

Enhancing Occupational Health and Safety Standards in the Food Service Industry: A Case Study of Frangoz Restaurant, Sialkot

Research Article

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Abstract

Maintaining high standards of occupational health and safety in the food service industry is essential to protect employees and customers. This research assesses safety protocols at Frangoz, psychological stress factors for staff. Although basic safety measures like fire extinguishers are in place, gaps in hygiene, staff training, and the use of protective gear were noted. The study recommends enhancing safety with improved training, personal protective equipment (PPE) provision, and stricter hygiene practices. Data collected through questionnaires on personal hygiene and PPE revealed that only a minority of workers understand occupational health and safety, with 35% aware of personal hygiene standards and 45% skeptical of PPE effectiveness. This points to a need for comprehensive training to ensure PPE is used correctly, ultimately reducing workplace hazards.

Keywords: Food Hygiene; Food Safety; Public Health Risks; Public Health Hazards; OHS; PPE's; Training

Abbreviations

OHS: Occupational Health and Safety; PPE'S: Personal Protective Equipment's; WHS: Work Health and Safety; OHSA: Occupational Health and Safety Act; HSWA: Health and Safety at Work Act; WHO: World Health Organization.

Introduction

Ensuring the safety and security of our food source is essential for building a sustainable future. The food sector has emerged as a pivotal and swiftly expanding industry on a global scale in recent times. As workers become more informed about their rights within the business, legal, and industrial realms, and as their awareness grows regarding the serious and enduring health consequences linked

to producing specific industrial goods, there is a continuous effort to reassess and enhance rules and guidelines to reduce avoidable hazards for employees.

The food system needs to be mandated to ensure that nutritious, safe food is accessible to everyone, a task it is presently not accomplishing. Effective actions within the food system to enhance nutrition and prevent foodborne illnesses necessitate coordinated efforts that enhance the availability of nutrient-rich foods while concurrently enhancing safety measures. The balancing act between food safety and security poses significant hurdles; for instance, in the development of circular food production systems that recycle nutrients, there is a risk of pathogens accumulating within the cycle.

There are many acts which are made for the sake of protection

of workers from hazards which commonly prevail in any workplace. These acts and laws are made for protection of workers. These laws and acts include OSHA, Occupational Health and Safety Act 2004, HSWA, Health and Safety at Work Act 2015 etc. There should be Work Health and Safety (WHS) regulators to enforce a law for protection of workers.

Laws under OHS Which Pakistan Follows

There is no special independent law on occupational health safety and health issues in Pakistan. Following are the laws which Pakistan follows:

- Factories Act 1934
- Hazardous Occupational rules 1963
- Dock laborers law 1934
- Mines act 1923
- Workmen Compensation Act 1923
- Provincial Employees Social Security Ordinance 1965
- West Pakistan Shops and Establishment Ordinance 1969
- Boilers and Pressure Vessels Ordinance 2002
- Pakistan Environmental Protection Act 1997
- The Agricultural Pesticides Ordinance 1971
- West Pakistan Labor Camps Rules 1960

These laws say that it is right of every worker to have access to cleanliness, proper ventilation and temperature, dust and fumes protection, avoid overcrowding, proper lighting, safe drinking water, latrines and urinals, spittoons, precautions against contagious and infectious diseases, compulsory vaccination, welfare office, precautions in case of fire, fencing of machinery, floors, stairs, prohibition of women and children near heavy machinery and weight lifting, protection of eyes, room for children, cranes and other lifting machinery. (Azhar, S., & Choudhry, R. M. 2016).

I visited Frangoz restaurant located at Sialkot Cantt for OHS assessment. The restaurant was ISO-14001: 2015 certified which aims to constitute, review and maintain the environmental management system. It provides 14 knowledge about new requirements for leadership engagement, expanded legal compliance requirements, need for risk-based planning and controls, new documentation requirements, expanded operational control requirements, changes in competence and awareness requirements, impacts on the internal audit programs, increased certification costs.

There were many hazards which were prevailing there. These are discussed below:

Hazards prevailing in Frangoz restaurant

Biological hazards

- Burns

Burns can occur when workers are preparing or serving hot

foods or drinks, carrying hot plates or reaching over candles on tables workers are often exposed to the risk of getting burned. The causes of burns can be fire, boiling liquids, or grease burns can create extensive scarring, trauma. Grease related burns can occur when adding frozen foods to hot oil from splatters when adding or removing food or when filtering or changing grease.

The oil used there was more looks like grease. Its color was black which was clearly showing that that oil was repeatedly used. The condition of oil was showing that this oil was using from a long period. Doctors have declared that oil that is repeatedly used is very injurious to health which then causes many problems in body.

