



# Challenges to Compliance and Adherence to Personal Hygiene and Food Safety Among Foodservice Workers in Hospitals of Mogalakwena Municipality, Limpopo Province

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## Abstract:

**Background::** Foodborne illnesses could result from food handlers acquiring bacteria that make them dangerous for humans to consume. Non-adherence to personal hygiene and food safety can impact how well patients' conditions are managed and aggravate illnesses during hospital stay. Therefore, this study seeks to explore factors that may impact adherence to personal hygiene and food safety among hospital food service workers.

**Methods::** Qualitative exploratory study design was used to extract data from food handlers at Mokopane and Voortrekker hospitals in Mogalakwena municipality of Limpopo province, South Africa. Twenty-one participants were purposively sampled, and face-to-face interviews were conducted using voice recorders and field notes for non-verbal cues. Tesch's eight steps, inductive, descriptive, and open coding techniques were used to analyse data.

**Results::** Factors reportedly affecting personal hygiene and food safety include knowledge of the importance of adherence to personal hygiene and food safety, personal preferences and attitude towards personal hygiene, and lack of uniform and inspection. Non-adherence is affected by cultural norms regarding the wearing of wedding rings and bracelets on the wrist.

**Conclusion::** This study recommends regular internal and external food safety compliance and monitoring. The leadership of the hospital's food service department should be strengthened, and food handlers should get regular in-service training.

**Keywords:** Food handlers, Adherence, Personal hygiene, Food safety, Hospital food service, Patients.

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## 1. INTRODUCTION

Food safety is still a significant problem that people, food businesses, and control officials continue to fight against in both industrialized and developing countries [1-3]. Food safety includes certain precautions which should be taken, such as hand washing, to reduce the risk of potentially major health risks associated with handling, preparation, serving, distribution, and packaging of food

[4]. Therefore, safe food handling practices (SFHPs) are essential for the food sector from production to consumption [5]. Food that is handled carelessly by food handlers may acquire germs and become unsafe for consumption by humans [6]. Studies stipulate that the main cause of outbreaks of bacterial foodborne infections is food handlers' improper food handling techniques [7, 8]. Such outbreaks negatively impact

people's well-being, enjoyment, and economies in a number of ways [5]. Over 2.2 million people each year die from consuming contaminated food or water [9]. Children from developing nations make up the majority of these deaths [9]. In the WHO African Region, foodborne diseases (FBDs) are considered to be the cause of 91 million illnesses and 137,000 fatalities each year [9]. Diarrheal diseases are the root cause of 70% of FBDs in the region [10]. Contaminated food accounts for 10% to 20% of FBD outbreaks [5].

Food handlers are essential for ensuring safety and preventing contamination throughout the cycle of food production, processing, storage, and preparation [11, 12]. Without following proper food safety and hygiene procedures and intense personal hygiene, food can quickly be infected with dangerous pathogens, rendering it unhygienic and hazardous to consume. To make sure that the food is safe to eat, it is crucial to follow food safety and hygiene regulations [13]. Food handlers can always contribute to the maintenance of food safety by handling food properly to avoid spreading harmful pathogens, helminths, and other intestinal protozoa [14, 15]. A worker is deemed to be a food handler if they handle food at any stage (storage, preparation, production, selling or serving) or come into contact with any utensils or tools that could come into contact with food, including silverware, plates, bowls, or cutting boards [15, 16]. The spread of foodborne pathogens from kitchen personnel to clients can be slowed down by SFHPs [5]. It is essential to maintain proper personal hygiene and follow safe food handling procedures to avoid illnesses spreading from food workers to customers [17, 18]. Restaurant food handlers who disregard appropriate food handling protocols are thought to be responsible for about 75% of incidents of food-borne disease [19]. Food handlers should properly follow the standards of food safety to eliminate contamination [20]. Inadequate food handling practices are a concern to food safety compliance officers because their jobs regularly require them to come into contact with food [18].

