants. The literature also acknowledges the challenges of building and maintaining a strong food safety culture. The research highlights numerous impediments, including overreliance on food safety management systems, cost reduction and profit generation, organizational scale, high staff turnover, and optimistic bias.

Research has found several publications that might help firms build and maintain a good food safety culture. Yiannas' 2009 book Food Safety Culture: Creating a Behavior-Based Food Safety Management System, Ades et al.'s 2016 book Food Safety: A path to Success, and the GFSI's 2018 publication A Culture of Food Safety are examples. The research also suggests numerous food safety culture-building methods. These include emphasizing food safety culture as a vital part of the business for all employees, establishing the organization's dedication to food safety culture as part of its brand identity, instilling a sense of personal responsibility for food safety culture, and promoting it throughout the supply chain.

Global research shows that government regulatory bodies' rules and processes can affect an organization's food safety culture. Food safety culture is stronger in countries with greater food safety laws, such as governmental legislation, private standards, and effective enforcement. Studies by Tomasevic et al. (2020) and Nyarugwe et al. (2020) support this conclusion. However, the literature fails to identify the food safety legislation components that strengthen food safety culture. About 25% of the articles in this literature study discuss organizational food safety culture evaluation. Most food safety culture evaluation tools are surveys for top-level management, middle management, and food handlers. Third-party audits, data validations, focus groups, and direct observations of real-life activity are further methods for assessing an organization's food safety culture.

Literature reviews, food safety expert focus groups, and psychometric evaluations were used to construct and validate many survey questionnaires.

The researchers created and verified their food safety cultural framework using triangulation. Surveys, interviews, and audits were used (De Boeck et al., 2019; Nyarugwe, 2016). The literature does not show that measurement frameworks and scales are universal across firms or food industries.

Several food safety culture evaluation techniques have adapted organizational culture assessment methodologies for food safety. Early and often cited tools that implemented this method were Ball et al.'s (2010) food safety climate tool and De Boeck et al.'s (2015) self-assessment tool. Despite differences, the instruments examine leadership, communication, risk perception, infrastructure or resources, and personal values or dedication. Most food safety culture evaluation approaches add constructs or subdomains to these two tools. The sources include Tomasevic et al. (2020), Abidin UFUZ, Arendt SW, and Strohbehn CH (2014), and Taylor and Rostron (2018). Jespersen et al.'s food safety maturity models use a five-point scale to assess an organization's food safety culture across five competence areas: values and mission, people systems, flexibility, consistency, and risks and hazards. In contrast to other methods. Food safety culture "maturity" begins with "doubt" and goes through multiple levels of adherence to food safety culture until the organization has fully "internalized" its norms and values. The only regulatory body-created evaluation tool was the 2012 United Kingdom Food Standards body toolkit. The toolkit helped police assess safety culture, attitudes, and behaviors. A qualitative assessment of thirty industry stakeholders found the toolkit complicated, repetitive, lacking employee feedback, and inflexible for different sizes and types of enterprises. The source is Nayak and Waterson's 2017 work.

Food safety culture can be weak, strong, low, positive, immature, or mature, depending on the writer or researcher. If we are referring to specific publications, we use the authors' terminology. Otherwise, we use "strong" or "good" to describe a well-established food safety culture and "weak" or "poor" to describe an underdeveloped one.

Three foodborne illness outbreak case studies have linked poor food safety culture to outbreaks (Howell and Miller, 2010; Pennington, 2014). These researchers hypothesize that food organizations with strong food safety cultures will adhere to food safety standards more than those with weak cultures, but no case studies in this literature review test this assumption. A small number of empirical studies (n = 6) examine the relationship between food safety culture and outcomes like microbiological hygiene, safety behavior, and economic impact. Enhancing food safety culture and having leadership support improved staff hand washing and motivation (Clark, Crandall, and Reynolds, 2019; De Boeck et al., 2017). De Andrade et al. (2020) found that restaurants with strong food safety cultures had fewer food safety violations. Only one study found a significant link between food safety culture and microbiological hygiene risk (Wu ST et al., 2020).

Most literature defines food safety culture similarly. The writers agree that food safety culture goes beyond the Food Safety Management System, although they disagree on how to define it. Leadership, communication, dedication to food safety, understanding of risks, work environment, accountability, and employee expertise, attitudes, behaviors, and values are also agreed upon as factors in a strong and effective food safety culture. Each aspect is crucial to a strong food safety culture, according to the literature. A limited number of tools can establish and improve a food safety culture. There is little information on how government entities can promote food safety throughout the supply chain. The FDA's smarter food safety initiatives and the EU's food safety culture rules are examples (FDA, 2020; European Commission, 2020).

There is little food safety culture literature for consumers or regulatory bodies, partly because it is based on organizational culture theories. Thus, the public's understanding of a strong and effective food safety culture and a regulatory agency's definition are lacking. Existing food safety culture literature ignores employees' diverse political, family, racial, and other cultural identities and how they may affect an organization's food safety culture.

Scholars are constantly improving and expanding food safety cultural metrics. Leadership, communication, risk awareness, infrastructure, and values or commitment are common among the instruments. However, further research is needed to assess these instruments' dependability in diverse organizational situations and countries.

Food safety culture and outcomes have been explicitly studied in a few research. Current research shows that improving food safety culture in firms has quantitative benefits. However, more empirical research is needed to fully establish the correlation between food safety culture and many outcomes, including the microbiological environment and other hazards associated with foodborne illness outbreaks, contamination rates, and economic impacts.

The study indicated a favorable association between transactional and transformational leadership styles and food handler job satisfaction, devotion, and hygiene. Additionally, these leadership types correlated well. Hygiene procedures were linked to food handlers' work satisfaction and dedication. A strong correlation existed between job satisfaction and dedication. Job satisfaction and commitment partially mediated the links between transactional and transformational leadership and hygiene. Both leadership styles can inspire food business executives to improve food handling. Transactional and transformational leaders must also find new ways to boost food handler job satisfaction and commitment. This method can improve food handler hygiene by promoting a progressive food safety culture. Transactional and transformational leadership must be combined for a holistic strategy. Transactional leadership emphasizes task-oriented activities (design), rule-following (adoption), and incentives and punishments (implementation) in food safety management system stages. However, transformational leadership emphasizes a clear vision, strong dedication, open communication, a proactive food safety culture, innovation, empowerment, and intrinsic motivation. These activities aim to optimize food safety management system efficiency and effectiveness. Leadership must actively promote a food safety culture that

motivates all food handlers to prioritize food safety in the organization's operations. In this case, food handlers follow hygienic practices because they believe in "al ehssan."

Companies must understand HACCP breaches' reasons notwithstanding a rising trend in reported events. Without agreed-upon terms, understanding food safety culture and climate is challenging. Current definitions and declarations include perception, values, employees, common perspectives, and behaviors, according to the analysis. Word analysis revealed that time, sociology, and psychology define culture and environment. New definitions aim to standardize language in industry and academia. Definitions are as follows: Food safety culture is the shared attitudes, practices, and assumptions that all employees learn and share. This organizational culture affects food safety performance. Individual food safety climate is temporary. It covers people's views and skills to persuade others in a company to follow food safety management systems and implement them at work. The research also evaluated several organizational cultures and leader and employee behaviors and how they affect the rest of the workforce. An excellent team would have purpose, participation, task, and relationship cultures, according to organizational culture and climate studies. These behaviors and approaches would influence, communicate, develop team skills, and keep the team focused on their goals.

2.28 Overview of Food Safety Literature Review

In the introductory part, the researcher discussed organisational culture, which encompasses the distinctive attributes of an organisation that embody its underlying assumptions and convictions. It is imperative for all individuals in the workforce to conform to a shared set of fundamental principles and goals. The food safety culture section follows, outlining the firm's adherence to food safety principles and its emphasis on upholding and fulfilling requirements, as reflected in the company's food safety culture. When assessing a company's culture, it's crucial to remember that operational factors like management, the company's size, and the products it produces all influence the company's

approach to food safety. The existing literature focusses primarily on discussing the topic of food safety culture within organisations, particularly in relation to firms involved in manufacturing, food processing, and retail. There is a scarcity of research examining food safety culture on a national scale, and none of the existing literature explores food safety culture among individual consumers. The researcher focused on food safety culture and food poisoning in Dubai to assess the level of food safety culture and develop strategies to improve food safety within Dubai's food establishments. The goal was to determine whether there was a correlation between these factors and the prevailing food safety culture in food establishments. The researcher, addressing the subject of Determinants of Food Safety Culture, consistently identified the following primary determinants: A) leadership; B) communication; C) commitment to food safety; D) risk awareness; E) environment; F) accountability; and G) staff knowledge, attitudes, behaviours, and values. In the topic of Current Understanding of Food Safety Culture and its significance, the researcher discussed the situation in the Middle East, and more specifically, the region comprising Arab countries, where the climate is warm during the spring and summer months. In relation to food safety culture evaluation systems, the researcher provided a concise overview of the eight culture evaluation systems: focal domain, structure, and overall compliance with the twelve criteria outlined in the National Research Council recommendations. It includes the Ball model, the DeBoeck model, the Denison model, the Jespersen model, the TSI model, the Wright model, the CEB model, and the NSF model. Following that, the researcher discussed the gap in the food safety assessment culture and factors that impact food safety culture.

3.0 Organisational and Food Safety Culture Literature Review

3.1 Introduction

The culture of an organization is a reflection of each and every employee working for that firm. In order to get an accurate picture of a company's culture, one should consult, at the very least, a cross-sectional sample of its employees, if not the entire workforce. When attempting to describe an organization, it is essential to take into account the ways in which its many subcultures interact with one another (Hofstede, 1998). This is because it is possible that the culture of an organization is made up of a number of different subcultures.

Comparable to the concept of organizational culture, the concept of food safety culture represents how workers feel about their company and the environment in which they operate. When doing an analysis of the culture around food safety, it is common practice to consider aspects of health and safety culture. (Ungku Fatimah et al., 2014) Suggests taking into account how employees feel about risk management methods, leadership, communication, risk perception, and the workplace.

Previous research has suggested that in order to assist in promoting food safety and serve as a benchmark, organizational cultures that value food safety should be aligned with those that value food safety in the same way. As a result, the purpose of this research is to conduct an analysis of the food safety culture with the end objective of developing a standard rating for the dairy processing plant. (Ungku Fatimah et al., 2014) This score is widely used to highlight the organizational areas where work is required to improve food safety performance and culture.

3.2 Organizational culture and Food Safety Culture

As stated by Iskamto (2023), organizational culture refers to the fundamental values of an organization that shape the attitudes, behaviors, and actions of all

its members. Organizational culture refers to the collective conduct of individuals inside an organization, encompassing a set of norms that include common ideas, attitudes, basic values, and patterns of behavior.

Mulyaningrum, Z and Norisanti (2022) define organizational culture as a collection of norms and values established by a corporation to shape the features and behavior of its personnel, enabling them to complete duties promptly and guiding them towards accomplishing organizational objectives. The development and teaching of organizational culture is crucial in enabling employees to effectively handle both external and internal challenges. This culture serves as a behavioral guide for members when addressing problems.

According to Yorio, Edwards, and Hoeneveld (2019), factors such as management and leadership style, the economic environment in which the organization operates, national standing, the country in which the organization's headquarters are located, and therefore the industry itself will, in theory, have a significant impact on the food safety culture of the organization.

According to the social network theory, the society or social networks in which an individual participates might have an effect on the behavioral decisions and views of that individual's coworkers. These social networks are likely to have an effect on the food safety culture of a business, given that employees are ingrained in society and share common thought patterns, interpretations of stimuli, and behavioral responses to those stimuli. These effects can take over and affect the beliefs and behaviors of workers, which can result in some corporate subcultures being swamped as a result of a personal need to feel accepted (Yorio, Edwards, and Hoeneveld, 2019). These findings were published in the journal Organizational Behavior and Human Decision Processes.

There has been only a cursory look at whether or not Irish food companies or processing facilities have a "strong" culture of food safety. Employee

perceptions are commonly used in safety culture assessments (Tear et al., 2020). This is due to the belief that safety-related actions, activities, and laws will represent safety inside the company. One analogy that comes to mind is the culture that surrounds issues of food safety. Because of this, it is highly likely that a company will have a robust culture of food safety if all of its employees share positive ideas, behaviors, and activities. However, not a lot of research has been done to try to figure out these different practices, attitudes, and behaviors.

3.3 Roles of Organizational Culture

Organizational culture serves a specific purpose or function within the firm. Diana et al (2021) state that culture serves several functions inside the institution. The five purposes of organizational culture are as follows: culture has a crucial role in establishing boundaries, hence creating distinct and well-defined parameters and differences. Culture establishes a distinct and cohesive feeling of identity among individuals inside an institution. Culture enables individuals to dedicate themselves to a cause or purpose that extends beyond their interests. Culture enhances the stability of social systems, serving as the cohesive force that can unify the organization by establishing suitable norms for employee behavior and communication. Diana et al (2021), asserts that culture serves the purpose of establishing distinct boundaries, namely by generating distinctions between different organizations. Evokes a feeling of Identity is the sense of self and belonging that individuals within an organization feel. Culture enables the development of dedication towards a cause or purpose that surpasses personal self-interest. Enhance the stability of the social structure. Culture serves as the cohesive force within businesses, establishing the necessary norms and guidelines for the speech and behavior of workers. Culture functions as a system for sense-making and control, influencing and molding the attitudes and conduct of employees.

3.4 Impact of Organizational Culture

Iskamto (2023) argues that culture has a profound influence on organizational performance, particularly corporate culture, which can significantly affect a company's long-term economic performance. The significance of business culture in determining the future success or failure of a firm cannot be underestimated. It is normal for corporate cultures that impede excellent financial performance in the long run to grow readily. While it may be challenging, it is possible to modify company culture in order to improve performance.

3.5 Promoting a Culture of Food Safety in Organizations

The available literature offers limited publications that serve as comprehensive references for organizations seeking to establish and sustain a favorable food safety culture.

Yiannas' (2009) publication serves as a comprehensive resource for food safety experts, focusing on the introduction of innovative ideas and concepts related to food safety culture. Yiannas explores the concept of behavior-based food safety and emphasizes the importance for organizations to establish a food safety culture instead of relying solely on a food safety program. The book provides a detailed explanation of the fundamental components, exemplary approaches, and significance of fostering a food safety culture.

The book "Food Safety: A Roadmap to Success" by Ades et al. (2016) aims to assist food safety professionals and food businesses in establishing a robust food safety culture. The authors offer systematic approaches and user-friendly guidelines to implement the principles and requirements of food safety culture in food businesses. Similarly, the Global Food Safety Initiative (GFSI) has advocated for food safety culture in businesses through its publication "A Culture of Food Safety" (GFSI, 2018). The GFSI describes this position paper as a comprehensive plan for integrating and sustaining a positive culture of food safety in any business, regardless of its size or focus. It is specifically

designed to aid food industry professionals in promoting and maintaining a positive culture of food safety within their respective organizations (GFSI, 2018).Furthermore, the literature elucidates several optimal strategies for fostering a culture of food safety, in addition to the aforementioned guidance tailored for organizations.

3.5.1 Food Safety Culture should be promoted as a necessary and critical business issue for all employees.

Ensuring food safety should be the primary objective for every individual within the organization, rather than just a particular group within it (Ades et al., 2016). Nevertheless, scholars acknowledge that cultivating a food safety culture can be a difficult task that necessitates finding a balance between the conflicting motivations of the company, management, and workers (Baur, Getz, and Sowerwine, 2017).

3.5.2 Organizations should brand their commitment to food safety culture and promote it everywhere.

This involves exhibiting food safety messaging in areas such as break rooms, hallways, elevators, parking lots, or any location where employees gather, to ensure that employees do not forget it (Ades et al., 2016). However, Yiannas warns that merely displaying food safety posters, signs, and symbols may not achieve the desired outcome. He emphasizes that for them to be effective, they should be straightforward, clearly communicate the expected behavior, be positioned in the appropriate locations where the desired behavior should take place, and be changed regularly to prevent people from becoming desensitized (Yiannas, 2009).

3.5.3 Food Safety Culture should be promoted using the “owner mentality” concept

The notion of "owner mentality" should be utilized to build a culture of food safety. The ultimate objective of fostering this culture is to persuade individuals

to modify their behavior in order to meet food safety standards. This involves aligning the attitudes and values of individuals with those of the company.

3.5.4 Food Safety Culture should not only be promoted within an organization, but also within its supply chain.

An organization must establish a robust food safety culture throughout its supply chain, not just within its own operations. According to Powell et al. (2013), effective communication between suppliers and buyers, including clear expectations and risk management practices, is crucial. Collaborative systems, where retailers assist their suppliers in meeting objectives, have shown greater supplier engagement and improved outcomes due to the reinforcement of a strong food safety culture.

3.6 National Culture and Food Safety Culture in Dubai

Food safety accidents are commonly documented in the food supply chain, and their frequency is increasing. A food safety issue arises when the integrity of the product has been compromised, necessitating measures to safeguard consumers (Food Standards Agency, 2019). A foodborne illness refers to the inadvertent or intentional contamination of food that has adverse effects on human health. Acute diarrheal disease is highly prevalent globally and is believed to be responsible for over 1.8 million juvenile fatalities each year, according to the World Health Organization. Although the prevalence of disease in Dubai and the United Arab Emirates is relatively low compared to other regions, the worldwide availability of cuisine that caters to the different tastes of both residents and tourists in Dubai presents numerous difficulties. The increasing diversity of foods and the growing prevalence of undercooked and raw foods, both from animals and plants, have heightened the importance of ensuring the safety of the food supply chain, from farm to fork. There is no comprehensive remedy to entirely eradicate foodborne illnesses. Nevertheless, implementing suitable and prompt control measures will effectively mitigate both human distress and economic detriment.

Surveillance data is utilized to strategize, execute, and assess public health programs, rendering the effort quantifiable. Monitoring food-borne illnesses is an essential part of food safety systems and should be enhanced at both local and national levels. This is necessary to ensure that preventive actions are created and implemented based on risk assessment, with the primary goal of minimizing these risks. The Food Safety Department has collaborated with the World Health Organization (WHO) and the Centers for Disease Control (CDC) in the United States to establish and operate a food-borne disease investigation system, acknowledging the importance of multi-disciplinary efforts in investigating and managing food-related illnesses.

The Food Safety Department of Dubai Municipality has the authority to carry out epidemiological, environmental, and laboratory investigations when there is a suspected case of foodborne illness. The department's responsibilities encompass:

- Gathering and evaluating data on cases of foodborne diseases
- Performing epidemiological inquiries that encompass interviewing individuals who are unwell, as well as those individuals who may have been exposed to the probable source.
- Performing environmental inquiries in food establishments
- Gather food specimens for examination.
- Performing food traceability to determine its origin Conducting in-depth study to identify the underlying reason and implementing necessary preventive measures
- Disseminate information about illnesses to the industry, customers, and other relevant parties.

The Dubai Health Authority has a significant role in the development of the foodborne disease surveillance system. The Dubai Health Authority has contributed to the development of the hospitals' surveillance plan, and the epidemiologists from Dubai Health Authority are currently involved in the

collection of notifications from hospitals and conducting epidemiological investigations. In addition, the Dubai Health Authority has established a set of criteria and requirements that hospitals must adhere to in order to report events and illnesses. It establishes the specific time constraints for reporting.

The Dubai Health Authority also provides training for the infection control team at hospitals to ensure timely notifications.

The Ministry of Health in the UAE plays a crucial role in investigating and managing outbreaks that occur throughout the Emirates. The Ministry of Health has established a comprehensive framework for the federal reporting of ailments. The Ministry of Health (MOH) has established particular criteria for notifying the World Health Organization (WHO) about situations that have the potential to cause global impact, such as cholera outbreaks.

Hospitals and clinics have a significant impact on the disease surveillance system. In addition to ensuring sufficient healthcare, their responsibilities in relation to foodborne illnesses include:

- Determine the underlying cause of the illness by doing a comprehensive diagnosis that goes beyond just identifying symptoms.
- Determine the causal microorganism by conducting a stool culture test, specifically for bacterial illnesses.
- Promptly notify the Dubai Health Authority of the disease by utilizing the illness reporting form.
- Collaborate with the Dubai Health Authority and the Food Safety Department to conduct investigations.
- When a stool culture yields positive results, please provide isolates of the organisms. This instruction is specifically relevant to medical laboratories.

Hospitals should abstain from determining the origin of the illness without relying on epidemiologic evidence provided by the Dubai Health Authority and Food Safety Department.

Food outlets have a significant impact on the prevention of illnesses. The primary responsibility of food safety personnel is to not only implement effective measures to avoid foodborne illnesses but also promptly report any incidences they become aware of.

The responsibilities of an individual overseeing a food establishment in the event of a foodborne illness are as follows:

Upon receiving a report of any foodborne disease, it is imperative for the Person in Charge (PIC) to promptly furnish the complainant with the necessary form to report the sickness to the Food Safety Department.

If there are multiple instances of foodborne illnesses displaying similar symptoms, the Person in Charge (PIC) is required to promptly notify the Food Safety Department by dialing the hotline number of Dubai Municipality (800900).

If an outbreak occurs, the Food Safety Department will employ epidemiological research to pinpoint the potentially contaminated goods and determine the need for laboratory testing as part of the inquiry. The food establishment is responsible for ensuring that any items that are suspected of being contaminated are held in a separate location and then sent for testing.

The collaborative initiative between Dubai Municipality and Dubai Health Authority in 2011, known as the Publication of Guidelines and Documents, is the exclusive framework for investigating foodborne disease outbreaks and disease surveillance. In 2020, the Food Safety Department updated the standards to incorporate modifications in the reporting system.

An attempt was undertaken to establish a laboratory surveillance system for Salmonella species at the UAE University in Al Ain, mostly utilizing whole genome sequencing.

The food safety department is launching a new e-learning platform called Foodwatch app. This platform is designed to provide training and education to

individuals responsible for food safety and food handlers. It focuses on both existing and emerging dangers in the field. The training materials are accessible via the app.

3.6.1 Report on Foodborne Illnesses The table below presents data on the incidence of cases categorized by the specific disease or organism linked to the sickness, recorded between 2011 and 2020.

Foodborne Illness Data Trends for 10 Years

ILLNESS/ORGANISM	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Amoeabiasis (Entamoeba Histolytica)	210	210	214	218	188	147	264	296	408	191	185
Cholera (V.cholera)									14	10	47
Bacillary Dysentery									1	1	
Botulism (C. botulinum)									1	0	
Campylobacter Spp	53	7	3	5	6				-	-	5
E Coli Spp	10	0	1	5	9	12	27	15	8	4	13
Giardia Spp.	31	11	20	24	24	16	29	100	180	29	32
Salmonella Spp (Non Typhi)	157	134	84	165	194	196	214	107	258	199	252
Shigella Spp	13	6	10	1	9	2		3	16	7	39
Staphylococcus Aureus	1	0	0	0	0				-	-	
Samonella Typhi / Paratyphi	179	137	137	179	161	153	132	161	253	88	112
Cryptosporidium	38	13									6
Hepatitis Virus A (HAV)	53	40	43	49	38	39	43	50	89	40	55
Hepatitis Virus E						5	1			6	
Rota Virus										-	10
Listeriosis									1	2	
Brucella Spp	10	5							34	10	
Food poisoning- Agent Non confirmed	646	633	608	923	638	430	446	589	985	465	553
TOTAL	**1429**	**1206**	**1120**	**1569**	**1272**	**1006**	**1163**	**1357**	**2248**	**1052**	**1309**

3.6.2 Key Findings:

- There has been a significant increase in the number of cholera cases.
- Notifications for Campylobacter have commenced.
- The number of E. coli cases tripled.
- The incidence of Salmonella infections rose in 2020 and reached the same level as in 2019.
- There was a rise in the number of Hepatitis A infections.
- Incidences of Cryptosporidium were documented.
- The reported number of unconfirmed cases has slightly risen.
- Minimization of Causal Elements in Foodborne Disease

The foodborne disease surveillance data in Dubai from 2011 to 2021 has continuously found significant risk factors associated with food safety practices in the food industry that lead to outbreaks of foodborne illnesses. Various sectors within the food industry necessitate substantial enhancements in the management of these risk elements. The main risk factors encompass the Smart Food Inspection System implemented by the Dubai Municipality.