- Eye Injury

During cooking or cleaning, worker's eyes become vulnerable to splashes of grease, sanitizing chemicals, and ingredients. Employees should exercise caution when cleaning workspaces and they should wear protective safety glasses when washing dishes or cleaning up broken glass.

- Cuts and Lacerations

Knives and glassware are essential tools in most restaurants yet they increase the risk of someone getting cut with a sharp blade or a piece of broken glass. Knives, mandolins, and other cutting utensils pose other threats for injury when used incorrectly or haphazardly. To help avoid the risk of a cut or laceration knives should be kept sharpened and in good condition. Workers should be regularly reminded how to safely handle and store knives and other sharp equipment.

Unhygienic conditions

- Uncovered food

It is observed that the food which is present in kitchen whether for serving or in processing the food was uncovered. Flies from outside are having contact with the food thus deteriorating food quality. This leads to unhygienic food quality.

- No use of gloves and caps

It was also observed that the chefs who are preparing food were not using gloves. And some of them were not using caps also. This increases the chances of contamination of food either from workers grumpy hand or by mixing of things like hair with food.

Bad sanitary conditions

Bad sanitary conditions were also observed there. The washrooms were dirty. The worker's hand is dirty and majority of workers were in grumpy condition.

Safety hazards

- Slips, Trips, and Falls

Slips, trips, and falls are also observed as common hazards. Walking on uneven floors or walking from tiled to carpeted areas when entering the dining area from the kitchen can also cause busy employees to stumble. Working in congested area while carrying

dishes around blind corners or going through a single door to and from the kitchen can lead to injury.

These common hazards can be avoided by immediately cleaning any spills as well as by placing proper signage in areas with slick floors. By making sure all floors remain clean and dry and passageways and walkways are kept free of clutter and congestion. Safeguard against slippery floors by keeping floors clean and uncluttered and where necessary treating floors with slip resistant coatings or chemical treatments. Use floor cleaning chemicals with effective grease removal and slip resistance properties. When spills occur clean them up immediately and place caution or wet floor signs, until the floor is dry. Wet floor signs alert people that the floor is wet so they can avoid these areas or take extra caution when walking in these spots. Slip-resistant mats are ideal for kitchens.

Rubber mats not only offer better foot grip but provide a softer and more comfortable walking surface that gives the feet, knees, and other joints better protection from strains and other similar injuries that mostly occurs on floor having tiles.

- Strains and sprains

It was observed that waiters and waitresses are at high risk for neck, back, and shoulder strains as a result of awkward postures while serving and clearing tables. Strains and sprains can also be caused by balancing or lifting too many plates or glasses at once, lifting overfilled containers, and moving tables and chairs to accommodate customers. If loads are not handled properly workers may suffer from overexertion when the load that is lifted, carried, pushed, or pulled, exceeds the limits of the human joint system doing the work.

To help workers avoid strains and sprains manager should focus on training workers as to the proper ways to carry and lift heavy items. For example, carrying plates with your elbows close to your body can help lessen the strain on the arms and back and when loading trays attention should be paid to balancing the load evenly to help avoid strains.

Un-trained workers

It was also observed that the workers there have little or no knowledge about hazards. A fire extinguisher was present there but when workers are asked about that they do not have any know how about that. They don't even know for what purpose fire extinguisher was used.

Psychological hazards: It was observed that there is one lady worker among ten male workers. They can easily harass that single lady. This can lead to high level of stress in her which can further lead to depression. In addition, the sitting area is designed in such a way that there is no privacy. If there is a group of girls, the other customers there can harass that group.

Ergonomic hazards: It was observed that the person who was present at reception was continuously sitting their whole day. By sitting the same awkward posture, the worker has got muscle and back pain. Also, it was observed that a strange type of sound rang after time to time. As the sound was very unusual and unbearable it causes disturbance and stress among people there, especially the workers

who are continuously working there.

Aims and objectives

- To check the OHS status of the Frangoz restaurant.
- To encourage the management to prevent occupational illness and injuries among workers. by providing them with personal protective equipment's and to ensure that workers use them.
- To identify the occupational factors and conditions hazardous to health and safety at work.
- To encourage the management of the industry to take active role in conducting trainings for worker's knowledge regarding PPE's and their use. And to train their workers in such a way that they could assist in implementation of occupational health and safety policies at their industry.

Literature Review

Food safety in the food market is a crucial focal point in public health due to its impact on individuals of various demographics globally. Both local and international food industries play a major role in influencing public health through food safety measures. With food supply chains extending across borders, the globalization of health risks is heightened. Hence, this literature review aims to pinpoint prevalent public health risks associated with food safety concerns in the food market.