Age, education, employment history, training, and regulatory staff hygiene inspections have all been demonstrated to significantly influence how food handlers maintain safety [9]. A significant amount of the population is fed by the hospital's food service department. Cooking vast quantities of food increases the risk of acquiring a foodborne illness [21]. Protecting people from major health risks, such as those brought on by contaminated food, is referred to as health security [5, 22]. Violations of personal hygiene and food safety might impact how well patients' conditions are managed and aggravate illnesses that patients contract while receiving hospital treatment. Hospitals frequently admit patients with weakened immune systems, who are vulnerable to infections, including foodborne illnesses. A healthy diet, on the other hand, plays a role in the healing process. Understanding factors that impact personal hygiene and food safety during food preparation and production in hospitals is crucial. Hence, the aim of this study is to determine factors affecting food safety and personal hygiene in Mogalakwena municipality, Limpopo province of South Africa.

## 2. RESEARCH METHODOLOGY

### 2.1. Research Method and Design

A qualitative exploratory study design was used in this study. The hospital food service workers were interviewed, probed, and the factors influencing adherence to personal hygiene and food safety were finally described.

### 2.2. Study Setting

The study was conducted at the food service units of the Mokopane and Voortrekker hospitals in Mogalakwena municipality, Limpopo province of South Africa. These hospitals accommodate patients with a range of illnesses who need nutritious meals for recovery or management. Moreover, hospitals have food services units where food is prepared, dished, and distributed to the wards for serving patients. The food is prepared by the food service workers.

### 2.3. Participants and Sampling

Only food service workers with six months or more experience who speak English, IsiTsonga or Sepedi, were included in this study. A total of 21 participants who met inclusion criteria were purposively sampled based on data saturation.

### 2.4. Instrument and Procedure for Data Collection

Participants were interviewed using an unstructured interview guide to elicit details about factors influencing adherence to personal hygiene and food safety. Face-to-face interviews were conducted with 21 participants who provided informed consent. These interviews were recorded using voice recorders and field notes for non-verbal cues observed. The principal question for the interviews was, "*Kindly describe factors impacting compliance with personal hygiene and food safety*". Additional questions asked include the advantages of adhering to personal hygiene and food safety standards. When was the hospital's compliance evaluated? Do you wear the proper attire to ensure your personal hygiene? What are your views on personal hygiene and food safety? Do you hold any cultural beliefs that might affect how well you practice personal hygiene? However, probing questions were based on the participants' responses. Data were gathered by student dietitians who had received training in conducting one-on-one interviews and interrogating participants.

Additionally, a pilot study was carried out in the presence of the supervisor to equip data collectors with the required skills. Participants and findings of the pilot study were not included in the main study. Interviews with respondents took 15-30 minutes, and the data collection process was completed within 2 months. The researcher used bracketing, intuiting, and reflective remarks during the interviews. For bracketing, the researcher laid aside what is known about factors affecting food safety and personal hygiene to avoid preconceived ideas and beliefs. For intuiting, the researcher adhered to the questions in the interview guide and remained naïve for the avoidance of his own views. Lastly, for reflection, the researcher reflected on interesting remarks from respondents to

encourage them to elaborate by stating, “So what you are actually saying is....”

**2.5. Standards of Rigor**

Researchers ensured credibility, transferability, confirmability, and dependability through trustworthiness, as shown in Table 1a and b.

**2.6. Data Analysis**

Every interview was recorded on audio and transcribed afterward. Before being analyzed by the researchers, the interviews conducted in Sepedi or isiTsonga were first translated into English by a language translator. Each researcher performed an independent analysis of the verbatim transcripts, including supervisors. Themes and sub-themes were agreed upon by all researchers during a meeting. Participants' own words were directly quoted to corroborate the findings. Creswell used the eight steps of Tesch's open code method to analyse the data [23].

**2.7. Ethical Issues**

Human participants were used in the study in accordance with the necessary ethical standards. The research was approved by Turfloop Research Ethical Committee (TREC) at the University of Limpopo, which

also provided clearance certificate number TREC/490/2022:UG. The clinic manager and the Limpopo Department of Health (DOH) approved the study's execution. Participants signed an informed consent form, attesting to their free will to participate. The participant's data privacy and confidentiality were also upheld.