- Utilization of raw eggs in dishes that have not undergone pasteurization or heat treatment.
- Inadequate sterilization of leafy green salad vegetables
- Inadequate handling, timing, and temperature control of prepared foods.
- Inadequate sterilization of food equipment and surfaces that come into touch with food
- Procurement and management of unprocessed, prepared foods derived from both plants and animals.
- Inadequate leadership exhibited by the individual responsible for overseeing the food enterprise.

3.7 Food Safety Culture at the Organizational, National, and Individual Level

The concept of food safety culture encompasses the attitudes, beliefs, and behaviors related to food safety inside an organization, at a national level, and among individuals. The review primarily focuses on the concept of food safety culture inside organizations, specifically in the context of companies such as manufacturing, food processing, and retail. Nevertheless, Nyarugwe et al. (2016) contend that there exists a comprehensive food safety culture at the national level, which encompasses both the core values of a nation and its governance in ensuring food safety. Nyarugwe has utilized this framework in investigations pertaining to the culture of food

safety in Zimbabwe. (Nyarugwe, Linnemann, & Luning, 2020). Nevertheless, the notion of food safety culture at the national scale was only examined in one further study, which focused on countries in Central and Eastern Europe (Tomasevic et al., 2020). The study examined several aspects of food safety culture in over 500 food companies. It was shown that European Union (EU) enterprises exhibited a more robust food safety culture compared to non-EU companies. The authors attributed this difference to the relatively stable economic conditions in EU countries. The majority of the literature focuses on the concept of food safety culture within organizations. The literature lacks discussion on the notion of food safety culture among individual consumers.

3.8 Influence of culture, viewpoints, and perspectives on Food Safety Culture

The benefits of food handlers' training are well acknowledged and undisputed; nonetheless, it is crucial to remember that training alone does not consistently lead to a positive change in attitude or an improved perception of risk (Insfran-Rivarola et al., 2020). Multiple studies have shown that simply providing theoretical instruction does not always result in an improvement in food safety awareness necessary for achieving adequate levels of safe behaviors in a food work environment (Young et al., 2019; Zanin et al., 2021a). The Codex Alimentarius Commission, during the revision of its global standard on general principles of food hygiene (CXC 1-1969) in September 2020, officially included the notion of food safety culture as a fundamental principle (Codex Alimentarius Commission, 2020).

The scientific investigation into the culture surrounding food safety has been continuously conducted for several years. The inception of the study on food safety culture can be credited to Yiannas (2009), who emphasized the importance of human conduct in preventing foodborne illnesses, especially in specific parts of the food distribution network. Currently, it is possible to define food safety culture as the combined system of principles, convictions, and

customs that impact the mindset and behavior regarding food safety within an organization, encompassing all aspects and reaching various levels (Global Food Safety Initiative, 2018).

An extensive investigation was conducted to assess the level of understanding, beliefs, and actions related to food safety among those responsible for handling food in different countries. The study specifically focused on the practices followed by restaurants, universities, hotels, hospitals, and vendors (Taha et al., 2020a). A research investigation carried out in the United Arab Emirates (UAE) evaluated the extent of food safety awareness among those responsible for handling food in foodservice establishments, uncovering a favorable overall evaluation (Taha et al., 2020a). The research carried out in Malaysia (Woh, Thong, Behnke, Lewis, & Zain, 2016) and Slovenia (Ovca, Jevšnik, & Raspor, 2018) demonstrates that food handlers in both nations possess insufficient comprehension of food safety principles. The food safety performance of organizations is affected by both internal and external factors (Nyarugwe et al., 2020).

According to the researchers' comprehension, there is a dearth of published material investigating the relationship between national culture and the dedication, knowledge, attitude, and conduct of food handlers in restaurants situated in Dubai. The research on food safety culture has been limited, but there is evidence that it is gaining recognition and being assessed in different organizations.

3.9 The influence of food handlers' religious and organizational commitment on food hygiene procedures.

There is a current trend of incorporating behavioral sciences to enhance adherence to food safety practices. Food handlers are accountable for enforcing hygienic practices. Hence, apart from acquiring knowledge, it is vital to comprehend the elements that impact the attitudes and behaviors of food handlers in their workplace. Organizational commitment is a crucial component

that significantly influences the implementation of excellent food hygiene procedures in food operations. The commitment of employees serves as an intermediary between knowledge, attitudes, and practices (KAP) and religious commitment. Commitment denotes the level of engagement that person has with their employer and might impact their feeling of duty towards that organization. Employees' organizational commitment serves as an indicator of professionalism, as it reflects their adherence to standard behavior (in-role behavior) or their willingness to go above expectations (extra-role behavior). Proficiency in applying relevant knowledge, behavioral tendencies, and both attitudinal and behavioral commitment are typically crucial factors contributing to professional achievement. It is crucial to comprehend the factors that influence the commitment of food handlers in order to achieve beneficial outcomes, such as religious commitment. This religious commitment has a substantial impact on both organizational dedication and practices (Ekizler & Galifanova, 2020).

Annually, there are 420,000 fatalities and 600 million instances of foodborne illnesses worldwide, resulting in a loss of 33 million healthy life years each year (Havelaar et al., 2015; World Health Organization, 2015). Furthermore, the World Health Organization (2022) has calculated that the combination of diminished productivity and medical costs resulting from inadequate food safety measures in low- and middle-income nations amounts to a staggering 110 billion USD annually. According to a US estimate, the yearly expense of illnesses caused by contaminated food in the US surpassed 15.5 billion dollars (Hoffmann et al., 2015). Foodborne diseases impede socioeconomic development by impacting healthcare systems, national economies, and international tourism and trade. Foodborne illness outbreaks often occur due to food handlers engaging in poor food practices, such as unsanitary handling, cross-contamination, and inadequate temperature management (Sabbithi et al., 2017; da Cunha et al., 2015). Several research have examined the knowledge, attitudes, and practices (KAP) of food handlers (Kwol et al., 2020; Taha et al., 2020a). Several studies have indicated strong positive correlations

between knowledge and desirable practices (Kuo & Weng, 2021). However, other studies have discovered that possessing information does not always result in the implementation of those activities (Baser et al., 2017; De Boeck et al., 2017; El Haddad et al., 2020). Merely relying on knowledge to manage behaviors may not yield successful results (Rossi et al., 2017), given that behaviors are influenced by various factors (Bamgboje-Ayodele et al., 2019), such as an organization's food safety climate, culture, and both internal and external environment (Griffith et al., 2010). Employees' dedication to their organization has been linked to food safety (Griffith et al., 2010; Nyarugwe et al., 2018; Taha et al., 2020b). Employees who possess a high level of dedication experience a deep emotional connection to their firm and exert significant effort to achieve the desired objectives (Bakker et al., 2012). In terms of food safety, committed personnel are unwilling to jeopardize the microbiological safety of the food served, as it may lead to a decline in organizational revenue. The commitment to an organization can be categorized as affective (emotional connection), continuance (perceived cost), or normative (duty) in nature (de Andrade et al., 2021; Taha et al., 2020b; Zanin et al., 2021). Studies indicate that religious devotion has an impact on the attitudes and actions of individuals who manage food (Pfeiffer et al., 2018; Tariq & Khan, 2017). There are three primary mechanisms that could elucidate the correlation between religious devotion and the maintenance of food safety. Firstly, individuals who are religious have a profound dedication to their beliefs. Consequently, they are inclined to adhere to the established guidelines for food safety that they committed to when they became part of the organization (Bouarif, 2015). Furthermore, some Islamic religious doctrines encompass everyday actions that are closely linked to the maintenance of food safety (Biglari et al., 2020; Ngah et al., 2020; Swimberghe et al., 2011). For instance, within the Muslim religion, there is a promotion of good hygiene behaviors such as hand washing, nail trimming, avoiding blowing on food, and keeping food covered. These practices align with the principles of food safety management systems as discussed by Abd Rahim et al. (2018), Mufizur et al. (2017), and

Raheem & Demirci (2018). Religious views can influence a person's morality (McKay & Whitehouse, 2015; Shariff, 2015). Religion can have a beneficial impact on decision-making by imparting moral values to individuals, guiding them to make choices that align with the principles and guidelines of their religious beliefs. An employee with high ethical standards would refuse to serve food that was not prepared in a sanitary manner or posed a health risk. No prior research has investigated the joint impact of religious and organizational commitment on the food hygiene behaviors of food handlers. Hence, our objective was to assess the knowledge, attitudes, religious commitment, and organizational commitment levels of food handlers about food safety, and determine how these factors impact their adherence to food hygiene measures.

3.10 The influence of organizational culture on employee performance

Human beings, being inherently social creatures, possess an innate inclination to engage in social interactions, collaborate with others, and depend on the companionship of fellow humans. Hence, the presence of an organization is essential as a platform that can assemble or support individuals in engaging socially and collaborating (Abdullahi et al., 2021).

Culture is the outcome of human creativity that is generated and employed as a component of daily existence. Organizational culture is a persistent pattern of behavior that is utilized and implemented in work-life activities as a means of enhancing the performance of employees and corporate managers. An organization typically experiences various stages over time, commonly referred to as the organizational cycle. According to Mahardika and Luturlean (2020), an organization that experiences growth and development can be likened to a live organism undergoing a life process.

The company's primary objective in today's highly competitive business landscape is to enhance employee performance by establishing a favorable and robust organizational culture (Jufrizen et al., 2021). Organizational culture encompasses the fundamental principles, accepted behaviors, shared ideas,

and operational methods that define the character and operational approach of an organization. An effective company culture offers explicit guidance, inspires people, and shapes their choices and behaviors (Adam et al., 2020).

The significance of a proficient organizational culture aligned with company objectives cannot be disregarded. The impact of a robust company culture on employee performance is substantial. Employees that experience a strong sense of affiliation with a favorable organizational culture and align with their own beliefs are more likely to exhibit proactive engagement in their work, exhibit elevated levels of job satisfaction, and make valuable contributions towards accomplishing organizational objectives.

An effective organizational culture can enhance employee cooperation and collaboration, minimize interpersonal disputes, and provide an inclusive work environment. By cultivating a robust organizational culture, firms can motivate employees to embrace elevated performance benchmarks, foster innovation, and prioritize customer satisfaction. Consequently, this can enhance the company's competitive edge. The citation is from Jufrizen et al. (2021).

Nevertheless, whereas organizational culture significantly impacts employee performance, there might exist a disparity between the planned culture of the company and the culture that people actually adopt. This gap arises when there is a disparity between the values officially proclaimed by the firm and the actual behaviors and actions observed in the workplace on a daily basis. The lack of alignment can lead to employee discontent, annoyance, and a decline in productivity (Ekosusilo, 2020; Hasibuan & Bangun, 2020).

Tjahjadi and Uria (2021) defines performance as the tangible and measurable outcomes of an employee's work, a management process, or an entire organization. These outcomes should be compared to predetermined standards. On the other hand, Iskamto (2023) describes performance as the actual behavior exhibited by employees in accordance with their roles within the organization. Dehotman (2023) defines performance as the outcome of an

employee's work, measured by the level of quality and quantity attained in fulfilling their assigned obligations. Performance, as defined by Sulastiningtiyas and Nilasari (2019), refers to the successful execution of prescribed tasks by an individual. According to Atmoko, (2022), achievement can be defined as a documented record of the outcomes achieved through specific job tasks or activities within a specific time frame.

3.11 Summary of Organizational and Food Safety Culture Literature Review

According to Iskamto (2023), organizational culture is a company's core values that shape its employees' thoughts, actions, and behavior. A company's culture is its employees' common beliefs, attitudes, values, and behaviors.

Mulyaningrum, Z and Norisanti (2022) define organizational culture as a company's conventions and values that shape its personnel. This culture encourages people to complete their tasks and achieve organizational goals. Corporate culture development and instruction help employees overcome external and internal challenges. During difficulties, this culture guides members' actions.

Yorio, Edwards, and Hoeneveld (2019) suggest that management and leadership style, economic environment, national standing, headquarters location, and industry can affect an organization's food safety culture.

Participation in society or social networks can impact coworkers' behavior and viewpoints, according to social network theory. Since employees are deeply embedded in society and share comparable cognitive processes, interpretations of information, and behavioral reactions to that knowledge, these social networks are likely to influence a business's food safety culture. These elements can dominate and affect worker attitudes and behaviors, overpowering some corporate subcultures due to a need for approval (Yorio, Edwards, and Hoeneveld, 2019). The findings appeared in Organizational Behavior and Human Decision Processes.

Irish food companies and processing facilities have been superficially examined for a "robust" food safety culture. Employee perceptions are often used in safety culture assessments (Tear et al., 2020). It is believed that safety-related acts, activities, and rules will indicate firm safety. Cultural context for food safety is a comparison. If all corporate employees have good ideas, attitudes, and behaviors, the company will likely have a great food safety culture. However, few studies have examined these practices, attitudes, and behaviors.

Organizational culture serves a purpose in the corporation. Diana et al (2021) say culture plays many functions in institutions. The five corporate culture goals are: Culture is crucial to setting limits and distinguishing criteria. Culture creates a shared identity within an institution. Culture inspires people to pursue goals beyond their own. By uniting a business, culture helps social institutions stay stable. It does this by creating employee conduct and communication standards. Diana et al (2021) believes culture helps define company boundaries. Identity creates a sense of self and belonging in an organization. Culture encourages selfless dedication to a purpose. Social stability should be improved. Culture unites companies and sets the rules for employee communication and behavior. Culture interprets and regulates behavior, influencing employee attitudes and behavior.

According to Iskamto (2023), corporate culture has a major impact on a company's long-term economic performance. Company culture is crucial to an organization's success. Business cultures that hurt long-term financial performance often evolve. Changing organizational culture to improve performance is possible, despite the challenges.

The number of food supply chain food safety events is rising. Food safety concerns arise when product integrity is compromised, requiring consumer protection (Food Standard Agency, 2019). Foodborne illnesses are caused by accidental or purposeful contamination of food. The World Health Organization estimates that acute diarrheal disease kills about 1.8 million children worldwide.

Dubai and the United Arab Emirates have a low illness incidence, but the global availability of different cuisine that meets the needs of inhabitants and tourists presents numerous issues. The growing range of food options and the rising prevalence of undercooked and uncooked animal and plant-based meals have increased the importance of food supply chain safety from agricultural production to consumption. No remedy exists to eliminate all foodborne illnesses. Taking prompt and proper control measures can decrease human suffering and economic harm.

3.12 Overview of Organizational and Food Safety Culture Literature Review

The discussion revolved around the concepts of organisational culture and national culture, as well as the core principles of an organisation that influence the attitudes, behaviours, and actions of its members. The title "Roles of Organizational Culture" outlines the five functions of organizational culture. The presence of corporate cultures that impede exceptional long-term financial performance often obstructs progress, as elucidated in the section under "Impact of Organisational Culture." As the importance of food safety culture in Dubai is paramount, the discussion revolves around the relationship between food safety culture and instances of food poisoning in Dubai. The topic encompassed significant findings regarding the relationship between Dubai's food safety culture and food poisoning. The researcher also delved into the impact of national culture, viewpoints, and perspectives on food safety culture.

4. Methodology

4. 1 Introduction

The research conducted was applied in nature. To examine the influence of food safety culture, the reseracher chose various cuisines from independent restaurants to determine the correlation between the food handlers' safety practices and their national culture. Significant emphasis was placed on determining the extent to which the public culture, opinions, and perspectives of food handlers impact the food safety culture of designated independent eateries in Dubai. A qualitative methodology was chosen to determine the influence of national culture on food safety, a crucial aspect of this research endeavor. A total of thirty food handlers were chosen from five different restaurants that offer a diverse range of cuisines, including Indian, Pakistani, Philippine, Arab, and international. The objective of this section is to offer comprehensive information regarding the exploratory techniques employed and the system utilized for this research. This chapter will delineate the research design and elucidate the rationale behind selecting it as the most appropriate approach for answering the research questions. This part will commence with examining the rationale behind the decision-making process employed in selecting the methodology, followed by an analysis of the merits and drawbacks associated with the chosen approach. Following this part, there will be a discussion that presents important findings that align with the concepts and objectives stated in this exposition. Subsequently, the section elaborates on the researcher's testing technique, the sample size employed for the tests, and the strategies employed for data gathering. The talk concludes by providing a concise overview of the ethical considerations and obstacles presented by the approach, as well as the issues discovered during this research.

This research employed the inductive method of investigation to achieve the established aims. Following this research methodology, the researcher initially formed clear and distinct impressions, which were subsequently employed to

provide a summary and draw conclusions derived from the investigation. The rationale behind the adoption of the inductive technique lies in its consideration of the research context and its applicability to small sample sizes that yield subjective data. This was posited as the rationale for the existence of the inductive process. Therefore, it was determined that the inductive approach was suitable in this particular situation.

4.2 Research Design

The research design serves the objective of delineating the necessary steps and offering methodologies to effectively tackle the research issue. A well-designed research plan takes into account the fundamental philosophy, approach, methodology, and research strategy of the research. It also analyzes the procedures that will be employed to achieve the research objectives (Bryman, 2016). The research design must possess coherence and consistency as it is imperative for the chosen philosophy to connect with the selected methodology in order to effectively address the research topic. The research onion, as presented in Figure 2 (Saunders et al., 2015), will serve as a guiding framework for this study. Further elaboration on this framework will be provided in later sections.

A researcher must choose methodologies that are best appropriate for the investigation. Kratochwill et al. (2023) argues that the selected methodologies must yield accurate outcomes for the research inquiry. In order to accomplish this, the researcher must first contemplate the various research methodologies, evaluate the alternatives, and provide a rationale for their chosen approach. Figuratively, the study technique might be likened to a house, with the methodologies serving as the individual rooms within the house. Methodologies typically encompass a wider range of topics and considerations compared to methods. Bell (2018) argues that the methodology encompasses the rationale and decision-making process behind method selection, as well as the deliberate exclusion of specific methods. Employing a systematic approach will grant the

researcher access to particular study techniques. To effectively address the research objectives, it is crucial to determine the nature and aims of the research issue. This will ultimately assist the researcher in choosing a suitable philosophy, methodology, and pertinent research methods. The subsequent part will examine the several objectives that researchers can choose for their investigations.

4.3 Research Purpose

In order to determine the most fitting components for the research design, it is necessary to clearly establish the objective of the research. Saunders, Lewis, and Thornhill (2015) stated that the most commonly used research aims can be further classified as exploratory, explanatory, or descriptive.

Exploratory research is mostly employed to gain a deeper comprehension of the research problem. The researcher commences with limited understanding of the subject matter and has a strong inclination to acquire further expertise about the topic. Kratochwill et al. (2023) highlighted that conducting a literature study and utilizing unstructured interviews or focus groups can be useful methods for achieving this objective. The primary benefit of exploratory research lies in its inherent flexibility and capacity to accommodate changes (Saunders et al., 2015). This is due to the researcher initially adopting a broad perspective and subsequently refining it as the investigation progresses.

The objective of descriptive research is to have a comprehensive understanding of the research issue. This necessitates a researcher to gather data pertaining to the research subject. Informative research, often referred to as exploratory research, is characterized by its emphasis on novel and uninvestigated topics. Conversely, Bryman and Bell (2018) highlighted the common recommendation among researchers to combine descriptive research with explanatory research in order to achieve a comprehensive research methodology.

Explanatory study primarily examines the connection between variables and typically establishes cause-and-effect linkages within particular occurrences. Creswell (2016) stated that explanatory research aims to elucidate and investigate the connections between variables. It involves formulating a hypothesis and gathering data to either validate or challenge the theory.

This research is exploratory and aims to evaluate the impact of national culture on food safety in food enterprises in Dubai.

4.4 Research Philosophy

This research methodology was founded on the interpretive research idea. The perceived inadequacy of positivism in meeting the requirements of social scientists resulted in the emergence of interpretivism as a viable alternative (Collis and Hussey, 2021; Bryman and Bell, 2018; Saunders et al., 2012). This approach seeks to understand social phenomena by developing a deep understanding of how the research subjects view the environment, therefore exploring its intricacies. This idea is derived from findings obtained from a rather limited sample size (Collis and Hussey, 2021).

The philosophy of interpretive research is closely aligned with the research method used by researchers to gain insights into the problem's context, understand behavior, and analyze food safety culture in order to improve food safety ratings in Dubai's food establishments. Furthermore, the objective of the research is to scrutinize the discoveries and concepts pertaining to the essence of the problem and possible solutions.

Research, in essence, refers to the pursuit of knowledge. The research entails the systematic gathering, scrutinizing, and deciphering of data in order to comprehend a certain occurrence (Jones, 2023). The research process is scientific as it methodically encompasses the establishment of the research objective, the assessment of the gathered data, and the documenting of the findings. This process takes place inside the established frameworks and in

accordance with the existing norms. Furthermore, it adheres to a pre-established protocol (Saunders et al., 2015).

These principles and frameworks assist researchers in determining what to include or exclude from their research, as well as the types of conclusions that can be made from evaluating the acquired data. The research procedure commences with inquiring about a specific event of interest. By formulating a research question, the researcher focuses their efforts, ideas, and attention on determining the best appropriate method for addressing the research question and understanding the phenomenon of interest. The fundamental beliefs that shape a researcher's worldview are encompassed under a research philosophy. These assumptions form the basis for the research approach and methodologies employed by a researcher in a specific study (Saunders et al., 2015). Consequently, it is essential to examine the assumptions, as they form the basis of the investigation. The researcher must analyze the philosophical method employed and present the response to the research question, which plays a role in determining the credibility of the study findings. Saunders et al. (2015) delineated that there exist three fundamental categories of research philosophies: epistemology, ontology, and axiology. Epistemology refers to the permissible knowledge within a specific research subject, while ontology deals with the nature of reality and axiology focuses on judgments regarding the value of knowledge.

In addition, Saunders et al. (2015) state that a research philosophy is a comprehensive concept that encompasses the creation and characteristics of knowledge. According to several researchers, possessing enough understanding of research ideologies is essential for their accurate utilization.

Epistemology investigates the formation of knowledge (Bryman & Bell, 2015). According to Saunders et al. (2015), epistemology is mostly focused on understanding the characteristics of knowledge that is considered acceptable in a specific research topic. Epistemology, according to Akotia, Awuzie and Egbu

(2023), is a core discipline in philosophy that explores the notion of knowledge. It specifically examines the procedures, validation, and strategies used to gather information about social reality. Easterby-Smith et al. (2021) argue that neglecting to address the underlying philosophical issues of a research study may not be crucial, but it can significantly impact the research's quality and its intended aim. Saunders et al. (2015) recognized three primary varieties of epistemology: positivism, realism, and interpretivism.

Positivism is a methodology that employs scientific techniques to ascertain empirical truths pertaining to the world. Positivists think that research entails the measurement of quantifiable factors. In addition, they hold the belief that it is necessary for study findings to undergo rigorous validation in order for a researcher to make generalizations about the entire target population (Bell, 2014). Bell (2014) stated that positivism involves the quantification of social phenomena and their factors. Positivism encompasses elements of the social sciences and ensures alignment between its principles and the methodological approaches used in the natural sciences. Easterby-Smith et al. (2021) state that positivist researchers operate on the assumption that reality is objective and can be quantified without being influenced by the researcher, their instruments, or their viewpoints. Positivist research, in contrast to interpretive studies, aims to validate ideas in order to enhance the predictive comprehension of the subject being studied. In practical terms, it is often assumed that the elements making up a reality may be objectively classified based on subjects and predicates. Researchers often employ subjects as a means of delineating entities or objects (Easterby-Smith et al., 2021). In order to accomplish this, researchers formulate propositions that communicate the subject matter by utilizing a collection of independent and dependent variables, with an emphasis on investigating the correlation between them (Easterby-Smith et al., 2021; Saunders et al., 2015). Saunders et al. (2015) argue that researchers who adopt a positivist worldview prioritize the acquisition of factual information over subjective opinions. From this standpoint, the researcher should strive to gather data in a manner that is

as objective and unbiased as feasible. Easterby-Smith et al. (2021) highlight that positivism is based on the concept that the social world exists independently of the thoughts of social actors. Therefore, it is imperative to employ objective methodologies to assess its characteristics rather than relying on subjective deductions derived from emotions, intuition, and contemplation. Realism shares similarities with positivism in that it employs a scientific methodology to address the research inquiry. However, according to Saunders et al. (2015), the crucial distinction lies in the fact that social structures and players hold utmost significance in study. According to Creswell (2016), pragmatism aims to reduce the disparities between contemporary approaches that prioritize naturalistic and flexible methodologies, and earlier works that emphasize science and structuralism.