Facing a multitude of obstacles, global food safety and security encounter significant hurdles amidst the expanding human population. Looking ahead to the 21st century, the emphasis will persist on enhancing worldwide food security through the provision of safe and nourishing food. Within this realm, pivotal issues include microbial contamination of produce, the impact of natural disasters, and the spread of transboundary diseases. These persistent challenges pose a threat to food safety and security, necessitating ongoing dialogue and heightened awareness.

As incomes increase and living standards improve in developing nations, the desire for meat, dairy products, and specialized crops like fruits, nuts, and vegetables has grown (FAO, 2017) [1]. Similarly, consumers in advanced nations have cultivated a liking for distinct items promoted as organic, ethically sourced, or produced locally (Feldmann and Hamm, 2015; O'Connor et al., 2017) [2,3]. The rising need for food has already stretched resources, leading to soil degradation, depletion of diverse ecosystems, and environmental contamination globally, posing fresh hurdles in food security and eco-friendly food cultivation (Tilman et al., 2011).

Moreover, the risk to food safety and security escalates significantly due to disasters and cross-border diseases. Events like fires and floods act as pathways through which pathogens, chemicals, and pollutants, including heavy metals, can infiltrate the air, water, and our surrounding environment where food is cultivated and nurtured (Knorr et al., 2017; Wu et al., 2017; Andrade et al., 2018) [4-6]. To address these issues effectively, it is essential to adopt a comprehensive and organized strategy by forming interdisciplinary groups comprising specialists from academia, corporate sectors, and governmental bodies. The teams must collaborate to involve the public

in outreach and education efforts aimed at helping consumers grasp the significance and intricacy of maintaining animal health, ensuring food safety, enhancing food security, and promoting sustainable food production.

Given the complexity and opacity of food chains, it is our contention that adopting a One Health strategy is imperative for evaluating trade-offs and achieving sustainability (Boqvist et al., 2018)[7]. Furthermore, addressing the emerging issue of food fraud necessitates attention. Achieving the appropriate balance among food production's security, safety, and sustainability entails navigating various concerns and obstacles judiciously.

Food hygiene encompasses the standards and actions needed to guarantee the safety of food from its creation to its consumption. Upholding food safety is a critical aspect of every food production process to ensure that the produced food is suitable for consumption. Ensuring food safety is fundamental, yet there is a risk of it being disregarded during the creation of efficient processes. Food safety has been a persistent concern for human health throughout recorded history, with many of today's food safety issues being familiar. Despite global efforts by governments to enhance food safety standards, the prevalence of foodborne illnesses remains a substantial health challenge in both advanced and emerging nations. A prevalent health concern persists in developed and developing nations due to foodborne diseases. Contamination of food can occur at various stages such as slaughtering, harvesting, processing, storage, distribution, transportation, and preparation. Adhering to proper food handling practices is crucial in averting the majority of foodborne illnesses as outlined in the "Five Keys to Safer Food" manual.

Improper handling of food significantly contributes to the incidence of foodborne diseases. Food contamination and cross contamination risks increase significantly, particularly within lower socio-economic groups, as a result of inadequate environmental conditions, substandard personal hygiene practices, low-quality and limited water resources, as well as unhygienic food preparation, storage, and serving methods. Food safety hazards are contaminants that have the potential to render a food product unfit for consumption. Inadequate adherence to food hygiene standards can result in the occurrence of foodborne illnesses, potentially leading to fatalities among consumers. Following safe food-hygiene practices at different points of food acquisition, storage, preparation, and consumption can greatly reduce the occurrence of gastrointestinal illness due to food contamination (Mathee et al., 2004). The World Health Organization (WHO) has been cognizant for a considerable time of the necessity to instruct food handlers on their obligations regarding food safety. The World Health Organization (WHO) has chosen the theme of Food Safety for World Health Day 2015 to emphasize the critical link between safe food and human health. The goal is to guarantee the safety of food throughout the entire food supply chain, from farm to table (Subba Rao GM et al., 2007).

In the twenty-first century, there exist abundant obstacles when it comes to tackling issues related to food safety and security. This analysis delves into the significance of adopting a One Health strategy in ensuring food safety and security, as well as the various dangers that these sectors encounter in this era. The discussed subjects include:

- (1) One Health Initiatives aimed at Sustainable Food Systems, Food Safety, and Food Security,
- (2) A Concise Overview of Food Safety in the United States
- (3) Rethinking Food Safety in the Twenty-First Century
- (4) Addressing Food Security in the Modern Era.

Food safety is a crucial concern that impacts the entire global population. Numerous nations worldwide are becoming more reliant on the accessibility and safety of their food sources. Food safety is increasingly valued worldwide, prompting the need for safe food production to enhance public health benefits and environmental advantages. Ensuring food safety involves protecting the food supply chain from the introduction, proliferation, or survival of harmful microbial and chemical substances (Uyttendaele, Franz, & Schlüter 2016; Radovanovic 2011) [8-9].