**3. RESULTS**

**3.1. Socio-demographic Profile**

Table 1a and b shows that a total of 21 participants took part in this study, of which 17 were aged between 20-40 years and 16 were females. Moreover, 15 had tertiary education, and 13 had 06 months to 3 years of working experience.

**3.2. Themes and Sub-themes**

**3.2.1. Theme 1: Factors Affecting Compliance and Adherence to Personal Hygiene**

Participants in this study discussed factors that affect food safety and adherence to personal hygiene standards. Reported factors affecting compliance and adherence include cultural norms regarding wearing rings and bracelets on the wrist at all times of the day, workload and staffing concerns, personal preferences, attitudes, a lack of uniform, and inspection.

**Table 1a. Standards of Rigor.**

Strategy	Criterion	Applicability
Credibility	Prolonged engagement	Dietitians in training who were performing practicals in those hospitals gathered the data. The participants were engaged in extensive conversation by the researchers.
	Triangulation	In order to gather information, researchers conducted interviews and observations that advanced their understanding.
	Member checks	After data analysis, participant confirmation interviews were held.
Transferability	Data saturation	Saturation in the data collection process was reached after 21 individual interviews, and collection ceased.
	Detailed description	The study's methodology, subjects, and research setting were thoroughly outlined to enable the study's replication in different settings.
Confirmability	Peer review	The three researchers involved in data collection, including supervisors, analyzed independently. Subsequently, themes and sub-themes were consolidated and agreed upon at the consensus meeting.
	Neutrality	Throughout the data collection and prolonged engagements, the researcher remained impartial and detached.
Dependability	Full description of research methods	The methodologies for the research are fully explained, including procedures, data collection methods and analysis.
	Reliance on supervisors and data gathering methods.	The researcher depended on the voice recorder, field notes, and supervisors.

**Table 1b. Demographic profile of participants.**

Demographic Profile	Category	N=21
Age	20-40 years	17
	40-60 years	04
Gender	Male	05
	Female	16
Education level	Secondary	06
	Tertiary	15
Years of experience	06 months - 3 years	13
	>3 years	08

### **3.2.1.1. Sub-theme 1.1: Culture Beliefs on Always Wearing Jewelry**

The study's participants emphasized the need of wearing wrist bracelets for protection against witchcraft, and not doing so puts them in danger of losing their lives. Participants who were married said they had to wear their wedding rings always. These are supported by the following quotations:

#### **3.2.1.1.1. Participant 8**

*"I wear a wrist bracelet for protection against evil or witchcraft, so I cannot easily take it off; hence I must always wear it even when at work preparing food, and my manager agreed to this,"*

#### **3.2.1.1.2. Participant 18**

*"My spouse and in-laws, as well as society, want me to always be wearing the wedding ring, therefore, I can't remove it, and I don't want to lose it."*

### **3.2.1.2. Sub-theme 1.2: Workload and Lack of Staff**

Food service handlers mentioned that it is difficult to adhere to personal hygiene as they have a shortage of staff and a lot of work to do. This is evident in the following claims by participants:

#### **3.2.1.2.1. Participant 13**

*"There is a lot of pressure in the food service unit; we have to prepare breakfast, lunch and supper within a short period of time while we are understaffed. We don't have time to clean; the aim is to deliver food on time."*

#### **3.2.1.2.2. Participant 17**

*"There is staff shortages, and we have to prepare food fast, then we are in a hurry to give patients food, and sometimes we forget to wash our hands."*

### **3.2.1.3. Sub-theme 1.3: Attitudes and Personal Choices**

Attitude can determine the outcomes of actions. Participants in this study highlighted attitudes toward regular washing of uniforms, as evident in the following quote:

#### **3.2.1.3.1. Participant 7**

*"I cannot wash uniform daily. It is me who is cooking, not the uniform."*

### **3.2.1.2.4. Sub-theme 1.4: Lack of Uniform**

The uniform is critical in the adherence to personal hygiene and food safety, and lack thereof poses a challenge. Participants indicated that lack of uniform is a factor in not adhering to personal hygiene. This is supported by the following quotations:

#### **3.2.1.2.4.1. Participant 1**

*"We don't have the proper uniform, we are forced to make plans or compensate, we using old uniform which is no longer proper."*