According to Bryman (2016), the approach that acknowledges the variations between individuals and the subjects of natural sciences is referred to as interpretivism. Therefore, it is necessary to do social research in order to investigate and comprehend the subjective significance of a phenomenon. Easterby-Smith et al. (2021) elucidate that positivist research aims to empirically test ideas in order to improve the ability to predict and comprehend events. On the other hand, interpretive research seeks to delve into a social issue and uncover the subjective meanings it holds for individuals. The researcher actively engages with participants' views to form a comprehensive understanding of the total situation, a perspective that cannot be attained from an external examination of the subject matter. Conversely, the researcher must delve into a social or cultural subject from an inside perspective in order to comprehend it. Enfield and Levinson (2020) argued that in the pursuit of comprehending human behaviors and activities, individuals have established and shaped social practices through the utilization of human gestures and languages. The primary objective of the interpretivist paradigm is to scrutinize the text in order to ascertain the established meanings. The key distinction between interpretivism and positivism lies in their focus on the perspective of the research problem

(Bell, 2016). This method does not advocate for a singular solution to a research problem, but instead emphasizes the notion that there are multiple ways to comprehend the universe. The interpretivists prioritize understanding elements related to sometimes unquantifiable subjects, rather than the measurability of variables. Interpretivists, as described by Enfield and Levinson (2020) ,recognize the objective of comprehensively examining and elucidating specific life experiences and events in order to understand situations based on social reality. Furthermore, the interpretive method primarily emphasizes how the human senses perceive a specific situation in real-time, rather than focusing on predetermined independent or dependent components (Bell, 2016).

A distinguishing characteristic of pragmatism is its rejection of the distinction between realism and anti-realism. This position is essential to debates on the utilization of positivist research paradigms, as opposed to interpretivist ones, in the field of social science. Pragmatists recognize the presence of reality, but argue that it is always changing due to the different actions we take. Pragmatists are reluctant to consider more contentious metaphysical concepts, particularly those related to reality and truth. In contrast, Creswell (2016) contends that this method promotes the notion of the existence of a singular objective reality or numerous realities, which may be examined through empirical research. Pragmatism is based on the idea that objective reality exists independently of human experience. However, Morgan (2016) argues that the world we are exposed to shapes our reality, and this reality can only be perceived through human contact. Moreover, according to Creswell (2016), pragmatism emphasizes that knowledge and reality are produced based on socially established perspectives and actions. Although most pragmatists agree that knowledge is socially created, variations might arise in the extent to which certain forms of knowledge match with human experiences compared to others. Advocates of positivist ideas argue that objective knowledge may be acquired through the analysis of empirical evidence and the use of hypothesis testing. Morgan (2016) states that this knowledge is collected and presented at a central

place, covering a wide range of perspectives based on the research methods used, rather than presenting opposing ideas as either subjective or objective. In contrast, constructivists propose that individuals actively create their own understanding of the world, drawing from a multifaceted reality. This approach typically combines a qualitative research design with inductive reasoning, while post-positivists typically utilize deductive reasoning and quantitative analysis. Creswell (2016) contends that pragmatists exhibit enhanced reflexivity and fluidity, positioning them more advantageously to address a research topic by employing the most appropriate study design and methodological approach. Furthermore, they typically employ abductive reasoning, a cognitive process that involves alternating between deductive and inductive thinking. Morgan (2016) proposes that this not only facilitates the development of ideas but also guarantees that researchers are actively involved in the process of generating data.

Sekaran and Bougie (2016) state that the positivist method is distinct from other approaches as it posits the possibility of objectively measuring social behavior. Positivists dismiss all practices that cannot be quantified. Furthermore, positivists advocate for the utilization of scientific methodologies to examine social phenomena. Given the difficulty in comprehending abstract ideas like culture, positivist philosophy seeks to measure their intricate connections. The topic of culture engenders a contentious discussion between interpretivists and positivists.

Ontology, as a philosophical standpoint, primarily examines the fundamental basis of reality and encompasses the researcher's underlying beliefs about how the universe operates and their dedication to this perspective (Saunders et al., 2015). This philosophical stance can be extended to diverse categories of social phenomena, encompassing their circumstances of existence and the interrelationships among them (Saunders et al., 2015). Ontology encompasses the study of the fundamental nature of reality and existence (Easterby-Smith et al., 2021). Saunders et al. (2015) discussed the two contrasting viewpoints in

ontology, namely objectivism and subjectivism. Saunders et al. (2015) define an objectivist as an individual who holds the belief that social entities have an independent existence separate from the individuals who make up society. Subjectivism, in contrast, is based on the premise that social phenomena are created by the perceptions and subsequent acts of individuals who have a vested interest in their existence (Saunders et al., 2015). According to Saunders et al. (2015), social interactions among individuals are an ongoing process that leads to continuous revision and updating of social phenomena. This exploration of a situation's current reality is essential for understanding its true nature.

Axiology is a philosophical approach that centers on the investigation of assessments of value (Saunders et al., 2015). The researcher's contribution is crucial to the entire study process, particularly when aiming to achieve reliable outcomes. The administration of research is frequently influenced by the philosophical approach, since it reflects the researcher's ideals and determines the chosen data gathering methods (Saunders et al., 2015). Saunders et al. (2015) propose that values play a crucial role in shaping human behavior. Therefore, researchers can demonstrate their axiological expertise by clearly expressing their values. These values can then serve as a basis for making judgments about the study being examined and determining the appropriate research methods.

The current research adopts a subjectivist ontological perspective for the qualitative study. The pragmatic epistemological perspective, previously mentioned, is considered the most appropriate approach for performing this research in the real world. This position does not show preference towards any certain research philosophy in order to address the research question. The main objective is to adequately address the research topic, which is most effectively accomplished by employing many research methodologies.

4.5 Research Methods

Qualitative and quantitative approaches are the primary classifications of research methodologies, respectively. Interpretivists typically employ qualitative methods as they involve data that is not readily quantifiable. Possible techniques for implementing this strategy encompass the utilization of records and direct observations of a particular phenomena within its relevant environment. Stalph, Thurman and Thäsler-Kordonouri (2023) argued that a range of non-quantitative data, such as images, audio clips, and written texts, can be employed.

Qualitative methods encompass several research techniques such as ethnography, grounded theory, case studies, narrative approaches, surveys, and observations. According to Lohr (2021), interviews can differ in terms of their time, style, and the number of individuals involved. After conducting interviews, researchers are required to transcribe the verbal content and meticulously analyze the gathered information in order to draw valid conclusions. Focus groups operate in a similar manner, albeit with a reduced level of organization. During focus groups, participants engage in a dynamic discourse with the researcher, resulting in the generation of data through discussions. Case studies facilitate researchers in exploring unfamiliar topics. These facilitate comprehensive investigation pertaining to the research inquiry. Creswell (2016) contended that case studies are excessively time-consuming due to their meticulous focus on details and their primary purpose of investigating a singular facet of a particular problem. Observational research is a methodology similar to case studies. This approach necessitates researchers to conduct and document observations. Creswell (2016) emphasized the necessity of conducting this research in a manner that excludes any form of researcher interaction or influence. Ethnographic studies are a qualitative research approach that involves the examination of participants who share similar views and values (Williams, 2017). When employing this approach, a researcher immerses themselves into a particular community in order to collect

firsthand data from its members (Saunders et al., 2015). This data may be relevant to the group's values, beliefs, and attitudes.

The research employed a phased exploratory design, utilizing a qualitative approach, to create an instrument for evaluating food safety culture. According to Creswell & Poth (2016), the exploratory study design is beneficial when there is a requirement to create or evaluate an instrument. A qualitative data collecting strategy was employed to gather information from a specific cohort of food handlers from five distinct ethnic groups: Indian, Pakistani, Philippine, Arab, and international. The interview guide was employed to gather empirical data regarding employees' perceptions of food safety culture. To do this, a comprehensive interview guide was devised and disseminated among food handlers representing five distinct ethnic groups. The interview guide was developed based on the researcher's expertise in food safety, an examination of relevant literature, expert evaluations, and the findings from pilot testing. The researcher used a longitudinal study as the temporal framework in this investigation.

4.5.1 Relevance of Qualitative Research Methodology

The researcher employed qualitative research methodology to assess the food safety culture of five distinct ethnic groups: Indians, Pakistanis, Filipinos, Arabs, and internationals. Given the objective of obtaining a more profound comprehension of the cultural aspects related to food safety in Dubai, it is advisable to employ qualitative research in this particular scenario. The researcher aims to evaluate the cultural aspects related to food safety and provide practical strategies to address the recurring instances of food safety failures in restaurants belonging to a specific ethnic community.

4.5.2 Pilot testing

Prior to its implementation in the pilot project, the interview guide was scrutiny by food safety specialists to ensure its accuracy in terms of both its substance

and its wording. An initial trial of the interview guide was conducted with non-managerial food handlers from five distinct categories of restaurants situated in Dubai, each specializing in a certain cuisine. The group consists of individuals from India, Pakistan, the Philippines, Arab countries, and other international backgrounds. The final sample excluded persons who had previously taken part in the pilot testing program. Following feedback from food handlers from various ethnicities, it was concluded that all of the questions included in the interview guide were suitable. In addition to the interview guide, an assessment form was supplied to assess the clarity and comprehensibility of the information, and to offer suggestions for enhancing the process. In order to enhance the quality of the interview questions, slight modifications were implemented, taking into account the feedback and suggestions obtained from the pilot test.

4.6 Research Approach

Research approaches can be classified into two categories: deductive and inductive. Saunders et al. (2015) elucidate that the deductive technique empowers the researcher to formulate a hypothesis and devise a research plan that is appropriate for scrutinizing the hypothesis. In their study, Saunders et al. (2015) explain that the deductive research approach is widely employed in the natural sciences. This approach relies on laws to provide explanations and forecast occurrences, ultimately enabling control over them. In contrast, the inductive research approach involves the collection of data and the subsequent development of a theory based on the analysis of that evidence (Saunders et al., 2015). Unlike the deductive approach, which seeks to establish a cause-and-effect relationship between given variables without fully comprehending how social actors interpret their surroundings, Saunders et al. (2015) characterize the inductive approach as providing a deeper understanding of the phenomenon under investigation. This represents a significant advantage of employing an inductive approach.

This research adopts an inductive methodological approach due to its utilization of an interpretivism paradigm. The chosen strategy was deemed most suitable as it is based on Livesey and Clayton's established national culture model.

4.7 Time Horizon

It is essential to take into account the time constraint as a limiting element in this investigation. Therefore (although not just due to this reason), a cross-sectional research was selected for its capacity to offer a rapid and focused perspective that would effectively fulfill the objectives of the investigation. Indeed, cross-sectional studies utilize data from a specific segment of the population at a specific point in time (Saunders et al., 2015).

4.8 Research Strategy

According to Saunders et al. (2015), the research strategy provides guidance for the overall direction of the research, including its methodology. Various research strategies possess distinct qualities. During the research process, it is important for the researcher to develop a clear and effective research plan for addressing the research questions (Saunders et al., 2015). In addition, the research plan should clearly define the overall approach to doing the research (Bryman, 2016). The nature of the research study should align effectively with the selected research strategy. Prior to selecting a research method, the researcher must take into account the goals, field of study, available resources, required time, and research query (Saunders et al., 2015). In the field of construction management, Saunders et al. (2015) suggest the utilization of the following research strategies:

- Cohort study
- Controlled case study
- Ethnographic research
- Archival research
- Grounded theory

- Experiments
- Surveys
- Action research
- Case studies

Considering the research topics of this research, a literature analysis was conducted to identify an appropriate research technique. The interview emerged as the most effective approach for collecting significant qualitative data.

4.8.1 Interviews

Yin (2018) emphasizes the significance of enhancing the internal validity of a study by the utilization of several data collection methods, resulting in the creation of multiple data sets. Hence, apart from questionnaires, interviews, papers, and observations can also serve as viable methods. This research included semi-structured face-to-face interviews. Semi-structured interviews offer a degree of adaptability, enabling customization for each interviewee by delving further into their replies or seeking clarification. This makes them highly useful for this research (Bezemer, Nicholson and Pugliese, 2018). From the utilization of interviews, a researcher can acquire profound understanding of an individual's opinions and values, beyond the level of insight obtained from surveys. The interviews were conducted in person, with the interviewees selecting the times and locations. The purpose of this measure was to guarantee the protection of sensitive information and facilitate participants in sharing confidential details, so allowing for a comprehensive understanding of the food safety conditions in Dubai's food enterprises. Although the flexibility of the approach had its benefits, it was still necessary to have a guide in place to maintain uniformity across all instances and to ensure that the research inquiries were adequately addressed.

4.8.2 Interview Methods

For this specific research, a collective of thirty food handlers willingly consented to take part in the survey. We conducted semi-structured interviews with food handlers belonging to each of the five ethnic groups included in our restaurant sample. In order to get a representative sample, the researcher opted for a sample size of thirty, consisting of ten individuals from India, eight from Pakistan, four from the Philippines, and four from the Arabic-speaking countries of Lebanon, Syria, and Egypt. Additionally, four individuals from international backgrounds, specifically Italian and Mexican, were included in the research. Coding was implemented in the interview guide with the explicit objective of preserving the anonymity of the interview participants. The coding categories, namely [Indian Food], [Pakistani Food], [Philippine Food], [Arabic Food], and [International Food], serve this aim. Food handlers specializing in Indian cuisine will undergo interviews categorized as "Indian Food." Food handlers specializing in Pakistani cuisine may be interviewed as representatives of Pakistani Food. The term "[Filipino Food]" pertains to individuals who were interviewed due to their extensive knowledge and experience in the culinary traditions of the Philippines. Food handlers specializing in Arabic cuisine will be questioned for the [Arabic Food] category. [International Food] pertains to individuals involved in the international cuisine sector who have undergone interviews. Consequently, the first food handler from Indian Cuisine who was interrogated was assigned the identifier [Indian Food Man 1]. Subsequently, [Indian Food 2] is the subsequent food preparer from Indian cuisine who was interviewed, and this pattern continues for all the food preparers from different sorts of cuisines.

4.8.3 The Research Instrument: Interview Guide

A research instrument, in the form of an interview guide, was created for this research. The guide was divided into two portions. During the "Welcome" segment, participants were provided with information pertaining to the research.

Furthermore, it provided the members with knowledge about their entitlements about the research and the process of obtaining informed consent. The socioeconomics section documented the demographic data of the participants, including their ages, tenure at the food office, and sexual orientations. The semi-structured questions were used during the second phase of the interview to gain a deeper understanding of the food handlers' viewpoints regarding food safety.

The creation of the semi-structured interview involved following the five phases outlined below:

- Determined the necessary conditions for conducting a semi-structured interview.
- Utilized previously gained expertise.
- Developed an initial semi-structured interview guide.
- I tested the prepared guide as a pilot.
- Presented the finished guide for semi-structured interviews.

4.8.4. Relevance of Semi-structured Interviews in the Research

The research required in this field is primarily of an exploratory nature. The participants' responses to the semi-structured questions enhance the building of a more extensive knowledge repository. Semi-structured interviews were an effective means of data collection as they facilitated the gathering of qualitative information that can be interpreted in diverse manners, enabled the exploration of participant perspectives on the subject of food safety culture, and delved into personal and sensitive matters. Furthermore, the semi-structured interview facilitated the identification of patterns while still enabling the comparison of responses from different participants.

4.9 Sampling Strategy

The present research sample has been selected using non-probability sampling methods. At this location The qualitative research primarily employed non-

probability purposive sampling to identify individuals who are most likely to provide valuable insights for the research (Saunders et al., 2015). Through the utilization of purposeful sampling, the researcher can acquire more intricate and pertinent understanding of the matter at hand and proficiently recognize patterns (Akinlar, 2024). The participants in the current research were chosen based on their pertinence to the research subject. This is because, as Saunders et al. (2015) argue, their interpretations will be the most appropriate for fulfilling the research aims and objectives.

In order to achieve the research goals, the researcher examined five various cohorts of food handlers, each representing a different sort of restaurant depending on the cuisine they offer. During the research process, a sample strategy was implemented utilizing a technique called random sampling (Shaheen, M., and Pradhan, S., 2019). Furthermore, the persons employed in the restaurant's kitchen were selected randomly from each establishment, specifically based on their race. The researcher endeavored to provide an example that deviated as far as possible from the usual standard. Each participant attended the interview in person.

Mishra and Alok (2022) identified five main approaches for sample selection in qualitative research.

Deliberate sampling: Deliberate sampling is also known as nonprobability sampling or purposive sampling. This sampling strategy involves the deliberate selection of specific objects from the universe to represent a sample. Convenience sampling is the process of selecting samples from a population based on their accessibility.

Simple sampling at random: Each item in the population has an equal chance of being included in the sample, and each sample has a chance of being chosen during the sampling procedure.

Systematic sampling: When a researcher selects a specific name or number from a population, this is known as systematic sampling. This method is beneficial when a list-based sampling frame is available. In this type of sample design, the selection process begins with a random selection from the list, followed by the selection of every nth item until the desired number is reached.

Stratified sampling: In stratified sampling, the researcher divides the population into distinct groups called strata, or stratification is the process of dividing the population into homogeneous subgroups before sampling. In this method, the population is divided into some nonoverlapping subpopulations, or strata, from which sample elements are drawn. If the item selected from each stratum is based on the technique of simple random sampling, then the entire sampling procedure consists of stratification followed by simple random sampling. This method is referred to as stratified random sampling.

Quota sampling: Quota sampling is a method for acquiring data from a group using quotas. The difference between quota sampling and stratified sampling is that in stratified sampling, personnel within each stratum are selected at random. Quota sampling achieves a representative age distribution, but because the sampling frame is undetermined, it is not a random sample.

4.9.1 Sample Selection

A selection of restaurants representing each of the five distinct cuisines that were given a grade of D or F (non-compliance) was selected (Indian, Pakistani, Philippine, Arab, and International). This interview made use of semi-structured questions since it is more appropriate for this research to do so because it includes open-ended questions that will allow the interviewer and the respondent to explain more in detail (Dixon, 2015). For this research, the restaurants were chosen based on the selection criteria that are detailed in the following paragraphs. To begin, the appropriate type of cuisine that was offered at the restaurant was determined. Second, the restaurants offered 300 to 500

meals to the customers per day. Thirdly, a D-grade or non-compliant food facility was graded in their last two consecutive inspection visits by the food safety department, and fourthly, the food establishment selected did not have any complex food procedures in place. In conclusion, the restaurant that is chosen to represent each type of cuisine must be owned by people of the same nationality, and most of the food handlers who work in the kitchen must come from the same cultural background. For instance, if the researcher decided to focus on Indian cuisine, the restaurant selected ought to be run by an Indian, and somewhere between eighty and ninety percent of its staff ought to be from India. All this specific information regarding the criteria for selection was retrieved from a digital platform called "Food Watch," which is managed by the Dubai Municipality Food Safety Department.

It was decided to take a sample of 30 food handlers from each of the five different ethnic groups: Indian, Pakistani, Filipino, Arab, and international.

4.9.2 Qualitative Data

The methodology chosen for this investigation was purposive sampling. The technique presented by Saunders et al. (2015) is basically non-probabilistic and aims to include those individuals who are most suitable and capable of providing information relevant to the research objectives. Prior to implementing a purposive sampling methodology, it is imperative to determine the variables that will be evaluated and ensure that they encompass a thorough framework of the subject matter under investigation. Subsequently, study cases are chosen based on these criteria. Various methodologies can be employed to choose samples, tailored to the specific requirements of the research investigation. In this study, a maximum variation sampling strategy was employed for each of the five target groups mentioned earlier. This approach was specifically chosen to optimize the range and extent of the data gathered (Saunders et al., 2015). According to C (2024), it is crucial to incorporate diverse inputs in order to accurately detect trends. Hence, one objective of the sample technique was to

ensure the inclusion of diverse perspectives, encompassing both those held by influential individuals and those belonging to underrepresented groups within the restaurant community.

Qualitative research, in contrast to quantitative analysis, do not necessitate extensive sample numbers (Akinlar,2024). Instead, the focus lies on the significance of the gathered data. A commonly employed approach for qualitative studies involves continuing data collection until the point of data saturation, which is indicated by metrics of replication and redundancy. Upon achieving data saturation, any further data gathered can be easily aligned with the preexisting data categories, and no novel patterns or categories can be identified. At that juncture, the data categories can be deemed validated and firmly defined (Saunders et al., 2015). Hence, in qualitative analysis, the required amount of data is only the minimum necessary to exhibit data saturation.

4.10 Data Collection

The majority of the interaction with the participants took place in person. Prior to this, the researcher compiled an extensive dataset of restaurants that did not meet the inspection standards. This was achieved by leveraging the smart food inspection system and Food Watch platform offered by Dubai Municipality. The researcher initiated contact with pertinent people at each restaurant to apprise them of the research aims and request their consent to carry out the research involving restaurant managers. Regarding classification, the job titles of the underlying links are not revealed. This is particularly accurate when such interactions are given utmost importance, as their occupations are inconsequential to the inquiry as they are not directly involved in it. The researcher personally engaged with the food handlers. Subsequently, the researcher employed computerized means to record their statements and replicated their exact words. The interviews were completed within a duration of approximately two months. An expedited survey was conducted to collect data

on the participants' demographic characteristics and their current employment affiliation. The questions encompassed subjects such as gender, age, and nationality.

The researcher initiated contact with each individual responsible for food handling by introducing themselves to the participants, elucidating the objectives of the research, and explicating the step-by-step process that would be implemented. Additionally, a participant interview guide was created to specifically target the objectives of the research and outline the methodology that will be utilized. Furthermore, a tailored interview guide was devised for this explicit purpose. The focus of the discussion was not on determining right or wrong answers, but rather on the participants' personal experiences and viewpoints regarding corporate food safety practices at their workplaces. Pseudonyms were allocated to participants in order to safeguard their identities and answer concerns over their privacy. Each participant in the research was given a name tag with their pseudonym. In order to enhance group discussions, we developed a combination of partially organized and unrestricted inquiries, which we subsequently utilized throughout the interview sessions. A panel of experts, consisting of members from the dissertation committee, thoroughly analyzed and endorsed the guide. The following topics and questions are included in the created interview guide:

4.10.1 Interview Guide

Greetings

- How are you doing today?
- I am Sultan Ali Taher, a Dubai Municipality employee and current DBA. candidate at the University of Salford.
- I am doing a project to evaluate the influence of employees' national cultures on food safety.

- The research will help me to realize the food safety culture stance, awareness, and probable limitations for the effective fulfillment of the regulations concerning the safety of food among food handlers of different ethnic cuisines in order to systematize control strategies in the standalone restaurants in Dubai.
- For this research, I would like to know about your perceptions of some of the questions that we are going to discuss below.
- I would like you to be open and honest to get a reliable result for this research.

Confidentiality

All information collected during this research, including your name, will be kept safe and secret.

Research Identifier

We will not use your name or any other identifying information, and everything that you say will only be used for research purposes.

Opening Questions

- Your Name?
- Please tell me about your years of experience in a food establishment.

Introductory Questions

- Can you tell me about a time or event that first comes to mind when you think about food safety?
- Can you think of a time when you felt particularly negative about food safety?
- Can you tell me about a time or event that made you feel positive about food safety?
- Can you tell me about a time when you or anyone you know has had food poisoning? (I do not mean from here, of course!)

- If you had a thousand dirhams to spend on food safety, what would you buy?
- Could you tell me about any systems or programs your company has in place to ensure food safety?

Key Questions

- Could you describe the precautions you must take to ensure the safety of your food?
- What do you think is the reason why your facility falls into the non-compliance category all year around?
- What is the role of your person in charge or manager in influencing you to follow safe food handling practices?
- How do your coworkers influence you to follow safe food-handling practices?
- Would you give examples of situations when you were asked (by your organization or supervisor) to do a task but felt it was risky in terms of food safety? Please share with us some of these situations.