Consuming food that is unsafe due to the presence of harmful bacteria, viruses, parasites, or chemical substances leads to over 200 diseases, spanning from diarrhea to cancers. Approximately 600 million individuals worldwide suffer from illnesses after consuming contaminated food, with 420,000 fatalities annually and a consequent loss of 33 million disability-adjusted life years (DALYs). Children below the age of 5 bear 40% of the burden of foodborne diseases, leading to 125,000 fatalities annually. Diarrheal ailments represent the most prevalent illnesses caused by ingesting tainted food, resulting in 550 million individuals falling ill and 230,000 deaths each year. Nowadays, the integrity of food safety faces challenges due to the expansive reach of global food supply chains (Hawkes, C. 2006; Athukorala, P. C., & Jayasuriya, S. 2003; Uyttendaele, M., Franz, E., & Schlüter, O. 2016) [10,11,8]. Within the international market, there is a risk of food fraud perpetrated by various entities including producers, co-packers, distributors, and other participants in the national or international trade network (Negri, S. 2009; Kruse, H. 2015; Spink, J., & Moyer, D. C. 2011) [12,13].

One of the primary concerns in public health is ensuring food safety within the food market, given its universal impact on individuals of all demographics worldwide. Both local and global food marketing play a crucial role in influencing public health and food safety outcomes. Food distribution networks currently extend across various country boundaries, thereby amplifying the globalization of health hazards (Aung, M. M., & Chang, Y. S. 2014; Wu, F. 2014; Bryden, W. L. 2007; Van Schothorst, M. 2002; Mathews, K. H. Jr., Bernstein, J., & Buzby, J. C. 2003) [14-18]. The purpose of this systematic literature review was to identify prevalent public health risks associated with food safety concerns in the food market. By offering evidence-based insights, this review aims to enhance food safety within the market through the implementation of risk-based strategies. Healthcare professionals, scholars, and policymakers can leverage the outcomes of this comprehensive literature review to safeguard the public against adverse health consequences resulting from the consumption of inadequately quality-controlled foods.

Multiple research investigations have confirmed the capability of human norovirus to bind to and enter different types of fresh vegetable crops (Hirneisen and Kniel, 2013; DiCaprio et al., 2015a,b; Markland

et al., 2017)[19-21]. These studies indicate various pathways through which NoV can penetrate and move to different plant tissues, along with the possible immune reactions of plants to these harmful agents. The research indicates the various pathways through which NoV can enter and move within different parts of the plant, as well as how plants may react immunologically to these pathogens.

Insufficient compliance with food hygiene standards can result in foodborne diseases and even fatalities among consumers. Foodborne illnesses have been linked to inappropriate handling practices such as incorrect storage or reheating (50%), improper food storage methods (45%), and cross-contamination (39%). The surge in the number of individuals dining out has led to a rise in foodborne illnesses due to substandard food handling practices and a lack of awareness regarding personal hygiene. The absence of awareness or implementation of food hygiene contributes to these factors. HACCP, short for Hazard Analysis and Critical Control Points, is a methodical preventive strategy for ensuring food safety by addressing biological, chemical, and physical hazards during production to mitigate the risks and ensure the final product's safety.

The fundamental connections between food safety and nutrition primarily involve physiological aspects, extending beyond the long-term and immediate impacts of either foodborne illnesses or inadequate nutrition in isolation. Some mechanisms traditionally categorized as either causes of foodborne diseases or malnutrition can now be viewed as interdependent physiological reactions within the human body. For example, contracting a foodborne illness can heighten the vulnerability to malnourishment. Environmental enteropathy, a multifaceted condition characterized by inflammation of the intestines and damage to the epithelium, has been linked to impaired growth (Budge et al., 2019; Harper et al., 2018). In contrast, acute foodborne illnesses exhaust the body and can elevate nutrient requirements during the healing process. Exposure to specific food-related dangers could hinder the metabolic functions essential for efficient nutrient utilization or linked to developmental results as indicated by Bahadoran et al. (2015)[22], Cano-Sancho et al. (2017) [24], and Welch et al. (2019)[24].

Factors that pose a challenge to food security involve a lack of access to healthy and safe food items or when there are constraints on consumers' ability to purchase food (Bazerghi et al., 2016). Low-income populations are disproportionately impacted by food insecurity, facing heightened vulnerabilities to hunger and malnutrition.

Rapid urbanization has led to over half of the world's population residing in cities, posing a new obstacle to food security. The reliance of urban dwellers on purchasing food makes the food security of low-income urban residents vulnerable to price hikes or unpredictable fluctuations, especially in nations with inadequate socioeconomic support systems. Therefore, addressing long-term food security has become a key national objective, driving the exploration of new food and animal feed sources as well as the establishment of robust food supply chains. Various reports have tackled these issues.