#### **3.2.1.2.4.2. Participant 10**

*"We have been requesting uniforms without being given. I only have one uniform, which I must repeat when I come to work."*

### **3.2.1.2.5. Sub-theme 1.5: Lack of Inspection or Compliance**

In order to produce uncontaminated food that is safe for consumption, food service units should undergo routine inspections to determine compliance with personal hygiene and food safety standards. However, participants brought up the lack of an inspection. The quotes below support this:

#### **3.2.1.2.5.1. Participant 1**

*"I have never come across such a situation wherein we were evaluated for personal hygiene and compliance with food safety standards. The only thing matters is the delivery of food on time, not how they were prepared."*

#### **3.2.1.2.5.2. Participant 4**

*"I have worked in this hospital for a number of years. I don't remember when last we were assessed for personal hygiene and food safety."*

### **3.2.2. Theme 2: Knowledge of Food Safety and Personal Hygiene**

Knowing the basic principles of personal hygiene and food safety can assist food handlers in conforming to regulations because the information is important and impacts practices. The following sub-theme demonstrated participants' understanding of food safety and personal hygiene:

#### **3.2.2.1. Sub-theme 2.1: Benefits of Personal Hygiene and Food Safety.**

The prevention against foodborne infections and protection of the health or well-being of the people are advantages of adhering to personal hygiene and food safety. Participants were aware of the advantages of maintaining personal hygiene and food safety, and they indicated that doing so reduces the possibility of food contamination. They have stated that patients may develop infections from unhygienic practices. The quotes below support these:

#### **3.2.2.1.1. Participant 10**

*"When you are not clean, you transfer your bacteria, and food will be contaminated"*

#### **3.2.2.1.2. Participant 16**

*"If you do not follow the personal hygiene protocols, there will be cross-contamination because bacteria will be transferred to the food and will increase hospital stay by aggravating patients' condition or developing additional infections."*

## **4. DISCUSSION**

This study intended to determine the factors



influencing or impacting hospital food service personnel compliance with personal hygiene and food safety standards in Mogalakwena municipality, Limpopo province. Food provides nutrients required for growth, development, repair, immune system support, and sustaining overall health; therefore, it is a necessary source of nourishment [24]. But in other cases, food may also be harmful to human health, particularly when it is contaminated by contact with other bacteria, minor viruses, parasites, and chemical toxins [25].

The participants in the study showed knowledge about personal hygiene standards and the dangers of not upholding them, which include the possibility of contracting foodborne diseases. Since knowledge is essential for safe food handling, several studies have focused on raising consumers' awareness of food safety [26-28]. Knowledge and application are intertwined. A mixed-method study of street food workers in Ghana revealed that those who had a thorough understanding of the industry and the importance of personal hygiene and food safety maintained good hygiene practices [29]. Knowledge alone is insufficient for adherence. Other elements may affect adherence, including lack of formal education, routine medical examinations, handwashing stations, disapproval of food hygiene standards, and lack of food safety training [30]. Participants in this study mentioned that cultural norms, such as wearing wedding rings or wrist bracelets, may influence their adherence to or compliance with food safety requirements. According to the interviewees, it is mandated by their cultural beliefs for them to always wear their wedding rings and wrist bracelets. In accordance with a study by De Freitas and Stedefeldt [31], problems, such as a lack of kitchen workers and workforce overload, may cause people to disobey some personal hygiene recommendations. Perhaps the fact that these jewellery items are worn at work by food handlers is due to their lack of knowledge regarding this aspect of the jewelry ban. Hence it is recommended to continuously educate the food handlers. The absence of uniforms was another issue raised by participants as a major deterrent to compliance. Uniformity is an essential element of the hazard analysis key control points system, which provides the framework for monitoring the entire food system from production to consumption in order to reduce the risk of foodborne illness by identifying and resolving potential problems before they develop [32, 33].