Ending Questions

- What last comments or questions do you have before we wrap up this session?

Conclusion

- Thanks for your participation. Can I contact you if I have further questions or need further clarification?

The length of time for each session ranged from thirty to sixty minutes. Throughout each session, field notes were taken in addition to digitally entering all of the discussions that took place in the forms.

Because the qualitative data collection strategy allows for a flexible data collection process, the researcher opted to apply this method to collect data. In this particular instance, the gathering of the data occurred not all at once but rather over the course of several distinct stages. The investigation looked at the available information regarding the culture of food safety.

4.11 Data analysis

4.11.1 Qualitative Analysis

Yin (2018) acknowledges the challenges involved in analyzing qualitative data, which are not yet fully comprehended in the field. However, the data analysis stage of research can be described as the process of examining the information, categorizing it into relevant groups and themes, and presenting and organizing it in a manner that addresses the research questions.

Data collection and qualitative analysis are conducted simultaneously as the analysis begins during the data gathering process. Usually, this procedure commences with the initial interview and continues throughout the entirety of the investigation. A qualitative researcher will consistently compare newly acquired data with the data that has been previously collected. Polit and Beck (2018) outline three primary benefits of analysis, which include the ability to arrange and interpret the gathered data, as well as derive significant conclusions.

The research opted for thematic analysis as the appropriate methodology, which involves the identification of recurring themes within the data, as described by Braun and Clarke (2017). Thematic analysis does not impose restrictions on the length of text to be coded. This means that codes can be assigned to individual lines, sentences, paragraphs, or even larger sections of text, as long as they consistently represent the specific concept being analyzed. Throughout the data collection process, an analysis was conducted to obtain a deeper understanding of the extent and significance of the raw data. According to Braun and Clarke (2017), this is an essential initial phase of qualitative analysis. At this stage, the

researcher will document observations, record key concepts and recurring themes, provide commentary on them, and formulate the questions that need to be addressed. The act of composing memos is crucial for discerning relationships and drawing comparisons.

The obtained material from the interviews was first analyzed to gain a comprehensive understanding of its depth and context. It was then coded to categorize it into meaningful parts for interpretation. Coding involves conducting a thorough evaluation of the data in order to identify and categorize the primary concepts present. Corbin (2021) assert that coding enables researchers to categorize data into clusters of analogous codes and information.

McKibben et al. (2020) state that coding can be categorized as either inductive, deductive, or a combination of the two known as integrated coding. This research utilized an inductive methodology, where the codes were predominantly derived from the data itself. Braun and Clarke (2017) observe that analytic induction exemplifies the synchrony between data collection and processing in qualitative research. This research highlighted the recurrent difficulties that emerged prominently during the coding process. These issues were either directly raised by the participants or derived from their ideas and experiences.

Open coding involves analyzing data to find fundamental concepts. This process is carried out at the initial coding phase, where all potential codes are identified (Pope & Mays, 2020). Corbin (2021) utilized in vivo coding whenever feasible, whereby the respondents' own words were employed as the codes. After the coding process is finished, a thematic map will be created. The process of mapping allows for the identification of different themes, determination of relevant concepts, and clarification of the relationships between them in order to create conclusions (Mackieson, Shlonsky and Connolly, 2019).

4.11.2. Validity

Evaluating the validity and dependability of data quality is essential for determining the stability, credibility, and quality of the collected data (Bell, 2014). Validity pertains to the degree to which a measuring instrument yields precise outcomes that fall within the confines of a positivist philosophical framework (Akinlar, 2024). According to Kalu (2017), dependability is the degree to which study findings are consistently categorized by different researchers or by the same researchers at different points in time.

Bell (2018) emphasizes the importance of conducting reliability tests and asserts that a researcher can consider a test reliable if consistent findings are obtained upon repetition of the test. Similarly, the former defined reliability as the consistent generation of comparable outcomes while conducting the research on many occasions or by two distinct researchers. However, validity pertains to the accuracy and reliability of the collected data and the interpretation of the pertinent findings. The approach to evaluating validity will vary depending on the study methodology employed, be it quantitative or qualitative. Regarding quantitative research, researchers assess validity based on criteria such as error rates, statistical analysis, sample selection, and measurement tools. Qualitative validity assessment encompasses the examination of honesty, data and research depth, triangulation, and objectivity.

Generalizability, on the other hand, pertains to the capacity for extrapolation, namely the degree to which the conclusions drawn from a subset can be applied to a broader population. Since the purpose of qualitative research is to gather the viewpoints, ideas, outlooks, and attitudes of participants in specific situations, it can frequently be difficult to establish generalizability. However, the transferability and relevance of qualitative research findings depend on the depth and richness of the data (Saunders et al., 2015).

Credibility refers to the amount to which research findings are logical and coherent, whereas transferability refers to the unique environment in which the study was conducted and the extent to which the findings can be applied to other contexts. Dependability pertains to the key points in a study that guide the researcher towards drawing specific conclusions, as well as the degree to which these findings may be replicated and consistently yield the same results. Conformability evaluates the degree to which study outcomes align with the conclusions of the same research when different methodologies are employed by researchers.

Triangulation is a method of conformity testing commonly used in qualitative research. In order to establish credibility, transferability, dependability, and conformability in qualitative research, researchers might employ many strategies. These methods consist: member checking, incorporating elaborate explanations, presenting contradictory facts, triangulation, providing comprehensive descriptions of the research process, and examining past studies on the subject (Creswell, 2016). Researchers frequently utilize expert opinions to evaluate the reliability of research findings. In order to obtain such viewpoints, researchers distribute the conclusive report to certain research participants, who are responsible for verifying the precision of the results. In this research, the researcher sought expert opinions to assess the trustworthiness of the findings, since it enables participants to determine the degree to which the results accurately reflect reality.

Validity, similar to dependability, is a means of assessing the quality of the chosen research design and methodology. The research findings provide a precise assessment of how national culture influences food safety in Dubai, specifically focusing on five major cuisine categories: Indian, Pakistani, Philippine, Arab, and Western. The findings could be deemed valid.

The data collected and analyzed for this research are highly likely to be accurate and suitable, considering the suitability of the methodologies employed. The

meticulous attention given to the research design, coupled with the researcher's deliberate endeavors to eliminate any researcher bias throughout the entire research process, enhance the validity of this research and strengthen its basis.

4.11.3 Reliability

When considering dependability, an illustration of this notion is the statement "the measurement's accuracy and precision, as well as the consistency of the results upon replication of the research." This is an exemplification of the concept referred to as (Collis and Hussey, 2021). Given the inherent subjectivity involved in qualitative research approaches, which necessitate significant researcher involvement, it proved challenging to generate reliable findings in this research employing interpretive research. The reason for this is because qualitative research approaches necessitate a significant level of involvement from the researcher (Collis and Hussey, 2021). The background, identity, values, and interests of a researcher might influence the data collection and analysis process, leading to different sets of data and findings among researchers. In practical terms, this implies that multiple researchers may gather various collections of data (Denscombe, 2010).

The researcher maintained self-awareness of his own position in the investigation to prevent or minimize any potential bias in the outcomes. This measure was implemented to offset a possibly harmful effect on the accuracy of the findings, which could have been avoided. The results were appropriately modified. The researcher was cognizant of confirmation bias, the innate inclination of individuals to affirm their own opinions (Hallihan and Shu, 2013). Researchers may inadvertently choose viewpoints that align with their previous beliefs while rejecting alternatives that do not corroborate these subjective preconceptions. The researcher was cognizant of this inclination yet remained unaffected by it in their job. In this research, the researcher aimed to mitigate confirmation bias and ensure the production of dependable results by treating all data impartially, maintaining honesty in the analysis of the acquired data, and

refraining from any inclination to manipulate the data. The researcher made a conscious effort to prevent any circumstances that could potentially lead to data manipulation. This measure was implemented to minimize any potential impact of the research on the accuracy and reliability of the results (Denscombe, 2010). Furthermore, engaging in discussions and soliciting guidance from the study supervisor were additional factors that contributed to mitigating researcher bias.

4.11.4 Generalizability

The research does not aim to make generalizations as it is based on the interpretive research philosophy and does not involve statistical analysis of the data. However, it is quite likely that the findings can be generalized to other similar circumstances that have not been specifically studied.

The researcher has endeavored to examine the shift in food safety culture among various ethnic groups in Dubai with the aim of devising novel inspection methods that would ultimately enhance the food safety rating of restaurants in Dubai. As a result, the extensive data collected enabled the generation of patterns, concepts, and theories that are likely to be valid and applicable in other inspection organizations worldwide.

4.12 Ethical Considerations

Saunders et al. (2015) propose that interpersonal relationships and decisions related to behavior should be defined by integrity, with ethics serving as a guide for proper conduct. The concept of ethics in academia pertains to the suitability of a researcher's behavior towards those who are impacted by or take part in their study (Saunders et al., 2015). Prior to doing field research at the University of Salford, ethical clearance was obtained from the Research, Governance, and Ethics Committee. To ensure the avoidance of potential ethical issues, it is important to meticulously execute and regulate the development of the research subject, the drafting and planning of the research, the collecting and analysis of data, the presentation of results, and the storage and handling processes.

Creswell (2016) and Saunders et al. (2015) emphasize the importance of the research method's rigor and moral justification.

This research uncovered a multitude of ethical dilemmas and procedures. All research subjects were ensured privacy and anonymity. To ensure the confidentiality of the participants, Saunders et al. (2015) implemented measures to protect their anonymity and conceal their identities throughout the investigation. In order to achieve this, the researcher issued numerical identifiers to the participants instead of using their real names. The researcher also implemented strict measures to safeguard the confidentiality of the respondents' data. Prior to collecting data, every participant was requested to give their informed consent. Prior to each interview, the interviewee reviewed the consent form, which included a clear explanation of the research procedure, as well as the nature and goals of the research, using language that the interviewee could understand. Subsequently, the participant's consent to proceed was gained. Participation in research has been highlighted as entirely optional. Moreover, it has been emphasized that participants should have the option to resign from research at any point, particularly if their continued involvement might jeopardize their well-being. In addition, Saunders et al. (2015) have observed that a crucial consideration in research is the researcher's dedication to avoiding any form of injury.

In order to properly accomplish this assignment, the researcher had to carefully contemplate a range of ethical considerations. The primary objective was to acquire the food handlers' consent through a signed consent form and to provide them with prior education regarding the purpose of the research and the potential consequences of the results. To ensure public health, it was crucial to keep both the food handlers and the establishments they work for hidden from public view.

4.13 Research Method Rationale

A compelling rationale for selecting a qualitative research approach in this research was the fact that the topic had not been extensively investigated. Qualitative research is well-suited for such themes due to its capacity to provide the researcher with ample flexibility to investigate questions in collaboration with the participants. In order to comprehend the essence of this adaptability, it can be beneficial to contrast the typical methods of data collection used in quantitative studies with those employed in qualitative research. The predominant method of data collection for qualitative research is the individual interview. Qualitative interview protocols were specifically designed to align with the research topic, unlike survey tools. This characteristic of qualitative approaches contributes to their versatility. Semi-structured interviews, which were the predominant type of interview used in this research, facilitated the inclusion of "prob questions" alongside the predetermined interview questions provided to each participant. This leads to highly intricate solutions to the questions that provide valuable perspectives to the existing body of knowledge on the subject.The adaptability of qualitative research methodologies proved advantageous in this case, given the limited extent of previous research on the issue and the potential lack of enough research to formulate quantitative hypotheses for statistical analysis. Another compelling rationale for undertaking qualitative research was the inherent difficulty in quantifying the topic. This indicates that the researcher is unable to fully grasp the specific aspects of the issue that they wish to comprehend. An in-depth examination of narratives through qualitative analysis would yield a comprehensive comprehension of the processes and events.One compelling rationale for employing qualitative research methods is the researcher's desire to gain insight into the participants' experiences from their own viewpoints, with the aim of addressing the research enquiries. Furthermore, the researcher aims to investigate the emotional impact and subjective interpretations of those experiences. Utilising the versatile and adaptable data gathering strategies connected with qualitative research

methodology is ideal for the investigation. The research methodology allows participants to openly articulate their thoughts and experiences in a comprehensive manner, which can be a transformative and empowering process for them. This is an additional rationale for considering qualitative research for this research.Qualitative research interviews and narratives afford participants significant participation in shaping the understanding of their experiences and viewpoints, demonstrating a profound regard for their expertise in their own lives.Adopting a qualitative research approach provides considerable freedom in terms of the questions posed to the participants. The researcher has the opportunity to investigate other viewpoints and experiences in the research, as long as they are relevant to the main research issues. Another scenario in which qualitative analysis is optimal is when the researcher requires a comprehensive understanding of an individual's perspective in order to effectively address the research questions. Narrative analysis is a research approach that falls under the qualitative research methodology paradigm and focusses on facts as the main subject of research. Narrative analysis focusses on the participants' viewpoints, allowing for the examination of shared themes and variations in experiences among participants. Therefore, qualitative research enables the gathering of comprehensive data from each participant, while also facilitating the use of relatively small sample sizes. Utilising a reduced sample size enables the researcher to delve extensively into the viewpoints of each individual. The in-depth nature of narrative analysis data collection permits the researcher to explore these complexities in great detail.

4.14 Summary of Methodology

This chapter provides a clear explanation of the technique employed to tackle the research objectives and topics, as well as the research methodologies and sampling methods used. The researcher adequately substantiated each employed approach and procedure. The researcher largely employed a qualitative approach to examine the relationship between national culture and food safety culture.

The researcher utilized a systematic and qualitative approach to develop a tool for assessing the cultural aspects related to food safety across five different ethnic communities living in Dubai. The interview guide was created by synthesizing experiential knowledge, conducting thorough research of pertinent literature, including feedback from subject matter experts, and analyzing the results of pilot testing. The main aim of this research was to acquire knowledge about the cultural elements of food safety and devise efficient solutions to tackle the persistent problems faced in restaurants. Revisions were made in accordance with the feedback and ideas received. The research involved a cohort of 30 participants from various ethnic backgrounds, including Indian, Pakistani, Filipino, Arab, and international, who were observed in restaurant environments. The researchers conducted semi-structured interviews with food handlers from each group, utilizing coding procedures to guarantee the protection of confidentiality. The participants from each establishment were chosen based on ethnicity using a random sampling method. Data for the research was collected using a structured interview methodology to gather information and obtain the perspectives of food handlers on subjects related to food safety. The researcher conducted interviews with the food handlers in order to gather data pertaining to food safety practices. A framework for conducting participant interviews was established, with a particular emphasis on capturing the participants' experiences and perspectives. The guide received approval from a panel of specialists. Griffith, Livesey, and Clayton (2010) found six cultural factors that influence food safety performance in their research. The attributes encompass leadership, communication, dedication, managerial approach, environmental assistance, and perception of danger. The researcher utilized a blend of semantic and latent coding approaches, with a particular focus on capturing both descriptive and interpretive aspects. After reviewing the interview transcripts, a theme analysis was performed using a hybrid technique that included deductive and inductive methodologies, integrating codes derived from both the data and existing literature. The current research utilized interpretive research methodology, which requires the researcher to actively

participate to minimize subjectivity and potential bias. The researcher aimed to reduce confirmation bias by guaranteeing fair handling of all data, upholding honesty, and abstaining from manipulation. The research successfully evaluated the impact of national culture on food safety in Dubai, incorporating five unique ethnic groups. Although the results of this research may not be generalizable, its interpretive research philosophy offers a structure for investigating innovative methods to evaluate and improve food safety ratings in restaurants in Dubai. The researcher implemented ethical protocols, such as acquiring informed consent from food handlers, disseminating pertinent information about the research, and upholding stringent confidentiality measures to protect public health and commercial interests.

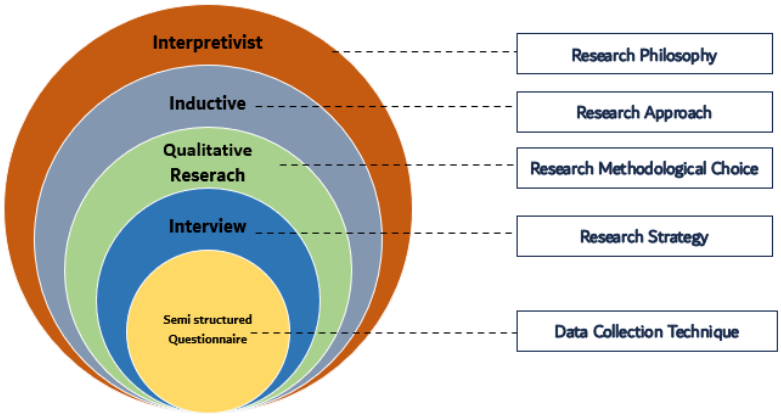

Fig:2 Research Onion adapted for this Research

4.15 Overview of Research Methodology

In the introduction, the justification for choosing the methodology is reviewed, followed by an assessment of its pros and cons. The research design section outlines the actions and methods needed to solve the research problem. A thorough grasp of the subject issue is the goal of descriptive research. Interpretive study matches researchers' approach to understanding the problem's context, behaviour, and food safety culture to enhance Dubai's food

businesses' food safety ratings. To assess food safety culture, the research used a phased exploratory design and a qualitative technique. Here The researcher seeks to assess cultural factors affecting food safety and offer solutions to ethnic restaurant food safety issues. This interpretivism-based research uses inductive methods. A semi-structured face-to-face interview and interview guide were used by the researcher.Semi-structured interviews allow for personalisation by exploring further into answers or asking questions. Non-probability sampling was used for selecting this research sample. Indian, Pakistani, Philippine, Arab, and International restaurants that received D or F (non-compliance) were chosen.The researcher informed relevant people at each restaurant of the research goals and requested their agreement during data collection. The research chose thematic analysis to identify reoccurring themes in the data. As long as they consistently represent the concept being analyzed, lines, phrases, paragraphs, or even larger sections of text can be coded. Before doing field research at Salford University, the Research Governance and Ethics Committee gave ethical approval. Qualitative research allows the researcher to explore questions with participants, making it ideal for this research.

5.0 Qualitative Data Analysis

5.1 Introduction

Food safety in Dubai is a matter of apprehension. A significant number of food companies are staffed by migrant laborers from various countries that possess minimal or nonexistent food safety training or awareness. A significant number of these food workers are not fluent in the native language. Collectively, these variables contribute to an environment that is susceptible to unsanitary food safety practices and a subpar food safety grade.

A qualitative data analysis was conducted to obtain additional information on food safety in Dubai food establishments. This research collected data via individual interviews with 30 food handlers from five distinct culinary traditions. The interviews were conducted using a semi-structured style, wherein the interviewers were presented with a predetermined series of questions designed to elicit comprehensive and diverse information from the participants. Subsequently, these responses were scrutinized and categorized based on the key arguments presented in them. The interviews were conducted in person, with the interviewees selecting the times and locations. The purpose of this measure was to guarantee the protection of sensitive information and to facilitate participants in sharing intricate information, so allowing for a comprehensive understanding of the food safety and hygiene conditions at their food establishment.

This chapter conducts a comprehensive analysis of the qualitative data collected to gain insights from real-world data on how food handlers in the food establishment perceive the establishment's food safety and hygiene standards. The initial portion of this chapter commences with a summary of participant interviews aimed at determining the adequacy of the sample. It then proceeds to offer a concise account of the methodology employed for data collection via interviews, including the structure of the interviews and the subsequent transcription process. Lastly, the participants' perspectives on matters pertaining to food safety and hygiene in food enterprises.

5.2 Research Design

This section of the research utilizes an exploratory, qualitative methodology to gain a comprehensive and extensive comprehension of the social constructs associated with the food safety culture and provides additional data within this framework. This research methodology allows researchers to inquire about participants' perceptions and experiences, thereby circumventing the limitations associated with structured questionnaires and other inflexible techniques of data collection (Curelaru, Curelaru, and Cristea, 2022). This approach is highly adaptable in the process of monitoring and gathering data on unexpected discoveries, which can enhance a comprehensive comprehension of the examined subject matter. Additionally, it can reveal connections between concepts and behaviors, and potentially generate a groundbreaking theory through meticulous data analysis in qualitative research (Timmermans and Tavory, 2022). Another characteristic of this research approach is the active participation of the researcher in both the design and execution of the research (Busetto, Wick, and Gumbinger, 2020). This approach poses difficulties due to the intricate interpretation of qualitative data and its vulnerability to bias, mostly stemming from the prevalent utilization of observation, interviews, and focus groups as data collection techniques (Busetto, Wick, and Gumbinger, 2020).

Semi-structured interviews are the predominant approach for data collecting in qualitative research because to their flexibility (Belina, 2023). Hence, this strategy was selected for the present investigation. According to Soni et al. (2020), the semi-structured approach is valuable for capturing participants' perspectives and viewpoints on different topics or issues, especially those that may be sensitive or challenging. Semi-structured interviews entail targeted inquiries formulated to gather data pertaining to specific domains that are the primary focal points of the project's core subjects. According to Curelaru, Curelaru, and Cristea (2022), respondents in an interview may sometimes stray from the main topics discussed. However, they also have the opportunity to engage in conversation and expand their thoughts and opinions on other matters, which can lead to a more comprehensive grasp of the subject at hand. The

versatility of this approach allows the researcher to gather more data, potentially addressing topics that are significant to participants but may have been initially disregarded in the research design when identifying key themes (Timmermans and Tavory, 2022). Semi-structured interviews facilitate the exploration and improved comprehension of the perspectives of participants. This research employed semi-structured interviews as a means of gathering data on food safety practices in food restaurants in Dubai.

The data obtained from the semi-structured interviews was meticulously transcribed and analyzed, enabling the systematic organization, filtering, and identification of relevant conclusions. Initially, data coding was performed. Prior to the analysis, it was crucial to examine the data as the inspection had a significant influence on the initial stages of the procedure. The research was conducted independently on all data sources to mitigate any potential interference caused by the various character of the interviews and collected replies, hence maintaining focus on the research field and research objectives. Furthermore, in order to enhance the trustworthiness and accuracy of the research, a methodological technique was employed that involved the development of a set of keywords. These keywords were specifically developed to identify and categorize particular expressions, thoughts, views, themes, and subjects that are relevant to the research intents and objectives. Furthermore, the transcripts were structured and edited to facilitate reader understanding of the main findings during textual analysis.

5.3 Interviews Sampling

The research phase utilized purposive sampling, a type of non-probability sampling, in which the researcher deliberately selects instances that are pertinent to the research issue and are likely to yield the most valuable and captivating data (Saunders et al., 2015). The research opted for participant interviews as a means to gather abundant data and enhance comprehension and robust conceptualization of the research domains (Curelaru, Curelaru, and Cristea, 2022). The utilization of purposive sampling methodologies necessitates the formulation of an inclusion criterion. In this particular research, the inclusion

criterion was restricted to food handlers employed in non-compliant food enterprises in Dubai. Prior to implementing a purposive sample methodology, it is imperative to determine the variables that will be evaluated and verify that they encompass a thorough framework of the subject matter under investigation. Subsequently, research cases are chosen based on these criteria. Various methodologies can be employed to choose samples, tailored to the specific requirements of the research investigation. In this research, a maximum variation sampling method was employed for each of the five ethnic groups mentioned earlier. This method was chosen to ensure that a wide range of data was acquired, hence maximizing the diversity and comprehensiveness of the findings (Saunders et al., 2015). The research's qualitative selections regarding sample size were informed by Lakens (2022), who offered values of totality to ensure that the selected sample adequately represented the environment and subjects of interest. Lakens (2022) stated that a sample can be deemed sufficient when the amount and quality of the gathered data are satisfactory to confirm or refute all the possible categories chosen for the investigation. As per the recommendation of Saunders et al. (2015), interviews were thoroughly analyzed until the goals of comprehensiveness and inclusiveness were achieved. After gathering information from the interviews, an assessment was made to determine the overall significance of this idea, theme, and technique, and whether it sufficiently addressed the research question. Subsequently, the attainment of data comprehensiveness may be accomplished. Saturation occurred when the researcher had sufficient confidence that any more data obtained could be easily classified into current data categories, and no new patterns or categories could be identified. At that juncture, data categories can be deemed to be validated and firmly defined.