Achieving freedom from hunger necessitates the harmonious pursuit of both food safety and food security. An essential principle dictates that unsafe food does not address issues of food security. Nevertheless, efforts to guarantee the safety and quality of food may, at times, lead to a reduction in the quantity of available food, potentially exacerbating food shortages. Consumers commonly view best before dates as a signal that food may no longer be safe to eat post-expiration, resulting in more food wastage and jeopardizing food security. Additionally, broad and indiscriminate food recalls contribute to food waste due to safety concerns.

In order to promote human health, it is essential for diets to comprise foods that are both healthy and secure. These foods should facilitate individuals in fulfilling their nutrient needs without surpassing them while also shielding them from foodborne illnesses. Regrettably, this is not the reality for a significant portion of the global population. Various forms of malnutrition impact one out of every three individuals and are linked to economic burdens amounting to as much as \$3.5 trillion USD annually (Global Panel, 2016). Additionally, factors related to diet contribute to around 22% of adult fatalities (Afshin et al., 2019)[25]. The economic burden of these illnesses is estimated to reach \$110 billion USD annually (Jaffee et al., 2018) [26-30]. The anticipated global human population is set to reach 9.7 billion by 2050, posing escalating challenges in securing access to safe, nourishing, and wholesome food. To meet the burgeoning demand, food production must surpass 50% of the 2012 levels by 2050.

Materials And Methodology

Description of study area

A casual survey was conducted in Frangoz restaurant which was located at Pizza- 99 Aziz Shaheed Road, Sialkot Cantt, Punjab-51310.

Frangoz is a restaurant which is very famous in Sialkot city for pizza, burger, fries, fried chicken etc. It is famous for its delicious and tastier food. There are many workers in this place which are supposed to do different kinds of works for example, some are supposed to cut potatoes, some are supposed to do frying. Some is supposed to take orders from customers. Hence, every worker is doing different kinds of job there. They work about 10 hours daily in which shifting of workers is done but even though they spend many hours working the same work because it is demand of their jobs. Some workers also do extra time for sake of having more salary. It's totally up to their choice.

Study design

Study was conducted from the workers working at Frangoz restaurant. The agenda was to examine the OHS hazards and to check the workplace hazard and implementation of health and safety rules at the restaurant workplace.

Methods for data collection

- Through personal observations and interviewing

A survey was conducted in Frangoz restaurant to observe the OHS related hazards. There were many hazards which were prevailing



Figure 1.1: Showing danger of oil splash during frying



Figure 1.2: Showing uncovered food there



Figure 1.3: Showing workers were not using gloves



Figure 1.4: Showing slippery floor

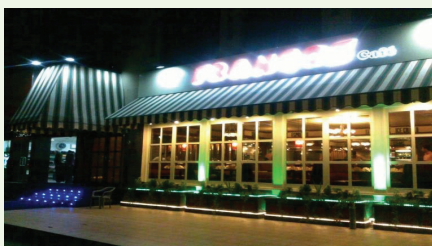


Figure 3.1: Showing Frangoz restaurant Cantt

there including biological, physical, ergonomic and psychological hazards that can impose severe dangers to worker's working there. In restaurant they were not following SOP's which can make them to susceptible. Few questions regarding how these hazards affected their business and why workers were not following SOP's were asked from the manager of the restaurant.

- Through questionnaires

Questionnaires were got filled by the 50 workers which were working according to their shift to check the desired parameters of the study. The questionnaires were structured in such a way that they consist of two sections. First section was about personal protective equipment's, their availability, training providence regarding their use. The second and the last section was about personal hygiene as it has a direct relation, so the questions were about how workers take care of their hygiene and how much important they thought that personal hygiene in order to keep them healthy.

Results and Discussions

Knowledge about PPE's

Figure 4.1: Showing knowledge of workers about what are personal protective equipment's. Results have shown that out of 50 workers 30 workers have knowledge about PPE's while 20 don't have knowledge about PPE's.

Providence of PPEs to workers

Figure 4.2: Showing results about whether the industry provided

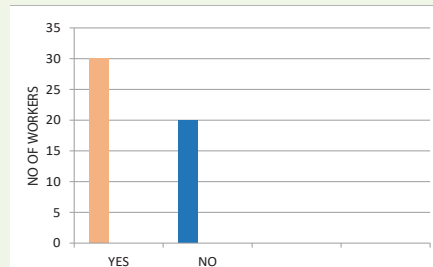


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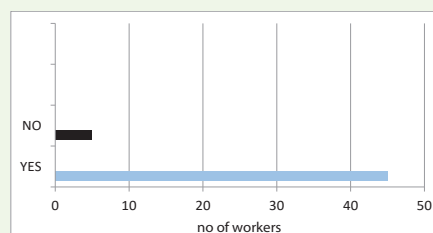


Figure 4.2: Showing knowledge of workers about what are personal protective equipment's. Results have shown that out of 50 workers 30 workers have knowledge about PPE's while 20 don't have knowledge about PPE's.

the workers with PPE's or not. 45workers responded that industry provide them PPE's while other 5 responded that industry do not provide them PPE's.