Participants mentioned that they do not have enough uniforms and are therefore required to wash their single uniform every day. On the other hand, participants indicated not washing it daily due to their disagreement or negative attitude towards the expectation of daily washing of uniform, instead of being provided with a sufficient uniform to change daily. According to Muchiri, Gericke, and Rheeder [34], attitude is one of the key factors influencing behavior modification or practices. Vargas-Sánchez [35] defines attitude as a person's perspective and evaluation of something as well as their predisposition to react positively or negatively to specific concepts, things, people, or situations. The actions a person takes as

a result of their experiences are said to make up their attitude. It was shown that food handlers' attitudes and understanding of food safety are connected to their adherence to kitchen hygiene and disease prevention practices [36]. With regard to beliefs and attitudes, adapting to risk entails thinking and feelings. This significantly affects the mindset and actions of food handlers [37]. Additionally, having a positive perspective or attitude encourages proper food preparation, particularly when handling raw and unwrapped food, and regular hand washing stops the spread of foodborne diseases [36]. Food handlers with negative attitudes may not maintain personal cleanliness despite being aware of its significance [37].

Participants in the investigation stressed the lack of personal hygiene and food safety inspections and did not recall when they were assessed. Government institutions in many poor countries do not enforce such inspections for food safety protocols [38]. The participants wearing jewelry and regularly unwashed uniforms claimed to have a lack of inspections. The absence of assessment or inspection may cause participants' views to change and lead food handlers to consider personal hygiene and food safety as insignificant. The wearing of jewelry and neat uniform would have been dealt with if there had been supervision and compliance monitoring.

Additionally, a lack of monitoring might be a sign that the supervision of the food service unit needs to be strengthened. The constant monitoring of established standards through inspections is essential to the enforcement procedures in food safety control systems [39]. Strengthening food service management and regular training will guarantee that employees adhere to procedures and that production continues to function safely and effectively [40]. Since hospitals routinely take in sick patients with weakened immune systems and other problems, this study advocates prioritizing food safety compliance and monitoring. It is necessary to implement both internal and external monitoring. Self-adherence audits and reviews, ongoing training, and in-service education are also recommended.

## CONCLUSION

Food handlers are conscious of the importance of maintaining personal hygiene and the need to uphold food safety and hygiene standards in order to avoid foodborne infections, which are a public health problem. Yet they do not adhere to appropriate practices due to factors, such as cultural expectations of always wearing jewellery, workload and poor staffing, attitudes, and lack of oversight of adherence to food safety and personal hygiene standards. The study recommends that regular internal and external food safety compliance and monitoring should be done properly. It is also suggested that the leadership of the hospital's food service department is strengthened and food handlers get regular in-service training, including the provision of sufficient uniforms.

**RECOMMENDATION**

The study recommends that regular internal and external food safety compliance and monitoring should be done.

**DISCLAIMER**

The authors of this manuscript express their own views and not the position of the University of Limpopo.

**LIMITATIONS**

The study reported knowledge of the benefits of adherence to personal hygiene and food safety. However, no associations were determined between knowledge and attitude, which was also cited as a factor in non-adherence. A lack of inspection was reported; however, this cannot be generalized to all hospitals in Limpopo, but the study can be replicated in other hospitals.

**AUTHORS' CONTRIBUTION**

Mphasha supervised the study and conceptualized the manuscript. Tleane co-supervised the study and edited the manuscript. Sibiya, Sithole, and Nkwane were project leaders of the overall study, responsible for data collection and interpretation. All authors read and approved the final manuscript.

**ETHICS APPROVAL AND CONSENT TO PARTICIPATE**

Human participants were used in the study in accordance with the necessary ethical standards. The research was given the go by the Turfloop Research Ethical Committee (TREC) at the University of Limpopo, which also provided clearance certificate number TREC/490/2022:UG. The clinic manager and the Limpopo Department of Health (DOH) approved the study's execution.

**HUMAN AND ANIMAL RIGHTS**

No animals were used in this research. All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

**CONSENT FOR PUBLICATION**

Participants signed an informed consent form attesting to their free will to participate.

**STANDARDS OF REPORTING**

COREQ guidelines were followed.

**AVAILABILITY OF DATA AND MATERIALS**

Not applicable.

**FUNDING**

None.

**CONFLICT OF INTEREST**

The authors declare no conflict of interest, financial or otherwise.

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