5.4 Ethical Approval

Prior to obtaining approval for this field research and data collection process, the food outlets under investigation sought assurance that the gathered data and findings would be treated with utmost confidentiality and would not be disclosed or released to the public. The researcher ensured the confidentiality of

participants' personal and work-related information during different meetings with the food outlets, where these requests were made. The food establishment ultimately consented to partake in this investigation and granted the researcher permission to conduct interviews with their personnel. The research supervisor, the researcher, and the food restaurants in Dubai all signed confidentiality agreements. Prior to conducting interviews, ethical approval was obtained and participation was voluntary. Prior to their interviews, the sample population of thirty participants were given a detailed explanation of the research 's purpose, protocol, the researcher's role, and the methodological approach. Every participant was provided with the opportunity to directly communicate with the researcher if they want to do so. They were treated with respect and given ample time and multiple chances to choose whether to participate. Participants were explicitly informed that their identities would remain anonymous, and that all data provided would be treated with confidentiality. The acquired information was coded and anonymized, and only the researcher and supervision team had access to the raw data.

Prior to collecting data, every participant was requested to offer their informed consent. Prior to each interview, the interviewee was presented with the consent form, which included a clear explanation of the research procedure, as well as the nature and goals of the research, using language that the interviewee could understand. The participant's approval to continue with the interview was thereafter obtained. Participation in research has been strongly highlighted as being entirely optional. Moreover, it has been emphasized that participants should have the option to resign from research at any point, particularly if their continued involvement might jeopardize their well-being. The interviews were digitally recorded, and the content was transcribed. The talks were used to meet the research objectives, but they were not linked to any specific participant. Later on, these conversations were also coded. The participants were cognizant of the fact that their interviews would be documented, however they were provided with the option to decline being videotaped. Ultimately, the participants were aware

that excerpts from their interviews would be utilized in this research without revealing their identities.

5.5 Conducting the Interviews

Interviews were carried out at the respective food places, which offered both convenience and privacy. The duration of the interviews was expected to range from thirty to sixty minutes, contingent upon the level of elaboration provided by the participants in their answers. The interviews commenced with broader inquiries, eventually transitioning to more specific questions that were directly related to the research topics and existing literature. This approach was recommended to enable participants to concentrate more closely on the fundamental aspects of each subject (Dodgson, 2017). The researcher provided a debriefing session to each participant following their interview.

Throughout every phase of the data collecting and analysis procedure, the researcher diligently recorded observations in a contemplative diary. Subsequently, these notes were utilized for the analysis. Regarding the interview structure, the researcher commenced by introducing themselves, followed by outlining the research goals and objectives. They proceeded to elucidate each element of the interview process and addressed consent matters by ensuring that all participants comprehended the nature of the consent form before agreeing to and signing it. Each food handler from different cuisines was interviewed in their respective native language to obtain a more diverse range of responses, employing translators where needed. During the interviews, stimuli such as prompts and probes were employed to elicit further information from the participants regarding a disclosed idea or a discussed topic. The researcher thoroughly reviewed any topics covered during the interview to ensure a comprehensive understanding of the participant's viewpoints. This ensured that the research data maintained a higher degree of accuracy and comprehensiveness.

5.5.1 Participant Demographics

The research included a cohort of thirty volunteers who willingly participated, each hailing from various cultures and backgrounds. The participants had varying occupations and years of experience, as shown in Table 5.1. One participant had five years of experience, eight participants had worked between ten and sixteen years, and the rest of the participants had over twenty years of experience. All participants displayed evident enthusiasm for the chance to articulate their perspectives on food safety and engage in deliberations concerning viable resolutions to prevailing challenges and concerns pertaining to food safety, which they felt at ease addressing.

The Food Handler Code	Age	Position	Gender	Experience
Arabic Food 1	40-50 Yrs	Food Handler	Male	More Than 20
Arabic Food 2	30-40 Yrs	Food Handler	Male	5-10 Years
Arabic Food 3	20-30 Yrs	Food Handler	Male	5-10 Years
Arabic Food 4	50-60 Yrs	Food Handler	Male	More Than 20
Filipino Food 1	30-40 Yrs	Food Handler	Male	Less than 5
Filipino Food 2	20-30 Yrs	Food Handler	Male	Less than 5
Filipino Food 3	20-30 Yrs	Food Handler	Male	Less than 5
Filipino Food 4	40-50 Yrs	Food Handler	Male	11-15 Years
Indian Food 1	20-30 Yrs	Food Handler	Male	5-10 Years
Indian Food 2	30-40 Yrs	Food Handler	Male	5-10 Years
Indian Food 3	30-40 Yrs	Food Handler	Male	5-10 Years
Indian Food 4	20-30 Yrs	Food Handler	Male	Less than 5
Indian Food 5	20-30 Yrs	Food Handler	Male	5-10 Years
Indian Food 6	40-50 Yrs	Food Handler	Male	5-10 Years
Indian Food 7	20-30 Yrs	Food Handler	Male	5-10 Years
Indian Food 8	30-40 Yrs	Food Handler	Male	5-10 Years
Indian Food 9	30-40 Yrs	Food Handler	Male	5-10 Years
Indian Food 10	30-40 Yrs	Food Handler	Male	11-15 Years
International Food 1	40-50 Yrs	Food Handler	Male	16-20
International Food 2	30-40 Yrs	Food Handler	Male	11-15 Years
International Food 3	30-40 Yrs	Food Handler	Male	5-10 Years
International Food 4	40-50 Yrs	Food Handler	Male	11-15 Years
Pakistani Food 1	20-30 Yrs	Food Handler	Male	Less than 5
Pakistani Food 2	20-30 Yrs	Food Handler	Male	Less than 5
Pakistani Food 3	20-30 Yrs	Food Handler	Male	5-10 Years
Pakistani Food 4	30-40 Yrs	Food Handler	Male	5-10 Years
Pakistani Food 5	30-40 Yrs	Food Handler	Male	Less than 5
Pakistani Food 6	30-40 Yrs	Food Handler	Male	Less than 5
Pakistani Food 7	Less than 20 Yrs	Food Handler	Male	Less than 5
Pakistani Food 8	20-30 Yrs	Food Handler	Male	Less than 5

Table No:5.1- Participant Demographics details

The interview transcriptions yielded four primary themes, which are summarized in Table 5.1 together with their corresponding sub-themes and key concerns. Through a thematic analysis, the interviews were examined individually, with each question and interview being analyzed separately to gain a comprehensive insight. After transcribing the interviews, they were carefully reviewed multiple times to develop a coding system that captured the key concepts related to each topic. This enabled the researcher to identify common themes or similar responses given by different participants. The data pertaining to each theme, which includes demographic information such as age, position, job experience, and education, is presented in Table 6.1. This information serves to provide context for the interview data. The participant IDs, which are given with this data, serve as the identifiers used for quotes in the data analysis. This information assisted the researcher in ascertaining whether certain demographic groups possess distinct concerns, such as issues associated with certain cultural characteristics that could impact food safety performance.

5.6 Interviews Analysis

Data collection and qualitative analysis are conducted simultaneously as the analysis begins during the data gathering process. As stated by Lester, Cho, and Lochmiller (2020), this allows for prompt adjustments to research techniques and interview questions, resulting in more efficient and continuous data gathering. However, it is important to acknowledge that there are multiple analytical processes involved in these interviews. During the initial stage, the interview data was transcribed and cross-referenced with important notes to ensure precision and enable the researcher to gain a thorough understanding of the data, while also avoiding any bias in the participants' main points. During this step, we had the initial chance to identify probable themes that emerged from the data collection. Busetto, Wick, and Gumbinger (2020) classify coding into three categories: inductive, deductive, or integrated, which is a blend of both approaches. This research utilized an inductive methodology, where the codes were mostly derived from the data. Throughout the coding phase, the most

frequently discussed topics in the interviews were recorded, whether they were brought up by the participants themselves or emerged as a result of their elaboration on concepts and comprehension.

In their study, Lester, Cho, and Lochmiller (2020) provide a definition of open coding as the process of examining data in order to categorize fundamental concepts. This strategy was employed throughout the first coding phase of the present investigation, whereby all feasible codes were established. Upon the emergence of new hypotheses, they were assigned codes, and the data underwent a thorough evaluation.

Thematic analysis is the most appropriate framework for this research since it involves the development of themes in participant data through the process of reading and rereading transcribed interview data (Busetto, Wick, and Gumbinger, 2020). In this methodology, the researcher discerns a fundamental concept, recurring or noteworthy issues, pivotal concepts, and underlying assumptions from the dataset (Creswell, 2016).

The analytical framework we used to analyze our interview data is based on thematic analysis. We followed the six-step approach developed by Braun and Clarke (2017) to extract important insights from the data that are relevant to our research objective and to create a cohesive understanding of the data. The data analysis was conducted in a systematic manner, following a thematic approach. The process was organized into a series of steps.The interview outcomes underwent a physical examination, wherein the researcher endeavored to discover core phrases and expressions before categorizing them, sometimes referred to as "clouding," in order to discern patterns and trends.

A six-step method was involved in the analysis of the data.

Stage 1: Recognizing

Before moving on to the step of interpretation, the process of coding requires first recognizing (observing) a key factor and then encoding (observing) it as something specific.

Stage 2: Initial Code Development

The researcher created the first set of codes at this point. In this situation, more work put into analysis contributes to better research. In this way, the line-by-line coding of the data constitutes the first and formal analysis stage in the theme analysis process. The codes themselves are not themes; rather, they assist the researcher in developing themes. The coding functions somewhat differently than a label would to describe the information that is included within one or two lines of the transcripts. At this point in the process, the researcher was attempting to extract some fundamental aspects of the text. This part of the process is referred to as the "first stage," and it is directed by the bigger picture rather than just one or two words from the texts. In addition, these codes were not something that could be produced whenever a researcher looked at their data because it was not possible to do so. As a result, a researcher was required to develop codes and experiment with various concepts concerning the data. After ensuring that the codes were accurate, the researcher next proceeded to stage 3 of the analysis.

Stage 3: Searching for themes based on initial coding.

When it came to this part of the investigation, the researcher looked for patterns by asking, "What are the patterns among the codes?" A topic can be thought of as consisting of several categories or groups. As a result, it was of the utmost importance to guarantee that the categories were developed effectively.

Stage 4: Reviewing themes.

During this phase of the process, the researcher organized the data based on the themes to settle on a theme for the subsequent stage. The error that had been made regarding the topics was corrected by the researcher.

Stage 5: theme definition and labeling.

At this point in the process, the researcher kept in mind that the level to which a specific theme is recognized needs to be conceptually distinct from the level at which all the other themes are identified. When the researcher regularly evaluates the themes following the codes and classifications, this is doable. Because of this, the researcher was able to identify and label each theme in a distinctive manner, which allowed the researcher to receive significant responses to the research questions.

Stage 6: Report writing,

This level was understood to be the very last stage of the data analysis process. It was the stage in which the researcher refined and altered the analysis based on the issues that had been identified. On the other hand, each of the processes described above is connected to the others in some way. Because of this, the accomplishment of this research was directly proportional to the quality of the research topic that was posed at the outset.

In the final step of the research process, the researcher makes thorough descriptions, applies codes, creates themes or dimensions, and offers an interpretation based on their own ideas or viewpoints on the material (Creswell & Poth, 2016).

5.6.1 Indian cuisine

5.6.1.1 Financial Inadequacy

Interviewees from Indian Cuisine complained that there is a lack of basic equipment and utensils in their food facilities to manage food safety. Not having sufficient money leads to the reuse of equipment and utensils of bad quality, and some of them are without repair after failure. In this context, interviewee Indian Food 1 revealed his intention to buy new equipment and repair the one that was damaged. Where he stated that *“First I would check what is lacking in my kitchen. Mostly, it could be worn out cutting boards and knives. Also, there could be a requirement for doing maintenance on our chillers and freezers.”.*

In more detail, interviewee Indian Food 2 highlighted his intention to buy basic personnel protective equipment. “*I would be purchasing gloves, tissue, kitchen chemicals, color-coded chopping boards and knives, etc..*”.

5.6.1.1.1 Non-experienced food handlers and persons in charge

Food handlers in Indian cuisine had better experience with food safety.

Meanwhile, interviewee Indian Food 3 reported that he learned about the importance of food safety when he faced an incident in his home country. *“The first thing that comes to mind is how to handle food safely. An incident that comes to mind on food safety is when I spotted rats on the shelves holding ready-to-eat snacks in a restaurant in my home town. We reported the incidents to the local authorities, who immediately came to the restaurant and shut it down."* The food handlers were not highly experienced and did not have sufficient experience to handle the operation safely. Interviewee Indian Food 4 described that, “*When I think about food safety, the first thing that comes to mind is wearing gloves and a hairnet while working in the kitchen. I also remember my manager telling us to keep hot foods in the bain-marie and chicken in the freezer." Most Indian food handlers have faced at least one type of food safety incident in their home country. He is giving importance to health and safety by following such actions of exclusion during the period of bird flu.*

Interviewee Indian Food 8 stated his experience in food safety. *“When I think of food safety, the first thing that comes to mind is a time when there was an outbreak of bird flu in my country. We were afraid of buying chicken at home. The price of the chicken went down and became highly affordable, but still we were staying away from chicken.”*

The interviewee was not aware of food poisoning before working in food establishments. For instance, Indian Food 7 states, “*To be honest, I only started hearing about food safety when I came here. I had been working in my home country for a few years before coming here. No one talked about food safety there. People from many different countries are working here, right? They all come from different cultures. But everyone follows the same rules here. People from two different countries are working in our kitchen as well. This is what comes to mind when I think about food safety.”.*

5.6.1.1.2 Poor food facilities

Food establishments did not have enough money to buy the basic food safety essentials required in the kitchen. Indian Food 5 stated that “*I will buy two garbage bins for the kitchen, which will allow me to separate different types of waste. Add more gloves and hairnets. More knives and cutting boards would be helpful to replace any that are damaged. I will add more tissue paper as it is used frequently in the kitchen.*” In more detail, interviewee Pakistani Food 10 mentioned that “*I would buy a good-quality juice machine.”*

5.6.1.1.3 Lack of PPE and Food Safety Essentials.

Ten interviewees pointed out that they do not have the required food safety essentials. Interviewee Indian Food 3 revealed that “*I would like to buy hairnets, gloves, kitchen chemicals, and tissue. Hand soap, chopping boards, knives, etc.”.* In the interview, Indian Food 7 reveals his intention to buy food safety essentials. *“Hahaha, 1000 DHS will be used to buy safety shoes and uniforms for everyone in the kitchen. Because many of us are working in the kitchen wearing slippers."* the interview Indian Food 8 would like to purchase the

chemicals. *“I would purchase kitchen chemicals, cleaning equipment, color-coded chopping boards and knives, gloves, a hairnet, check whether any of the kitchen equipment requires maintenance, and do the necessary, etc.”*

5.6.1.2 Management’s Commitment

Indeed, three interviewees from Indian Cuisine considered there was no management commitment in their food facilities. Here the interview with Indian Food 7 states that “*If it happens again, I believe the main reason for that is that the assigned team by the management is unable to implement the corrections as the inspector directed. I cannot comment further on this matter.”. The Indian Food 9 also agreed that there is no management commitment. ”The main reason could be a poor response from management. Lack of enough staff and equipment could also be a factor." The Indian Food Handler 2 explained the Maangent non-commitment in a different way. “Our main challenge is the kitchen space. The space and facility of our kitchen are insufficient to handle our operation.”* The interview with Indian Food 10 also emphasized that *“I have faced some situations where workers are asked to do tasks that are risky in terms of food safety. For example, I was asked to use spoiled and poor-quality fruits to prepare fresh juices. And to clean the dishes with dirty water.”*

5.6.1.2.1 Communication and Regulatory Inspection

Nine interviewees in Indian cuisine pointed out excellent communication among them to ensure food safety and improve the food safety rating.

Here, Indian Food 1 revealed, “*My colleague Mr. Shukoor, who is more experienced than me, always advises me on the right steps to be taken while working in the kitchen. He always corrects my mistakes.*”. Interviewee Indian Food 4 agreed with this, adding, “*I think our coworkers influence us in a very good way. For example, I remember the days after our training when I saw that everyone was washing their hands properly, and that inspired me to do the same."* Interview Indian Food 3 explained his reluctance to proper communication as this would lead to unnecessary arguments. *"Unfortunately,*

the relationship between the coworkers is not in a healthy state. We cannot advise each other or comment on their mistakes. It would result in unnecessary arguments."

Poor communication was reported as another aspect of poor management. All the interviewees in Indian culture received excellent communication from the person in charge and managers. For instance, interviewee Indian Food 1 described the communication in the food facility as follows: "The manager keeps a weekly briefing insisting staff follow good hygiene practices. Apart from this, whenever he notices an incident, he briefs the concerned staff. Also, the management gives an increment only if good practices are maintained by the staff. He also insists on maintaining customer satisfaction (tasty, safe food is our policy).". The interviewee, Indian Food 2, confirmed the proper communication. "Our manager, Mr. Sahar, always briefs us on maintaining the kitchen clean. There is a weekly schedule he has assigned for deep cleaning of the entire kitchen. All our equipment will be moved, and the floor will be thoroughly cleaned. He also asks us to check for any expired items among our raw materials."

Understanding the regulatory inspection report and the violations and its proper communication with the food handlers are important aspects of ensuring food safety. The interviewee, Indian Food 5, pointed out the reason for their food safety failure. *"I believe that staff members working without commitment just for salary may cause the food safety rating to go down. Frequent customer complaints can also be a reason. This is based on my experience at my previous company."* It showed that violations and food safety issues were not properly communicated with the food handlers to ensure food safety in the food establishment.

5.6.1.2.2 Training

It was observed that some of the food handlers attended basic safety training workshops only to get certificates. For instance, one interviewee at Indian Food

5 stated, “The first thing that comes to mind related to food safety is general cleanliness in my kitchen and the personal hygiene of the staff. The incident related to food safety that comes to mind is an instance in which a food safety officer gave me a violation for the use of normal eggs (unpasteurized eggs) in the preparation of garlic sauce in which the egg remains uncooked.” The effectiveness of training is key to ensuring food safety in Indian cuisine food establishments.”

5.6.1.3 Food Safety Risk Perception

It was observed that most of the food handlers had better food safety risk perception. Here, Indian Food 10 states, “*When I think about food safety, the first thing that comes to mind is the importance of washing fruits and vegetables thoroughly. I also think about the importance of cleaning the kitchen, juice counter, and utensils."* In addition, the Indian Food 9 also mentioned, *“When I think about food safety, the first thing that comes to mind is kitchen cleaning, gloves, a hairnet, and the importance of proper cooking and holding of food and educating food handlers about it."* Some of the risk perception of Indian cuisine was linked to the regulatory action, where Indian Food 5 stated, “The first thing that comes to mind related to food safety is general cleanliness in my kitchen and the personal hygiene of the staff. The incident related to food safety that comes to mind is an instance in which a food safety officer gave me a violation for the use of normal eggs (unpasteurized eggs) in the preparation of garlic sauce in which the egg remains uncooked.”

5.6.1.4 Management and co-worker support

The validation interviews revealed some of the attributes of the national culture of Indian cuisine. Here, the managers and supervisors positively influenced food safety. The interviewee, Indian Food 4, stated that *“manger interest in food safety always influences us. When we see that the manager personally cares about these matters sometimes after municipality inspection, it encourages us."* The interview with Indian Food 5 revealed that *“managers always monitor food*

handling practices. Sometimes, they force us to follow the rules. Sometimes, they show us how to do it correctly."

In addition to manager or person in charge support, co-worker support in Indian Cusine was also positive, where the interview with Indian Food 5 stated that *"We always learn new things from each other. We help each other for the same. We try to correct each other in case of mistakes and teach the correct steps to be followed."* The interview with Indian Food 6 stressed that support. *"As I said before, our head chef is our role model. We try to follow what he does. If we don't, he will force us to do it.*

5.6.1.5 Knowledge and trust in the Food Safety Management System

The food handlers from Indian cuisine were not aware of any of the food safety management systems, and they completely relied on basic practices and adherence to requirements to control food safety and hygiene. The interviewee, Indian Food 1, pointed out that labeling food and cleaning schedules are is one of the food safety management program. *"Our management insists on us maintaining temperature records, labeling of food, FIFO, cleaning schedule and records, etc.."* Moreover, the interviewee, Indian Food 3, mentioned, *"The restaurant management has implemented a fine system for food handlers who commit mistakes related to food safety. The fines vary from 50 AED to 100 AED, depending on the severity of the mistake. Some of the violations include temperature abuse (storing food at room temperature), cooking excess food, etc."*

5.6.2 Pakistan cuisine

5.6.2.1 Financial Inadequacy

Interviewees from Pakistan Cuisine complained that there is a lack of basic equipment and utensils in their food facilities to manage food safety. Not having sufficient money leads to the reuse of equipment and utensils of bad quality, and some of them are without repair after failure. In this context, interviewee Pakistani Food 1 revealed his intention to buy new equipment and to repair the

one that was damaged. "*Lack of apparatus related to food safety will buy and repair the existing non-operative equipment.*".

In more detail, interviewee Pakistani Food 1 highlighted his intention to buy basic personnel protective equipment. Where he stated that *"I would be purchasing gloves, tissue, kitchen chemicals, color-coded chopping boards, knives, etc."*

5.6.2.1.1 Non-experienced food handlers and persons in charge

Insufficient food safety budgets also introduced non-experienced people into the food establishments.

Meanwhile, interviewee Pakistani Food 5 reported that he learned about food safety only after opening a restaurant. *"While opening the restaurant, I came to know about food safety."* It was also emphasized when the interviewee, Pakistani Food 6, added, "*Once I joined the restaurant and took the training, then I learned about food safety.*" The food handlers were not highly experienced and did not have sufficient experience to handle the operation safely.

Interviewee Pakistani Food 7 described that "*there is no PIC on my premises, however, my manager trains us for food safety.*" The absence of a person in charge meant that they were not able to effectively guide their employees on food safety issues.

The four interviewees were not aware of food poisoning even while working in food establishments. For instance, Pakistani Food 3 states that "*I don't know about food poisoning."* It was also emphasized by Pakistani Food 2: *"No, I didn't listen about food poisoning."*

5.6.2.1.2 Poor food facilities

Food establishments did not have enough money to buy the basic food safety essentials required in the kitchen. Pakistani Food 1 stated when they asked to

know their intention to spend money if they have that "*lack of apparatus related to food safety will buy and repair the existing non-operational equipment.*" In more detail, interviewee Pakistani Food 5 mentioned that "*I will do ceiling work and spend time in the food preparation area."*

5.6.2.1.3 Lack of PPE and Food Safety Essentials.

Seven interviewees pointed out that they do not have the required food safety essentials. Interviewee Pakistani Food 4 revealed that "*I would purchase kitchen chemicals, gloves, a hairnet, a thermometer, etc.*"

5.6.2.2 Management's Commitment

Indeed, seven interviewees from Pakistani cuisine considered there is a management commitment in their food facilities. Here, the interview with Pakistani Food 4 states that *"our management never compels us to do anything that is not safe."* One interviewee reported that there was a disinterest in food safety among managers. The interview with Pakistani Food 8 stated that *"I don't know this is a food safety concern. But sometimes, the chef will come and ask me to serve a dish as a large portion that is normally served in a medium or small portion. I could understand this because I have worked both in the kitchen and dining."*

5.6.2.2.1 Communication and Regulatory Inspection

Seven interviewees in Pakistani cuisine pointed out excellent communication among them to ensure food safety and improve the food safety rating.

Here, Pakistani Food 4 revealed, "*Our colleagues always help each other during our kitchen operations. Everyone is keen on teaching a new staff. If mistakes happen, there will always be someone to point them out and correct them.* Interviewee Pakistani Food 1 agreed with this, adding that "*people working with us are informed to cover the food, control the temperature, and wear a hairnet so hairs will not fall down inside the food.*" Interview Pakistani Food 6 explained that *"we discuss each other for food safety and raise awareness for food safety."*

Poor communication was reported as another aspect of poor management. Some food handlers believed that all communication traveled in only one direction, from managers to workers, with no chance for the workers to provide feedback to the top-level employees, who might resent food safety instructions as something for which they see no need. For instance, interviewee Pakistani Food 8 described the communication in the food facility as follows: "*If the manager requests to the owner to increase our salary, we will be happy to follow his instructions, hahaha.".*

Understanding the regulatory inspection report and the violations and its proper communication with the food handlers are important aspects of ensuring food safety. The interviewee, Pakistani Food 5, pointed out the reason for their food safety failure. *"The building is old, and the manager has left*." It showed that violations and food safety issues were not properly communicated with the food handlers to ensure food safety in the food establishment.