Worker's thinking about either PPE's will save them from hazards or not

Figure 4.3: Showing results when worker s asked about whether PPE's will save them from hazards or not.40 workers answered that PPE's will not help them to save from hazards while10 workers think that PPE's will save them.

When provided, workers use PPE's or not

Figure 4.4: Showing results of question which was that if industry provided you with PPE's, you will use them or not. 15 workers answered that they will use them while 35workers answered they will not use them.

Industry provides masks and sanitizers to workers no not

Figure 4.5 Showing results of question that did the industry provided the workers with sanitizers and masks or not. In response to the question42 workers marked yes, while remaining 8 marked no.

Knowledge of workers about personal hygiene

Figure 4.6: Showing the results of question which was about that either the workers had knowledge about PPE's or not. 10 workers responded no while 40 responded that they had knowledge about PPE's.

Worker's access to clean and hygienic water

Figure 4.7: Showing results of question that did the workers had access to clean and hygienic drinking water.35workers responded they had access to clean and hygienic drinking water while other 15 responded to no.

No of times workers wash their hands

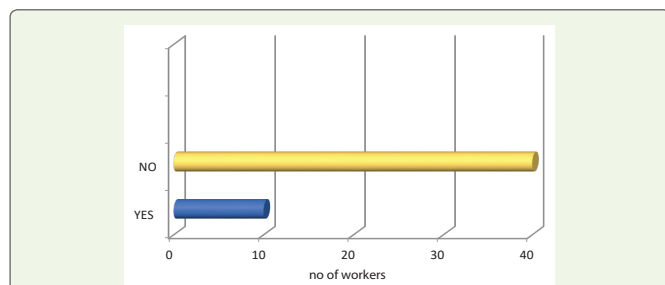


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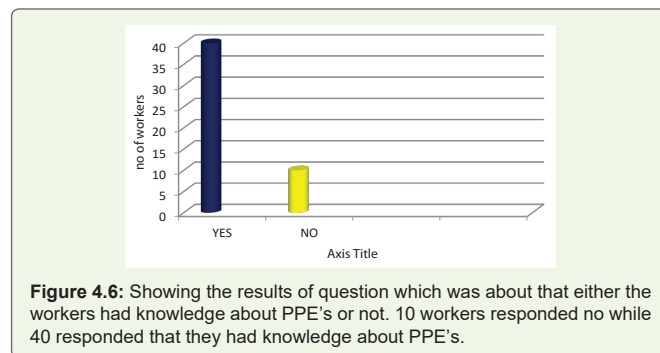


Figure 4.6: Showing the results of question which was about that either the workers had knowledge about PPE's or not. 10 workers responded no while 40 responded that they had knowledge about PPE's.

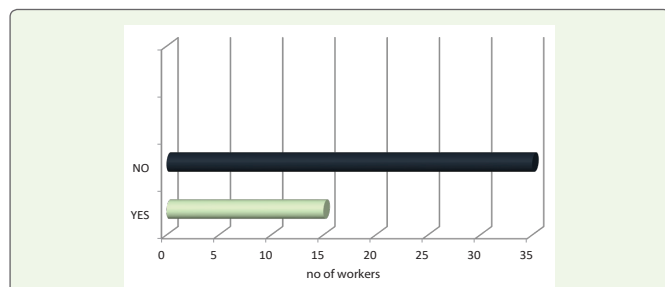


Figure 4.4: Showing results of question which was that if industry provided you with PPE's, you will use them or not. 15 workers answered that they will use them while 35workers answered they will not use them.

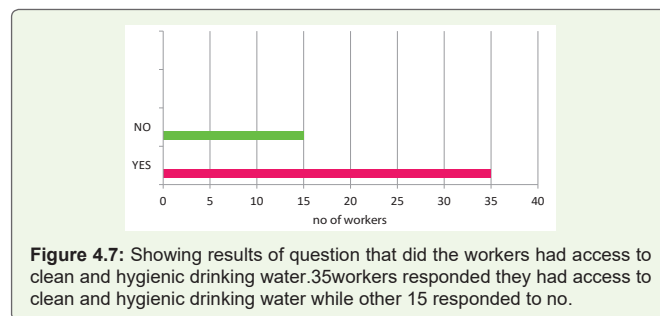


Figure 4.7: Showing results of question that did the workers had access to clean and hygienic drinking water.35workers responded they had access to clean and hygienic drinking water while other 15 responded to no.