5.6.2.2.2 Training

It was observed that some of the food handlers attended basic safety training workshops only to get certificates. For instance, one interviewee from Pakistani Food 8 stated, "*To ensure food safety, for example, if I am making a curry, all the spices, masalas, and other ingredients used in it should be at the proper level."* The effectiveness of training is key to ensuring food safety in Pakistani cuisine food establishments.

5.6.2.3 Food Safety Risk Perception

It was observed that most of the food handlers had low food safety risk perceptions. Here, Pakistani Food 8 states that "*food safety is always linked to general hygiene, cleanliness of my kitchen, serving safe food to customers,"* etc. In addition, the Pakistani Food 8 also mentioned, *"To be honest, I worked as a waiter here for a while. At that time, I often saw some customers complain about food. It was always disappointing."* Some of the risk perception of Pakistani cuisine was linked to the regulatory action, where Pakistani Food 4

emphasized that *“I felt positive on the day of the reopening of my restaurant." The municipality had closed my restaurant, citing insufficient facilities in the kitchen and the possibility of cross-contamination. But now, when I see my kitchen, I feel very happy. I really lacked segregated raw and ready-to-eat preparation areas. Now I can confidently say that I will be able to serve safe food to the customers.”*

5.6.2.4 Management and co-worker support

The validation interviews revealed some of the attributes of the national culture of Pakistani cuisine. Here, the managers and supervisors were only giving instructions to the food handlers about following food safety. The interviewee, Pakistani Food 2, stated that *“our PIC always instructs us about cleaning, pest control, and maintaining all the things inside the kitchen and advises us to purchase the freshest products possible."* The interview with Pakistani Food 3 revealed that *“managers always inform us to follow food safety measures and do cleaning and temperature checks during the cooking of food.”*

Despite the managers in Pakistani Cuisine, the coworkers support was positive, as stated in the interview with Pakistani Food 1: *“People working with us are informed to cover the food, control the temperature, and wear a hairnet so hairs will not fall down inside food.”* The interview with Pakistani Food 4 stressed that support. *“Our colleagues always help each other during our kitchen operations. Everyone is keen on teaching a new staff. If mistakes happen, there will always be someone to point them out and correct them.”*

5.6.2.5 Knowledge and trust in the Food Safety Management System

The food handlers from Pakistani cuisine were not aware of any of the food safety management systems, and they completely relied on basic practices and adherence to requirements to control food safety and hygiene. The interviewee, Pakistani Food 4, pointed out that the tasting of food is part of the food safety program. *”Our manager asks us to make sure only the best food is served to the customers. He randomly checks the taste of dishes.”* Moreover, the

interviewee, Pakistani Food 8, mentioned, *“Yes, we have a system. Everyone, including dining staff entering the kitchen, is required to wear hairnets. And we thoroughly check all food coming from outside, and everyone receives a briefing before the shift starts.”*

5.6.3 Philippine cuisine

5.6.3.1 Financial Inadequacy

Respondents from Philippine Cuisine expressed dissatisfaction with the need for more fundamental tools and equipment in their food establishments to ensure food safety. Lack of funds causes inadequate equipment and utensils to be reused, and some are left unrepaired after breaking. In this regard, Philippine Food 1, the interviewee, stated that he intended to replace the damaged equipment with new ones. *“I will use the money to buy new uniforms, shoes, and other protective wear like gloves and a hairnet.”.*

Interviewee Philippine Food 3 went into further detail about his plan to fix the broken meat-washing sink. He stated that “*I will buy new equipment and fix the meat sink because it is not working.”* The same feelings were also shared by the interviewee, Philippine Food 4. *“I will buy sanitizer like a foot bath for both the kitchen staff and the customers before entering the restaurant, so it will be more safe.”*

5.6.3.1.1 Non-experienced food handlers and persons in charge

Budgets for food safety were insufficient, which also allowed inexperienced workers to work in restaurants. According to every Philippine interviewee, maintaining cleanliness and ensuring customer satisfaction are the cornerstones of food safety.

Meanwhile, interviewees at Philippine Food 1 believe that customer satisfaction means food safety. *“Food safety for me is the welfare of the customers.”* It was also emphasized when the interviewee, Philippine Food 4, added that *“the quality of food means it is safe for the customer."* Even after the restaurant

opened, the food handlers lacked the necessary knowledge and were not very skilled in managing the operation safely.

Interviewee Philippine Food 2 described that *“food safety for me is when our kitchen is clean."* Food safety is ensured by cleanliness, according to interviewee Philippine Food 2, while food safety and quality are comparable, according to interviewee Philippine Food 3. The interviewee, Philippine Food 3, stated, *” Food safety for me is when the quality is good.”*

5.6.3.1.2 Poor food facilities

Food establishments did not have enough money to buy the basic food safety essentials required in the kitchen. Philippine Food 2 stated that *“I will buy an additional warmer or hot cabinet because we only have one and sometimes inspectors always see the cooked food outside at room temperature."* Interviewee Philippine Food 1 gave further insight about his desire to build a bigger restaurant. *“This is due to the small kitchen space we have; we cannot move* ***freely, which causes a delay in service.”.***

5.6.3.1.3 Lack of PPE and Food Safety Essentials.

Three interviewees pointed out that they do not have the required food safety essentials. Interviewee Philippine Food 1 revealed that “*I will use the money to buy new uniforms, shoes, and other protective wear like gloves and a hairnet.”.*

5.6.3.2 Management’s Commitment

Indeed, all the interviewees from Philippine Cuisine considered there was no management commitment in their food facilities. Here the interview with Philippine Food 1 states that “*the opened pack of thick cooking cream inside the chiller without date, I have doubts about serving it because it might be old (but still served)."* One interviewee reported that there was a disinterest in food safety among managers. The interview with Philippine Food 2 stated that *“the chicken skin that is not fresh when fried has an odor but was served.”.* According to Philippine Food 4's interview, they were asked to serve the food based on

the safety of the product in question. *“The chicken inside the chiller—I have doubts because there is no date or how old it is. If we use it or not, but still, it was fried.”*

5.6.3.2.1 Communication and Regulatory Inspection

All interviewees in Philippine cuisine pointed out excellent communication among coworkers to ensure food safety and improve the food safety rating.

Here, Philippine Food 1 revealed*, “My co-workers divide the task and teach each other; for example, regarding labeling, sometimes he will do it next time I label.”* Interviewee Philippine Food 3 agreed with this, adding that *“by helping each other on the pending task, for example, the cook will help the cleaner, and the cleaner will help the cook to cut and prepare ingredients to avoid delay and complaints."* Interview Philippine Food 4 explained that *“by checking on each other, for example, if the co-worker is not wearing a hair net or gloves, we remind each other. Also to check if the uniforms are clean.”.*

In Philippine cuisine, management is looking to ensure food safety. For instance, interviewee Philippine Food 1 described the good communication in the food facility: *“My owner, also the chef, is available daily to check and guide me on the cooking procedure."* Here, wherever the owner of the food facility is the chef, communication is better in addition to his presence in the food facility during the hours of operation. The interview with Philippine 3 stated that *“the manager is always checking for us the uniform, shoes, and hairnet.”* The proper communication was also emphasized in Philippo cuisine by the Philippine Food 4: *“The manager always advises us to use gloves and wash our hands.”*

A key component of guaranteeing food safety is comprehending the regulatory inspection report, the violations, and the appropriate conveyance of this information to the food handlers. The interviewee, Philippine Food 3, pointed out the reason for their food safety failure. “*Because when the inspector comes, he will see the uncovered cooked food on the table. We lack equipment to cover all the food*.” Furthermore, Philippine Food 4 asserted that labeling was the

primary cause of the facility's regular noncompliance. *“Mostly because of tagging date labels, we forget to put dates on food items inside the refrigerator.""* It showed that violations and food safety issues were not properly communicated with the food handlers to ensure food safety in the Philippine Cuisine food establishment.

5.6.3.2.2 Training

It was noted that a few food handlers attended training on fundamental safety procedures just to obtain certifications. For example, one of the interviewees at Philippine Food 2 said that the best way to guarantee food safety is by labeling. *“For me, labeling, I always make sure to label and date the food items inside the refrigerator."* In order to guarantee food safety in Philippine restaurant venues, training effectiveness is essential. The interviewee, Philippine 4, stated the reason for attending was *“to attend training for me by my manager and the staff to know more about the rules and standards of the municipality.”*

5.6.3.3 Food Safety Risk Perception

It was observed that most of the food handlers in Philippine cuisine had low food safety risk perceptions. Here, Philippine Food 3 stated that *“it is when our ingredients are prepared clean. Example beef from the butchery: I make sure the delivery is clean (without hair) on the beef.”* In addition, the Philippine Food 1 perceives that cleaning and organized food arrangements are the keys to food safety. *“It is when I hear the customer comments or feedback that our facility is clean and organized." The interviewee, Philippine Food 3, thinks that reheating rice is a method to ensure food safety. “One time when we ate old rice in the accommodation, maybe it was already spoiled because we did not reheat it; it was cold.”* The interviewee, Philippine Food 4, connected customer satisfaction and food quality while thinking about food safety. *”When there is customer satisfaction, the food is of good quality.”*

5.6.3.4 Management and co-worker support

The validation interviews revealed some of the attributes of the national culture of Philippine cuisine. Here, the managers and supervisors teach and be one among them to ensure food safety. The interviewee, Philippine Food 1, stated that *my owner, also the chef, is available daily to check and guide me on the cooking procedure.“ The* interview with Philippine Food 3 revealed that *“the owner teaches us the storage procedure, for example, the frozen raw items to be separately stored in chillers for cooked items.”*

The coworker support was positive, as stated in the interview with Philippine Food 1: “*Co-workers divide the task; for example, after cooking, the dispatcher will check the quality with complete ingredients and toppings before serving.”* The interview with Philippine Food 3 stressed that support. *“By helping each other on the pending task, for example, the cook will help the cleaner, and the cleaner will help the cook to cut and prepare ingredients to avoid delay and complaints.”*

5.6.3.5 Knowledge and trust in the Food Safety Management System

The food handlers from Philippine cuisine were not aware of any of the food safety management systems, and they completely relied on basic practices and adherence to requirements to control food safety and hygiene. The interviewee from the cusine pointed out that cleaning and fixing CCTV are considered food safety management systems*. The Philippine Food 1 emphasizes that our"chef, also the owner, is always present here in the restaurant daily to remind us about food safety (example, cleaning properly).”* Moreover, the interviewee, Philippine Food 8, mentioned, *“We have a group chat with our manager and the owner. He gives us schedules every day and tells us the sales plan and target and the rules we have to follow inside the restaurant. For example, in GC, we need to send photos showing that we are cleaning and checking the chiller and freezer temperatures daily. Also, there is a CCTV camera in the kitchen to monitor the staff.”*

5.6.4 Arabic cuisine

5.6.4.1 Financial Inadequacy

Respondents from Arabic Cuisine expressed satisfaction with the facility and availability of fundamental tools and equipment in their food establishments to ensure food safety. In this regard, all the food handlers in Arabic cuisine intend to take advanced training courses. Interviewee Arabic Food 1 went into detail about his plan to spend his money. Where he stated that "*Training (I will take a picture level) is my priority to enhance food safety if I have enough money in my hand."* The same feelings were also shared by the interviewee, Arabic Food 2. *"Training is the area where I will spend my money."*

5.6.4.1.1 Non-experienced food handlers and persons in charge

Budgets for food safety were insufficient, which also allowed inexperienced workers to work in restaurants. According to every Arabic interviewee, maintaining process safety and procuring food from approved suppliers are the cornerstones of food safety.

Meanwhile, interviewee Arabic Food 3 believes that process monitoring is important. *"Follow up and monitor the process: proper receiving of food; sufficient storage area.". It was* also emphasized when the interviewee, Arabic Food 4, added, *"No approved supplier; no proper storage; chillers and freezers not working properly.".* The food handlers have the necessary knowledge and are skilled in managing the operation safely. Interviewee Arabic Food 4 described that "proper cleaning, hygiene *records, and documents are available; proper receiving is* responsible for food safety.

5.6.4.1.2 Poor food facilities

Food establishments in Arabic cuisine have enough money to buy the basic food safety essentials required in the kitchen. Arabic Food 2 stated that *"training, purchasing detergent, disinfectant, and maintenance areas are important."*

5.6.4.1.3 Lack of PPE and Food Safety Essentials

One interviewee pointed out that they do not have the required food safety essentials. Interviewee Arabic Food 1 revealed that "*I want to purchase new equipment, disinfectant, and uniform."*

5.6.4.2 Management's Commitment

Indeed, all the interviewees from Arabic Cuisine considered there is management commitment in their food facilities. Here, the management did not ask the food handlers to do a task or process that is unsafe in terms of food safety. Here is what the interview with Arabic Food 1 states when they asked about a situation to do a task that is unsafe in terms of food safety and the management commitment. *"Nothing. Our management is committed".* The interview with Arabic Food 2 stated, *"No. Our facility is following the standard to avoid food safety problems."*

5.6.4.2.1 Communication and Regulatory Inspection

All interviewees in Arabic cuisine pointed out poor communication among coworkers to ensure food safety and improve the food safety rating. Here, Arabic Food 1 is relying on the implementation of the system. Interviewee Arabic Food 3 agreed with this, adding that "implementation of *the system is not discussed with the coworkers."* Interview Arabic Food 4 explained that "implementation of *the system is the key."*

In Arabic cuisine, management is actively communicating with food handlers to ensure food safety. For instance, interviewee Arabic Food 1 described the good communication in a food facility where his supervisor is actively involved in process verification. *"Verification from the process and cleaning/disinfection.".* The interview with Arabic Food 4 stated that the manager was *"monitoring and following up on all processes and staff."*

A key component of guaranteeing food safety is comprehending the regulatory inspection report, the violations, and the appropriate conveyance of this

information to the food handlers. The interviewees, Arabic Food 3 and Arabic Food 4, pointed out the reason for their food safety failure. *“Pest control issue (cockroaches): no staff training."* Furthermore, Arabic Food 4 asserted that pest infestation, staff competency, and getting food from approved supplier areas were the reasons for food safety failure. “Pest control issue (cockroaches): no staff training." It showed that violations and food safety issues were properly communicated with the food handlers to ensure food safety in the Arabic Cuisine food establishment.

5.6.4.2.2 Training

It was noted that all the food handlers who attended training on fundamental safety procedures were competent in food safety. One of the interviewees at Arabic Food 3 shared his perspective on food safety, including allergens, proper temperature, and proper hygiene practices. *“Proper food temperature, proper storage, hygiene, and food allergies are the keys to food safety."* The interviewee, Arabic 1, also demonstrated his knowledge of food safety by stating that “*segregation between raw food and ready-to-eat food; food preparation; good storage.”*

5.6.4.3 Food Safety Risk Perception

It was observed that most of the food handlers in Arabic cuisine had better food safety risk perception. Here, Arabic Food 1 states that *“cross-contamination is the reason for most of the food poisoning that is to be prevented.” The interviewee, Arabic Food 3, revealed his understanding of food safety risks by explaining the disinfection and cooling operations. “Washing and disinfection of the equipment; monitoring food temperature and cooling.”*

5.6.4.4 Management and co-worker support

The validation interviews revealed some of the attributes of the national culture of Arabic cuisine. Here, the managers and supervisors teach and be one among them to ensure food safety. The interviewee, Arabic Food 1, stated that “I

supervise *all processes inside the restaurant." The* interview with Arabic Food 3 revealed that *“my manager is very supportive and follows up and monitors all processes inside the restaurant.”.*

The coworker support was limited and not regular, where the interview with Arabic Food 1 stated that “*I will give advice for my college in case of mistake during operation.”*

5.6.4.5 Knowledge and trust in the Food Safety Management System

The food handlers from Arabic cuisine were not aware of any of the food safety management systems, and they completely relied on basic practices and adherence to requirements to control food safety and hygiene. The interviewee pointed out that the follow-up actions are considered a food safety management system. *The Arabic Food 4 emphasizes “Follow up for all processes inside the kitchen.”*

5.6.5 International cuisine

5.6.5.1 Financial Inadequacy

Interviewees from International Cuisine have sufficient financial adequacy to manage food safety in the establishment. In this context, interviewee International Food 1 revealed his intention to go for an advanced level of training to manage food safety. *“I will use it for advanced staff training in food safety.”*

In more detail, interviewee International Food 2 highlighted his intention to buy advanced equipment for temperature monitoring. “*Spending advanced temperature probe.”*

5.6.5.1.1 Non-experienced Food Handlers and Person in Charge

Interviewees in international cuisine revealed that the food handlers working in the kitchen were sufficiently experienced and well trained.

All the interviewees in international cuisine reported that they learned about food safety before they opened or started working in a restaurant. The

interviewee, International Food 1, stated that he learned about food safety through food safety training. *“The time when I think about food quality and basic food safety training*. The food handlers were experienced and had sufficient experience to handle the operation safely.

Interviewee International Food 8 described that the person in charge is the role model, setting the example. ‘Our PIC is set as an example for staff.” Having such a person in charge meant that they were able to effectively guide their employees on food safety issues.

The four interviewees were aware of food poisoning even before working in food establishments. When they think about food safety, key food safety parameters such as temperature control and staff training come to mind. International Food 1 states that when I think about food safety, *“maintaining temperature knowledge and staff training are the things that come to mind.”.*

5.6.5.1.2 Poor food facilities

Food establishments in international cuisine have enough money to buy the basic food safety essentials required in the kitchen. International Food 10 would like to buy an advanced probe thermometer. I would like to buy an advanced temperature probe." In more detail, interviewee International Food 2 mentioned that “*I will use it for advanced staff training in food safety.”.*

5.6.5.1.3 Lack of PPE and Food Safety Essentials.

All the interviewees pointed out that they have the required food safety essentials. Interviewee International Food 3 revealed “*advanced food safety training and advanced personal protective equipment.*”

5.6.5.2 Management’s Commitment

Indeed, four interviewees from International Cuisine considered there is a management commitment in their food facilities. Here the interview with International Food 1 states that when they asked about the situation of

performing a task that was unsafe in terms of food safety, it *“never happened."* The interview with International Food 3 stated that "it has *not happened, and our management is committed to ensuring food safety.”*

5.6.5.2.1 Communication and Regulatory Inspection

Seven interviewees in international cuisine pointed out poor communication among them to ensure food safety and to improve the food safety rating.

Here, International Food 1 relies on awareness and orientation rather than proper communication. “*We are depending on awareness and orientation rather than getting information from coworkers. We are all trained.*”.

Understanding the regulatory inspection report and the violations and its proper communication with the food handlers are important aspects of ensuring food safety. The interviewee at International Food 1 pointed out that the reason for their food safety failure is a lack of commitment and unpredictable operations. *“Unpredictable operations and commitments are the reason for failure*.” It showed that violations and food safety issues were not properly communicated with the food handlers to ensure food safety in the food establishment.

5.6.5.2.2 Training

It was noted that all the food handlers who attended training on fundamental safety procedures were competent in food safety. One of the interviewees at International Food 3 shared his perspective on food safety as an allergen. The interviewee, International Food, thinks temperature control and staff competency are essential to ensuring food safety. *“Maintaining temperature knowledge and staff training are the things that come to mind.”.*

5.6.5.3 Food Safety Risk Perception

It was observed that most of the food handlers in international cuisine had better food safety risk perceptions. Here, International Food 1 states that sanitization is the key to food safety. *“Sanitation and good hygiene are the points.”* The

interviewee, International Food 3, revealed his understanding of food safety risks by explaining temperature abuse. *“I feel confident and positive when I see the temperature is under control.”*

5.6.5.4 Management and co-worker support

The validation interviews revealed some of the attributes of the national culture of international cuisine. Here, the managers and supervisors were set as an example for the food handlers. The interviewee at International Food 2 stated that *“our PIC is set as an example for staff.”.*

Despite the managers in International Cuisine, the coworker support was negative. In the interview, International Food 1 stated that *“we are depending on awareness and orientation rather than getting information from coworkers.” "We are all trained.”.* The interview with International Food 3 stressed that “*sometimes reminding each other’s and regular refreshments. We don’t do too much.”*

5.6.5.5 Knowledge and trust in the Food Safety Management System

The food handlers from international cuisine were not aware of any of the food safety management systems, and they completely relied on basic practices and adherence to requirements to control food safety and hygiene. The interviewee from International Food 4 pointed out when they asked about the food safety management system that the rightt *temperature and the right containers" are the food safety management systems.* Moreover, the interviewee, International Food 4, mentioned that *“washing hands and using tongs to handle food”* are the food safety management systems.

5.7 Rationale for the themes

The researcher selected five themes during the research, and the subsequent rationales for selecting each theme are as follows.

5.7.1 Financial Inadequacy

Indian Cuisine complained about their kitchens' lack of food-safe equipment and utensils. Insufficient funding leads to the reuse of poor equipment and utensils, some of which are irreparable. Pakistan Cuisine complained that its restaurants lacked food safety equipment and utensils. Insufficient funding leads to inferior equipment and utensils, some of which break irreparably. Philippine Cuisine spoke about the need for better food safety equipment in their restaurants. Lack of finance leads to inferior equipment and utensils, some of which are not fixed after breaking. Arabic Cuisine acknowledged satisfaction with the availability of tools and equipment. Advanced training is sought by all Arabic food workers. International Cuisine has enough money to manage food safety. International cuisine mentioned the need for food safety training.

5.7.2 Management’s commitment

Indian Cuisine reported a lack of management dedication to food facility maintenance. The inspector's recommended modifications were not implemented by management, which is regarded as the main source of the issue. Pakistani cuisine prioritises food safety, with management commitment in ensuring food safety. Management never forces dangerous food handling practices on food workers. In Philippine cuisine, managers ignored food safety. Arabic Cuisine restaurants was noted for their excellent standards. The management did not give food handlers any unsafe tasks or processes. International Cuisine rewards dedicated managers in their food facilities.

5.7.3 Food safety risk perception

Indian food handlers comprehend food safety in a better way . Cleanliness, gloves, hairnets, and proper food preparation and storage are always priorities among the food handlers. They also teach food handlers about food safety risks. Pakistani cusine was considered safe. Food handlers put customer satisfaction over food safety risks here. Low food safety perceptions was noted in Philippine

cuisine. Food handlers here know that cleanliness and proper arrangements were essential for food safety while Arabic cuisine had a higher food safety awareness. This restaurant's food handlers know cross-contamination is the main source of food poisoning and take precautions. International food consumers understand the risks of temperature abuse and the importance of effective sanitisation.

5.7.4 Management and co-worker support

In Indian cuisine, managers and supervisors are vital to food safety and care about maintaining high standards. The management shows personal concern for food safety issues highlighted during the municipality inspection, comforting food handlers. In Pakistani cuisine, managers and supervisors only instruct food handlers on food safety. In Philippine cuisine, managers and supervisors teach and practice food safety. They ensure expertise in this area. Managers and chefs regularly inspect and advise on food safety. Arabic cuisine food managers and supervisors instruct and participate to ensure food safety. They assist all restaurant operations and continuously monitor all processes.

5.7.5 Food Safety Management System knowledge and trust

Indian cuisine depends on basic practices and standards to assure food safety and hygiene without food safety management systems. Pakistani cuisine consider tasting of food as parameter to ensure food safety. The Philippine cuisine was unaware of food safety management systems, and cleaning and maintaining CCTV were considered as a food safety management system. Arabic cuisine was unaware of food safety management systems and mistook follow-up as the management system. It is commonly accepted in international cuisine that food safety management systems need appropriate hand hygiene and the use of tongs.

5.8 Result and Findings

5.8.1 Indian Cuisine

The following conclusions were drawn from the interviews with the food handlers of Indian cuisine.

5.8.1.1 Financial Inadequacy

Interviewees in Indian Cuisine reported a deficiency of essential equipment and utensils in their food establishments for ensuring food safety. Inadequate funds result in the reutilization of low-quality equipment and utensils, some of which become irreparable after malfunctioning. As per the interview results for Indian cuisine, there was a lack of basic requirements to ensure food safety, and this could be the reason for repeated noncompliance in this cuisine.

5.8.1.2 Management's commitment

Employees at Indian Cuisine who were interviewed reported that the management team lacked dedication in the kitchen.

5.8.1.3 Food safety Risk Perception

Indian food handlers demonstrated an enhanced understanding of food safety risks, derived from their practical experience, concern about becoming sick, and inspections by regulatory authorities.

5.8.1.4 Management and co-worker Support

The validation interviews uncovered several characteristics of the national culture of Indian cuisine. The managers and supervisors had a favorable impact on food safety. Aside from the support manager, co-worker support at Indian Cuisine was also favorable.

5.8.1.5 Knowledge and trust on Food Safety Management System The food handlers in Indian cuisine were unfamiliar with food safety management systems and primarily relied on basic practices and meeting criteria to maintain food safety and hygiene.

5.8.2 Pakistani Cuisine

The following are the findings that were discovered as a result of the interview analysis that was carried out with the food handlers that worked with Pakistani cuisine.

5.8.2.1 Financial Inadequacy

Interviewees from Pakistani Cuisine expressed discontent with the lack of basic equipment and utensils in their culinary facilities to ensure the safety of their cuisine. Insufficient funds require the reuse of low-quality equipment and utensils, some of which become irreparable after failure.

5.8.2.2 Management's commitment

Interviewees from Pakistani cuisine acknowledged the presence of managerial commitment in their food facilities.

5.8.2.3 Food safety Risk Perception

Most food handlers from Pakistani cuisine were found to have little awareness of food safety risks. Regulatory action was associated with certain risk perceptions.

5.8.2.4 Management and co-worker Support

The validation interviews uncovered several characteristics of the national culture associated with Pakistani cuisine. The managers and supervisors were solely providing directives to the food handlers regarding adherence to food safety protocols. Although the management in Pakistani cuisine were challenging, the coworker's support was encouraging.

5.8.2.5 Knowledge and trust on Food Safety Management System

The food handlers in Pakistani cuisine lacked knowledge of food safety management systems and mostly depended on fundamental practices and standards to uphold food safety and hygiene.

5.8.3 Philippine Cuisine

The following were the results of the interview analysis with the food handlers from Philippine cuisine.

5.8.3.1 Financial Inadequacy

Respondents from Philippine Cuisine were dissatisfied with the lack of essential tools and equipment in their food outlets to guarantee food safety. Inadequate budgets for food safety led to the employment of untrained workers in restaurants. Food businesses lacked the funds to purchase key food safety items necessary for the kitchen. Interviewees noted that they lack the necessary food safety essentials.

5.8.3.2 Management's commitment

Interviewees from Philippine Cuisine believed that there was a lack of management commitment in their food facilities. Every interviewee in the field of Philippine cuisine emphasized the importance of strong communication among colleagues to enhance food safety and elevate the food safety grade.

5.8.3.3 Food Safety Risk Perception

Most food handlers in Philippine cuisine were found to have a low understanding of food safety risks. Food handlers in Philippine cuisine prioritize client happiness, food quality, and food safety.

5.8.3.4 Management and Co-worker Support

Managers and supervisors in Philippine cuisine educate and work alongside food handlers to maintain food safety. The coworker provided beneficial support.

5.8.3.5 Knowledge and trust on Food Safety Management System

The food handlers in Philippine cuisine were unfamiliar with food safety management systems and primarily depended on basic practices and meeting criteria to maintain food safety and hygiene.

5.8.4 Arabic Cuisine

The interview analysis with Arabic cuisine food handlers revealed the following findings.

5.8.4.1 Financial Inadequacy

Respondents from Arabic Cuisine were content with the facility and availability of essential instruments and equipment in their food enterprises to guarantee food safety. All food handlers in Arabic cuisine aim to undergo advanced training courses. Arabic cuisine food establishments possess sufficient funds to purchase the essential food safety items needed in the kitchen.

5.8.4.2 Management's commitment

All interviewees from Arabic Cuisine acknowledged the presence of managerial commitment in their culinary facilities. The management did not assign any food handling tasks or processes that pose a risk to food safety. All interviewees in Arabic cuisine highlighted inadequate communication among colleagues as a factor affecting food safety and the enhancement of the food safety grade. The Dubai Municipality Food Safety Department conveyed violations and food safety issues to the food handlers at the Arabic Cuisine food facility to ensure food safety.

5.8.4.3 Food Safety Risk Perception

Most food handlers in Arabic cuisine demonstrated a higher level of food safety risk perception. All the food workers who received training in basic safety measures were proficient in food safety.

5.8.4.4 Management and Co-worker Support

The validation interviews uncovered several characteristics of the national culture associated with Arabic cuisine. The managers and supervisors instruct and actively participate in guaranteeing food safety. The coworker's support was sporadic and insufficient.

5.8.4.5 Knowledge and trust on Food Safety Management System

The food handlers in Arabic cuisine were unfamiliar with food safety management systems and primarily relied on basic practices and meeting criteria to ensure food safety and hygiene. The interviewee noted that the follow-up actions are part of a food safety management system.

5.8.5 International Cuisine

According to the interview analysis conducted with the international cuisine food handlers, the following were the findings.

5.8.5.1 Financial Inadequacy

Interviewees from International Cuisine have the financial resources necessary to ensure food safety in the establishment. During the interview, international cuisine food handlers expressed a desire to pursue higher training in food safety management. The interviewees from International Cuisine expressed their plan to purchase sophisticated equipment for temperature monitoring. Interviewees in international cuisine reported that the kitchen staff were very experienced and well-trained. All the interviewees in international cuisine reported that they learned about food safety before they opened or started working in a restaurant.

5.8.5.2 Management’s commitment

Interviewees from International Cuisine acknowledged the presence of managerial dedication in their food facilities. In international cuisine, food handlers prioritize attentiveness and orientation over effective communication. All food handlers who received training on basic safety practices were found to be proficient in food safety.

5.8.5.3 Food Safety Risk Perception

Most food handlers in international cuisine demonstrated higher levels of food safety risk perceptions.

5.8.5.4 Management and Co-worker Support

The validation interviews uncovered certain characteristics of the national culture related to international cuisine. The managers and supervisors served as role models for the food handlers. Although the managers at International Cuisine were supportive, the coworkers were not.

5.8.5.5 Knowledge and trust on Food Safety Management System

Food handlers in international cuisine relied solely on standard operating procedures and rigorous adherence to rules to assure the safety of the food due to their lack of knowledge about food safety management systems.

Themes	Indian Cuisine	Pakistani Cuisine	Philippine Cuisine	Arabic Cuisine	International Cuisine
Financial inadequacy	Inadequate	Inadequate	Inadequate	Adequate	Adequate
Management's commitment	Negative	Positive	Negative	Positive	Positive
Food Safety Risk Perception	Positive	Negative	Negative	Positive	Positive
Management and co-worker Support	Positive	Positive	Positive	Negative	Negative
Knowledge and Trust on Food Safety Management System	Negative	Negative	Negative	Negative	Negative

Table 5.2- Factors affecting Food safety in Different cuisines and its impact

5.9 Interviews Discussion

This research is the first to scientifically examine the current status of food safety culture in various ethnic groups, based on our current understanding. Survey participants were employed in five different ethnic restaurant groups in Dubai. The qualitative analysis revealed five factors: financial inadequacy, management's

commitment, food safety risk perception, management and co-worker support, and knowledge and trust in the food safety management system. The research's findings revealed a notable correlation between food safety culture and various ethnic groupings.

National culture, along with external elements including sector values, customer/market requirements, economic climate, and shareholder risks, has been identified as a key effect on an organization's food safety culture (Nyarugwe, 2020). Culture at the national level is what sets apart individuals of one group (country or society) from those of another (Hofstede et al., 2010).

Food handlers' training is well acknowledged for its advantages, but it's important to note that training alone may not always result in a shift in attitude or improved risk perception (Rossi et al., 2017; Insfran-Rivarola et al., 2020). Multiple studies have shown that gaining knowledge through theoretical training does not always lead to improved food safety awareness required for achieving safe practices in a food work setting (Young et al., 2019; Zanin et al., 2021a).

Food safety culture can be evaluated by examining employees' perceptions of food safety, leadership dedication, knowledge sharing, accountability, risk awareness, and work environment, as shown in certain research (Yiannas, 2009).Griffith and colleagues (2010) and Powell and colleagues (2011). Zanin et al. (2017) state that training for managers is a successful method to decrease food safety issues, but its success is influenced by the manager's mindset. Managers that possess specialized training and transformational qualities facilitate change, allocate resources, establish processes, motivate employees, and offer targeted training, ultimately fostering a positive organizational culture. The authors propose that providing training to managers could enhance their capacity to evaluate food safety issues in their establishment and allocate suitable hygiene training to their employees.

The workplace can contribute to operational failures and risky behaviors in an organization. A disorganized atmosphere and unhygienic equipment can lead to food contamination despite following proper measures (Stedefeldt et al., 2021).

Employees' behavior at work is linked to their job attitude (Taha et al., 2020c). Having a favorable job attitude leads to increased dedication. Employees who are very dedicated to their organization demonstrate positive conduct in the workplace (Imamoglu et al., 2019; Tan & Antonio, 2022).

Prior research demonstrated that the connection between an organization's management methods and effective food hygiene procedures was influenced by the dedication of food handlers (Taha et al., 2021).
Our research confirmed previous studies that highlighted the importance of organizational commitment in improving food safety practices, as well as its role as a mediator. Knowledge is acquired through instruction or experience and impacts attitudes, leading to attitudinal commitment (affective) and behavioral commitment (continuance and normative).

Attitudinal commitment influences behavior intention, while behavioral commitment influences actual conduct (Ribeiro and Menezes 2019).
The research demonstrated that organizational commitment completely mediated the connection between knowledge and food hygiene behaviors. Leadership styles can significantly impact food hygiene procedures. Various studies have explored how leadership styles are linked to factors and phenomena that influence food hygiene practices, including attitudes, organizational climate, commitment, job performance, and work-life quality. Additional research has demonstrated a positive correlation between transformative leadership and commitment as well as work-life quality (Graves, Sarkis, & Zhu, 2013; Kim, Im, & Shin, 2021). Transformational leadership drives employees' emphasis towards long-term goals and serves as a social resource to help them evaluate hard situations (Kim, Im, & Shin, 2021).
The concept and components of food safety culture are continually evolving, modified throughout time, and examined through diverse methodologies by different researchers. Comprehending food safety culture and its components can effectively enhance the adoption and promotion of proper hygiene and food production practices (Bregolin et al., 2021). Nonetheless, it is improbable that a

universal model exists that is applicable to all enterprises within the food industry (Griffith, Livesey and Clayton, 2010).

Improving food safety can be accomplished by fostering a suitable work environment and enhancing employees' knowledge, commitment, communication, and risk perception through robust leadership and effective management practices. Consequently, a robust plan to improve food safety must be linked to a food safety management system, which serves as a partner in cultivating a food safety culture (Gama, 2012).

Researchers have modified the idea and metrics to comprehend the elements influencing food safety culture. Evaluations of food safety culture assist organizations in comprehending the reasons employees fail to adhere to safe food handling practices in the workplace (Griffith, Livesey and Clayton, 2010; Yiannas, 2008; Ball, Wilcock and Colwell, 2010).

Measuring food safety culture can help the establishment and evaluation of a positive culture, hence clarifying its role in enhancing food safety practices. A study of 19,000 employees from bakeries, food processors, and meat product facilities in Canada created a method to evaluate the maturity of established food safety culture, a crucial factor in mitigating foodborne illnesses (Jespersen, Griffiths and Wallace, 2017).

The organisation progressed from a 'respond' maturity phase to a 'know' maturity phase, recognising the importance of food safety in its operations. Decisions based on evidence are increasingly prevalent, training is more standardised, and there is a readiness to invest in necessary infrastructure and technologies. The market frequently fails to prioritise investments in systems (protocols or technology), resulting in a reactive rather than preventive approach to issues, which leads to

responses to problems instead of their prevention (Jespersen, Griffiths and Wallace, 2017)

Variations in risk perception are significant in tackling matters related to food handling, safety, and public health. Communication and educational initiatives are necessary to align public views with scientifically validated knowledge, hence enhancing understanding and control of food handling risks.By comprehending individuals' perspectives and attitudes about food management, a corporation can pinpoint knowledge deficiencies and probable misconceptions that require rectification. This enables the formulation of more effective communication strategies and the dissemination of information regarding optimal cleanliness, storage, and food preparation practices to the public. Furthermore, by taking into account public views, experts can modify their strategies to enhance the clarity and relevance of information. This can enhance compliance with food safety guidelines, therefore diminishing the risks of foodborne illnesses. Moreover, it is essential to underscore the gravity of foodborne infections to ensure that handlers comprehend the potential repercussions of their irresponsible behaviours (De Freitas, Da Cunha and Stedefeldt, 2019).

Risk perception may be affected by cognitive errors, including optimistic bias and the illusion of control. It is significant that after prolonged service or involvement in numerous ineffective training sessions on hygiene and food production practices, employees may cultivate an inflated confidence in their competencies, which can subsequently hinder their capacity to implement adequate measures to mitigate the risk of foodborne illnesses(De Freitas, Da Cunha and Stedefeldt, 2019).

A positive correlation exists between educational attainment and the ability to make risk-based judgements, indicating that higher education correlates with enhanced risk perception. Formal education fosters the development of critical cognitive skills necessary for social integration, workforce readiness, and the identification of

personal talents. From this viewpoint, it may be deduced that there is a tendency for a more profound comprehension of the idea of danger as cognitive capacity increases (Soares, 2007).

Enhancing food workers' awareness of the risks and severity of foodborne illnesses is essential for assuring food safety and safeguarding consumer health. Educational techniques can foster a culture of accountability and vigilance in food handling, thereby mitigating the risks of outbreaks and illnesses linked to contaminated food. In conclusion, by comprehending and considering the opinions of the target audience, the food safety professional can more effectively promote safe food handling practices and safeguard public health (Frewer, 2000;Da Cunha *et al.*, 2015; Rossi et al., 2017).

The evaluation of food safety culture is essential as it can directly influence food safety outcomes. The capacity to formulate novel action strategies, based on the outcomes of characterisation, is essential for effectively establishing and overseeing management of food safety standards (Galvão and De Carvalho Balian, 2022).

Consequently, when a food safety culture is cultivated inside an organisation, personnel integrate food safety as a core value in the manufacturing process, acknowledging the significance and accountability they possess throughout the procedure. Thus, the consistent repeating of accurate activities fosters the establishment of a habit that enables their execution independently of oversight and validation (Frewer, 2000; Da Cunha et al., 2015; Rossi et al., 2017).

Research involving employees from 23 food enterprises in Lebanon indicated that those who received targeted food safety training exhibited a more favourable impression of the food safety culture. Furthermore, the findings revealed a

heightened view among individuals in managerial roles and those employed in the quality department (Nakat et al., 2023)

Training programs must emphasise safe food handling, equipping personnel to recognise risks. Recognising the significance of human conduct and individual performance is essential. Performance-based incentives promote safe food handling practices and uphold elevated cleanliness standards (Matukuma et al., 2023).

It is imperative for food handlers to comprehend the true significance and necessity of the processes required to assure food safety, rather than performing them only for monetary gain.It is essential to highlight that these approaches necessitate a leader with robust technical expertise who can direct and empower team members in their individual responsibilities to maintain food integrity (Griffith, Livesey and Clayton, 2010).

A study including 116 small and medium-sized enterprises worldwide, comprising 36 firms from industrialised countries and 80 from developing nations, examined the effects of applying food safety regulations in the food business. The findings indicated that the implementation of the Food Safety Management System led to an increase in managerial leadership exceeding 80% in both developed and developing nations (Lee et al., 2023)

An effective food safety culture requires management to foster open communication, deliver sufficient training, and exemplify appropriate behaviour. The administration must dedicate itself to creating safe food by allocating essential resources, ensuring legal compliance, maintaining relevant paperwork, and using performance assessment to foster continual enhancement of the food safety management system. Although a theoretical foundation exists, practical application is essential for the effective integration of food safety culture, necessitating informed

and context-specific strategies in the ever-evolving food safety environment (Cavelius, Goebelbecker and Morlock, 2023).

Enhancing food safety culture necessitates the alignment of all factors affecting food safety. The procedure requires determination, commitment, and effort, and staff can successfully do it by sustaining consistent communication with accountable management in food service organisations (Bregolin et al., 2021).

A study on the prevailing food safety culture in Air Force dining service implemented educational initiatives to enhance this culture. The findings indicated a proactive and dedicated food safety culture, with "work pressure and normative beliefs" attaining the greatest scores, although "risk perception" and "management systems, styles, and processes" garnered lower marks (Zanin, Luning and Stedefeldt, 2022).

Consequently, food safety culture encompasses critical components that are integral to the secure production, distribution, and consumption of safe food. Although variations may exist based on the food service type, it is imperative for organisational leadership to exhibit a clear commitment to food safety. Moreover, clear and effective communication is crucial in distributing information on food safety culture across the industry, enhancing awareness of the importance of this matter (Matukuma et al., 2023).

A vital component is the execution of preventative and corrective strategies designed to alleviate hazards associated with food safety. Food safety culture promotes the ongoing enhancement of processes within food service companies. All these aspects interact interdependently and must be constantly coordinated to build an effective food safety culture. Food safety attention must be continuous and

incorporated into all facets of food-related operations (Griffith, Livesey and Clayton, 2010; Yiannas, 2008).

Future research may employ this methodology to evaluate its applicability to other distinct food service categories in dubai, as this research was conducted within a generic framework.

5.10 Summary of the Result.

In this chapter, the researcher examined the food safety culture in Indian, Pakistani, Philippine, Arab, and international ethnic groups. Food handlers rated financial inadequacy, management commitment, food safety risk perception, management and co-worker support, and knowledge and trust in the food safety management system in different cuisines differently. An analysis of food safety cultures in Indian, Pakistani, Philippine, Arabic, and international cuisines found that international and Arabic cuisines have the financial stability to manage food safety, while Indian, Pakistani, and Philippine cuisines do not. Pakistani, Arabic, and international cuisines had positive management commitments, whereas Indian and Philippine cuisines did not. Indian, Arabic, and international cuisines see food safety risks positively, but Pakistani and Philippine cuisines perceive them negatively. Indian, Pakistani, and Philippine foods had good management and colleague support, whereas Arabic and international cuisines did not. The research concluded that all five cuisines had low understanding and trust in the Food Safety Management System and relied on basic food safety procedures to ensure food safety and hygiene. Food safety and national culture were strongly correlated among Indian, Pakistani, Philippine, Arabic, and international ethnic groups.

6.0 Research validation

6.1 Research Findings

The research's findings highlighted five primary factors that affect food safety performance: financial inadequacy, management's commitment, food safety risk perception, management and co-worker support, and knowledge and trust in the food safety management system. Management's role and commitment to food safety were emphasized in food safety outcomes.

6.2 Research Validation Process

The research findings were presented in the preceding section. However, it is essential to verify the authenticity of the results to assess their reliability. Validation techniques were conducted to determine validity. The primary goal of conducting research is to generate outcomes that can enhance existing practices. It is essential to verify the validity of these findings to guarantee that anticipated process enhancements may be consistently achieved in practical situations. Hair et al. (2010) define validation as the process of assessing how well a tool measures what it is supposed to measure with effectiveness and accuracy.

Validation, as defined by Bryman (2016), involves applying research findings to a sample population to gather feedback on the results. The research sought validation of the data from specialists in food safety and hygiene in Dubai. Validation team members were chosen among the food safety officials. The data collected from participants is credible, indicating the researcher's competence. The researcher employed purposive sampling to select experts for validation processes based on their relevance to the research theme and their potential to provide valuable data. The aim was to involve experts familiar with working in Dubai, particularly with Dubai Municipality. Experts were selected via purposive sampling based on their expected attributes and expertise. Experts are required to assess the accuracy and representativeness of the findings before conducting the validations. Four experts were consulted to validate the draft findings, and the final research 's results were established after the validation procedure. All experts replied by

email. The validation involved two senior food safety professionals from Dubai Municipality and two principal food safety specialists from the Dubai Municipality Food Safety Department. Overall, participants were satisfied with the results and did not make any alterations.

6.3 Summary

Experts were consulted in this research to assess the trustworthiness of the results, as this approach allows participants to choose how accurately the findings reflect reality. Furthermore, the validation results from the four experts were discussed. The overall expert comments were positive and did not include any suggested factors to be taken into account. All experts expressed approval of the categorization of the research topics. Management's dedication and responsibility for food safety were highlighted in food safety results. This commitment from management to food safety may involve ensuring proper PPEs, supplying enough equipment and utensils, participating in food safety training, and implementing corrective measures.

7.0 Conclusion and Recommendation

7.1 Introduction

This chapter marks the completion of the investigation, which commenced with the literature evaluation and progressed through the research design, data collecting, and analysis. It culminates with the presentation of the findings and the derived conclusions. The primary objective of this research was to ascertain the influence of national culture on food safety in Dubai. The research aimed to formulate recommendations for enhancing food safety ratings among food enterprises in Dubai.

This research commences with a concise overview of the research objectives and on to elaborate on the key findings that successfully fulfill these objectives. This chapter is divided into five sections. The text commences by providing an overview of the research and presents a concise summary of each individual chapter. Furthermore, it provides a comprehensive analysis of the research 's merits and addresses its constraints. Furthermore, an analysis will be conducted on the empirical statements derived from the developing discoveries. Additionally, this research will propose future research topics and provide a model based on current data reinforced by the findings of this research. This research will thereafter provide a number of recommendations and ultimately finish with a closing statement.

7.2 Thesis Overview and Summary

7.2.1 Research Aim and Objectives

This research employed a qualitative methodology, utilizing a questionnaire administered to a sample of thirty individuals working in the food service industry. The material from the thirty interviews was analyzed using qualitative content analysis in order to obtain a comprehensive understanding of the situation. The data obtained from the interviews was examined to gain a comprehensive understanding of the existing food safety practices applied in food enterprises in Dubai. This facilitated the analysis of the correlation

between food safety behaviours and national culture, enabling us to tackle issues related to food safety and hygiene, scrutinize the research discoveries and suggestions from the standpoint of experts, and formulate conclusive proposals and guidelines for future research in this field. The subsequent sections illustrate the successful attainment of the research objectives. The text begins with an overview of the research's contributions, followed by an analysis of its shortcomings and suggestions for future improvements.

The objective of this research is to examine the impact of national culture on food safety practices in Dubai's food enterprises and provide suggestions for improving safety measures.

- To explore the national culture, viewpoints, and perspectives of food handlers that influence the food safety culture.
- Determine the relationship between food safety culture and changes in cultural factors among the different nationalities in Dubai to determine whether it is related to food poisoning in Dubai.
- Evaluate the underlying cause of recurrent low food safety ratings (Grade D and F) in Dubai from distinct groups of food facilities and its relationship with the food safety culture.
- Make recommendations on how to enhance food safety in Dubai based on the findings.

The research effectively accomplished its goals, and the results of the several research methods employed are presented here.

Chapter One – Introduction

This chapter provided a clear explanation of the research's history and problem, which served to support the research's aims, objectives, and chosen approach. The chapter commences with an explicit declaration outlining the research query. This review examines the existing literature on how national culture influences the food safety culture of workers.

Dubai filled a void in worldwide literature, specifically in terms of studying the impact of national culture on food safety. In addition, Chapter one included concise information regarding the research scope and offered a summary of the research.

Chapter Two – Food Safety Literature Review (objectives 1)

Chapter two fulfills the goals of a comprehensive analysis of the literature on food safety and food safety culture. Moreover, the chapter provides a comprehensive analysis of the food safety climate and various approaches to food safety, evaluating their direct influence on food safety. Furthermore, the examination of the impact of national culture is also conducted. This literature study establishes the connections among the food safety climate, food safety culture, food safety performance, national culture, and food safety behavior. The literature evaluation comprehensively analyzed the subject matter, encompassing both a broad and specific focus on food safety. The produced data revealed significant problems that need to be addressed.