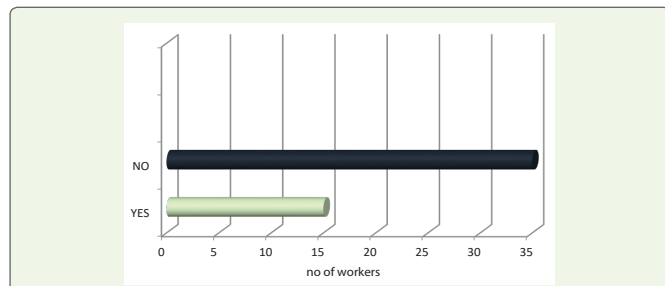


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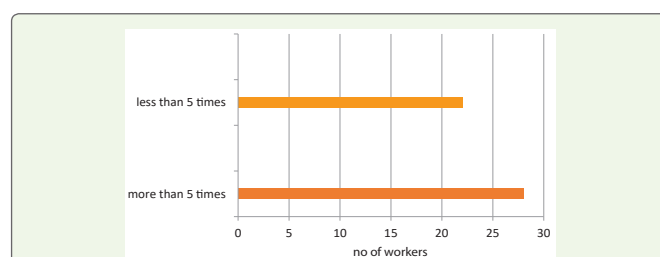


Figure 4.8: Showing results of question which was about how many times did the workers wash their hands. 28 workers responded they wash more than 5 times while 22 responded they wash less than 5 times.

Figure 4.8: Showing results of question which was about how many times did the workers wash their hands. 28 workers responded they wash more than 5 times while 22 responded they wash less than 5 times.

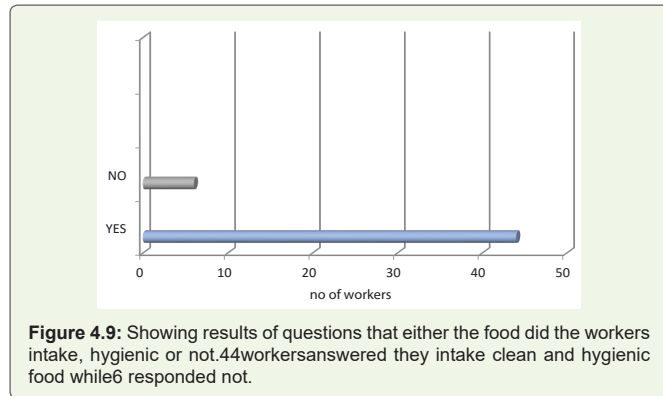


Figure 4.9: Showing results of questions that either the food did the workers intake, hygienic or not. 44 workers answered they intake clean and hygienic food while 6 responded not.

Worker’s food is hygienic or not

Figure 4.9: Showing results of questions that either the food did the workers intake, hygienic or not. 44 workers answered they intake clean and hygienic food while 6 responded not.

Conclusion

The basic aim of this research was to check the OHS status of the Frangoz industry and to check the mitigation measures. The data was collected by surveying and questionnaires which were about PPE’s, personal hygiene. Many physical, biological, chemical, ergonomic hazards were identified which were prevailing there. And the workers were working there without any protection regarding these hazards. PPEs had been provided to them but they didn’t use them as they find it difficult to work with those PPE’s. To conclude the proper training regarding importance of PPE’s and how to use them should be given to workers so they will have the understanding hazards that prevail in their industry and will use PPEs for the sake of protection against these.

Recommendations

- Each worker should be aware with health’s and safety issues or problems and must be provided with personal protective equipment’s.
- It was recommended that proper training and regular workshops should be conducted about hazards that the workers can face at their workplace, how they can protect themselves from those hazards.
- They must here a health and safety officer to make their industrial environment favorable for workers.
- They should be trained and provide knowledge about which particular PPE will provide protection against which particular hazard.
- Proper ventilation system provided sufficient fresh air to work at confined space.

- Proper designing of restaurant needed for the proper arrangement.
- Don’t use heating instrument without using any barrier.
- Must using gloves and caps during working hours. Keep the food covered.
- Alarms must be present in alarming situation. Fire extinguisher must be display on proper place.
- Properly cleans the washing area.
- Exhaust fan must be display on working area.