Chapter Three – National Culture Literature Review (objectives 1)

In Chapter three, many types of national culture are examined, highlighting their key aspects. This is accomplished by evaluating their strengths and weaknesses. Additionally, it analyzes the rationale behind the utilization of six cultural characteristics that have been recognized as key determinants in the performance of food safety: commitment of management, leadership, communication, understanding of risks, perception, and behavior related to taking risks (Griffith, Livesey, and Clayton, 2010).

Chapter Four – Research Methodology

This chapter provides an overview of the qualitative techniques that can be employed as strategies in this research. In addition, this chapter also evaluated the research methodologies utilized in this research, including an analysis of the

research framework. A questionnaire was created, and the responses obtained from it were utilized to accomplish the objectives.

Chapter Five – Qualitative analysis **(objectives 2 and 3)**

Foodborne illnesses continue to exist despite current food safety protocols, indicating the insufficiency of these measures in guaranteeing food safety. Food safety culture is now acknowledged as a significant issue that impacts the food safety performance of food establishments. This research aimed to investigate the impact of national culture on food safety within different ethnic groups, like Indian, Pakistani, Philippine, Arab, and international. Food handlers perceived financial deficiency, management commitment, food safety risk perception, management and co-worker support, and knowledge and trust in the food safety management system differently across various cuisines. An examination of the food safety cultures in Indian, Pakistani, Philippine, Arabic, and international cuisines indicated that international and Arabic cuisines possess sufficient financial resources to handle food safety, whereas Indian, Pakistani, and Philippine cuisines lack financial stability. Positive management commitment was observed in Pakistani, Arabic, and international cuisines, while negative management commitment was observed in Indian and Philippine cuisines. Indian, Arabic, and foreign cuisines positively influence the perception of risk, but Pakistani and Philippine cuisines hurt food safety risk perception. Positive management and colleague support were found in Indian, Pakistani, and Philippine foods, whereas they were unfavorable in Arabic and international cuisines. The research showed that all five cuisines had low understanding and trust in the Food Safety Management System and mainly used basic food safety practices to ensure food safety and hygiene. The research showed a strong relationship between food safety and national culture in Indian, Pakistani, Philippine, Arabic, and worldwide ethnic groups. In Dubai, understanding how national culture impacts food safety in various ways is expected to help improve food safety measures at establishments catering to numerous ethnic communities.

Chapter Six -Research findings validation and discussion

Expert opinions were solicited in this research to assess the trustworthiness of the results, as this approach allows participants to determine the degree to which the findings accurately reflect reality. The validation process involved the participation of four specialists, specifically two senior food safety officials and two primary food safety officers from Dubai Municipality. The findings suggest that, overall, the expert assessments were favorable. All the experts expressed contentment with the categorization of the research topics.

Chapter seven -Conclusion and recommendation (objective 5)

This chapter concisely presents the research findings, together with an elucidation of their contribution to the existing literature, research recommendations, and a conclusion.

7.3 Research Contribution

This research aims to present a complete framework that enables food handlers, supervisors, and food facility owners to efficiently address various food safety and hygiene concerns. These ideas are specifically customized for food companies and can be implemented in establishments of any size. These research contributions also provide guidance for work situations involving a large number of food handlers, as well as for staffing organizations that supply workers to food establishments.

7.3.1 Research Contribution to Knowledge

The investigation on food safety culture within ethnic restaurants in Dubai is unique in various aspects when evaluated with similar studies internationally. It addresses a fundamental element of food safety culture within a multicultural context.

- **Multicultural Environment and Workforce**

The research examines food safety culture within five distinct ethnic groups (Indian, Pakistani, Filipino, Arab, and International) in Dubai, a city recognised for

its international setting. This research is distinctive since it investigates food safety among a group of food handlers characterised by varying cultural backgrounds, an area that has not been thoroughly examined in multicultural environments such as Dubai.

- **Comparison of Ethnic Groups**

The research examines food safety culture among several ethnic communities, including Indian, Pakistani, Filipino, Arab, and international restaurants, offering a detailed comparison of their practices, values, and challenges. It investigates if food safety culture differs markedly among these groups. This research is among one of the few investigations that explicitly examine the influence of ethnicity on food safety culture inside a unique city where various ethnic groups coexist.

- **Concentrate on the food establishment in an international hub**.

The restaurant sector in Dubai, a worldwide city and significant tourism and commerce centre, is marked by considerable diversity, serving both residents and international visitors. Dubai's status as a worldwide tourism hub introduces a complexity to food safety culture that may be less apparent in other international studies, which often emphasise localised or less interconnected contexts.

- **Impact of Immigration and Expatriate Communities**

The presence of immigrant populations from particular countries (e.g., India, Pakistan, the Philippines) directly impacts culinary traditions within the hospitality sector. This research examines the influence of immigration and the expatriate workforce on food safety culture, a variable that may be less prominent in food safety studies in nations with less diversified immigrant demographics.

- **Influence of Dubai's Regulatory Framework**

Dubai's food safety rules are stringent, utilising innovative technology such as AI and blockchain for traceability and inspection. The research examines the interaction between regulatory systems and the diverse food safety cultures of various ethnic groups, assessing whether these communities conform to or contest local regulatory requirements. Dubai's sophisticated regulatory

framework, along with a diverse workforce, provides a distinctive perspective for examining food safety culture, since it necessitates the integration of many cultural viewpoints with advanced food safety protocols.

- **Cultural Viewpoints on Food Safety**

The research examines the variations in cultural values, customs, and attitudes towards food safety among the ethnic groups employed in Dubai's restaurants. This examines the impact of cultural beliefs on attitudes towards food safety and their influence on real food safety practices. This research explicitly examines the cultural factors affecting food safety through a comparative analysis of various ethnic groups in a diverse urban environment.

7.3.2 Research Contribution in the Role of Food Safety Department Director in Dubai.

Performing a nationwide food safety culture evaluation can provide substantial advantages to the researcher in their role as the Director of a food safety department.

Identifying Systemic Issues:

A nationwide research of food safety culture offers valuable insights into the dominant attitudes, behaviors, and practices about food safety in different areas in Dubai. This allows the researcher to pinpoint systemic problems and difficulties that may be causing outbreaks of foodborne illnesses, failure to comply with regulations, or concerns regarding public health.

Informing Policy Development:

A national research of food safety culture can provide valuable insights for the creation of evidence-based policies, regulations, and recommendations with the goal of enhancing food safety standards and practices across the country. Through comprehending the fundamental reasons behind food safety difficulties and deficiencies in the current regulatory structure, the researcher can promote policy modifications and endeavors that tackle recognized areas of concern.

Resource Allocation:

Conducting a nationwide evaluation of the food safety culture assists in determining the most effective distribution of resources and development of strategies within the food safety department. To enhance regulatory compliance and decrease food safety risks, the researcher can optimize the allocation of funding, manpower, and technical support by identifying high-risk industries, geographic locations, or specific food handling procedures that necessitate greater attention and resources.

Monitoring and Evaluation:

Performing regular food safety culture assessments allows the researcher to oversee advancements, monitor patterns, and measure the impact of food safety interventions and efforts over a period of time. Through the establishment of initial measurements and performance indicators, the researcher can evaluate the influence of policy changes, regulatory enforcement actions, and educational initiatives on enhancing the culture and results of food safety.

Stakeholder Engagement:

Involving many stakeholders, such as government agencies, industry associations, consumer groups, and international partners, in the assessment of food safety culture promotes collaboration, openness, and accountability. By actively seeking input and feedback from a wide range of individuals and groups with different interests and perspectives, the researcher can guarantee that food safety policies and initiatives accurately represent the requirements and viewpoints of all stakeholders and are executed in a well-organized and inclusive way.

Crisis Preparedness and Response:

Conducting a nationwide evaluation of the food safety culture improves the country's ability to be prepared and respond effectively to food safety emergencies, such as outbreaks of foodborne illnesses or incidences of contamination. Through the identification of vulnerabilities, flaws, and gaps in the food safety system, the researcher may create contingency plans, protocols, and

communication methods to reduce risks and efficiently handle crises when they occur.

Building Public Trust:

By showcasing a dedication to openness, responsibility, and ongoing enhancement in the implementation of food safety measures, the government may bolster public trust and confidence in its capacity to protect the food supply. By disseminating the results of the food safety culture evaluation to the public and relevant parties, the researcher can enhance transparency, establish trustworthiness, and encourage well-informed decision-making regarding food safety matters.

Conducting a food safety culture assessment at a national level offers the researcher of a food safety department significant insights, tools, and tactics to enhance food safety standards, regulatory compliance, crisis readiness, and public confidence in the food supply. By utilizing the results of the assessment to guide the creation of policies, allocation of resources, and interaction with stakeholders, the researcher may effectively bring about beneficial changes and guarantee the safety and integrity of the nation's food system.

7.3.3 Research contributions to the practice.

Performing a food safety culture assessment provides numerous valuable contributions to the implementation of food safety measures inside an organization:

Enhanced Risk Awareness:

A food safety culture evaluation assists practitioners in identifying potential risks and hazards linked to food handling and preparation procedures. By comprehending the dominant attitudes, actions, and beliefs of food safety inside the business, professionals can more effectively predict and reduce risks, therefore decreasing the chances of foodborne illness outbreaks and other food safety issues.

Improved Compliance and Adherence to Standards:

Evaluating the food safety culture allows food establishment to assess the organization's adherence to food safety legislation, standards, and best practices. Food establishment can strengthen compliance, boost regulatory preparation, and assure alignment with industry standards by detecting gaps or shortcomings in adherence to established processes and implementing targeted interventions.

Empowered Workforce Engagement:

Involving employees in the assessment process of the food safety culture promotes a feeling of ownership, accountability, and empowerment among the food handlers working directly with customers. By seeking input, feedback, and perspectives from employees, food establishment may utilize their knowledge, insights, and experiences to advance continuous improvement projects and foster a shared dedication to achieving food safety excellence.

Effective Training and Education Programs:

A food safety culture assessment provides significant data regarding the precise training and educational requirements of workforce at every level within the firm. To optimize the efficiency of food safety training initiatives and ensure that personnel meet food safety standards, practitioners can customize training programs to target specific areas of knowledge gaps, skill shortages, and areas for improvement.

Data-Driven Decision-Making:

By using data from the food safety culture assessment, food establishment may make well-informed decisions and allocate resources effectively by focusing on recognized risks and opportunities. By utilizing both quantitative and qualitative data analysis methods, experts may detect trends, patterns, and areas that require intervention. This enables them to make informed decisions and allocate resources based on evidence, ultimately leading to the best possible outcomes in terms of food safety.

Promotion of Organizational Learning and Adaptation:

A food safety culture evaluation fosters a culture of ongoing education, adjustment, and enhancement within the organization. Through consistent evaluation of the

food safety culture and ongoing monitoring of progress, professionals can recognize achievements, difficulties, and knowledge gained, allowing the organization to develop and adjust its methods in response to changing situations, emerging risks, and evolving regulatory demands.

Enhanced Organizational Reputation and Trust:

Practitioners can utilize the results of a food safety culture evaluation to improve the organization's standing and establish confidence with consumers, stakeholders, and regulatory agencies. By showcasing a strong dedication to achieving food safety excellence, transparency, and accountability, professionals may distinguish their business as a reliable supplier of safe and top-notch food products and services. This, in turn, will boost the organization's reputation and instill trust in consumers.

Conducting a food safety culture assessment helps ensure food safety by increasing awareness of risks, improving compliance, engaging the workforce, facilitating effective training programs, enabling data-driven decision-making, promoting organizational learning, and enhancing organizational reputation and trust.

7.4 Recommendations

The following recommendations attempt to provide a comprehensive framework for food handlers, supervisors, and food facility owners to effectively manage a range of food safety and hygiene issues. These ideas are specifically tailored for food enterprises and can be applied by establishments of any scale. These recommendations also offer direction for work circumstances involving many food handlers, as well as for staffing companies that provide manpower to food establishments.

7.4.1 Research Recommendations for Practice

Prior talks have revealed that the food establishments in Dubai that do not comply with regulations are facing several intricate issues stemming from financial insufficiency, lack of commitment from management, perception of food safety risks, lack of support from management and colleagues, insufficient expertise,

and lack of trust in the Food Safety Management System. Enhancing food safety performance requires organizations to give utmost importance to fostering a culture that prioritizes food safety. The findings of this reserach provide some strategies that could mitigate the negative influence of national culture on food safety culture. One of the primary measures is to encourage the utilization of food safety culture evaluation instruments that are tailored to the cultural environment in which they are implemented. This will simplify the assessment of fundamental and significant aspects of food safety culture in relation to the specific country being examined. Furthermore, it is essential to create food safety regulations within the specific cultural context in which they will be implemented. As a result, there will be an improvement in both food safety outcomes and food safety ratings. Olsen et al. (2023) provided evidence that the probability of safety training being effectively applied to safety behavior is impacted by the national culture. Dubai Municipality Food Safety department is in the process of adding food safety Culture into the smart food inspection system.

The Dubai Food Code outlines the requirements pertaining to food health and safety. According to these regulations, a food outlet in Dubai must satisfy the minimal criteria to operate. The research revealed a deficiency in awareness and knowledge among employers and employees on the needs in this regard. Dubai Municipality will carry out a food safety and hygiene assessment with a specific emphasis on promoting a culture of food safety and identifying potential risks. Regular inspections of this nature will additionally enhance food safety performance in the long run by promoting increased adherence. Disciplinary measures such as monetary penalties and even the cessation of operations can be imposed on food establishments.

Employers have the obligation to provide their employees with a secure working environment, as well as the necessary equipment and supplies. It will only be present within a comprehensive organizational culture where all individuals

working in the business are dedicated to ensuring food safety and hygiene. Ensuring food safety must be the primary concern for any food establishment, with absolutely no tolerance for compromising safety. Management must exhibit dedication to perpetually enhancing the food safety culture to guarantee food safety.

The food safety policy should clearly articulate the senior management's dedication to ensuring food safety and hygiene. To ensure the attainability of the policy's objectives, it is imperative for senior management to allocate sufficient resources, offer assistance for the food safety program, and provide ongoing support to assess and resolve any potential difficulties.
In addition to employing an appropriate training methodology, it is imperative to identify the training requirements prior to formulating the educational interventions. An effective approach to identify these needs is evaluating the knowledge, attitude, and practices of food handlers using a self-reported questionnaire, along with seeing their actual practices. However, within the realm of educational endeavors, the requirements extend beyond mere expertise in one's field to encompass personal aptitudes and interpersonal connections. Hence, it is imperative to identify and implement training programs to evaluate cognitive and soft skills, as these factors significantly impact individuals' conduct and, consequently, food safety.

Food handlers play a crucial role in establishing and maintaining a culture of food safety. The conduct and activities of food handlers, ranging from farm procedures to customer service, have a direct impact on the safety of food and can either minimize or raise the likelihood of foodborne illness. Establishing a proper food safety framework with clearly defined individual roles and duties is crucial. The key components of this dimension encompass activities such as staff education, reinforcement of positive behavior, establishment of appropriate governance, and implementation of measurements. The level of empowerment individuals possess in promoting food safety will directly influence their organization's capacity to

adapt, enhance, and maintain its food safety culture. It is crucial to comprehend that the development of a food safety culture is an ongoing process of enhancement.

Food safety should be integrated into the organization's governance structure and given a prominent position throughout the entire food business. Establishing standards that are in line with the best practices of the global food sector is of utmost importance. Food safety governance in Dubai encompasses various aspects, such as strategic direction, organizational structure and responsibility, rules and standards, risk and issue management, and culture and behaviors. The Dubai Municipality Food Safety Department will prioritize the empowerment of food handlers as a crucial aspect of enhancing the food safety culture. Employees of all hierarchical positions should possess the authority to take charge or instigate constructive transformation.

The competence of food handlers is crucial in establishing and maintaining a culture of food safety. Devoting resources to enhancing staff proficiency in food safety will have a significant impact on the food establishment and its food handlers' capacity to adjust to new circumstances. Development programs should include both specialized technical food safety skills and wider leadership and management talents, such as negotiation, influence, communication, problem-solving, and change implementation. Monitoring the impact of food handlers' development on individual performance and behavior is crucial. A food establishment that effectively adjusts to change is usually defined by empowered staff members who can assume new and demanding duties. Training and education are indispensable instruments. Assessing the level of comprehension and self-assurance among food handlers on their training and education is crucial. They are only likely to execute safe food behaviors and inspire others to do the same if they have a full understanding and confidence. Food handlers across the organization will possess different levels of knowledge, comprehension, and

assurance regarding food safety practices. The levels may vary according to evolving competencies, the introduction of new programs, and changing situations.

Dubai Municipality's food safety department will implement a customized training program to effectively handle these differences. The program will focus on training food handlers according to their specific duties and in their native language. The food safety trainers employed by the training businesses will be closely monitored by Dubai Municipality to ensure the efficient execution of this training and educational initiative.

Effective communication is essential for every human interaction and plays a crucial role in promoting a sustainable food safety culture. Effective communication guarantees that a food establishment's food safety policy is comprehended and acknowledged by all employees inside the firm. The program is supervised by the awareness and applied nutrition section of the Food Safety Department. They utilize multiple communication channels, including posters, meetings, briefings, videos on the Food watch platform, conferences like the Dubai International Food Safety Conference (DIFC), digital coaching, mentoring, feedback and suggestion processes, competitions, awards, and recognition. When combined with equitable and transparent recognition programs, incentives, rewards, and recognition can assist management in directing desirable food safety behaviors. We should develop programs that can adapt to cultural variations inside the food establishments. The Dubai Municipality Food Safety Department will implement a reward and recognition program to identify and incentivize food establishments that demonstrate a superior food safety culture. It can be achieved by analyzing the data obtained from the smart food inspection system, particularly the food safety culture checklist.

7.4.2 Research Recommendations for Policy

The findings of this research can provide valuable insights for future decision-making and guide the development of effective strategies that can be used by various authorities and decision-makers in Dubai. Policymakers must create and implement methods and processes to establish a system-driven approach for promoting a culture of food safety. We should promote an educational philosophy instead of the current culture of blame and disrepute. This approach should foster a culture where employees feel empowered to promptly report any food safety concerns to the appropriate authorities, with the assurance that they will not face any repercussions or be held responsible. The food handlers who report any food safety violations in the company could receive legal protection through the ordinary legal system in Dubai. Policy implementers have the potential to establish a nationwide reporting system, allowing employee groups to jointly assume responsibility for reporting and addressing any safety concerns they witness.

7.4.3 Research recommendation for Food Establishments in Dubai.

Performing a food safety culture evaluation in food establishments in Dubai can yield several benefits for enhancing food safety practices and standards:

Identifying Strengths and Weaknesses:

Food safety culture assessments aid in the identification of both the strengths and weaknesses in the food safety practices of food establishments. This enables companies to concentrate on areas that require enhancement, such as hygiene protocols, personnel education, or equipment maintenance.

Enhancing Compliance with Regulations:

By evaluating the food safety culture, establishments may guarantee adherence to local food safety legislation and standards established by the Dubai Municipality. This aids in circumventing fines, penalties, and legal complications linked to non-compliance.

Improving Staff Training and Awareness:

Food safety culture assessments can identify the necessity of providing personnel with training and education on food safety measures. Subsequently, establishments can offer specialized training programs to improve worker awareness and understanding, resulting in improved adherence to food safety procedures.

Promoting Accountability and Responsibility:

Assessments promote a culture of accountability and responsibility among staff members with regards to food safety. When staff comprehend the significance of their responsibilities in upholding food safety standards, they are more inclined to follow procedures and swiftly notify any problems.

Reducing Foodborne Illnesses:

Food safety culture assessments aid in mitigating the probability of food-borne illness by identifying and resolving potential hazards and dangers. Establishments can employ proactive steps to manage risks and guarantee the safety of the food they provide to clients.

Enhancing Customer Confidence:

Demonstrating a commitment to food safety through culture assessments can enhance customer confidence and trust in Dubai food establishments. Customers are more likely to patronize establishments that prioritize food safety and adhere to high standards of cleanliness and hygiene.

Encouraging Continuous Improvement:

Food safety culture assessments foster a culture of ongoing enhancement within establishments. Through consistent evaluation of their food safety practices, organizations can discover areas for enhancement and adopt necessary measures to improve their overall food safety performance.

Supporting Business Reputation:

Establishments that prioritize and maintain a robust food safety culture are more likely to have a favorable reputation within the industry. This can result in heightened client loyalty, favorable word-of-mouth endorsements, and sustained economic prosperity.

Food safety culture evaluations are essential for Dubai food establishments to ensure they meet food safety requirements, adhere to legislation, safeguard public health, and preserve a favorable reputation in the market. Through the constant evaluation and implementation of suggested enhancements, establishments can guarantee the safety and welfare of their clients while flourishing in a competitive market.

7.5 General Limitations and Strengths

7.5.1 Research Limitations

In addition to the comprehensive and rigorous studies and analytical procedures employed in this research, it is important to consider the limitations that were identified during the research when interpreting the stated findings. Within a food institution, there exist two distinct categories of obstacles: challenges pertaining to the pre-requisite program, and challenges concerning food safety behavior and culture. The pre-requisite program pertains to the basic criteria that a food establishment must meet in terms of its physical structure, equipment, utensils, and protective gear for people. On the other hand, behavioral problems mostly involve unsanitary practices in food handling by these establishments. The current research primarily examines the behavioral components of food safety. Therefore, the interview guide in this survey mostly addresses safety factors associated with behavioral situations. The research was limited by the extent of link, as it was solely correlational and so unable to definitively establish food safety concerns. This phenomenon can be attributed to the limited sample size of the current investigation. Every scientific endeavor is inevitably bound by constraints, which must be transparently acknowledged to facilitate efforts in addressing and overcoming them. Consequently, this research encountered certain constraints, which will be elucidated in the subsequent part.

7.5.1.1 Time Challenges

The researcher encountered challenges during the process of data collection. The anticipated ethical approval was not obtained within the specified timeframe due

to delays in the review procedure caused by the food facility owners. As a result, the survey and interviews were postponed until then. The researcher had challenges in allocating sufficient time for data collection due to the need to conduct interviews and administer questionnaires to participants, who were situated in diverse food businesses across numerous regions in Dubai.

7.5.1.2 Interviews Language

The interviews were primarily conducted in English, with the exception of five food handlers who were from India and Pakistan. These individuals wanted to be interviewed in Malayalam and Hindi, respectively. A significant proportion of food handlers in Dubai were proficient in English as their second language. While Arabic and English are widely spoken in Dubai, it would have been preferable to conduct interviews with all participants in their native language. This approach would have enabled participants to offer more comprehensive narratives of their experiences and viewpoints.

7.5.2 Research Strengths

Despite limitations, this research provides valuable empirical data on the potential factors influencing the behavior of food handlers in specific cuisines throughout Dubai. This notification aims to provide food safety researchers and managers with valuable instructions on enhancing food safety in food facilities.

Utilizing a qualitative research methodology was advantageous for assessing the food safety culture due to its capacity to merge the comprehensive nature of a full investigation with the qualitative interview approach, hence enhancing generalizability. Consequently, this resulted in a comprehensive and extensive comprehension of the societal frameworks associated with the culture of food safety and provided further information within this framework. Every possible endeavor was undertaken to guarantee the accuracy and inclusiveness of the sample.In summary, the utilization of a qualitative approach led to a thorough comprehension of the food safety culture in the non-compliant food establishments in Dubai. Additionally, it offered a potential method for correcting the flaws and improving our understanding of the survey results.

7.6 Recommendations for Future Work

This research investigated food safety concerns within five distinct non-compliant ethnic groups in a food restaurant in Dubai. The findings highlighted areas that warrant further investigation and identified other issues that demand greater attention.

The following are recommendations for potential future studies:

- Additional investigation is required to examine the food safety culture in Dubai. This will enhance the understanding of the food safety culture.

- Difficulties arose when trying to gather precise data on certain food safety concerns, including alterations in manufacturing and expiration dates, the practice of preparing food at home for consumption at food places, and the utilization of expired products. Subsequent investigations could utilize diverse research methodologies to obtain accurate data on the food safety performance at food establishments in Dubai.

- Further research will be carried out at Dubai's food outlets that demonstrate a higher level of adherence to food safety regulations to identify the key variables that contribute to a more robust food safety culture.

- Additional research is required to fully understand and confirm the management's dedication to implementing prerequisite programs in food enterprises.

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