References

1. FAO (2017) The Future of Food and Agriculture– Trends and Challenges. Rome: Food and Agriculture Organization of the United Nations.
2. Feldmann C, Hamm U. (2015) Consumers’ perceptions and preferences for local food: a review. *Food Qual. Prefer*, 40: 152-164..
3. O’Connor EL, Sims L, White KM (2017) Ethical food choices: examining people’s FairTrade purchasing decisions. *Food Qual. Prefer* 60: 105–112.
4. Knorr W, Dentener F, Lamarque JF, Jiang L, Arneeth A (2017) Wildfire air pollution hazard during the 21st century. *Atmos. Chem. Phys* 17: 9223-9236.
5. Wu L, Taylor MP, Handley HK (2017)
6. Andrade L, O’Dwyer J, O’Neill E, Hynds P (2018) Surface water flooding, groundwater contamination, and enteric disease in developed countries: a scoping review of connections and consequences. *Environ. Pollut* 236: 540-549.
7. Boqvist S, Söderqvist K, Vågsholm I (2018) Food safety challenges and one health within Europe. *Acta Vet. Scand* 60:1.
8. Uyttendaele M, Franz E, Schlüter O (2016) Food safety, a global challenge. *Int J Environ Res Public Health*, 13: 67.
9. Radovanovic R (2011) Food safety: the global problem as a challenge for future initiatives and activities. *Advances in Food Protection*: Springer Pp: 27-48.
10. Hawkes C (2006) Uneven dietary development: linking the policies and processes of globalization with the nutrition transition, obesity and diet-related chronic diseases. *Global Health* 2: 4.
11. Athukorala PC, Jayasuriya S (2003) Food safety issues, trade and WTO rules: a developing country perspective. *World Econ* 26: 1395-1416.
12. Negri S (2009) Food safety and global health: an international law perspective. *Global Health Governance*.
13. Spink J, Moyer DC (2011) Defining the public health threat of food fraud. *J Food Sc* 76: R157-R63.
14. Aung MM, Chang YS (2014) Traceability in a food supply chain: safety and quality perspectives. *Food Control* 39: 172-184.
15. Wu F (2014). Global impacts of aflatoxin in maize: trade and human health. *World Mycotoxin J* 8: 137-142.
16. Bryden WL (2007) Mycotoxins in the food chain: human health implications. *Asia Pacific J Clin Nutr* 16: 95-101.
17. Van Schothorst M (2002) Microbiological risk assessment of foods in international trade. *Safety Sci* 40: 359-382.
18. Mathews KH Jr, Bernstein J, Buzby JC (2003). International trade of meat/poultry products and food safety issues. *Int Trade Food Safety, AER-828* Pp: 48-73.
19. Hirneisen KA, Kniel KE (2013) Comparative uptake of enteric viruses into spinach and green onions. *Food. Environ. Virol* 5: 24-34.

20. Di Caprio E, Culbertson D, Li J (2015) Evidence of the internalization of animal caliciviruses via the roots of growing strawberry plants and dissemination to the fruit. *Appl. Environ. Microbiol* 81: 2727-2734.
21. Markland SM, Bais H, Kniel KE (2017) Human norovirus and its surrogates induce plant immune response in *Arabidopsis thaliana* and *Lactuca sativa*. *Foodborne Pathog. Dis* 14: 432-439.
22. Bahadoran Z, Mirmiran P, Ghasemi A, Kabir A, Azizi F, et al. (2015). Is dietary nitrate/nitrite exposure a risk factor for development of thyroid abnormality? A systematic review and meta-analysis. *Nitric Oxide*, 47: 65-76.
23. Cano-Sancho G, Salmon AG, La Merrill MA (2017) Association between exposure to p,p'-DDT and its metabolite p,p'-DDE with obesity: integrated systematic review and meta-analysis. *Environ. Health Perspect* 125.
24. Welch VA, Ghogomu E, Hossain A, Riddle A, Gaffey M, et al. (2019). Mass deworming for improving health and cognition of children in endemic helminth areas: a systematic review and individual participant data network meta-analysis. *Campbell Syst. Rev* 15: e1058.
25. Afshin A, Sur PJ, Fay KA, Cornaby L, Ferrara G, et al. (2019). Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet* 393: 1958-1972.
26. Jaffee S, Henson S, Unnevehr L, Grace D, Cassou E (2018). The Safe Food Imperative: Accelerating Progress in Low- and Middle-Income Countries, Agriculture and Rural Development.
27. Havelaar AH, Kirk MD, Torgerson PR, Gibb HJ, Hald T, et al. (2015). World health organization global estimates and regional comparisons of the burden of foodborne disease in 2010. *PLoS Med* 12: e1001923.
28. Kirk MD, Pires M, Black RE, Caipo M, Crump JA, Devleeschauwer B, et al. (2015) World health organization estimates of the global and regional disease burden of 22 foodborne bacterial, Protozoal, and viral diseases, 2010: a data synthesis. *PLoS Med* 12: e1001921.
29. Lang T (1998) The new globalisation, food and health: is public health receiving its due emphasis? *J Epidemiol Commun Health* 52: 538.
30. World Health Organization (WHO) (2019) Food safety fact sheet, 04 June 2019.